

Study of the dynamics of resource use and identification of policy gaps in agricultural production, processing and marketing in the Sudan Savannas of Northern Nigeria

George I. Abalu, Tahirou Abdoulaye, Adewale Adekunle and Oluwole Fatunbi and Alpha Y. Kamara



sub-Saharan Africa Challenge Programme (SSA-CP) for Sustainable Integrated Agricultural Research for Development (IAR4D)

Sudan Savanna Taskforce of the Kano-Katsina-Maradi-Pilot Learning Sites (KKM/PLS)

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Acronyms

ADPs	Agricultural Development Projects in Nigeria
ARIs	agricultural research institutes
CAS	community analysis study
EPZs	Export Processing Zones
FGD	focus group discussions
FMAWRD	Federal Ministry of Agriculture, Water Resources and Rural Development
IARCs	international agricultural research centers
IAR4D	Integrated Agricultural Research for Development
IEG	independent evaluation group
IITA	International Institute of Tropical Agriculture
IP	innovation platform
ISA	innovation systems approach
KKM-PLS	Kano–Katsina–Maradi Pilot Learning Sites
LGAs	local government areas
MDAs	ministries, departments, and agencies
NACRDB	Nigerian Agricultural Cooperative and Rural Development Bank
NARS	national agricultural research systems
NGOs,	nongovernmental organizations
NPLG	nonparticipating LGAs
NPC	nonparticipating communities
PAs	platform activities
PAF	pure agricultural farmers
PC	participating communities
PLF	pure livestock farmers
SSA	sub-Saharan Africa
SSA-CP	sub-Saharan Africa Challenge Programme
SSTF	Sudan-Savannah Task Force
SPSS	Statistical Package for the Social Sciences
SST	Sudan Savanna Taskforce
SSZ	Sudan Savanna Zones
TOR	terms of reference

Executive summary

During 2009, a survey was undertaken in Kano and Katsina states in Local Government Areas (LGAs) where the Kano–Katsina–Maradi Pilot Learning Site (KKM-PLS) project is facilitating the creation of innovation platforms (IPs) as a strategy to sustainably enhance intensified agricultural productivity and incomes of rural farmers along the value chain. The study which was commissioned by the Sudan Savanna Task Force (SSTF), a component of the project, is intended to provide a better understanding of the most important sets of policy constraints that are hampering or could work against the effectiveness of these innovation platforms in achieving their expected outputs and outcomes.

Field experience and subsequent data analysis suggest that the study methodology (sampling procedures, community and farmer questionnaires, and survey procedures and management) has been broadly successful in arriving at reliable conclusions relating to the objectives of the study.

The study shows that there are gaps in the implementation of key government policies but that the magnitude and extent of these gaps vary in each state and from community to community. The main reason for these variations is because the contexts in which the policies were being implemented were highly politicized and influenced by fundamental localized issues concerning what exactly is to be done, how it is to be done, the availability of resources to do them, and how benefits accruing from the implementation of the policies are to be distributed.

Policy gaps

The study concludes that most of the key government policies were being implemented with a wide range of success level and that their implementation has been difficult and complicated because it required changing the way things are done and how resources are distributed. It also involved changes in roles, overcoming institutional bottlenecks, coping with new patterns of interactions with other agencies, and responding to pressure to show results as early as possible. Furthermore, the range of changes that are called for in the policy statements meant that there will be variations in the extent and magnitude of the observed policy gaps depending on the stimulus for policy change, the existing political climate, the attitude of the technocrats who were involved in the formulation of the policies, the existence of a sufficient number of reform-minded policy decision makers who are familiar with the environment for policy implementation, and the capacity of the relevant Ministries, Departments, and Agencies (MDAs) at all levels to adapt and modify their existing organizational arrangements to the new tasks required for the policies to be successfully implemented.

With regard to the test of KKM-PLS's vision to demonstrate the effectiveness of innovation systems in supporting the development and adoption of market-driven crop–livestock productivity enhancing technology options, the study concludes that the the Innovation Systems Approach (ISA) is not just about identifying gaps in the way policies were being implemented and making recommendations on how to close the identified gaps, it should also involve how changes in the policies and practices are taking place and mapping out the implications of these changes on the uptake and outscaling of the innovations on offer. The study recommends this as an area for further study.

The study also recommends that in implementing the KKM-PLS project in the target states and communities, emphasis should be placed on the generation of “evidence-based” policy advice and policy advocacy should be based on this evidence and on the experiences of the project. The generation of “evidence-based” policy advice by the project should be anchored around a dynamic monitoring and learning and communications framework for the project. The aim would be to ensure that the institutional changes prompted by KKM-PLS activities at all levels and the ensuing policy prescriptions coming out of these activities stand a good chance of being considered as being legitimate by the policy making authorities at all levels. A complimentary goal would be to ensure that constituencies that are willing and able to support the policies are created and nurtured at all levels.

Conflict and conflict management

The study found that the main sources of conflict in the communities originated from competition over natural resources and from feelings of a sense of injustice by different groups in the communities. It is obvious that government responses at all levels to these conflicts have, at best, been inadequate, at worst, heavy handed. Notwithstanding, the study identified a number of traditional institutions which are attempting to manage these conflicts but without much success. This lack of success can be attributed to a sense of continued injustice by members of different groups in the communities in spite of the efforts of these traditional arrangements for adjudication. The study concludes that rising population pressures and recurring droughts means that these conflicts will become more intense and could become violent and destructive. The report suggests that if these conflicts are not adequately addressed, they could hamper the achievement of the KKM-PLS vision and objectives.

The study recommends that additional efforts are needed both to better understand the causes and mechanisms of conflicts in KKM-PLS's target areas. It also calls for support to the development of more effective and "just" policing and adjudication strategies. This will require revitalizing existing traditional conflict resolution and management approaches and mainstreaming these approaches into national, state, and LGA agricultural development policies. It will also require capacity building programs for those involved in the design and implementation of the conflict resolution mechanisms.



Soybean-maize rotation fields.

1. Introduction

The Kano–Katsina–Maradi Pilot Learning Site project is facilitating the creation of innovation platforms as a strategy to sustainably enhance intensified agricultural productivity and incomes of rural farmers along the value chain in selected sites in Kano and Katsina states of Nigeria. The Sudan Savanna Task Force, a component of the project, desires a better understanding of the most important sets of policy constraints that are militating or could work against the effectiveness of these innovation platforms in achieving their expected outputs and outcomes. The SSTF is convinced that the effectiveness of national, state, and Local Government Area agricultural policies on seed, fertilizer, pesticide, mechanization, farm credit, agro-industry, and land tenure as well as policies relating to the dynamics and management of the perennial conflicts between pastoralists and arable crop farmers over common property resources, is a critical prerequisite for intensifying agricultural production and increasing farmers' incomes in the Sudan Savanna Zones of Africa. The SSTF is aware that elements of these policies are already in the books of federal and state governments but is concerned that because of gaps between policy prescription and policy implementation, the impact of these policies on agricultural productivity could be seriously compromised.

The SSTF is also concerned that the introduction of innovations in the participating communities may heighten competition for resources resulting in conflicts which may prevent the participating communities from arriving at the needed consensus to permit interhousehold and inter- and intra-community collaboration required for successful agricultural intensification. The result would be the emergence of stressful situations in which conflicts are given reality and households and communities become uncertain about the value of joint decision-making or negotiation, two factors that are essential for successful uptake and outtake of innovations.

2. Objectives of the study

Crop- and livestock-based farming systems in the Sudan Savanna Zone of sub-Saharan Africa (SSA) are characterized by low agricultural productivity, underdeveloped markets, lack of research and extension capacity and policy and institutional constraints resulting in chronic poverty, food insecurity and environmental degradation¹. Results from a validation exercise conducted in Kano-Katsina-Maradi Pilot Learning Sites revealed that policy constraints and resource use conflicts between farmers and pastoralists are among the most serious impediments preventing the widespread adoption of productivity-enhancing technologies in the sites.

The vision of the KKM-PLS project is to demonstrate the effectiveness of innovation systems in supporting the development and adoption of market-driven crop/livestock productivity-enhancing technology options. The KKM-PLS Sudan Savanna Taskforce² decided to carry out this demonstration through the introduction of four IPs³ designed to increase agricultural productivity and enhance the incomes of farmers along the value chain without degrading the natural resources base. These platforms are focusing on cereal- and legume-based systems in selected communities in Kano and Katsina states with counterpart communities serving as counterfactuals. One of the four outputs of the project is to facilitate the evolution of institutional and policy options which policy makers at the local, state, and federal levels can rely upon to achieve sustainable agricultural systems in the. In this regard, two areas have been singled out for focus: (a) options for addressing existing policy gaps and (b) insights into the nature and causes of conflict over natural resources use.

This study is, therefore, two in one. The first aspect of the study focuses on the whole issue of the effectiveness of existing institutional and policy options to support the emergence of sustainable agricultural systems and the identification and analyses of identified policy gaps. The second and related component of the study focuses on providing insights into the nature and causes of conflicts over natural resources (especially into the dynamics of the perennial conflicts between pastoralists and arable crop farmers over common property resources), that would be useful to researchers and policy makers alike in carrying out their research responsibilities and formulating and implementing strategies for achieving and sustaining significant increases in agricultural productivity.

The objectives of this study are, therefore, to:

- Review key agricultural policies that are operational in the two study states—Kano State and Katsina State.
- Identify policy gaps which exist and develop recommendations which will help close these gaps and improve agriculture-related performance.
- Provide a better understanding of the dynamics of the conflicts and tension between the different stakeholders in the communities of relevance to the KKM-PLS with a view to assisting them to adequately manage the conflicts.

By achieving the above objectives the study will: (a) shed light on how to best fill existing policy gaps related to agricultural production, processing, and marketing in the Sudan savannas of northern Nigeria, and (b) provide a better understanding of the causes and dynamics of resource-use conflicts and explore policy and institutional options for managing the conflicts.

¹sub-Saharan Africa Challenge Programme (SSA-CP) (Undated), Sustainable agricultural intensification and integrated natural resources management to improve rural livelihoods in Sudan Savanna West Africa.

²The taskforce consists of international agricultural research centers (IARCs), agricultural research institutes (ARIs), national agricultural research systems (NARS), relevant universities, development agencies, private sector operatives, farmer groups, and input dealer associations.

³An Innovation Platform is defined as “a network of partners working on a common theme, and using research knowledge in ways not used before to generate goods and services for the benefit of the poor”.



Community leaders admiring improved maize during a field day.

It is important to note that this study does not attempt to estimate overall policy gaps in Nigerian agriculture nor even across the two study states of Kano and Katsina, and the findings presented here should not be interpreted in this way. The policy gaps and conflict dynamics identified and analyzed in this report are for the communities in the KKM-PLS participating and nonparticipating communities surveyed and any extrapolations beyond these sites should be done with care. This notwithstanding, the report does provide important evidence from these analyses that could be of relevance to the introduction and uptake of innovations in similar situations and circumstances.

The Terms of reference (TOR) of the study are presented in Annex 1.

3. Background—Policy formulation, implementation, and gaps

The policy context of innovation systems

Agricultural policy can be defined as a coherent set of decisions with a common long-term objective or set of objectives which affect or are relevant for the development of the agricultural and food sectors. The process of formulating and implementing policies is complex for a number of reasons. First, it is not a linear or coherent process since it is often multidirectional, fragmented, frequently interrupted, unpredictable, and very long term. How to sequence actions, what to pay attention to, and who to include can be hard to determine and can vary significantly over the life of the policy change process. Second, no single agency is usually in charge of the design and/or implementation of a given policy since, in most cases, policy formulation and implementation require the concerted actions of multiple agencies and groups. Authority and responsibility are, often dispersed among the actors involved, which means that traditional command-and-control management of policies is rarely applicable, so that even if the Ministries or Departments of Agriculture are serving as lead agencies in the implementation of prescribed policies, in reality no individual agency is exclusively “in charge”. It, therefore, comes as no surprise that there will be gaps between policy prescription and policy implementation. The main purpose of the policy gap analysis component of this study is to examine prescribed policies related to the uptake of agricultural technologies in the target states and communities vis à vis the extent to which the policies were being adopted and implemented and suggest ways for filling these gaps so as to ensure rapid upscaling and outscaling of the technologies that are the focus of the different KKM-PLS innovation platforms. This examination will include a literature search as well as discussions with farmers and other key stakeholders in the field.



Group discussion with rural women during a community analysis exercise.

Identifying policy gaps

The following steps guided the policy gap analysis component of the study:

- Identify sources of information on key policies of interest to the KKM-PLS project
 - Available materials (project documents, evaluation reports, reports on outputs, etc.)
 - Interviews of resource persons and other stakeholders.
- Assess identified policies according to the following criteria:
 - Clarity of the “what”: an assessment of the extent to which the policy is self evident and self explanatory.
 - Clarity of the “why”: an assessment of the extent to which the policy is relevant to the problems/ issues of interest to the KKM-PLS states/platforms in terms of coherence between the innovation challenge confronting the platform and the solutions provided by the policies.
 - Clarity of the “how”: an assessment of how the relevant authorities at the platform, local government, and state and even federal levels who are responsible for the implementation of the policies are performing with regards the implementation of the policy.
- Select key policy areas of interest to the SST Innovation Platforms for deeper analysis. (Create a list of pre-selected policies. From among the list, select the policies to focus on (these policies would be representative of the platform value chains in the two selected states) and consult with farmers, community leaders, and government policy makers at the LGA, state, and federal levels on the list of policies to identify the most important policies in their opinion. Assess the status of adoption of the selected policies (this is a first appraisal and is based on the consultant’s judgment. The assessment will be completed during the field work when the actual status of adoption will be documented after the interviews with key stakeholders.
- Analyze the selected key policies and assess the status of their implementation with respect to:
 - Status of adoption: determine the extent to which the policy has been adopted by the implementing authorities or integrated into the State/LGA policy framework or actually implemented in the State/ LGA.
 - Level of satisfaction: Determine targets/beneficiaries assessment of the gaps between policy intention and level of policy implementation.
- Summarize the findings of the study through the steps identified above and arrive at the main findings and recommendations of the study.

4. Background—The dynamics of conflicts over natural resources use

The context

Conflicts over natural resources have always played a role in many parts of Nigeria, but recent conditions have led to an increase in their intensity, public profile, and complexity. This is because the livelihood of the overwhelming majority of people in Nigeria in general and in the KKM-PLS research sites in particular is highly dependent on how the natural resources of the areas are used and managed by farmers and rural communities. Innovations such as those being introduced through the KKM-PLS Innovation Platforms concern not only the introduction and use of new technologies or existing technologies in different ways but, more importantly, these platforms involve significant changes in “power relations” since the associated innovation systems involve human actors who benefit from or are made worse off by the introduction of the innovations.

The innovations on offer through the different KKM-PLS Innovation Platforms are embedded in the institutional contexts of the target communities and these contexts determine how individual actors in these communities behave and how they interact with other elements of the system to facilitate or impede the uptake and outtake of the innovations. Successes achieved in the IPs are likely to result in both winners and losers which change the power relationships over access to resources and how these resources are used or misused. In most communities of the SSZ, pastoralists and agriculturalists will be the principal members of the winning or losing parties since their communities depend on different livelihoods systems and they live in different environments and habitats and have different resources endowments. The problem is that, despite the apparent gravity of the existence of this situation, there is still limited understanding and insights into their causes and dynamics.

Understanding the dynamics of conflicts over natural resources in the SSZ

There is general consensus among contemporary natural resources conflict researchers that, an important step in understanding the dynamics of conflicts is to examine their origins as well as the rationale behind the actions and/or inactions of the principal parties and stakeholders.⁴ In this regard, incompatibility of goals and competing interests over natural resources are seen as the most common sources of social conflicts.⁵ To better understand the dynamics of these conflicts, researchers argue that it is useful to separate three causes: those that lead to incompatible goals, those that lead to open fights, and those that escalate the conflict. Conflicts originating from incompatible goals can usually be traced to competition over resources, incompatible values and incompatible roles.⁶ Competition over resources means that one party wants to have the resources (wealth, power, or prestige) which are yet to be divided. Competition over arable land is a common source of conflict especially in the drier agroecological zones of Nigeria because the majority of the economically active population in the zone is involved in agriculture, both crop and livestock, which contributes significantly to their incomes and livelihoods. This section of the study will attempt to analyze the dynamics of these conflicts and their sources.

Table 1. Local Government Areas in Kano State and Katsina State included in the study.

	Local Government Areas	
	Participating	Nonparticipating
Kano	Shanono Bunkuru	Karaye Dawakin Tofa
Katsina	Musawa Safana	Dan Musa Ingawa

⁴Juma, C. and J. Ojwang (eds). 1996. In land we trust – Environment, Private Change and Constitutional Change. Nairobi, Initiatives Publishers and London, Zed Books; Chambers, R.. 1997. Whose reality counts? – Putting the last first. London, Intermediate Technology Publications.

⁵Nicholson, M. 1970. Conflict Analysis. London, The English Universities Press Ltd.

⁶Barton and Weir (Ibid).

5. Study methodology

An important research goal of the SSTF is to prove the Integrated Agricultural Research for Development (IAR4D) concept through the introduction of IPs in the targeted research sites. Innovation Platforms have been established by the program and are being facilitated in a number of participating LGAs and communities in both states with other identified LGAs and communities serving as counterfactuals⁷. In this regard, two LGAs have been selected in each of Kano and Katsina states to serve as participating local governments (PLGs), each handling one IP. Two other LGAs in each of the two states have been selected as counterfactual LGAs, i.e., nonparticipating LGAs (NPLG). Five communities within each of the IP PLGs in each of the two states have been selected as IP participating communities (PCs). Five communities in each of the nonparticipating LGAs have also been selected to serve as counterfactual communities, i.e., non-IP participating communities (NPCs). These four LGAs represent the LGAs covered by the SSTF and are the subject of this study.

The study was conducted in a limited time period and had to be completed within three months. Field work for both components of the study was carried out in LGAs in each of Kano and Katsina states as shown in Table 1.

Field work

Field work was conducted by two teams of enumerators provided by IITA, each assigned to a state and led by a senior researcher⁸. The sampling of communities in each LGA and households in each of the selected communities was conducted by the Researcher and an IITA Data Analyst. In addition, all the professionals involved in the study participated in several meetings during which the sampling design, procedures, and methods were explained. These meetings also reviewed the questions contained in the questionnaires and the purpose of each question as well as the interviewing techniques which would be most appropriate for soliciting and recording responses from the respondents. The questionnaires and interviewing skills of the enumerators and supervisors were also tested in the field and modified to iron out difficulties. The enumerators and supervisors were then supplied with a field manual to assist in the interviews. The members of each of the two field teams worked together as groups moving from community to community with frequent supervisory visits from professional staff.

Sampling

For both components of the study, primary data was collected through quantitative and qualitative research methods. The sampling design chosen for the study was informed by an earlier Community Analysis Study (CAS)⁹ carried out in the two states. Within the two states a two-stage sampling design was followed, first sampling communities in the PLGs and NPLGs and then sampling households within sampled communities¹⁰. The sample was also stratified, at the first stage between Kano and Katsina states and between communities where there were ongoing platform activities (PACs) and communities without platform activities (NPCs). Furthermore, an attempt was also made to stratify between male-headed and female-headed households.

⁷Two sets of counter-factuals have been set up for each Innovation Platform. The counterfactual villages include those with no ongoing Research and Development (R&D) activities and those with some R&D activities. In this study no distinction is made between the two types of counterfactual villages.

⁸The senior researchers were from the Bayero University, Kano, for the survey in LGAs in Kano State and from Ahmadu Bello University, Zaria, for the survey in Katsina State.

⁹See KKM-PLS. 2008. Sustainable agricultural intensification and integrated natural resources management for rural livelihoods improvement in the Sudan Savanna Zone (Kano/Katsina states, Nigeria, Community Analysis Report.

¹⁰Multistage sampling reduces the costs of sampling and of enumeration, but complicates the analysis, requiring the use of weight factors in calculation of population estimates and the use of non-standard estimators in calculation of confidence intervals and significance tests (generally making confidence intervals wider as compared with a simple random sample of the same size). Stratification was used to reduce confidence intervals and improve significance tests as compared with a simple random sample of the same size.

Table 2. Sample sizes of the surveys in Kano and Katsina states.

	Kano	Katsina	Total
Total Number of PLGs	2	2	4
Total number of NPLGs	2	2	4
Total number participating communities	6	6	12
Number of nonparticipating communities	6	6	12
Farmers per participating community	8	8	NA*
Total PCs	48	48	96
Farmers per nonparticipating communities	8	8	NA*
Total NPCs	48	48	96
Total farmers	96	96	192

* NA means not applicable

Community sampling

For each participating LGA in each of the two states, lists of all the participating communities in the LGAs were drawn. The same was done for each nonparticipating LGA in the two states. Three communities were then selected randomly from the list of participating and nonparticipating LGAs with equal probability of selection within each LGA using random table numbers. The probability of selection of an NPC was, therefore, dependent on the probability of a PAC being selected from each LGA (which depended upon the proportion of all PACs in the state lying within each LGA) and then the number of NPCs in selected LGAs.

Household sampling

The same procedures applied in the sampling of communities were also followed in selecting household samples. From each of the sampled communities, lists of agricultural and livestock farmers¹¹ were drawn up with the assistance of key informants, with separate lists for male- and female-headed households. Eight farmers were then selected by stratified random sampling in each participating community with 50 percent of sampled farmers being livestock farmers and with 10 percent of selected crop and livestock farmers being female farmers. Eight farmers were also selected by stratified random sampling from each nonparticipating community also with 10 percent of the selected crop and livestock farmers being female farmers. In cases of communities where there were no female farmers, in which case all farmers sampled were male¹². The total sample size is shown in Table 2.

Focus group discussions

With the help of key informants, 10 farmers who had not already been included as sampled farmers were randomly selected in each of the 24 communities (12 in each of the two states) to serve as members of the Focus Groups from whom collective responses to the same questions being posed in the questionnaires were also solicited. The purpose of the Focus Group Discussions (FGD) was to provide a check on the responses of the sampled farmers. Two of KKM-PLS's senior collaborators, with the guidance of the researcher and IITA staff, facilitated the administration of the questionnaire to the FGDs. The use of correlation techniques later provided a statistical measure of the similarity between the responses.

Data collection

Data was collected from the two sources: (a) from sampled households in each sampled community and (b) through FGDs. The same questionnaire was used for each of these (Annex 4).

The purpose of the questionnaire was to collect information at the community level to (a) assist in characterising communities; (b) seek farmers' views about the nature and extent of policy gaps in their communities; and (c) explore their perspectives about the dynamics of conflicts in their communities and

¹¹The vast majority of the interviewed farmers considered themselves as both crop and livestock farmers.

As a result, this distinction was dropped from the analysis.

¹²Since a constant number of farmers were selected across all communities and the communities contained different numbers of farmers from which these were selected, probabilities of selection within communities varied between communities.



Local Government Chairman distributing seeds during a seed fair.

how these conflicts could be best managed. Topics covered in the questionnaire included information about farmer education; household composition; cropping and livestock activities; production and marketing of crop and livestock products; sources of household income, food, farm labour, farming capital, inputs and farming information; and major agricultural production difficulties.

Data analysis

The questionnaires were checked in the field for consistency and completeness, and these checks were repeated during data entry. Further checks were implemented after data entry including random checks on the accuracy of data entry and outlier checks and consistency checks between different variables. Outliers and inconsistent results were checked back against the original forms and where these could not be resolved from the form, the affected data item was set as missing. Data analysis was conducted using Statistical Package for the Social Sciences (SPSS). Where there were significant differences in responses between the sampled farmers and information obtained from the FGDs, the responses from the FGD were incorporated in the analyses. Where possible the results were analyzed using the complex sampling procedure in SPSS, and this was also used to estimate design effects and hence likely bias in variance estimates and significance tests for estimated mean values of the questionnaire statements.

6. Community and household characteristics

The first section of the survey attempted to obtain general information about the farmers, their villages and their communities. This section of the report presents basic information about the characteristics of the communities and households included in the sample. Comparisons are made between PCs and NPCs within each state and across the two states. Much of the data presented in this section suffers from a number of limitations which require that it should be treated with some caution: it relies on farmers recalling and reporting often complex information from the past, and there are particular difficulties with quantitative information as regards farmer estimates and recall without formal measurement instruments or standardized units. Nevertheless, although this information is not the focus of this study, it is important not only as a background for the rest of the report and for later analysis of factors responsible for policy gaps and conflicts in natural resources use, it also contributes to the scarce amount of information on the two subjects and allows comparison of the sample against what information may exist elsewhere. Despite these shortcomings, the study provides a useful data set that is both internally consistent and consistent with information from other surveys.

Table 3 summarizes the main characteristics of the communities studied and Table 4 shows the relative importance of the different income sources.

Table 3. General characteristics and education of the survey samples in Kano and Katsina states.

State	Ethnic groups	Kano		Katsina		Total	
		PC	NPC	PC	NPC	Kano	Katsina
General characteristics							
Age of farmers (yrs)	Mean	41.55	42.90	42.04	42.65	42.23	42.34
Female respondents	Percentage	21.3%	20.8%	24.5%	12.5%	21.1%	18.6%
Yrs lived in village	Mmean	38.02	39.75	40.12	42.04	38.89	41.07
Education							
Kind of school attended	None	12.8%	4.2%	4.1%	2.1%	8.4%	3.1%
	Koranic	57.4%	66.7%	34.7%	29.2%	62.1%	32.0%
	Formal	2.1%	4.2%	4.1%	6.3%	3.2%	5.2%
	Koranic and formal	27.7%	25.0%	57.1%	62.5%	26.3%	59.8%
Highest formal school							
	None	42.6%	41.7%	30.9%	31.3%	42.1%	30.9%
	Literacy class	12.8%	25.0%	10.2%	6.3%	18.9%	8.2%
	Primary	14.9%	16.7%	26.5%	33.3%	15.8%	29.9%
	JSS	10.6%	8.3%	4.1%	2.1%	9.5%	3.1%
	SSS	4.3%	4.2%	10.2%	12.5%	4.2%	11.3%
	Post sec.	14.9%	4.2%	18.4%	14.6%	9.5%	16.5%
No. of persons in household	Mean	30	25	25	25	28	25
Receipt of radio/TV information	Percentage	91.5%	91.7%	98.0%	93.8%	91.6%	95.9%
Receipt of research/ Extension information	Percentage	78.7%	77.1%	98.0%	93.8%	77.9%	95.9%
Receipt of information from other farmers	Percentage	36.2%	14.6%	16.3%	6.3%	25.3%	11.3%
Membership in organization	Percentage	61.7%	39.6%	75.5%	66.7%	50.5%	71.1%

Table 4. Average income, food, and farm labor sources as percentage of different sources of income.

State Participatory type		Kano		Katsina		Total	
		PC	NPC	PC	NPC	Kano	Katsina
Income sources							
Percentage of annual income from crop sales	Mean	53.0	47.3	41.6	44.4	50.1	43.0
Percentage of annual income from livestock/livestock product	Mean	24.6	27.4	22.0	22.9	26.0	22.5
Percentage of casual paid employment of h/h members	Mean	6.5	7.7	5.4	6.5	7.1	5.9
Percentage of annual income from cash	Mean	8.4	8.2	0.2	0.6	8.3	0.4
Percentage of annual income from non-farm business	Mean	5.8	8.8	30.5	25.3	7.3	27.9
Percentage of annual income from other sources	Mean	2.3	0.6	0.2	0.3	1.5	0.3
Percentage of of food from own farm production	Mean	74.6	68.79	67.4	65.4	71.7	66.4
Percentage of of food from gifts	Mean	2.0	3.3	3.9	6.2	2.7	5.0
Percentage of of labor from household	Mean	47.8	61.4	49.2	47.2	54.6	48.2
Percentage of of labor from hired	Mean	38.2	26.6	49.8	49.5	32.3	49.6
Percentage of of labor from exchange	Mean	7.9	6.7	0.6	1.2	7.3	0.9
Percentage of of labor from others	Mean	6.2	5.0	0.4	2.1	5.6	1.2

P = participating; NP = nonparticipating, h/h = household.

Across the sample the average age of the farmers was about 42 years. Farmers commonly gained farming information from radio and TV and from extension services. Around 20 percent reported other farmers as providers of farming information, except among farmers in NPCs in Katsina State where seven percent reported receipt of such information from other farmers. Around 65 percent of farmers are members of some form of farmer organization. The importance of crop production to sampled farmers as a source of income and food is

obvious as is the importance of livestock and livestock products. There is also significant reliance on hired labor. Table 5 shows that the almost all farmers own radios. Bicycle and motorcycle ownership is common in both states with the latter less so in Kano State than in Katsina State. Most farmers use fertilizers and agrochemicals in both states but the use of improved seeds is more prevalent in Katsina than in Kano. The use of animal feed and veterinary drugs is common in both states although it is less so in Kano than in Katsina state. Few farmers have access to formal sources of credit. Table 6 examines the main constraints reported as facing the sampled farmers. Access to fertilizers was reported by all farmers as the most binding constraint in the two states followed by lack of access to credit. Lack of access to improved seeds came as the third most binding constraint reported.

Table 5. Asset ownership, Input uses, and credit access.

State	Kano		Katsina		Total (P and NP)	
	P (%)	NP (%)	P (%)	NP (%)	Kano	Katsina
Participatory type						
Asset Ownership						
Own a bicycle	66.0	62.5	83.7	72.9	64.2	78.4
Own motorcycle	59.6	27.1	69.4	62.5	43.2	66.0
Own a car	4.3	0.0	10.2	16.7	2.1	13.4
Own a radio	89.4	79.2	95.9	81.3	84.2	88.7
Input Use						
Uses fertilizer	97.9	95.8	100	95.8	96.8	97.9
Uses of herbicide	38.3	33.3	91.8	87.5	35.8	89.7
Use agrochemicals	78.7	60.4	71.4	68.8	69.5	70.1
Uses improved seeds	57.4	31.3	95.9	87.5	44.2	91.8
Uses animal feed	70.2	68.8	95.9	95.8	69.5	95.9
Uses veterinary drugs	89.4	75.0	93.9	93.8	82.1	93.8
Credit Sources						
Bank credit	21.3	16.7	8.2	6.3	18.9	7.2
Credit from traders	4.3	0.0	2.0	4.2	2.1	3.1
Credit from Money lenders	0.0	0.0	4.1	6.3	0.0	5.2
Credit from relatives	0.0	10.4	24.5	31.3	5.3	27.8
Credit from government	8.5	8.3	6.1	4.2	8.4	5.2
Credit from other sources	0.0	0.0	6.1	0.0	0.0	3.1

Table 6. Ranking of difficulties reported by participating and nonparticipating farmers by level of importance.

Constraints	Participating community			Non participating community		
	Kano	Katsina	Kano & Katsina	Kano	Katsina	Kano & Katsina
Fertilizer	1	1	1	1	1	1
Agrochemicals	6	3	4	4	6	4
Improved seeds	3	7	3	3	3	3
Diseases/pest	9	5	9	11	11	11
Drought	11	4	6	9	8	9
Capital/credit	2	2	2	2	2	2
Mechanized	4	8	7	9	4	6
Lack of govt. coop.	10	10	11	8	9	10
Vaccines/drugs	5	9	6	6	5	5
Cost of inputs	8	10	10	5	10	8
Others	7	6	5	7	7	7

7. Analysis of policy gaps in Kano State and Katsina State agriculture

As indicated in the methodology section above, one of the main goals of this study is to prove the Integrated Agricultural Research for Development (IAR4D) concept through the introduction and monitoring of IPs in the targeted research sites. The achievement of this vision requires an accurate understanding of the policy context in the areas in which the innovations are being introduced so as to be able to propose the necessary changes which must occur in the identified context in order to permit the innovations on offer to be successfully introduced for the benefit of the poor.

Well performing policies are not only essential for increased agricultural productivity, they are also important for the overall process leading to successful uptake and spread of innovations. Good policies serve as an effective means for integrating the vast rural communities that exist in Nigeria into modern sectors that spread innovations throughout the rural areas. Policies that provide credit facilities, extension, agricultural inputs, new technologies, and infrastructural and other services determine the conditions and nature of access of farmers to the resources they need to adopt innovations. Inadequate provisions of these services represent major constraints to increased agricultural productivity and sustainable development.

The first step in identifying the policy gaps in the study states and research sites was to identify the policy needs of the farmers and their communities so as to have a good basis for determining the extent to which these needs were being met. Once the needs and barriers for the successful introduction of the innovations had been identified, the next step was to contact the key policy stakeholders¹³ who are directly or indirectly related to the KKM-PLS (either because they have an impact on the project's activities in the study states and research sites or these activities have an impact on them), so as to obtain their assessment in terms of the extent of progress in the design and implementation of key federal and state agricultural policies. The importance of this step is to learn what roles each of these stakeholders are expected to play. Six stakeholder groups were identified to be audited for this purpose. Unfortunately this component of the study could not be carried out due to logistic and time constraints. To make up for this, the policy prescriptions, roles, and tasks of the different stakeholders as contained in Nigeria's official agricultural policy document were used¹⁴.

The Policy Document was designed to herald new policy strategies, policy directions, and policy instruments at all levels of government. The document spells out defined courses of federal, state, and local government actions from among alternatives and based on given conditions, to guide and help determine present and future decisions relating to the agricultural sector at all levels. The document contains sets of decisions together with the related actions that are to be taken to implement them.

Finally, the last step involved interviews with farmers to determine where the gaps in policy implementation lie. This will help KKM-PLS in assigning priorities and agendas to its IP development areas of innovation development, knowledge and information sharing and technology uptake and out-scaling within communities and across states. Cross referencing steps one and two as outlined above was used to accomplish this task. By soliciting and analyzing the perceptions of farmers and their communities about their judgments as to the extent to which the stated policy prescriptions are being implemented or not being implemented, perceived gaps in the implementation of the policies were then assessed and specific, proactive recommendations for

¹³These stakeholders were grouped into: Demand Group (federal, state, and LGA government officials and "technocrats", final consumers, development partners); Enterprise Group (crop farmers and pastoralists/farmer organizations and pastoral associations, agro-industrial companies); Intermediary Group (extension officials, NGOs, infomediaries (press, radio, TV, mosques and churches)); Research Group (research institutes, universities, private sector research, NGO research, international and regional research institutes); Enabling Physical Environment Group (transport and marketing, banking, saving, credit, and informal finance, regulations and standards).

¹⁴See Federal Ministry of Agriculture, Water Resources and Rural Development. 2001. Agricultural Policy for Nigeria, FMAWRA.

new policy directions proposed. This last step, the gap analysis, is the most important aspect of this component of the study.

Policy requirements for successful innovation platforms

Effective agricultural strategies, policies, and policy instruments are not only essential for increased agricultural productivity, they are also important for the successful introduction and widespread uptake of agricultural innovations. Properly functioning strategies, policies, and instruments positively influence institutions that provide credit facilities, extension, agricultural inputs, agricultural research, and infrastructural and other services, and these, in turn, serve as essential means for integrating rural communities into the wider economy and positioning them for spreading innovation. Inadequate provisions of these services represent major constraints to increased agricultural productivity.

Agricultural extension

In many rural communities in Nigeria, the knowledge and information associated with the introduction of innovations is usually carried out by Ministries of Agriculture or by parastatals supervised by the Ministries of Agriculture at federal, state, and local government levels. The typical national extension service has an overall director at the national level supported by a layer of provincial and district directors, who, in turn, supervise a number of field level extension staff. Mechanisms to improve extension services are usually financed by governments and their development partners at all levels as components of national, state, and LGA rural development projects. These projects have had a high failure rate and their extension components are often poorly managed. A recent analysis by the World Bank reveals that the technical messages that these extension services attempt to communicate to farmers in specific locations are often of an extremely general type applicable over diverse agroecological conditions¹⁵. The problems of Nigeria's extension system as revealed by the World Bank study include: extension staff who are poorly trained, poorly paid, have little motivation to share whatever knowledge they do have with farmers and are not accountable to farmers; poor management systems which as a result puts little or no pressure on extension staff to seek new knowledge or to serve farmers; a situation where farmers are treated as ignorant recipients of information rather than knowledgeable partners in the innovation process; a state of affairs in which operating facilities, especially vehicles, motorcycles, and even bicycles are often so rare that even the few motivated and knowledgeable extension staff cannot systematically visit farmers even if they wanted to; and the existence of competition between various donor-inspired extension systems with each often providing contradictory messages. The result of all of these has been largely bureaucratic agricultural extension institutions with little or no impact on agricultural productivity at all levels.

Agricultural credit

Nigeria has not had much success in designing and implementing credit programs at all levels¹⁶. This is true for funds available from both the national banking system and from the lending operations of parastatal agricultural credit institutions. There are many reasons for this failure. First of all, the loan schemes were often overly politicized and they were often used to reward a few influential and, often, absentee "political farmers" rather than to support credible farm investments. Second, pressure to maintain low interest rates and difficulties in recovering "political" loans almost always resulted in poorly performing loan schemes. Third, the credit schemes invariably used public sector lending agencies which relied excessively on external sources of subsidized funds and incurred excessively high transaction costs. The result was often low loan recovery and heavy financial losses. Although several governments have tried to usher in formal financial arrangements in the rural areas in response to these deficiencies, there continues to be a heavy reliance on informal credit operations because the formal credit initiatives have not met with much success. These informal operations are, however, not always efficient due to lack of legal status relating to personal transactions and inadequate infrastructure for communication. Since the few formal financial institutions which operate in the rural areas limit their transactions to deposit and withdrawal facilities, most of the mobilized rural savings end up being invested in the non-rural areas at the expense of important farm investments.

¹⁵Cleaver, K. 1993. A strategy to develop agriculture in Sub-Saharan Africa and a focus for the World Bank. Technical Paper Number 203, The World Bank, Washington, DC.

¹⁶World Bank. 2008. Third National Fadama Development (Fadama III) Project for Nigeria, The World Bank, Washington, DC.

Input delivery

Success in introducing agricultural innovations requires the needed agricultural inputs to be available to farmers at the right time, in the right place, in the right quantities, and at the right price. The three inputs of immediate interest in the study areas are credit, seed, and fertilizer. The issue of credit has already been discussed above. In the rest of this section, we focus on the delivery of seed and fertilizers.

Seed: Nigeria's seed industry

presently faces a number of serious constraints. First, the farmers often do not appreciate the logic of purchasing seeds when they believe they can

save and use seeds from last year's harvest. As a result, there has been limited commercial demand for improved seeds. Second, whenever governments and their development partners have attempted to intervene to improve the seed situation, they often end up making things worse by inadequate targeting (both commodity and area) and by introducing relief programs (free or subsidized seeds) which end up competing unfairly with emerging commercial seed merchants. Third, where seed companies have emerged, they have been unable to produce crop varieties that are sufficiently adapted to the wide range of growing conditions that obtain in different regions and zones of the country. The end result is that the improved seeds that are on offer in many areas of a state are often not suitable for all the different growing locations in the state. Fourth, because of the high investment costs associated with equipment, research, and overheads for improved seed production, the prices of improved seeds are usually relatively too high compared to the returns that the farmers expect from farming. Faced with this litany of constraints, smallholder and mid-sized farmers often cannot have ready access to the quantity and quality of improved seeds that they need to increase their agricultural productivity.

Fertilizers: The present level of fertilizer use in Nigeria is very low¹⁷. These low levels imply that the long-term technical prospects for increasing agricultural productivity through seed-fertilizer strategies are good. Demand has, however, been low partly because the profitability of new fertilizer technologies is still questionable in many areas. On the supply side, fertilizer is often scarce because of ineffective government agencies, poor transport systems, limited foreign exchange, and restriction on private sector fertilizer marketing. Increased fertilizer use holds good promise for rapid uptake and outscaling of agricultural innovations. The case for significant increases in fertilizer consumption in the study states and communities would appear obvious from all the available evidence. The main problem is that, though demonstrated productivity increases from chemical fertilizer use is indisputable, fertilizer costs remain prohibitive in the two states as is true of the other states of the country. Most of the fertilizer used is imported and difficulties and bottlenecks in obtaining foreign exchange often constrain fertilizer consumption at the national, state, and local government levels. At the farm level, inefficient distribution systems often prevent fertilizer from being easily available. The result is often high fertilizer prices and low profitability. Fertilizer use can, however, be profitable particularly in the two states but potential profitability is often plagued by other fundamental problems such as climatic risks, high transportation costs, lack of effective credit, and risky output markets.



Group discussion with rural men during a community analysis exercise.

¹⁷Nagy, J. and O. Edun. 2002. Assessment of Nigeria government fertilizer policy and suggested alternative market-friendly policies, Morcle Shoals, Alabama, International Fertilizer Development Center,

Marketing

The business of directing the flow of goods and services from the producers to the point of ultimate consumption or use is vital for inducing and sustaining agricultural innovations. The marketing arrangements involved here relate to economic functions which determine the values of agricultural commodities from stage to stage and which transfers ownership from one individual to another. It also involves technical aspects such as transport, storage, and processing. The marketing constraints facing the farmers in the study states and communities represent serious impediments to the efforts of the KKM-PLS's efforts to improve agricultural productivity in the Washington, D.C. targeted communities. In most cases the local commodity markets are extremely "thin". Consequently, modest increases in agricultural productivity brought about by success stories in IPs could flood the markets and, as a result, bring prices down. Returns and profits are reduced and the incentive to follow through with innovations in subsequent growing seasons diminishes. One of the main causes of this thin market is because linkages between the agricultural and industrial sectors in the country are very weak. Whenever agricultural productivity grows faster than is required for existing local uses, the surplus is not absorbed by other productive non-agricultural activities. Farm prices are depressed and the initial growth is not sustainable. To sustain rapid increases in agricultural productivity, local industries must expand fast enough to absorb enough surpluses after traditional uses have been satisfied.

Rural infrastructure

Rural infrastructure is basic to successful uptake and outscaling of agricultural innovations. In most cases, investments in infrastructures which are often characterized by lumpiness are made by federal, state, and local governments although there are few instances of private agencies providing infrastructural services under government control. In all cases, they are usually provided free of charge or at publicly regulated prices. A typical ranking of the infrastructural needs in the rural areas of Nigeria has the provision of water for household consumption as the most important; then roads, schools, health facilities, water for agricultural production, marketing infrastructure and transport, sanitation, non-biomass energy, and telecommunications, in that order¹⁸. Governments at all levels have been experiencing increasing difficulties providing efficient infrastructural services to their rural communities. The reasons for this range from inability to accurately identify and put in place the mechanisms to respond to the real needs of the communities, to poor performance, to inadequate maintenance with too many resources going to new investments and not enough to maintenance. Consequently, these rural areas and communities who need these infrastructural services the most use them the least and often pay the highest prices.

Gender and social exclusion

Women play a key but often unrecognized or undervalued role in all the important aspects of rural life in Nigeria such as food production, food processing and preparation, water acquisition, firewood collection, rural petty trading, caring for children and the elderly and, in many communities, they are the primary earners of cash incomes. As a result, their rural activities influence and are, in turn, influenced by the introduction of any agricultural innovation in the communities in which they live. What is more, many aspects of innovations are usually led by men even though increasing amounts of work, responsibility and strain continue to fall on the women who supply the bulk of the food for subsistence as well as perform many of the other key functions required by the innovations. This is why many government policies include deliberate measures to ease the constraints presently facing women in the rural areas of the country.

Government policies and the roles and tasks of key stakeholders

The key policy prescriptions by government to address the policy needs summarized above are outlined below¹⁹:

- *Fertilizer Policy:* Hinge fertilizer supply on complete liberalization and privatization of the production, distribution and marketing of fertilizers in the country with the main role of government being to focus strictly on monitoring quality standards of all fertilizers (both local and foreign) to ensure that only certified products reach the farmer.

¹⁸World Bank. 2001. Agricultural Development Projects in Nigeria. Independent Evaluation Group (IEG), , The World Bank, Washington DC.

¹⁹Federal Ministry of Agriculture, Water Resources and Rural Development. 2001. Agricultural Policy for Nigeria, FMAWRA.

- *Seed Supply*: Renovate and reinvigorate the seed industry in the country, promulgate and reinforce seed laws and control seed quality and promote community seed development programs.
- *Land Policy*: Make an inventory of land resources, control land use and land degradation, raise public awareness and promote understanding of the essential linkages between the environment and natural resources management, and encourage individual and community participation in sustainable natural resource management and environmental protection efforts.
- *Food Security*: Strengthen and modernize the country's strategic grain reserve program and upgrade it to a national food reserve program so that it can handle all staples and essential food products.
- *Agro-industrial Development*: Actively promote agro-allied industrialization as a means of strengthening the linkage effect on the overall economy and also promote investments in all aspects of upstream and downstream agricultural enterprises and agribusinesses, including agricultural commodity storage, processing, and marketing.
- *Credit Supply*: Integrate and link rural financial institutions to the formal banking sector and expand the mandate of the restructured Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) to include savings mobilization and modification of the credit delivery system to include cooperative and community-based organizations as delivery channels to reduce transactions costs.
- *Agricultural Insurance*: Reduce risks and uncertainties in agriculture through the introduction of a more comprehensive agricultural insurance scheme to reduce the natural hazard factors militating against agricultural production and security of investments.
- *Training and Manpower Development*: Put in place measures aimed at training and manpower development at the federal and state levels.
- *Agricultural Statistics and Information Management*: Put in place institutional arrangements aimed at coordinating agricultural data and information managements systems.
- *Private Sector Development*: Introduce measures aimed at creating a more conducive macro-environment to stimulate greater private sector investment in agriculture and encourage the involvement of the private sector in the agricultural sector by providing incentives for them to actively participate in the production of seeds, seedlings, etc and also to be involved in out-growers mobilization.
- *The Role of Smallholder Farmers*: Promote activities which recognize and take into account the role, importance, and potential of small-scale farmers as the major producers of food in the country.

The roles assigned to the different levels of government and concerned stakeholders in the implementation of the enunciated policies are as follows:

Federal government

- The provision of a general policy framework, including macroeconomic policies for agricultural and rural development and for the guidance of all stakeholders.
- Maintenance of a reasonable flow of resources into agriculture and the rural economy.
- Support for rural infrastructure development in collaboration with state and local governments.
- Research and development of appropriate technology for agriculture, including biotechnology.
- Development of the seed industry, seed law enforcement and seed quality control.
- Support for input supply and distribution, including seeds, seedlings, brood stock, and fingerlings.
- Continued support for agricultural extension services.
- Management of impounded water, supervision of large dams and irrigation canals, and maintenance of pumping facilities.

- Control of pests and diseases of national and international significance and the promotion of integrated disease and pest management.
- Establishment and maintenance of virile national and international animal and plant quarantine services.
- Maintenance of favorable tariff regime for agricultural commodities.
- Promotion of the export of agricultural commodities through, among others, the Export Processing Zones (EPZs).
- Establishment of an agricultural insurance scheme.
- Maintenance of a strategic national grain reserve for national food security.
- Coordination of agricultural data and information management systems.
- Make an inventory of land resources and control of land use and land degradation.
- Training and manpower development.
- Participation in the mapping and development of interstate cattle and grazing routes and watering points.
- Promotion of micro- and rural credit institutions.
- Promotion of agricultural commodity development and marketing institutions.
- Maintenance of fishing terminals and other fisheries infrastructure, including cold rooms.
- Promotion of trawling, artisanal, and aquaculture fisheries.
- Promotion of fish feed production.
- Protection of Nigeria's Exclusive Economic Zone for fisheries resources.
- Periodic review of agreements on international agricultural trade.



A cowpea farmer in his farm.

State governments

- Promotion of the production of all primary agricultural commodities through the provision of a virile and effective extension service.
- Promotion of the production of inputs for crops, livestock, fish, and forestry.
- Ensuring access to land for all those wishing to engage in farming.
- Development and management of irrigation facilities and dams.
- Development of grazing reserves and creation of water access for livestock.
- Training and manpower development.
- Control of plant and animal pests and diseases.
- Promotion of appropriate institutions for administering credit to smallholder farmers.
- Maintenance of buffer stocks of agricultural commodities.
- Investment in rural infrastructure, including rural roads and water supply in collaboration with federal and local governments.
- Ownership, management, and control of forest estates held in trust for local communities.

Local governments

- Progressively take over the responsibilities of state governments with respect to:
- Provision of effective extension service.
- Provision of rural infrastructure to complement federal and state governments' efforts.
- Management of irrigation areas of dams.
- Mobilization of farmers for accelerated agricultural and rural development through cooperative organizations, local institutions and communities.
- Provision of land for new entrants into farming in accordance with the provision of the Land Use Act.
- Coordination of data collection at primary levels.

The private sector

Take advantage of the improved enabling environment provided by the public sector for profitable agricultural investment by playing a leading role with respect to:

- Investment in all aspects of upstream and downstream agricultural enterprises and agribusinesses, including agricultural commodity storage, processing, and marketing.
- Engagement in commercial activities with respect to the provision of agricultural input supply and distribution.
- Engagement in the production of commercial seeds, seedlings, brood stock, and fingerlings under government certification and quality control.
- Promotion of enterprises involving agricultural mechanization.
- Provision of enterprise-specific rural infrastructures.
- Support to research in all aspects of agriculture.

Farmers' perceptions about gaps in the implementation of stated policies (empirical results)

In the second section of the study questionnaire, the "certainty method" was used to quantify opinions about the absolute and relative extent to which a number of the above-mentioned policies are being implemented.²⁰ A set of brief statements relating to the extent to which each policy area was being implemented were first presented to the respondents.²¹ The respondent was then asked to agree or disagree with the "assessment questions" about how well they felt the policy in question was being implemented. If he/or she agreed or disagreed with the statement, the word "agree" or "disagree" was circled. The respondent was then asked to state how strongly he or she agreed or disagreed with the statement with the aid of a three point scale in which the number "1" was used for mild strength of agreement or disagreement and the number "3" was used to register strong agreement or disagreement. If the farmer was indifferent to the statement, both "agree" and "disagree" were circled. During compilation, the responses were further transformed into a seven point scale with "disagree 3" represented by 1 and "agree 3" represented by 7. Indifference was given the value 4. The means and Standard Deviation of responses for each policy area were then obtained. Summing up all the policy implementation indicators provided an aggregate index of the overall extent of policy gaps.

Altogether, 216 completed questionnaires were obtained (192 from interviewed household heads and 24 from interviews with focus groups. For each policy area, three indicators of policy implementation and, hence gaps

²⁰This method used for quantifying and measuring individual opinions asks the respondent: (a) a directional question and (b) a certainty judgment about the directional decision from less certain to more certain. The method provides a definite means of ranking while minimizing the mental demands on the respondents.

²¹The set of performance questions included: (a) satisfaction with the state of implementation of the policy, (b) assessment of the extent to which the policy has been integrated into the state/LGA policy framework, and (c) an assessment of the level of success achieved by the state/LGA so far in their efforts to implement the policy.

in policy, were used: overall satisfaction with the implementation of the policy; the extent to which the policy has been integrated into the state/LGA policy framework; and the success being achieved in the implementation of the policy in the state/LGA. To aid in the interpretation of the table that follows as well as subsequent tables, with respect to perceptions about the extent of gaps in the implementation of key policies, the following format was used:

	Slightly	Moderately	Strongly
Agree	1	2	3
Disagree	1	2	3

During compilation of the data, the responses were converted to the following numerical values:

Responses: D3 D2 D1 AD A1 A2 A3

Numerical values: 1 2 3 4 5 6 7

In the conversion format above D stands for disagree, A for agree and AD for indifference. The highest possible value is 7 and the lowest is 1. A value of 7 signifies strong agreement with the policy performance indicator while a value of 1 suggests strong disagreement with the indicator.

The results obtained by applying the certainty method to responses on statements on gaps in the implementation of key policies are summarized in Table 7 (the complete responses are presented in Annex 3) and the ranking of responses on the extent of the gaps are presented in Table 8.

It is clear from Tables 7 and 8 that the impression of farmers about gaps in the implementation of key policies varies from community to community and from state to state. Gaps in the implementation of policies in the states and communities investigated arise because, with the exception of straight policies such as those relating to exchange rate devaluation or elimination of certain trade restrictions, policy implementation usually takes place in contexts involving fundamental differences with regard to changing roles, serious institutional constraints, and new patterns of interactions with other ministries and agencies. As a result, the policy implementation process is often uneven and prolonged and is usually disrupted by changes in government and/or the rate of flow of critical resources. In this regard there are a number of factors which result in variations gaps in the implementation of policies.

First, the policy decision making processes in the two states, as is true of the process in most of the other states of the country, are highly political and are influenced by fundamental differences about what exactly is to be done, how it is to be done, and how benefits accruing from the implementation the policies are to be distributed. Furthermore, when policy changes do take place, this usually results in the creation of winners and losers. Complications usually arise because losers are usually in a much more powerful position to defend their interests and oppose and resist change than those who stand to gain. Second, most policy promulgations are usually not “cashed backed” and the resources needed to implement are often not readily available, are inadequate, or are in the wrong place. What is more, the implementation of the policies requires government organizations at all levels to adapt and modify their procedures and modus operandi to accommodate the new tasks required by the implementation of the policy but these changes, in most cases, take place slowly if at all.

Table 7. Summary of responses on statements on gaps in the implementation of key policies.

Policy	Satisfaction with the implementation of the policy					
	Participating community			Nonparticipating community		
	Kano	Katsina	Kn & Kt	Kano	Katsina	Kn & Kt
Pricing and marketing policies	5.37	4.82	5.09	5.76	4.89	5.32
Provisions of Information that will help farmer know the best price at which to sell their produce.						
Government being the buyer of last resort	4.79	5.02	4.90	5.28	4.69	4.95
Buffer stock, storage scheme of the State Government	4.88	4.51	4.69	5.17	5.99	5.58
Seed policies						
Introduction, distribution and adoption of seeds and seedlings.	6.61	6.26	6.43	5.19	5.79	5.49
Fertilizer policies						
Privatization and liberalization of fertilizer.	4.16	5.63	4.91	4.37	5.33	4.85
Credit supply policies						
Access to microcredit and rural credit institutions.	5.11	4.10	4.60	5.10	4.15	4.62
Facilitation of self-help groups to mobilize credit delivery activities.	5.38	4.91	5.14	5.33	4.61	4.97
Conservation and the sustainable management of natural resources.	5.61	5.39	5.45	5.57	5.3	5.43
Livestock production policies						
Water access points for livestock in the Local government areas.	4.34	5.61	5.22	5.40	5.78	5.48
Reactivation and preservation of grazing reserves.	5.01	5.0	5.01	5.44	6.19	5.82
Incentive policies (subsidies, etc) for livestock farmers.	5.15	4.06	5.1	5.34	5.09	5.25
Water Resources and Irrigation Development Policies						
Agricultural extension and technology transfer policies						
Support for the funding of agricultural researches.	6.19	5.86	6.03	5.53	5.98	5.76
Narrowing the gap between potentially realizable yields and actual yields realized on farmers' fields.	5.96	5.21	5.58	5.58	5.39	5.48
Unified and all inclusive extension delivery system under the Agricultural Development Projects.	6.28	5.81	6.04	5.74	5.79	5.74
Gender policy	4.62	5.48	5.06	4.26	5.26	4.76
a. Empowerment of women and the removal of unequal power relations between men and men at all levels.						

kn = Kano, Kt = Katsina

Table 8. Ranking of responses on extent of perceived gaps in policies.

Policy ranking	Participating community			Nonparticipating community		
	Kano	Katsina	Kn & Kt	Kano	Katsina	Kn & Kt
Mean level of 6 & above	<ol style="list-style-type: none"> 1. Introduction, distribution, and adoption of seeds and seedlings. 2. Mobilization for agricultural and rural development activities through cooperative organizations and farmer associations. 3. Support for the funding of agricultural research 4. Unified and all inclusive extension delivery system under the APDs. 	<ol style="list-style-type: none"> 1. Introduction, distribution, and adoption of seeds and seedlings. 2. Mobilization for agricultural and rural development activities through cooperative organizations and farmer associations. 	<ol style="list-style-type: none"> 1. Introduction, distribution, and adoption of seeds and seedlings. 2. Mobilization for agricultural and rural development activities through cooperative organizations and farmer associations. 3. Support for the funding of agricultural researches. 4. Unified and all inclusive extension delivery system under the ADPs.. 	<ol style="list-style-type: none"> 1. Privatization and liberalization of fertilizer. 2. Empowerment of women and the removal of unequal power relations between men and at all levels. 	<ol style="list-style-type: none"> 1. Reactivation and preservation of grazing reserves. 	
Mean level of 5–6	<ol style="list-style-type: none"> 1. Provisions of Information that will help farmers know the best price at which to sell their produce. 2. Access to microcredit and rural credit institutions. 3. Facilitation of self-help groups to mobilize credit delivery activities. 4. Conservation and the sustainable management of natural resources 5. Reactivation and preservation of grazing reserves. 6. Incentive policies (subsidies, etc) for livestock farmers. 7. Management of irrigation areas, irrigation facilities, and dams. 	<ol style="list-style-type: none"> 1. Government being the buyer of last resort 2. Privatization and liberalization of fertilizer. 3. Access to land. 4. Conservation and the sustainable management of natural resources. 5. Water access points for livestock in the LGAs. 6. Reactivation and preservation of grazing reserves. 7. Infrastructure and incentives to encourage the development of rural banking, primary health care, and cottage industries. 8. Support for the funding of agricultural research. 9. Narrowing the gap between Potentially realizable yields and actual yields realized on farmers' fields. 	<ol style="list-style-type: none"> 1. Provision of information that will help farmer know the best price at which to sell their produce. 2. Facilitation of self-help groups to mobilize credit delivery activities. 3. Conservation and the sustainable management of natural resources. 4. Water access points for livestock in the LGAs. 5. Reactivation and preservation of grazing reserves. 6. Incentive policies (subsidies, etc) for livestock farmers. 7. Management of irrigation areas, irrigation facilities, and dams. 	<ol style="list-style-type: none"> 1. Provisions of Information that will help farmer know the best price at which to sell their produce. 2. Government being the buyer of last resort 3. Buffer stock, storage scheme of the State Government 4. Introduction, distribution, and adoption of seeds and seedlings 5. Access to microcredit and rural credit institutions. 6. Facilitation of self-help groups to mobilize credit delivery activities. 7. Mobilization for agricultural and rural development activities through Cooperative organizations and farmer associations. 	<ol style="list-style-type: none"> 1. Buffer stock, storage scheme of the State Government. 2. Introduction, distribution, and adoption of seeds and seedlings. 3. Privatization and liberalization of fertilizer. 4. Mobilization for agricultural and rural development activities through cooperative organizations and farmer associations. 5. Access to land. 6. Conservation and the sustainable management of natural resources. 7. Water access points for livestock in the LGAs. 8. Incentive policies (subsidies, etc) for livestock farmers. 	<ol style="list-style-type: none"> 1. Provision of information that will help farmer know the best price at which to sell their produce. 2. Buffer stock, storage scheme of the State Government. 3. Introduction, distribution, and adoption of seeds and seedlings. 4. Mobilization for agricultural and rural development activities through cooperative organizations and farmer associations. 5. Access to land. 6. Conservation and the sustainable management of natural resources. 7. Water access points for Livestock in the LGAs.

Policy ranking	Participating community			Nonparticipating community		
	Kano	Katsina	Kn & Kt	Kano	Katsina	Kn & Kt
8.	Infrastructure and incentives to encourage the development of rural banking, primary health care, and cottage industries.	10. Unified and all inclusive extension delivery system under the ADPs.	8. Infrastructures and incentives to encourage the development of rural banking, primary health care, and cottage industries.	8. Access to land.	9. Management of irrigation areas, irrigation facilities and dams.	8. Reactivation and preservation of grazing reserves.
9.	Government investments in building rural roads for the last five years.	11. Empowerment of women and the removal of unequal power relations between men and at all levels.	9. Government investments in building rural roads for the last five years.	9. Conservation and the sustainable management of natural resources.	10. Infrastructures and incentives to encourage the development of rural banking, primary health care, and cottage industries.	9. Incentive policies (subsidies, etc) for livestock farmers.
10.	Narrowing the gap between potentially realizable yields and actual yields realized on farmers' fields.		10. Narrowing the gap between potentially realizable yields and actual yields realized on farmers' fields.	10. Water access points for livestock in the LGAs.	11. Government investments in building rural roads for the last five years.	10. Management of irrigation areas, irrigation facilities, and dams.
			11. Empowerment of women and the removal of unequal power relations between men and at all levels.	11. Reactivation and preservation of grazing reserves.	12. Incentive policies (subsidies, etc) for livestock farmers.	11. Infrastructure and incentives to encourage the development of rural banking, primary health care, and cottage industries.
				12. Management of irrigation areas, irrigation facilities and dams.	13. Management of irrigation areas, irrigation facilities and dams.	12. Government investments in building rural roads for the last five years.
				13. Management of irrigation areas, irrigation facilities and dams.	14. and dams.	13. Support for the funding of agricultural researches.
				14. and dams.	15. Infrastructure and incentives to encourage the development of rural banking, primary health care, and cottage industries.	14. Unified and all inclusive extension delivery system under the Agricultural Development Projects.
				15. Infrastructure and incentives to encourage the development of rural banking, primary health care, and cottage industries.	16. Government investments in building rural roads for the last five years.	15. Empowerment of women and the removal of unequal power relations between men and at all levels.
				16. Government investments in building rural roads for the last five years.	17. Support for the funding of agricultural researches	16. Narrowing the gap between potentially realizable yields and actual yields realized on farmers' fields.
				17. Support for the funding of agricultural researches	18. Narrowing the gap between potentially realizable yields and actual yields realized on farmers' fields	17. Support for the funding of agricultural research.
				18. Narrowing the gap between potentially realizable yields and actual yields realized on farmers' fields	19. Unified and all inclusive extension delivery system under the ADPs.	18. Narrowing the gap between potentially realizable yields and actual yields realized on farmers' fields.
				19. Unified and all inclusive extension delivery system under the ADPs.		19. Unified and all inclusive extension delivery system under the ADPs.
Mean level below 5	Government being the buyer of last resort Buffer stock, storage scheme of the State Government Privatization and liberalization of fertilizer Access to land. Water access points for livestock in the Local government areas. Empowerment of women and the removal of unequal power relations between men and at all levels.	Provision of information that will help farmer know the best price at which to sell their produce. Buffer stock, storage scheme of the State Government Access to microcredit and rural credit institutions. Facilitation of self-help groups to mobilize credit delivery activities. Incentive policies (subsidies, etc) for livestock farmers. Management of irrigation areas, irrigation facilities, and dams. Government investment in building rural roads for the last five years.	Government being the buyer of last resort. Buffer stock, storage scheme of the State Government. Privatization and liberalization of fertilizer. Access to microcredit and rural credit institutions. Access to land.	Privatization and liberalization of fertilizer. Empowerment of women and the removal of unequal power relations between men and at all levels.	Provision of information that will help farmer know the best price at which to sell their produce. Government being the buyer of last resort. Access to microcredit and rural credit institutions. Facilitation of self-help groups to mobilize credit delivery activities.	Government being the buyer of last resort. Privatization and liberalization of fertilizer. Access to microcredit and rural credit institutions. Facilitation of self-help groups to mobilize credit delivery activities. Empowerment of women and the removal of unequal power relations between men and men at all levels.

8. Assessment of conflicts and conflict management in the rural areas of Kano and Katsina States

The study of the dynamics of conflicts in the study sites also used the certainty method described above to test the strengths of the following hypothesized sources of conflict:

- Lack of access to land to make a reasonable living.
- Unfair distribution of arable land resources.
- Competition over land resources.
- Incompatibility of the goals of crop and livestock farmers.
- Worsening poverty and inequitable distribution of poverty.
- Unkept promises by governments.
- Differences between the cultures and values of crop and livestock farmers.
- Absence of or existence of poorly functioning mechanisms for dialog and communication.

Altogether 216 completed questionnaires were obtained (192 from interviewed household heads and 24 from interviews with Focus Groups). Again, a set of brief statements relating to the eight areas outlined above and how the ensuing conflicts could be best managed were first presented to the respondents. The respondents were then asked to agree or disagree with each statement. If he/or she agreed or disagreed with the statement, the word “agree” or “disagree” was circled. The respondent was then asked to state how strongly he or she agreed or disagreed with the statement with the aid of a three point scale in which the number “1” was used for mild strength of agreement or disagreement and the number “3” was used to register strong agreement or disagreement. If the farmer was indifferent to the statement, both “agree” and “disagree” were circled. During compilation, the responses were further transformed into a seven point scale with “disagree 3” represented by 1 and “agree 3” represented by 7. Indifference was given the value 4.

During the pre-test of the questionnaires it was found out that some respondents were reluctant to respond to statements relating to whether or not there were conflict situations in their communities especially when these respondents were responding to the statements in the presence of other members of the household or community. In order to overcome this reluctance the same set of statements were posed but in a positive way such as “If there are no conflicts in your community is it because ... followed by the same statements. The means and standard deviation of the responses were then obtained. Summing up all the hypotheses provided an aggregate index of the importance of the different sources of conflict from the point of view of the respondents.

The respondents were also asked to list the most critical areas of conflicts in their communities, to make suggestions about how to address these conflicts, to identify how best the LGA authorities could best collaborate with their communities to resolve the conflicts, to indicate whether or not there were traditional approaches in place for managing conflicts in their communities, and to evaluate the effectiveness, if any, of these approaches. The responses of the respondents to these questions were then post-coded.

Sources of conflicts in the communities

The results obtained by applying the certainty method to statements on the sources of conflicts in the communities are summarized in Table 9 (the complete responses are presented in Annex 3) and the ranking of the importance of the different sources are presented in Table 10. The tables suggest that the following are important sources of conflict in the communities studied:

- Competition over land resources.
- Injustice in the distribution of arable land.
- Incompatibility between the goals of livestock farmers and crop farmers.
- Differences in the rate of economic progress of different groups.
- Unkept promises made by the authorities.
- Differences in the values and culture of different groups.
- Lack of functioning mechanisms for dialog and communication.

All of the above sources of conflict are rated high (four and above) although, as would be expected, the relative importance of the different sources varies from state to state and from community to community. There are several reasons for these variations. First, most of the present-day natural resource use practices in the study areas owe their origin to the norms, if not to the policies, of colonial times. Colonial governments exercised immense power over natural resources without fully taking into consideration the interests of the peoples of the areas²². Most of the initial laws were drafted without regard to the interests of the communities, with little understanding of the environment, and with little or no appreciation of the natural resources management implications for the communities. Today the authority for resource use in many areas has simply been transferred from the “King” or “Queen” to the “President” or “Governor” or “Emir” or “Community Leader” depending on the level in question. Since precedence in law is such an important factor in natural resource management, the importance of this legacy in fermenting conflicts cannot be underestimated.

Table 9. Summary of responses on statements on the main sources of conflicts in communities.

Sources of conflicts	Summary of responses on statements on the reasons why conflicts arise in the communities						
	Participating community			Nonparticipating community			Overall mean for Kn & Kt for both P & NP
	Kano	Katsina	Kn & Kt	Kano	Katsina	Kn & Kt	
Conflicts arise in our community because of:							
Competitions over land resources.	4.98	5.54	5.26	4.10	5.59	4.83	5.045
Incompatibility between the goals of livestock farmers and crop farmers	4.19	5.61	4.89	3.48	5.35	4.39	4.64
Injustice in the distribution of arable land.	4.91	5.89	5.40	4.04	5.67	4.84	5.12
Differences in economic progress between different groups.	3.98	6.02	4.99	3.75	5.50	4.61	4.8
Unkept promises made by the authorities.	4.11	5.57	4.83	3.69	5.26	4.46	4.64
Differences in the values and culture of different groups	3.94	6.28	5.10	3.58	6.52	4.99	5.04
Lack of functioning mechanisms for dialog and communication.	4.17	6.35	5.25	3.65	6.61	5.10	5.17

²²Williams, I., F. Muazu, U. Kaoje, and R. Ekeh. 1999. Conflicts between pastoralists and agriculturalists in north-eastern Nigeria. Pages 184–210 in Community conflicts in Nigeria: Management, resolution and transformation, edited by O. Otite and I. Olawale,). Spectrum Books Ltd. Ibadan, Nigeria,

Table 10. Ranking of the relative importance of the stated sources of conflicts.

Rank	Participating Community			Nonparticipating Community		
	Kano	Katsina	Kn & Kt	Kano	Katsina	Kn & Kt
Mean level of 6 & above		<ol style="list-style-type: none"> 1. Differences in the rate of economic progress of different groups. 2. Differences in the values and culture of different groups. 3. Lack of functioning mechanisms for dialog and communication. 			<ol style="list-style-type: none"> 1. Differences in the values and culture of different groups. 2. Lack of functioning mechanisms for dialog and communication. 	
Mean level of 5– 6		<ol style="list-style-type: none"> 1. Competitions over land resources. 2. Incompatibility between the goals of livestock farmers and crop farmers. 3. Injustice in the distribution of arable land. 4. Unkept promises made by the authorities. 	<ol style="list-style-type: none"> 1. Competition over land resources. 2. Injustice in the distribution of arable land. 3. Differences in the values and culture of different groups. 4. Lack of functioning mechanisms for dialog and communication. 		<ol style="list-style-type: none"> 1. Competition over land resources. 2. Incompatibility between the goals of livestock farmers and crop farmers. 3. Injustice in the distribution of arable land. 4. Differences in the rate of economic progress of different groups. 5. Unkept promises made by the authorities. 	<ol style="list-style-type: none"> 1. Lack of functioning mechanisms for dialog and communication.
Mean level below 5	<p>Competition over land resources.</p> <p>Incompatibility between the goals of livestock farmers and crop farmers</p> <p>Injustice in the distribution of arable land</p> <p>Differences in the rate of economic progress of different groups.</p> <p>Unkept promises made by the authorities.</p> <p>Differences in the values and culture of different groups.</p> <p>Lack of functioning mechanisms for dialog and communication.</p>		<p>Incompatibility between the goals of livestock farmers and crop farmers.</p> <p>Differences in the rate of economic progress of different groups.</p> <p>Unkept promises made by the authorities</p>	<p>Competition over land resources.</p> <p>Incompatibility between the goals of livestock farmers and crop farmers</p> <p>Injustice in the distribution of arable land.</p> <p>Differences in the rate of economic progress of different groups.</p> <p>Unkept promises made by the authorities.</p> <p>Differences in the values and culture of different groups.</p> <p>Lack of functioning mechanisms for dialog and communication.</p>		<p>Competition over land resources.</p> <p>Incompatibility between the goals of livestock farmers and crop farmers.</p> <p>Injustice in the distribution of arable land.</p> <p>Differences in the rate of economic progress of different groups.</p> <p>Unkept promises made by the authorities.</p> <p>Differences in the values and culture of different groups.</p>

Second, Nigeria has over the years been subjected to dramatic paradigm shifts including the introduction of various models of structural adjustment policies, decentralization of power, democratization, market liberalization, privatization, etc. These shifts, in combination with the accompanying shifts in the socioeconomic and cultural dimensions of the population, have had an impact on the way communities have responded to natural resource use and management in their different areas. Third, because natural resource use is strongly influenced

and determined by power structures, incidences of conflicts have increased in many areas because of the emergence of shared social space which are being bombarded by complex and unequal relations involving a wide range of social actors including: political elites, military and civilian power brokers, investors, agro-industrialists, farmers and farmer groups, ethnic minorities, etc. Fourth rapid population growth accompanied by increased competition for natural resources, changing patterns of market demands and rapid urbanization and encroachment into rural areas, have all contributed in heightening the incidences of conflicts. Fifth, the powerful symbolism attached to natural resources and sites (land, forests, and waterways) by many Nigerians means that natural resources are often not just material resources that people compete over, but are part of a particular way of life (farmer, pastoralist, fisher-person), and ethnic identity. These symbolic dimensions of natural resources lend themselves to ideological, social, and political struggles that have enormous practical significance for the management of the natural resources themselves as well as the conflicts emerging as a consequence of their use and/or misuse.

Besides competition over natural resources, the respondents also rated “a feeling of injustice” and “incompatible goals of different groups” as important sources of conflicts. This is not surprising since a sense of injustice often arises from a feeling that one group has a right to what the other group has. This often leads to incompatible goals since the group in an advantageous position does not want to change anything and its members are happy with the way things are. This sense of injustice can also come about as a result of relative deprivation when one group compares what it presently has to what the members of the other group have is unhappy about the status quo. A sense of injustice also comes from the feeling that one group believes that it is being treated unjustly when it feels its economic situation has been deteriorating²³.

The respondents also rank incompatible goals as an important source of conflict. Other studies have shown that when different groups rank themselves and their values more highly than other groups rank them, this usually results in conflicts²⁴. Furthermore, groups that live separately often develop different values, which can become incompatible. Since values are linked to culture, ideology, religion, participation, etc, disputes are bound to arise when different parties look at the world from different lens. In the study areas, differences between settled agricultural farmers and transhumance “Fulani” cattle herders suggest themselves as important sources of conflicts with the importance of this depending on the relative size of each of these two groups in the different states and communities.

Finding solutions to conflicts

The responses of the respondents to statements about finding solutions to the conflicts in the study areas are presented in Tables 11, 12, and 13. From these three tables it is obvious that the respondents feel that solutions to managing the identified conflicts should focus on addressing issues relating to competition over land resources between crop framers and pastoralists. The respondent's (both participating and nonparticipating communities) ranking of measures that they feel should be pursued by state and federal governments in managing existing conflicts are presented in Table 11 while the relative importance of the different options that LGA's should follow are presented in Table 12.

In the study states and communities, the pastoralists seldom have rights to land depending instead on open rangelands, crop residues and free ranging to feed their animals. Even in the few situations in which they are permitted to settle, this is usually not accompanied by rights to the land. The intensification of farming especially in marginal arable land areas is intensifying competition over the available land resources and reducing the pastoralists' access to crop residues. Intensification of farming and expansion of farming activities around water bodies are rapidly encroaching traditional cattle routes and reducing the passage for livestock to reach water

²³Mohammed, N. 1997 Environmental Conflict in Africa. Pages 137–156 in) Conflict and the Environment, edited by Gleditish et al.. Kluwer Academic Publishers, Dordecht.

²⁴Gefu, J. et. al. (eds), Pastoralism in Nigeria, Zaria, National Animal Production Research Institute; and Baba, J. 1987. Reconciling agricultural and pastoral land use systems in Nigeria. In Perspectives on land administration and development in Northern Nigeria, edited by M. Mortimore et al. Proceedings of the Workshop on Land on Land Resources, Kano.

points, all of which contribute in escalating the conflicts between the two groups. Little surprise, therefore, that the priority for managing the conflicts as expressed by the respondents focuses on these competition over land resources. Furthermore, the suggestions by the respondents on how the LGA authorities can help manage the conflicts also focus on measures aimed at resolving conflicts over access to land for crop production and grazing in a peaceful manner.

About half of the respondents admitted that there were traditional institutional arrangements for resolving conflicts but confessed that these have not been very effective due to distrust of the LGAs and traditional authorities and a sense of injustice since many of those responsible for dispensing justice were mainly farmers. They felt that, in cases where there were pastoral traditional rulers, these did not have the same powers as arable crop traditional rulers and they were usually not treated as equal partners in the adjudication of cases. Many of them also complained that past efforts to use the police and the Area Courts to try to resolve the conflicts have not been very successful but have instead made matters worse by deepening the adversarial relationship between the farmers and the pastoralists. Their ranking of measures for improving the effectiveness of traditional approaches to managing and resolving conflicts are presented in Table 13.

Table 11. Ranking of suggested measures for addressing conflicts.

Suggested measures that government authorities should use for managing conflicts	Participating	Nonparticipating
Enforce law that prevents pastoralists on peoples' farm before the right time	1	1
Create room for dialog between the government and the people	2	5
Demarcate farm land and good security over them by the government	3	2
Provide grazing land and water points to pastoralist by government	4	3
Provide farmer's basic farming inputs that allow early maturity of their crops to enhance early harvesting	5	8
Others	6	6
Provide alternative routes for pastoralists	7	7
Encourage early harvesting of cropped land	8	8

Table 12. Ranking of suggested areas in LGAs should focus in managing conflicts.

Suggested ways by which LGAs can help manage conflicts	Participating	Nonparticipating
Form a community of traditional rulers, farmers, and Fulanis.	1	1
Provide security to villages affected by Fulani conflict and stop the Fulanis from entering farm lands	2	3
Distribute early maturing seeds, fertilizers, and credit to enhance early harvesting	3	5
Train and set up youths for business	4	5
Provide grazing lands for livestock farmers	5	4
Enforce law that deprives livestock farmers from taking their animals to unharvested farm lands.	6	2

Table 13. Ranking of responses on how to make existing traditional conflict resolution approaches more effective.

Suggestions for making existing conflict resolution approaches more effective	Ranking	
	Participating	Nonparticipating
Promote understanding and respect for each other's cultural values	1	1
Encourage peaceful coexistence and facilitate dispute settlement	2	4
Promote good governance by traditional rulers	3	2
Encourage the formation of cooperatives,	4	5
Encourage community members to be law abiding and religious	5	7
Promote strong relationships between NGOs and traditional rulers—relationship aimed at preventing the negative acts of livestock farmers	6	3
Provide transparent leadership	7	6
Ensure that offenders are duly punished	8	8

9. Conclusions and recommendations

The two main goals of this study were to: (i) identify the gaps in the implementation of key agricultural policies in the study states and communities and make recommendations to help close the identified gaps; and (ii) provide a better understanding of the dynamics of the underlying sources of actual and potential conflicts between the different stakeholders in the study communities and make recommendations on ways of effectively managing the conflicts.

Policy gaps

The study concludes aspects of all the prescribed government policies were being implemented although the extent of success in the implementation of the policies varied from one state to the other and from community to community. This not surprising as the policy implementation process is difficult and complicated as it involves changing the way things are done and how resources are distributed. Because it involves changes in roles, overcoming institutional bottlenecks, adapting to new patterns of interactions with other agencies, and coping with pressure to show results as early as possible, the implementation process is usually prolonged over several years, disrupted by changes in government, and constrained by funding limitations and uncertainties, all of which contribute to gaps in policies. The range of the changes that need to take place for policies to be fully implemented means that magnitude and extent of these gaps will depend on the existence of stimulus for policy change, the nature of the existing political climate, the attitude of the technocrats who were involved in the formulation of the policies, the existence of reform-minded policy decision makers who are familiar with the environment for policy implementation, and the capacity of Ministries, Departments, and Agencies (MDAs) at all levels to adapt and modify their organizational arrangements to the new tasks required for successful policy implementations.

With regards the test of KKM-PLS's vision to demonstrate the effectiveness of innovation systems in supporting the development and adoption of market-driven, crop–livestock productivity enhancing technology options, the conclusion is that the the Innovation Systems Approach is not just about identifying gaps in policy implementation and making recommendations on how to close the gaps. It also covers identifying the nature of changes in the policies and practices that are taking place and mapping out the implications of these changes on the uptake and outscaling of the innovations on offer. It also involves other important dimensions which cannot be ignored including:

- The existence or otherwise of incentives at different levels for farmers, intermediaries, researchers, etc
- The existence and effectiveness of formal and informal marketing arrangements.
- Identifying the dominant cultural influences and how they will affect the selected innovation platforms, e.g., local power structures, attitude to change, and change agents.
- Identifying operating political processes and power relationships and how changing or improving them will affect the uptake and outscaling of the innovations.

The above areas are all excellent candidates for further investigations.

It is recommended that in implementing the project in the target states and communities, emphasis should be placed on the generation of “evidence-based” policy advice and any policy advocacy should be based on the experiences of the project. These policy experiences should come from dynamic monitoring and learning and communications framework. The aim of this framework would be to ensure that the institutional changes prompted by KKM-PLS activities at all levels and the ensuing evidence-based policies coming out of these activities are considered legitimate by the policy making authorities at all these levels and that constituencies that are willing and able to support the policies are nurtured at all levels. This will involve the introduction of project activities relating to: (a) policy legitimization, and (b) policy reform constituency building.

Policy legitimization: The most important step to start the process of filling the policy gaps in the sites is to ensure that the policy experiences that are coming out of the introduction of IPs in the different sites are viewed by the key decision makers at all levels as legitimate. The aim would be to encourage the emergence of key policy “champions” at all these levels. These champions will be some groups or individuals with credibility, political resources, and the willingness to risk their political capital in support of the policies being proposed. This legitimization process is of extreme importance for developing a sense of ownership of the IPs in the communities and ensures future expansion of the project to other areas since the KKM-PLS project is externally generated.

Policy constituency building: Support for the relevant KKM-PLS policies by the identified “Policy Champions” is necessary but not sufficient. An adequate constituency for the implementation of the policies will also need to be developed as a way of marketing and promoting the IS approach in the targeted areas and in Nigeria at large. The constituents are the winners in the implementation of the IPs and its associated policies. They are positive “grassroots” stakeholders who will lend the force of support to the project’s “Policy Champions”. The aim here is to use the building of this constituency as a way to continuously amplify the legitimization of the innovations on offer and the associated “good” policies in the community, LGA, state, and country at large. The ultimate goal is not only to prove KKM-PLS’s innovation system approach but also to gain its widespread acceptance and create a new set of beneficiaries who can be mobilized in favor of filling any identified gaps policies as they occur.



NERICA rice demonstration plots.

Conflicts and their management

The study found that the main sources of conflicts in the communities originate from competition over natural resources and from feelings of a sense of injustice. Rising population pressures and recurring droughts mean that these conflicts will become more intense and could be destructive. These conflicts, if not properly addressed could hamper the achievement of the KKM-PLS vision and objectives.

Government responses at all levels to these conflicts have, at best, been inadequate, and, at worst, heavy handed. There exist traditional institutions which are attempting to manage these conflicts. Their lack of success can be attributed to a sense of continued injustice in spite of their efforts at adjudication. The study, therefore, recommends that additional efforts are needed both to gain additional and better understanding of the causes and mechanisms of effectively managing them. There is also need to support the development of more effective and just policing and adjudication strategies. This will require revitalizing existing traditional conflict resolution and management approaches and mainstreaming them into national, state, and LGA agricultural development policies. It will also require capacity building programs for those involved in the design and implementation of the mechanisms.

Annexes

Annex 1. Terms of Reference for consultant to carry out policy analysis in the project area.

Sudan Savanna Taskforce of KKM-PLS

Introduction

The productivity of the farming systems in the Sudan Savanna of the Kano–Katsina–Maradi Pilot Learning Sites is low. Results from the validation exercise conducted in the KKM PLS indicate limited adoption of improved technologies. Land degradation, diseases, insect pests, Striga infestation, lack of labor saving technologies for field operations and processing, and inadequate supply of yield enhancing inputs are serious constraints to intensification of farming systems. Market-related constraints include limited access to credit, low farm-gate prices, high cost and low quality of inputs, poor access to output markets, and weak linkages between producers, agro-industry and markets. Policy-related constraints include conflicts arising from access to community resources and utilization especially between farmers and pastoralists. Ineffective extension systems and lack of policy incentives also constrain agricultural intensification. Clearly, these constraints reinforce each other, necessitating integrated approaches for sustainably intensifying agricultural production in the Sudan Savanna of the KKM PLS. The Sudan Savanna taskforce of KKM-PLS is designed to address the constraints outlined above. The project will demonstrate the effectiveness of innovation systems in supporting the development and adoption of market-driven, crop–livestock, productivity enhancing technology options. In order to influence development through widespread adoption of technologies and improve income of stakeholders, enabling conditions in the realms of markets and policies need to be fostered, along with harmonization of distinct institutional agendas and practices among a diversity of actors (e.g., farmers' associations, entrepreneurs, NGOs, CBOs, development-oriented organizations, ministries, and research and extension agencies). The objective of the Sudan Savanna Taskforce is to use innovation platforms to enhance agricultural productivity and income of rural farmers along the value chain without degrading the natural resource base.

Expected Outputs

- Output 1: A model for implementing IAR4D.
- Output 2: Market-driven, integrated production practices promoted, linkages between policy and sustainable agricultural productivity identified, and enabling policy options developed to enhance cereal–legume systems productivity.
- Output 3: Effect of IAR4D on development impact relative to conventional ARD approaches established.

The taskforce requires the services of Prof. Abalu (policy economist) to contribute to output two of the project in carrying out the following activities:

1. Investigate the causes and dynamics of resource use conflicts, policies, and institutional arrangements in Kano and Katsina states of Nigeria.
2. Analyze policy gaps related to agricultural production, processing, and markets in the Sudan Savannas of northern Nigeria.

Expected outputs

1. Report on the nature and causes of conflict for resource use, policies, and institutional arrangements prepared and submitted to the Sudan Savanna taskforce leader.
2. A report on the analysis of policy gaps related to agricultural production, processing, and markets prepared and submitted to the Sudan savanna taskforce leader.

Annex 2. Summary of responses on statements on agriculture and marketing policies.

1: Pricing and marketing policies

a. Because of government policy, information is being provided that will help me know the best price at which to sell my produce.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano	Participating communities											
	I am satisfied with the implementation of the policy	5.43	2.4	72.3	63.8	6.4	2.1	0.0	8.5	2.1	17.0	27.6
	The policy has been integrated into state/LGA policy framework	5.43	2.4	74.4	57.4	14.9	2.1	0.0	6.4	2.1	17.0	25.5
	The policy is being successfully implemented by the state/LGA	5.26	2.4	70.2	55.3	10.6	4.3	2.1	8.5	0.0	19.1	27.6
Katsina												
	I am satisfied with the implementation of the policy	5.16	1.9	75.5	26.5	32.7	16.3	4.1	6.1	4.1	10.2	20.4
	The policy has been integrated into state/LGA policy framework	4.76	1.9	67.3	16.3	26.5	24.5	10.2	4.1	8.2	10.2	22.6
	The policy is being successfully implemented by the state/LGA	4.53	1.8	67.1	14.3	20.4	22.4	16.3	6.1	14.3	6.1	26.5
Kn &Kt												
	I am satisfied with the implementation of the policy	5.29	2.2	74.0	44.8	19.8	9.4	2.1	7.3	3.1	13.5	29.9
	The policy has been integrated into state/LGA policy framework	5.08	2.1	70.8	36.5	20.8	13.5	5.2	5.2	5.2	13.5	29.9
	The policy is being successfully implemented by the state/LGA	4.89	2.1	63.5	34.4	15.6	13.5	9.4	7.3	7.3	12.5	27.1
Kano												
	Nonparticipating Communities											
	I am satisfied with the implementation of the policy	5.75	2.1	77.1	62.5	10.4	4.2	10.4	0.0	0.0	12.5	12.5
	The policy has been integrated into state/LGA policy framework	5.73	2.1	77.1	62.5	8.3	6.3	10.4	0.0	0.0	12.5	12.5
	The policy is being successfully implemented by the state/LGA	5.79	2.1	79.4	64.6	10.4	4.4	6.3	2.1	0.0	12.5	14.6
Katsina												
	I am satisfied with the implementation of the policy	5.42	1.6	83.3	22.9	35.4	25.0	8.3	0.0	2.1	6.3	8.4
	The policy has been integrated into state/LGA policy framework	4.58	1.8	66.7	14.6	18.8	33.3	6.3	2.1	20.8	4.2	27.1
	The policy is being successfully implemented by the State/LGA	4.68	1.8	66.8	16.7	18.8	31.3	6.3	2.1	22.9	2.1	27.1

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kn & Kt												
	I am satisfied with the implementation of the policy	5.58	1.8	80.2	42.7	22.9	14.6	9.4	0.0	1.0	9.4	10.4
	The policy has been integrated into state/LGA policy framework	5.16	2.0	71.8	38.5	13.5	19.8	8.3	1.0	10.4	8.3	19.7
	The policy is being successfully implemented by the state/LGA	5.22	2.0	72.9	40.6	14.6	17.7	6.3	2.1	11.5	7.3	20.9

b. Because government's policy of being the buyer of last resort which is aimed at stabilizing prices is in place and working

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano												
	Participating Communities											
	I am satisfied with the implementation of the policy	4.79	2.5	63.3	42.6	14.9	6.4	0.0	6.4	10.6	19.1	36.1
	The policy has been integrated into state/LGA policy framework	4.79	2.5	63.9	42.6	14.9	6.4	0.0	6.4	10.6	19.1	36.1
	The policy is being successfully implemented by the state/LGA	4.79	2.5	65.4	40.4	14.9	10.6	0.0	6.4	6.4	21.3	34.1
Katsina												
	I am satisfied with the implementation of the policy	5.20	1.7	73.5	24.5	32.7	16.3	8.2	4.1	12.2	2.0	18.3
	The policy has been integrated into state/LGA policy framework	4.94	1.7	69.4	20.4	20.4	28.6	10.2	4.1	16.3	0.0	20.4
	The policy is being successfully implemented by the state/LGA	4.92	1.7	67.3	20.4	22.4	24.5	10.2	6.1	16.3	0.0	22.4
Kn & Kt												
	I am satisfied with the implementation of the policy	5.00	2.1	68.8	33.3	24.0	11.5	4.2	5.2	11.5	10.4	27.1
	The policy has been integrated into state/LGA policy framework	4.86	2.1	66.7	31.3	17.7	17.7	5.2	5.2	13.5	9.4	28.1
	The policy is being successfully implemented by the state/LGA	4.85	2.1	67.7	30.2	18.8	17.7	5.2	6.3	11.5	10.4	28.2

State	Statement number	Mean value	S.D	% Agree	% Agree 3	% Agree 2	% Agree 1	AD	% Disagree 1	% Disagree 2	% Disagree 3	% Disagree
Nonparticipating Communities												
Kano												
	I am satisfied with the implementation of the policy	5.25	2.4	73.0	50.0	18.8	4.2	4.2	0.0	2.1	20.8	22.9
	The policy has been integrated into state/LGA policy framework	5.19	2.4	72.9	45.8	22.9	4.2	4.2	0.0	0.0	22.9	22.9
	The policy is being successfully implemented by the state/LGA	5.04	2.5	70.8	45.8	16.7	8.3	4.2	0.0	0.0	25.0	25.0
Katsina												
	I am satisfied with the implementation of the policy	5.02	2.0	70.9	27.1	27.1	16.7	8.3	2.1	8.3	10.4	20.8
	The policy has been integrated into state/LGA policy framework	4.56	2.0	70.4	22.9	14.6	22.9	10.4	0.0	22.9	6.3	29.2
	The policy is being successfully implemented by the State/LGA	4.60	2.1	58.4	25.0	16.7	16.7	12.5	0.0	22.9	6.3	29.2
Kn &Kt												
	I am satisfied with the implementation of the policy	5.14	2.2	71.8	38.5	22.9	10.4	6.3	1.0	5.2	15.6	29.8
	The policy has been integrated into state/LGA policy framework	4.88	2.2	66.7	34.4	18.8	13.5	7.3	0.0	11.5	14.6	26.1
	The policy is being successfully implemented by the state/LGA	4.82	2.3	64.6	35.4	16.7	12.5	8.3	0.0	11.5	15.6	27.1
1c. Because of government policy on buffer stock, storage scheme of the State Government has been established and is working well.												
State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano												
	Participating communities											
	I am satisfied with the implementation of the policy	4.98	2.6	72.2	46.8	17.0	6.4	0.0	2.1	2.1	25.5	29.7
	The policy has been integrated into state/LGA policy framework	4.77	2.6	68.5	46.8	8.5	10.6	0.0	2.1	6.4	25.5	34.0
	The policy is being successfully implemented by the state/LGA	4.89	2.6	68.1	46.8	12.8	8.5	0.0	2.1	6.4	23.4	31.9
Katsina												
	I am satisfied with the implementation of the policy	4.76	1.8	64.2	20.4	16.3	26.5	14.3	6.1	10.2	6.1	22.4
	The policy has been integrated into state/LGA policy framework	4.39	1.8	55.0	12.2	16.3	26.5	16.3	2.0	24.5	2.0	28.5
	The policy is being successfully implemented by the State/LGA	4.37	1.7	50.0	12.2	14.3	24.5	20.4	6.1	20.4	2.0	28.5
Kn &Kt												
	I am satisfied with the implementation of the policy	4.86	2.2	66.7	33.3	16.7	16.7	7.3	4.2	6.3	15.6	25.9
	The policy has been integrated into state/LGA policy framework	4.57	2.2	60.5	29.2	12.5	18.8	8.3	2.1	15.6	13.5	31.2

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
	The policy is being successfully implemented by the state/LGA	4.63	2.2	59.4	29.2	13.5	16.7	10.4	4.2	13.5	12.5	30.2
Nonparticipating communities												
Kano												
	I am satisfied with the implementation of the policy	5.21	2.4	72.9	47.9	14.6	10.4	6.3	0.0	0.0	20.8	20.8
	The policy has been integrated into state/LGA policy framework	5.15	2.3	68.8	45.8	16.7	6.3	8.3	2.1	2.1	18.8	23.0
	The policy is being successfully implemented by the state/LGA	5.15	2.3	70.8	45.8	14.6	10.4	6.3	2.1	2.1	18.8	23.0
Katsina												
	I am satisfied with the implementation of the policy	6.44	13.8	58.4	18.8	27.1	12.5	6.3	8.3	6.3	18.8	33.4
	The policy has been integrated into state/LGA policy framework	7.67	19.4	39.6	12.5	10.4	16.7	4.2	12.5	27.1	12.5	44.2
	The policy is being successfully implemented by the state/LGA	3.85	2.0	43.8	12.5	14.6	16.7	6.3	14.6	22.9	12.5	50.4
Kn & Kt												
	I am satisfied with the implementation of the policy	5.82	9.9	65.6	33.3	20.8	11.5	6.3	4.2	3.1	19.8	27.1
	The policy has been integrated into state/LGA policy framework	6.41	13.8	54.2	29.2	13.5	11.5	6.3	7.3	14.6	15.6	37.5
	The policy is being successfully implemented by the state/LGA	4.50	2.3	57.3	29.2	14.6	13.5	6.3	8.3	12.5	15.6	36.4s

2. Seed policies

Because of government policy, the introduction, distribution, and adoption of seeds and seedlings have impr

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	6.64	0.8	95.7	78.7	10.6	6.4	4.3	0.0	0.0	0.0	0.0
	The policy has been integrated into state/LGA policy framework	6.70	0.6	100.0	78.7	12.8	8.5	0.0	0.0	0.0	0.0	0.0
	The policy is being successfully implemented by the state/LGA	6.49	1.2	100.0	74.5	12.8	8.5	0.0	2.1	0.0	2.1	4.2
Katsina												
	I am satisfied with the implementation of the policy	6.41	0.8	96.0	53.1	38.8	4.1	4.1	0.0	0.0	0.0	0.0
	The policy has been integrated into state/LGA policy framework	6.18	1.0	95.9	42.9	40.8	12.2	2.0	0.0	2.0	0.0	2.0
	The policy is being successfully implemented by the state/LGA	6.18	0.9	96	42.9	38.8	14.3	2.0	2.0	0.0	0.0	2.0

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kn &Kt												
	I am satisfied with the implementation of the policy	6.52	0.8	95.8	65.6	25.0	5.2	4.2	0.0	0.0	0.0	0.0
	The policy has been integrated into state/LGA policy framework	6.44	0.9	97.9	60.4	27.1	10.4	1.0	0.0	1.0	0.0	0.0
	The policy is being successfully implemented by the state/LGA	6.33	1.0	95.8	58.3	26.0	11.5	1.0	2.1	0.0	1.0	1.0
-	Nonparticipating communities											
Kano												
	I am satisfied with the implementation of the policy	5.19	2.4	68.8	54.2	8.3	6.3	6.3	2.1	4.2	18.8	25.1
	The policy has been integrated into state/LGA policy framework	5.31	2.4	72.9	58.3	6.3	8.3	4.2	0.0	4.2	18.8	23
	The policy is being successfully implemented by the state/LGA	5.08	2.5	68.8	50.0	12.5	6.3	6.3	0.0	2.1	22.9	25
Katsina												
	I am satisfied with the implementation of the policy	6.19	1.1	87.6	52.1	31.3	4.2	8.3	4.2	0.0	0.0	4.2
	The policy has been integrated into state/LGA policy framework	5.58	1.7	75.1	41.7	27.1	6.3	8.3	8.3	6.3	2.1	16.7
	The policy is being successfully implemented by the state/LGA	5.60	1.8	75	45.8	22.9	6.3	8.3	6.3	8.3	2.1	10.7
Kn &Kt												
	I am satisfied with the implementation of the policy	5.69	1.9	78.1	53.1	19.8	5.2	7.3	3.1	2.1	9.4	14.6
	The policy has been integrated into state/LGA policy framework	5.45	2.1	73.9	50.0	16.6	7.3	6.3	4.2	5.2	10.4	19.8
	The policy is being successfully implemented by the state/LGA	5.34	2.2	71.9	47.9	17.7	6.3	7.3	3.1	5.2	12.5	20.8

3. Fertilizer policies

a. Because of government policy of privatization and liberalization, I can now buy or receive the quantity and quality of fertilizer that I need in a timely way.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano	Participating communities											
	I am satisfied with the implementation of the policy	4.28	2.8	57.5	42.6	8.5	6.4	0.0	2.1	0.0	40.4	42.5
	The policy has been integrated into state/LGA policy framework	4.06	2.7	55.3	31.9	12.8	10.6	0.0	2.1	4.3	38.3	44.7
	The policy is being successfully implemented by the state/LGA	4.13	2.7	57.4	34.0	8.5	14.9	0.0	2.1	2.1	38.3	42.5
Katsina	I am satisfied with the implementation of the policy	5.86	0.8	95.7	20.4	49.0	26.3	4.1	0.0	0.0	0.0	0.0
	The policy has been integrated into state/LGA policy framework	5.55	1.2	89.8	20.4	34.7	34.7	4.1	4.1	0.0	2.0	6.1
	The policy is being successfully implemented by the state/LGA	5.49	1.2	87.8	20.4	32.7	34.7	4.1	6.1	0.0	2.0	8.1
Kn &Kt	I am satisfied with the implementation of the policy	5.08	2.2	82.2	31.3	29.2	16.7	2.1	1.0	0.0	19.8	20.8
	The policy has been integrated into state/LGA policy framework	4.82	2.2	77.9	26.0	24.0	22.9	2.1	3.1	2.1	19.8	25
	The policy is being successfully implemented by the state/LGA	4.82	2.2	72.9	27.1	20.8	25.0	2.1	4.2	1.0	19.8	25
	Nonparticipating communities											
Kano	I am satisfied with the implementation of the policy	4.46	2.7	60.5	43.8	6.3	10.4	2.1	2.1	0.0	35.4	37.5
	The policy has been integrated into state/LGA policy framework	4.35	2.7	58.3	39.6	8.3	10.4	2.1	4.2	0.0	35.4	39.6
	The policy is being successfully implemented by the state/LGA	4.29	2.7	56.2	37.5	8.3	10.4	4.2	4.2	0.0	35.4	39.6
Katsina	I am satisfied with the implementation of the policy	5.69	1.0	95.8	20.8	37.5	37.5	0.0	2.1	2.1	0.0	4.2
	The policy has been integrated into state/LGA policy framework	5.40	1.3	81.7	18.8	27.1	45.8	0.0	0.0	8.3	0.0	8.3
	The policy is being successfully implemented by the state/LGA	4.90	1.7	67.1	16.7	22.9	37.5	2.1	0.0	18.8	2.1	20.9
Kn &Kt	I am satisfied with the implementation of the policy	5.07	2.1	78.2	32.3	21.9	24.0	1.0	2.1	1.0	17.7	20.8
	The policy has been integrated into state/LGA policy framework	4.88	2.2	65	29.2	17.7	28.1	1.0	2.1	4.2	17.7	24
	The policy is being successfully implemented by the state/LGA	4.59	2.3	66.7	27.1	15.6	24.0	3.1	2.1	9.4	18.8	20.3

4. Credit supply policies

a. Because of government policy, I have access to microcredit and rural credit institutions.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano	Participating communities											
	I am satisfied with the implementation of the policy	5.02	2.5	70.2	46.8	12.8	10.6	2.1	4.3	0.0	23.4	27.7
	The policy has been integrated into state/LGA policy framework	5.11	2.4	72.4	42.6	21.3	8.5	2.1	4.3	0.0	21.3	25.3
	The policy is being successfully implemented by the state/LGA	5.19	2.4	74.4	46.8	19.1	8.5	0.0	4.3	0.0	21.3	25.3
Katsina												
	I am satisfied with the implementation of the policy	4.31	2.1	67.3	16.3	16.3	34.7	10.2	4.1	14.3	14.3	32.7
	The policy has been integrated into state/LGA policy framework	3.82	2.0	44.9	10.2	10.2	24.5	12.2	4.1	18.4	18.4	40.9
	The policy is being successfully implemented by the state/LGA	4.18	1.9	55.1	10.2	14.3	30.6	12.2	6.1	14.3	12.2	32.6
Kn &Kt												
	I am satisfied with the implementation of the policy	4.66	2.3	63.6	31.3	14.6	17.7	6.3	4.2	7.3	18.8	30.3
	The policy has been integrated into state/LGA policy framework	4.45	2.3	59.3	26.0	15.6	17.7	7.3	4.2	9.4	19.8	33.4
	The policy is being successfully implemented by the state/LGA	4.68	2.2	64.6	28.1	16.7	19.8	6.3	5.2	7.3	16.7	29.2
Nonparticipating communities												
Kano												
	I am satisfied with the implementation of the policy	5.13	2.5	73.0	50.0	16.7	6.3	0.0	2.1	0.0	25.0	27.1
	The policy has been integrated into state/LGA policy framework	5.08	2.5	72.9	47.9	16.7	8.3	0.0	2.1	0.0	25.0	27.1
	The policy is being successfully implemented by the state/LGA	5.10	2.5	73	47.9	18.8	6.3	0.0	2.1	0.0	25.0	27.1
Katsina												
	I am satisfied with the implementation of the policy	4.58	2.1	66.7	16.7	27.1	22.9	6.3	4.2	4.2	18.8	27.2
	The policy has been integrated into state/LGA policy framework	3.92	2.1	62.5	12.5	16.7	20.8	6.3	4.2	22.9	16.7	43.8
	The policy is being successfully implemented by the state/LGA	3.94	2.0	47.9	10.4	16.7	20.8	10.4	4.2	25.0	12.5	41.7
Kn &Kt												
	I am satisfied with the implementation of the policy	4.85	2.3	69.8	33.3	21.9	14.6	3.1	3.1	2.1	21.9	27.1
	The policy has been integrated into state/LGA policy framework	4.50	2.4	61.5	30.2	16.7	14.6	3.1	3.1	11.5	20.8	35.4
	The policy is being successfully implemented by the state/LGA	4.52	2.3	60.4	29.2	17.7	13.5	5.2	3.1	12.5	18.8	34.4

b. Because of government policy there are self-help groups in my community which help us to mobilize credit delivery activities.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	5.40	2.4	76.6	61.7	4.3	10.6	0.0	2.1	2.1	19.1	23.3
	The policy has been integrated into state/LGA policy framework	5.40	2.4	78.7	55.3	12.8	10.6	0.0	0.0	2.1	19.1	21.2
	The policy is being successfully implemented by the state/LGA	5.34	2.4	74.4	57.4	10.6	6.4	0.0	4.3	2.1	19.1	25.5
Katsina												
	I am satisfied with the implementation of the policy	4.94	2.0	71.3	26.5	22.4	22.4	8.2	2.0	4.1	14.3	20.4
	The policy has been integrated into state/LGA policy framework	4.94	1.8	71.3	18.4	24.5	30.6	8.2	4.1	6.1	8.2	18.4
	The policy is being successfully implemented by the state/LGA	4.84	1.8	71.5	18.4	18.4	34.7	10.2	4.1	4.1	10.2	18.4
Kn &Kt												
	I am satisfied with the implementation of the policy	5.17	2.2	73.3	43.8	13.5	16.7	4.2	2.1	3.1	16.7	21.9
	The policy has been integrated into state/LGA policy framework	5.17	2.1	76.1	36.5	18.8	20.8	4.2	2.1	4.2	13.5	19.8
	The policy is being successfully implemented by the state/LGA	5.08	2.1	72.3	37.5	14.6	20.8	5.2	4.2	3.1	14.6	21.9
Nonparticipating communities												
Kano												
	I am satisfied with the implementation of the policy	5.35	2.3	67.1	52.1	14.6	10.4	0.0	4.2	0.0	18.8	23.0
	The policy has been integrated into state/LGA policy framework	5.42	2.4	77.1	60.4	4.2	12.5	0.0	4.2	0.0	18.8	23.0
	The policy is being successfully implemented by the state/LGA	5.23	2.4	72.9	54.2	8.3	10.4	2.1	4.2	0.0	20.8	25
Katsina												
	I am satisfied with the implementation of the policy	5.19	1.9	79.2	25.0	35.4	18.8	2.1	4.2	2.1	12.5	18.8
	The policy has been integrated into state/LGA policy framework	4.42	2.0	58.3	12.5	27.1	22.9	4.2	6.3	14.6	12.5	33.3
	The policy is being successfully implemented by the state/LGA	4.23	2.0	58.3	12.5	20.8	25.0	4.2	6.3	18.8	12.5	37.6
Kn &Kt												
	I am satisfied with the implementation of the policy	5.27	2.1	78.1	38.5	25.0	14.6	1.0	4.2	1.0	15.6	20.8
	The policy has been integrated into state/LGA policy framework	4.92	2.2	69.8	36.5	15.6	17.7	2.1	5.2	7.3	15.6	28.1
	The policy is being successfully implemented by the state/LGA	4.73	2.3	65.6	33.3	14.6	17.7	3.1	5.2	9.4	16.7	31.3

5. Agricultural cooperative policies

a. Because of government policy, farmers in my community are being mobilized for agricultural and rural development activities through cooperative organizations and farmer associations.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano												
	Participating communities											
	I am satisfied with the implementation of the policy	6.55	1.0	95.8	76.6	12.8	6.4	0.0	2.1	2.1	0.0	4.2
	The policy has been integrated into state/LGA policy framework	6.45	1.1	95.7	68.1	19.1	8.5	0.0	2.1	2.1	0.0	4.2
	The policy is being successfully implemented by the state/LGA	6.45	1.1	95.7	68.1	19.1	8.5	0.0	2.1	2.1	0.0	4.2
Katsina												
	I am satisfied with the implementation of the policy	6.29	0.6	100	36.7	55.1	8.2	0.0	0.0	0.0	0.0	0.0
	The policy has been integrated into state/LGA policy framework	6.20	0.7	99.9	36.7	46.9	16.3	0.0	0.0	0.0	0.0	0.0
	The policy is being successfully implemented by the state/LGA	6.16	0.8	100	40.8	34.7	24.5	0.0	0.0	0.0	0.0	0.0
Kn &Kt												
	I am satisfied with the implementation of the policy	6.42	0.8	98	56.3	34.4	7.3	0.0	1.0	1.0	0.0	2.0
	The policy has been integrated into state/LGA policy framework	6.32	0.9	97.9	52.1	33.3	12.5	0.0	1.0	1.0	0.0	2.0
	The policy is being successfully implemented by the state/LGA	6.30	0.9	78	54.2	27.1	16.7	0.0	1.0	1.0	0.0	2.0
	Nonparticipating communities											
Kano												
	I am satisfied with the implementation of the policy	5.71	2.1	83.3	58.3	14.6	10.4	2.1	0.0	0.0	14.6	14.6
	The policy has been integrated into state/LGA policy framework	5.71	2.1	83.4	56.3	18.8	8.3	2.1	0.0	0.0	14.6	14.6
	The policy is being successfully implemented by the State/LGA	5.69	2.1	92.0	60.4	10.4	10.4	4.2	0.0	0.0	14.6	14.6
Katsina												
	I am satisfied with the implementation of the policy	6.00	1.2	89.6	41.7	37.5	10.4	2.1	6.3	2.1	0.0	8.4
	The policy has been integrated into state/LGA policy framework	5.63	1.6	81.2	33.3	39.6	8.3	2.1	8.3	8.3	0.0	16.6
	The policy is being successfully implemented by the state/LGA	5.65	1.6	81.2	35.4	37.5	8.3	2.1	8.3	8.3	0.0	16.6
Kn &Kt												
	I am satisfied with the implementation of the policy	5.85	1.7	86.6	50.0	26.0	10.4	2.1	3.1	1.0	7.3	11.4
	The policy has been integrated into state/LGA policy framework	5.67	1.8	82.3	44.8	29.2	8.3	2.1	4.2	4.2	7.3	15.7
	The policy is being successfully implemented by the state/LGA	5.67	1.9	81.3	47.9	24.0	9.4	3.1	4.2	4.2	7.3	15.7

6. Land use policy

a. State and Local government policies are ensuring access to land for all those wishing to engage in farming.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano	Participating communities											
	I am satisfied with the implementation of the policy	4.40	2.8	57.5	42.6	10.6	4.3	0.0	6.4	2.1	34.0	36.1
	The policy has been integrated into state/LGA policy framework	4.11	2.8	53.3	36.2	12.8	4.3	0.0	6.4	0.0	40.4	46.8
	The policy is being successfully implemented by the state/LGA	4.11	2.8	53.2	38.3	8.5	6.4	0.0	6.4	0.0	40.4	46.8
Katsina	I am satisfied with the implementation of the policy	5.94	1.3	87.8	36.7	42.9	8.2	6.1	4.1	0.0	2.0	6.1
	The policy has been integrated into state/LGA policy framework	5.39	1.5	79.6	20.4	38.8	20.4	8.2	6.1	4.1	2.0	12.2
	The policy is being successfully implemented by the state/LGA	5.31	1.4	76.4	22.4	26.5	28.6	8.2	10.2	4.1	0.0	14.3
Kn &K	I am satisfied with the implementation of the policy	5.19	2.2	73	39.6	27.1	6.3	3.1	5.2	1.0	17.7	23.9
	The policy has been integrated into state/LGA policy framework	4.76	2.3	66.6	28.1	26.0	12.5	4.2	6.3	2.1	20.8	29.2
	The policy is being successfully implemented by the state/LGA	4.72	2.3	65.6	30.2	17.7	17.7	4.2	8.3	2.1	19.8	30.2
	Nonparticipating communities											
Kano	I am satisfied with the implementation of the policy	5.27	2.5	125	58.3	54.2	12.5	0.0	0.0	2.1	22.9	25.0
	The policy has been integrated into state/LGA policy framework	5.19	2.5	67	54.2	8.3	12.5	0.0	0.0	0.0	22.9	22.9
	The policy is being successfully implemented by the state/LGA	5.21	2.5	75	56.3	8.3	10.4	0.0	0.0	2.1	25.0	27.1
Katsina	I am satisfied with the implementation of the policy	6.15	1.1	98	43.8	37.5	16.7	0.0	4.2	12.5	0.0	16.7
	The policy has been integrated into state/LGA policy framework	5.58	1.7	61.3	37.5	27.1	16.7	0.0	4.2	12.5	0.0	16.7
	The policy is being successfully implemented by the state/LGA	5.50	1.8	81.3	39.6	29.2	12.5	2.1	4.2	12.5	2.1	18.8
Kn &Kt	I am satisfied with the implementation of the policy	5.71	2.0	84.4	51.0	24.0	9.4	0.0	2.1	3.1	10.4	15.6
	The policy has been integrated into state/LGA policy framework	5.39	2.1	79.1	45.8	18.8	14.6	0.0	2.1	7.3	11.5	20.9
	The policy is being successfully implemented by the state/LGA	5.35	2.2	77.1	47.9	17.7	11.5	1.0	2.1	6.3	13.5	21.9

b. Because of government policy, there are programs in place to conserve and sustainably manage the natural resources in the community for the benefit of present and future generations.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	5.53	2.3	80.8	55.3	17.0	8.5	0.0	0.0	2.1	17.0	19.1
	The policy has been integrated into state/LGA policy framework	5.57	2.2	82.9	53.2	19.1	10.6	0.0	0.0	0.0	17.0	17.0
	The policy is being successfully implemented by the state/LGA	5.47	2.2	81	53.2	14.9	12.8	0.0	0.0	2.1	17.0	19.1
Katsina												
	I am satisfied with the implementation of the policy	5.69	1.4	87.7	30.6	36.7	20.4	6.1	0.0	2.0	4.1	6.1
	The policy has been integrated into state/LGA policy framework	5.39	1.5	83.7	18.4	38.8	26.5	8.2	0.0	4.1	4.1	8.2
	The policy is being successfully implemented by the state/LGA	5.08	1.6	95.9	40.8	28.6	26.5	12.2	2.0	8.2	4.1	14.3
Kn &Kt												
	I am satisfied with the implementation of the policy	5.61	1.9	84.4	42.7	27.1	14.6	3.1	0.0	2.1	10.4	12.5
	The policy has been integrated into state/LGA policy framework	5.48	1.8	83.4	35.4	29.2	18.8	4.2	0.0	2.1	10.4	12.5
	The policy is being successfully implemented by the state/LGA	5.27	2.0	77.1	35.4	21.9	19.8	6.3	1.0	5.2	10.4	16.6
Nonparticipating communities												
Kano												
	I am satisfied with the implementation of the policy	5.56	2.3	81.3	54.2	22.9	4.2	0.0	0.0	0.0	18.8	18.8
	The policy has been integrated into state/LGA policy framework	5.58	2.3	81.3	54.2	25.0	2.1	0.0	0.0	0.0	18.8	18.8
	The policy is being successfully implemented by the state/LGA	5.56	2.2	81.2	52.1	20.8	8.3	2.1	0.0	0.0	16.7	16.7
Katsina												
	I am satisfied with the implementation of the policy	5.67	1.4	91.7	29.2	33.3	29.2	0.0	2.1	4.2	2.1	8.4
	The policy has been integrated into state/LGA policy framework	5.17	1.7	81.2	22.9	25.0	33.3	0.0	2.1	16.7	0.0	18.8
	The policy is being successfully implemented by the state/LGA	5.06	1.7	79.2	22.9	18.8	37.5	2.1	2.1	14.6	2.1	18.8
Kn &Kt												
	I am satisfied with the implementation of the policy	5.61	1.9	86.5	41.7	28.1	16.7	0.0	1.0	2.1	10.4	13.5
	The policy has been integrated into state/LGA policy framework	5.38	2.0	81.2	38.5	25.0	17.7	0.0	1.0	8.3	9.4	18.7
	The policy is being successfully implemented by the state/LGA	5.31	2.0	80.2	37.5	19.8	22.9	2.1	1.0	7.3	9.4	17.7

7. Livestock production policies

a. Because of government policy, water access points for livestock in the LGA have been developed.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	4.81	2.5	66	42.6	14.9	8.5	2.1	4.3	2.1	25.5	31.9
	The policy has been integrated into state/LGA policy framework	4.81	2.5	66	42.6	12.8	10.6	4.3	2.1	2.1	25.5	29.7
	The policy is being successfully implemented by the state/LGA	4.83	2.5	68.1	42.6	10.6	14.9	2.1	4.3	0.0	25.5	29.8
Katsina												
	I am satisfied with the implementation of the policy	6.10	1.0	95.9	40.8	38.8	16.3	0.0	2.0	2.0	0.0	4.0
	The policy has been integrated into state/LGA policy framework	5.41	1.5	83.6	22.4	38.8	22.4	2.0	4.1	8.2	2.0	14.3
	The policy is being successfully implemented by the state/LGA	5.31	1.6	89.8	28.6	36.7	24.5	2.0	6.1	8.2	2.0	16.3
Kn &Kt												
	I am satisfied with the implementation of the policy	5.47	2.0	81.3	41.7	27.1	12.5	1.0	3.1	2.1	12.5	17.7
	The policy has been integrated into state/LGA policy framework	5.11	2.1	75	32.3	26.0	16.7	3.1	3.1	5.2	13.5	21.8
	The policy is being successfully implemented by the state/LGA	5.07	2.1	75.1	31.3	24.0	19.8	2.1	5.2	4.2	13.5	22.9
Nonparticipating communities												
Kano												
	I am satisfied with the implementation of the policy	5.46	2.4	79.1	58.3	12.5	8.3	0.0	0.0	0.0	20.8	20.8
	The policy has been integrated into state/LGA policy framework	5.40	2.4	69.2	54.2	14.6	10.4	0.0	0.0	0.0	20.8	20.8
	The policy is being successfully implemented by the state/LGA	5.33	2.4	76.3	50.0	18.8	8.3	2.1	0.0	0.0	20.8	20.8
Katsina												
	I am satisfied with the implementation of the policy	6.19	1.1	93.7	50.0	33.3	10.4	0.0	4.2	2.1	0.0	6.3
	The policy has been integrated into state/LGA policy framework	5.67	1.6	85.4	37.5	33.3	14.6	0.0	4.2	8.3	2.1	14.6
	The policy is being successfully implemented by the state/LGA	5.48	1.8	81.3	37.5	27.1	16.7	0.0	6.3	8.3	4.2	18.8
Kn &Kt												
	I am satisfied with the implementation of the policy	5.82	1.9	86.5	54.2	22.9	9.4	0.0	2.1	1.0	10.4	13.5
	The policy has been integrated into state/LGA policy framework	5.53	2.0	82.3	45.8	24.0	12.5	0.0	2.1	4.2	11.5	16.8
	The policy is being successfully implemented by the state/LGA	5.41	2.1	79.2	43.8	22.9	12.5	1.0	3.1	4.2	12.5	19.8

b. As a result of government policies grazing reserves are being reactivated and preserved to enhance the interaction among farmers, pastoralists, and rural dwellers.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	5.09	2.5	70.2	46.8	17.0	6.4	4.3	2.1	0.0	23.4	25.5
	The policy has been integrated into state/LGA policy framework	4.98	2.5	70.2	44.7	17.0	8.5	0.0	4.3	2.1	23.4	29.8
	The policy is being successfully implemented by the state/LGA	4.96	2.5	68.1	44.7	17.0	6.4	2.1	4.3	2.1	23.4	29.8
Katsina												
	I am satisfied with the implementation of the policy	5.22	1.9	75.6	28.6	32.7	14.3	8.2	0.0	6.1	10.2	16.3
	The policy has been integrated into state/LGA policy framework	4.94	1.7	75.5	8.2	40.8	26.5	8.2	0.0	10.2	6.1	16.3
	The policy is being successfully implemented by the state/LGA	4.84	1.6	75.5	8.2	30.6	36.7	8.2	0.0	10.2	6.1	16.3
Kn &Kt												
	I am satisfied with the implementation of the policy	5.16	2.2	72.9	37.5	25.0	10.4	6.3	1.0	3.1	16.7	20.8
	The policy has been integrated into state/LGA policy framework	4.96	2.1	72.9	26.0	29.2	17.7	4.2	2.1	6.3	14.6	23.0
	The policy is being successfully implemented by the state/LGA	4.90	2.1	71.9	26.0	24.0	21.9	5.2	2.1	6.3	14.6	23.0
Nonparticipating communities												
Kano												
	I am satisfied with the implementation of the policy	5.33	2.4	73.0	56.3	10.4	6.3	6.3	0.0	0.0	20.8	20.8
	The policy has been integrated into state/LGA policy framework	5.52	2.4	77.1	64.6	10.4	2.1	0.0	2.1	0.0	20.8	22.9
	The policy is being successfully implemented by the state/LGA	5.48	2.4	77.1	62.5	10.4	4.2	0.0	2.1	0.0	20.8	22.9
Katsina												
	I am satisfied with the implementation of the policy	7.96	13.5	95.8	35.4	37.5	22.9	0.0	0.0	0.0	2.1	2.1
	The policy has been integrated into state/LGA policy framework	5.31	1.7	85.5	18.8	41.7	25.0	0.0	0.0	10.4	4.2	14.6
	The policy is being successfully implemented by the state/LGA	5.29	1.7	85.4	20.8	35.4	29.2	0.0	0.0	10.4	4.2	14.6
Kn &Kt												
	I am satisfied with the implementation of the policy	6.65	9.7	84.4	45.8	24.0	14.6	3.1	0.0	0.0	11.5	11.5
	The policy has been integrated into state/LGA policy framework	5.42	2.1	81.2	41.7	26.0	13.5	0.0	1.0	5.2	12.5	18.7
	The policy is being successfully implemented by the state/LGA	5.39	2.1	81.3	41.7	22.9	16.7	0.0	1.0	5.2	12.5	18.7

c. Because of government policy, my community is benefiting from incentive policies (subsidies, etc) for livestock farmers to procure vaccines and veterinary drugs.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano	Participating communities											
	I am satisfied with the implementation of the policy	5.09	2.3	72.3	38.3	25.5	8.5	2.1	4.3	2.1	19.1	25.5
	The policy has been integrated into state/LGA policy framework	5.26	2.2	76.5	40.4	25.5	10.6	2.1	2.1	2.1	17.0	21.2
	The policy is being successfully implemented by the state/LGA	5.11	2.3	74.5	38.3	23.4	12.8	0.0	4.3	2.1	17.0	23.4
Katsina	I am satisfied with the implementation of the policy	2.55	1.6	85.7	30.6	32.7	22.4	0.0	6.1	6.1	2.0	14.2
	The policy has been integrated into state/LGA policy framework	4.90	2.0	71.4	26.5	20.4	24.5	0.0	8.2	14.3	6.1	28.6
	The policy is being successfully implemented by the state/LGA	4.71	2.0	65.3	24.5	18.4	22.4	0.0	12.2	18.4	4.1	44.7
Kn &Kt	I am satisfied with the implementation of the policy	5.32	2.0	79.2	34.4	29.2	15.6	1.0	5.2	4.2	10.4	19.8
	The policy has been integrated into state/LGA policy framework	5.07	2.1	73.9	33.3	22.9	17.7	1.0	5.2	8.3	11.5	25.0
	The policy is being successfully implemented by the state/LGA	4.91	2.1	69.8	31.3	20.8	17.7	0.0	8.3	11.5	10.4	30.2
	Nonparticipating communities											
Kano	I am satisfied with the implementation of the policy	5.44	2.4	77.1	60.4	10.4	6.3	0.0	2.1	0.0	20.8	22.9
	The policy has been integrated into state/LGA policy framework	5.38	2.4	75	58.3	10.4	6.3	2.1	2.1	0.0	20.8	22.9
	The policy is being successfully implemented by the state/LGA	5.42	2.4	77.1	58.3	12.5	6.3	0.0	2.1	0.0	20.8	22.9
Katsina	I am satisfied with the implementation of the policy	5.75	1.4	91.7	31.3	37.5	22.9	0.0	2.1	4.2	2.1	8.4
	The policy has been integrated into state/LGA policy framework	4.79	1.9	68.7	20.8	22.9	25.0	2.1	8.3	16.7	4.2	29.2
	The policy is being successfully implemented by the state/LGA	4.73	2.0	67.7	22.9	20.8	25.0	0.0	4.2	22.9	4.2	31.3
Kn &Kt	I am satisfied with the implementation of the policy	5.59	2.0	84.4	45.8	24.0	14.6	0.0	2.1	2.1	11.5	15.7
	The policy has been integrated into state/LGA policy framework	5.08	2.2	71.9	39.6	16.7	15.6	2.1	5.2	8.3	12.5	26.0
	The policy is being successfully implemented by the state/LGA	5.07	2.2	72.9	40.6	16.7	15.6	0.0	3.1	11.5	12.5	27.1

8. Water resources and irrigation development policies

a. Because of government policy, programs for the management of irrigation areas, irrigation facilities and dams are in place and functioning.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano	Participating communities											
	I am satisfied with the implementation of the policy	5.83	2.0	82.9	57.4	23.4	2.1	0.0	6.4	0.0	10.6	17.0
	The policy has been integrated into state/LGA policy framework	5.74	2.0	83.0	53.2	25.5	4.3	0.0	4.3	2.1	10.6	17.0
	The policy is being successfully implemented by the state/LGA	5.79	1.9	85.2	51.1	27.7	6.4	0.0	4.3	0.0	10.6	14.9
Katsina	I am satisfied with the implementation of the policy	4.88	1.9	71.4	26.5	14.3	30.6	4.1	6.1	10.2	8.2	24.5
	The policy has been integrated into state/LGA policy framework	4.67	1.8	63.3	18.4	18.4	26.5	8.2	8.2	18.4	2.0	28.6
	The policy is being successfully implemented by the state/LGA	4.51	1.9	59.1	16.3	20.4	22.4	10.2	10.2	18.4	6.1	34.7
Kn &Kt	I am satisfied with the implementation of the policy	5.34	2.0	77.2	41.7	18.8	16.7	2.1	6.3	5.2	9.4	20.9
	The policy has been integrated into state/LGA policy framework	5.20	2.0	72.9	35.4	21.9	15.6	4.2	6.3	10.4	6.3	23.0
	The policy is being successfully implemented by the state/LGA	5.14	2.0	71.9	33.3	24.0	14.6	5.2	5.2	9.4	8.3	22.9
	Nonparticipating communities											
Kano	I am satisfied with the implementation of the policy	5.58	2.4	79.1	60.4	10.4	8.3	2.1	2.1	0.0	16.7	18.8
	The policy has been integrated into state/LGA policy framework	5.63	2.3	79.2	62.5	10.4	6.3	2.1	2.1	0.0	16.7	18.8
	The policy is being successfully implemented by the state/LGA	5.67	2.3	81.2	64.6	8.3	8.3	0.0	2.1	0.0	16.7	18.8
Katsina	I am satisfied with the implementation of the policy	6.04	0.9	95.9	33.3	43.8	18.8	2.1	2.1	0.0	0.0	2.1
	The policy has been integrated into state/LGA policy framework	5.44	1.4	85.4	16.7	45.8	22.9	2.1	4.2	8.3	0.0	12.5
	The policy is being successfully implemented by the state/LGA	5.35	1.4	83.4	16.7	37.5	29.2	6.3	2.1	8.3	0.0	10.4
Kn &Kt	I am satisfied with the implementation of the policy	5.81	1.7	87.5	46.9	27.1	13.5	2.1	2.1	0.0	8.3	10.4
	The policy has been integrated into state/LGA policy framework	5.53	1.9	82.3	39.6	28.1	14.6	2.1	3.1	4.2	8.3	15.6
	The policy is being successfully implemented by the state/LGA	5.51	1.9	82.3	40.6	22.9	18.8	3.1	2.1	4.2	8.3	14.6

9. Rural infrastructure development policies

a. Because of government policy, government is providing infrastructure and incentives to encourage the development of rural banking, primary health care, and cottage industries.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano												
	Participating communities											
	I am satisfied with the implementation of the policy	5.26	2.3	72.3	46.8	17.0	8.5	4.3	6.4	0.0	17.0	23.4
	The policy has been integrated into state/LGA policy framework	5.43	2.2	78.7	46.8	23.4	8.5	2.1	2.1	0.0	17.0	19.1
	The policy is being successfully implemented by the state/LGA	5.36	2.2	76.5	48.9	17.0	10.6	2.1	4.3	0.0	17.0	21.3
Katsina												
	I am satisfied with the implementation of the policy	5.61	1.2	89.8	18.4	46.9	24.5	2.0	4.1	4.1	0.0	8.2
	The policy has been integrated into state/LGA policy framework	4.92	1.6	75.5	6.1	42.9	26.5	4.1	8.2	6.1	6.1	20.4
	The policy is being successfully implemented by the state/LGA	4.90	1.5	75.5	6.1	36.7	32.7	6.1	8.2	4.1	6.1	18.4
Kn &Kt												
	I am satisfied with the implementation of the policy	5.44	1.8	81.3	32.3	32.3	16.7	3.1	5.2	2.1	8.3	15.6
	The policy has been integrated into state/LGA policy framework	5.17	1.9	77	26.0	33.3	17.7	3.1	5.2	3.1	11.5	19.8
	The policy is being successfully implemented by the state/LGA	5.13	1.9	56.1	27.1	27.1	21.9	4.2	6.3	2.1	11.5	19.9
	Nonparticipating communities											
Kano												
	I am satisfied with the implementation of the policy	5.52	2.1	75	54.2	8.3	12.5	10.4	2.1	0.0	12.5	14.6
	The policy has been integrated into state/LGA policy framework	5.63	2.2	81.2	60.4	12.5	8.3	0.0	2.1	0.0	16.7	18.8
	The policy is being successfully implemented by the state/LGA	5.58	2.2	81.2	58.3	12.5	10.4	0.0	2.1	0.0	16.7	18.8
Katsina												
	I am satisfied with the implementation of the policy	5.96	0.8	100.1	27.1	41.7	31.3	0.0	0.0	0.0	0.0	0.0
	The policy has been integrated into state/LGA policy framework	5.65	1.1	93.7	20.8	39.6	33.3	0.0	2.1	4.2	0.0	6.3
	The policy is being successfully implemented by the state/LGA	5.54	1.3	91.6	20.8	35.4	35.4	0.0	2.1	6.3	0.0	8.4
Kn &Kt												
	I am satisfied with the implementation of the policy	5.74	1.6	87.5	40.6	25.0	21.9	5.2	1.0	0.0	6.3	7.3
	The policy has been integrated into state/LGA policy framework	5.64	1.8	86.4	39.6	26.0	20.8	0.0	2.1	2.1	8.3	12.5
	The policy is being successfully implemented by the state/LGA	5.56	1.8	85.9	39.6	24.0	22.9	0.0	2.1	3.1	8.3	13.5

b. Because of government policy, the level of government investments in building rural roads has improved from the last five years.

State	Statement number	Mean value	S.D	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree	
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	5.47	2.5	76.6	63.8	8.5	4.3	0.0	2.1	0.0	21.3	23.4
	The policy has been integrated into state/LGA policy framework	5.45	2.4	76.6	61.7	10.6	4.3	0.0	2.1	0.0	21.3	23.4
	The policy is being successfully implemented by the state/LGA	5.40	2.5	74.5	61.7	8.5	4.3	2.1	2.1	0.0	21.3	23.4
Katsina												
	I am satisfied with the implementation of the policy	5.08	2.1	71.5	34.7	18.4	18.4	10.2	0.0	4.1	14.3	28.4
	The policy has been integrated into state/LGA policy framework	4.39	2.1	57.2	18.4	20.4	18.4	12.2	2.0	12.2	16.3	30.5
	The policy is being successfully implemented by the state/LGA	4.31	2.1	59.1	14.3	22.4	22.4	10.2	2.0	8.2	20.4	30.6
Kn &Kt												
	I am satisfied with the implementation of the policy	5.27	2.3	74	49.0	13.5	11.5	5.2	1.0	2.1	11.5	14.6
	The policy has been integrated into state/LGA policy framework	4.91	2.3	66.7	39.6	15.6	11.5	6.3	2.1	6.3	18.8	27.2
	The policy is being successfully implemented by the state/LGA	4.84	2.4	66.6	37.5	15.6	13.5	6.3	2.1	4.2	20.8	27.1
Nonparticipating communities												
Kano												
	I am satisfied with the implementation of the policy	5.85	2.1	83.4	66.7	12.5	4.2	2.1	0.0	0.0	14.6	14.6
	The policy has been integrated into state/LGA policy framework	5.88	2.1	83.4	66.7	14.6	2.1	2.1	0.0	0.0	14.6	14.6
	The policy is being successfully implemented by the state/LGA	5.96	2.0	85.5	68.8	12.5	4.2	0.0	2.1	0.0	12.5	14.6
Katsina												
	I am satisfied with the implementation of the policy	5.96	1.5	89.5	45.8	33.3	10.4	2.1	2.1	2.1	4.2	8.4
	The policy has been integrated into state/LGA policy framework	5.54	1.8	81.2	37.5	33.3	10.4	2.1	4.2	6.3	6.3	16.8
	The policy is being successfully implemented by the state/LGA	5.54	1.9	81.3	41.7	25.0	14.6	2.1	4.2	6.3	6.3	16.8

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kn &Kt	I am satisfied with the implementation of the policy	5.91	1.8	86.5	56.3	22.9	7.3	2.1	1.0	1.0	9.4	11.4
	The policy has been integrated into state/LGA policy framework	5.71	2.0	82.4	52.1	24.0	6.3	2.1	2.1	3.1	10.4	15.6
	The policy is being successfully implemented by the state/LGA	5.78	1.9	83.4	55.2	18.8	9.4	1.0	3.1	3.1	9.4	15.6

10. Agricultural extension and technology transfer policies

a. Government policy supports the funding of agricultural research and this is resulting in the development of appropriate technology for agriculture and all categories of farmers are having access to the output of the research system through the extension services of the state and local governments.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano	Participating communities											
	I am satisfied with the implementation of the policy	6.30	1.1	97.8	57.4	23.4	17.0	0.0	0.0	0.0	2.1	2.1
	The policy has been integrated into state/LGA policy framework	6.09	1.4	95.8	53.2	21.3	21.3	0.0	0.0	0.0	2.1	2.1
	The policy is being successfully implemented by the state/LGA	6.19	1.1	97.9	53.2	21.3	23.4	0.0	0.0	0.0	2.1	2.1
Katsina												
	I am satisfied with the implementation of the policy	6.00	1.4	88.7	42.9	38.8	17.0	0.0	0.0	8.2	0.0	8.2
	The policy has been integrated into state/LGA policy framework	5.88	1.6	98.9	42.9	34.7	21.3	0.0	0.0	8.2	2.0	10.2
	The policy is being successfully implemented by the state/LGA	5.71	1.7	92.8	44.9	24.5	23.4	4.1	0.0	10.2	2.0	12.2
Kn &Kt												
	I am satisfied with the implementation of the policy	6.15	1.2	94.8	50.0	31.3	13.5	0.0	0.0	4.2	1.0	5.2
	The policy has been integrated into state/LGA policy framework	5.98	1.5	92.7	47.9	28.1	16.7	0.0	4.2	2.1	1.0	7.3
	The policy is being successfully implemented by the state/LGA	5.95	1.5	90.8	49.0	22.9	18.9	2.1	0.0	5.2	2.1	7.3
	Nonparticipating communities											
Kano												
	I am satisfied with the implementation of the policy	5.52	2.2	79.2	56.3	10.4	12.5	2.1	2.1	2.1	14.6	18.8
	The policy has been integrated into state/LGA policy framework	5.50	2.2	79.1	50.0	20.8	8.3	2.1	2.1	2.1	14.6	18.8
	The policy is being successfully implemented by the state/LGA	5.56	2.2	81.3	54.2	16.7	10.4	0.0	2.1	2.1	14.6	18.8

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Katsina												
	I am satisfied with the implementation of the policy	6.29	1.0	95.9	47.9	43.8	4.2	0.0	2.1	2.1	0.0	4.2
	The policy has been integrated into state/LGA policy framework	5.88	1.5	87.5	45.8	29.2	12.5	0.0	4.2	8.3	0.0	12.5
	The policy is being successfully implemented by the state/LGA	5.77	1.7	83.3	47.9	27.1	8.3	0.0	4.2	12.5	0.0	16.7
Kn &Kt												
	I am satisfied with the implementation of the policy	5.91	1.7	87.5	52.1	27.1	8.3	1.0	2.1	2.1	7.3	11.5
	The policy has been integrated into state/LGA policy framework	5.69	1.9	83.3	47.9	25.0	10.4	1.0	3.1	5.2	7.3	15.6
	The policy is being successfully implemented by the state/LGA	5.67	2.0	82.3	51.0	21.9	9.4	0.0	3.1	7.3	7.3	17.7

b. As a result of government policies at the Federal level, the gap between potentially realizable yields and actual yields realized on farmers' fields is narrowing.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	6.02	1.7	91.4	61.7	10.6	19.1	0.0	0.0	2.1	6.4	8.5
	The policy has been integrated into state/LGA policy framework	6.00	1.5	89.3	57.4	12.8	19.1	4.3	0.0	2.1	4.3	6.4
	The policy is being successfully implemented by the state/LGA	5.85	1.7	89.3	51.1	19.1	19.1	0.0	0.0	6.4	4.3	10.7
Katsina												
	I am satisfied with the implementation of the policy	5.45	1.5	83.7	18.4	51.0	14.3	2.0	4.1	8.2	2.0	14.3
	The policy has been integrated into state/LGA policy framework	5.16	1.7	66.6	14.3	46.9	18.4	2.0	2.0	12.2	4.1	18.3
	The policy is being successfully implemented by the state/LGA	5.02	1.8	75.5	16.3	38.8	20.4	2.0	4.1	14.3	4.1	22.5
Kn &Kt												
	I am satisfied with the implementation of the policy	5.73	1.6	87.6	39.6	31.3	16.7	1.0	2.1	5.2	4.2	11.5
	The policy has been integrated into state/LGA policy framework	5.57	1.7	84.4	35.4	30.2	18.8	3.1	1.0	7.3	4.2	12.5
	The policy is being successfully implemented by the state/LGA	5.43	1.8	82.3	33.3	29.2	19.8	1.0	2.1	10.4	4.2	16.7
Nonparticipating communities												

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kano												
	I am satisfied with the implementation of the policy	5.77	2.0	83.3	60.4	14.6	8.3	0.0	2.1	4.2	10.4	16.7
	The policy has been integrated into state/LGA policy framework	5.50	2.3	79.1	58.3	10.4	10.4	0.0	2.1	2.1	16.7	20.9
	The policy is being successfully implemented by the state/LGA	5.46	2.3	79.1	58.3	8.3	12.5	0.0	0.0	4.2	16.7	20.9
Katsina												
	I am satisfied with the implementation of the policy	5.79	1.2	91.7	31.3	33.3	27.1	4.2	0.0	4.2	0.0	4.2
	The policy has been integrated into state/LGA policy framework	5.33	1.5	83.4	22.9	29.2	31.3	2.1	4.2	10.4	0.0	14.6
	The policy is being successfully implemented by the state/LGA	5.04	1.8	77.1	22.9	22.9	31.3	2.1	0.0	20.8	0.0	20.8
Kn &Kt												
	I am satisfied with the implementation of the policy	5.78	1.7	87.5	45.8	24.0	17.7	2.1	1.0	4.2	5.2	10.4
	The policy has been integrated into state/LGA policy framework	5.42	1.9	81.2	40.6	19.8	20.8	1.0	3.1	6.3	8.3	17.7
	The policy is being successfully implemented by the state/LGA	5.25	2.1	78.1	40.6	15.6	21.9	1.0	0.0	12.5	8.3	20.8

c. Because of government policy, the unified and all inclusive extension delivery system under the Agricultural Development Projects is in place and working.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	6.23	1.3	93.5	57.4	25.5	10.6	2.1	0.0	2.1	2.1	4.2
	The policy has been integrated into state/LGA policy framework	6.34	1.2	95.7	61.7	25.5	8.5	0.0	0.0	2.1	2.1	4.2
	The policy is being successfully implemented by the state/LGA	6.26	1.3	95.8	59.6	21.3	14.9	0.0	0.0	2.1	2.1	4.2
Katsina												
	I am satisfied with the implementation of the policy	6.08	1.2	91.8	44.9	34.7	12.2	4.1	4.1	4.1	0.0	8.2
	The policy has been integrated into state/LGA policy framework	5.76	1.6	83.7	44.9	24.5	14.3	6.1	0.0	8.2	2.0	10.2
	The policy is being successfully implemented by the state/LGA	5.59	1.7	79.6	40.8	24.5	14.3	6.1	2.0	12.2	0.0	14.2

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kn &Kt												
	I am satisfied with the implementation of the policy	6.16	1.2	92.7	51.0	30.2	11.5	3.1	0.0	3.1	1.0	4.1
	The policy has been integrated into state/LGA policy framework	6.04	1.5	89.6	53.1	25.0	11.5	3.1	0.0	5.2	2.1	7.3
	The policy is being successfully implemented by the state/LGA	5.92	1.5	87.5	50.0	22.9	14.6	3.1	1.0	7.3	1.0	9.3
Non- Participating communities												
Kano												
	I am satisfied with the implementation of the policy	5.73	1.9	87.4	45.8	33.3	8.3	0.0	0.0	6.3	8.3	14.6
	The policy has been integrated into state/LGA policy framework	5.77	1.9	85.5	50.0	29.2	6.3	0.0	0.0	6.3	8.3	14.6
	The policy is being successfully implemented by the state/LGA	5.71	1.9	85.4	47.9	27.1	10.4	0.0	0.0	6.3	8.3	14.6
Katsina												
	I am satisfied with the implementation of the policy	6.13	1.1	63.7	45.8	3.3	14.6	2.1	2.1	2.1	0.0	4.2
	The policy has been integrated into state/LGA policy framework	5.65	1.6	83.4	41.7	22.9	18.8	2.1	4.2	10.4	0.0	14.6
	The policy is being successfully implemented by the state/LGA	5.6	1.7	77.2	39.6	18.8	18.8	6.3	4.2	12.5	0.0	16.7
Kn &Kt												
	I am satisfied with the implementation of the policy	5.93	1.6	89.5	45.8	33.3	10.4	1.0	1.0	4.2	4.2	9.4
	The policy has been integrated into state/LGA policy framework	5.71	1.8	84.3	45.8	26.0	12.5	1.0	2.1	8.3	4.2	14.6
	The policy is being successfully implemented by the state/LGA	5.58	1.8	68.3	43.8	22.9	14.6	3.1	2.1	9.4	4.2	15.7

11. Gender policy

a. Because of government policies, women in my community are being empowered and unequal power relations between men and men are being removed at all levels.

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Participating communities												
Kano												
	I am satisfied with the implementation of the policy	4.62	2.8	61.8	51.1	6.4	4.3	2.1	0.0	0.0	36.2	36.2
	The policy has been integrated into state/LGA policy framework	4.62	2.8	61.8	51.1	4.3	6.4	2.1	0.0	2.1	34.0	36.1
	The policy is being successfully implemented by the state/LGA	4.62	2.8	61.8	51.1	4.3	6.4	2.1	0.0	2.1	34.0	36.1
Katsina												
	I am satisfied with the implementation of the policy	5.67	1.6	85.8	32.7	44.9	8.2	0.0	2.0	10.2	2.0	14.2
	The policy has been integrated into state/LGA policy framework	5.31	1.7	79.5	22.4	40.8	16.3	2.0	4.1	12.2	2.0	18.3
	The policy is being successfully implemented by the state/LGA	5.45	1.6	71.6	26.5	36.7	8.4	2.0	6.1	10.2	0.0	16.3
Kn &Kt												
	I am satisfied with the implementation of the policy	5.16	2.3	74	41.7	26.0	6.3	1.0	1.0	5.2	18.8	25.0
	The policy has been integrated into state/LGA policy framework	4.97	2.3	70.9	36.5	22.9	11.5	2.1	2.1	7.3	17.7	27.1
	The policy is being successfully implemented by the state/LGA	5.04	2.3	71.8	38.5	20.8	12.5	2.1	3.1	6.3	16.7	26.1
Nonparticipating communities												
Kano												
	I am satisfied with the implementation of the policy	4.19	2.9	52.1	45.8	6.3	0.0	2.1	2.1	2.1	41.7	45.9
	The policy has been integrated into state/LGA policy framework	4.35	2.8	58.4	41.7	14.6	2.1	0.0	0.0	4.2	37.5	41.7
	The policy is being successfully implemented by the state/LGA	4.23	2.8	56.3	41.7	10.4	4.2	0.0	2.1	0.0	41.7	43.8
Katsina												
	I am satisfied with the implementation of the policy	5.63	1.5	87.5	27.1	39.6	20.8	4.2	2.1	2.1	4.2	8.4
	The policy has been integrated into state/LGA policy framework	5.04	1.5	79.1	10.4	33.3	35.4	6.3	2.1	10.4	2.1	14.6
	The policy is being successfully implemented by the state/LGA	5.10	1.5	77.1	10.4	39.6	27.1	6.3	2.1	12.5	0.0	14.6

State	Statement number	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Kn &Kt												
	I am satisfied with the implementation of the policy	4.91	2.4	69.8	36.5	22.9	10.4	3.1	2.1	2.1	22.9	27.1
	The policy has been integrated into state/LGA policy framework	4.70	2.3	68.8	26.0	24.0	18.8	3.1	1.0	7.3	19.8	28.1
	The policy is being successfully implemented by the state/LGA	4.67	2.3	66.6	26.0	25.0	15.6	4.2	2.1	6.3	20.8	29.2

Annex 3. Summary of responses on sources of conflicts in the community.

State	Statement	Mean value	S.D	% agree	% agree 3	% agree 2	% agree 1	AD	% disagree 1	% disagree 2	% disagree 3	% disagree
Nonparticipating Communities												
Kano												
	Competition over land resources	4.10	2.6	54.1	33.3	8.3	12.5	2.1	4.2	4.2	35.4	43.8
	Incompatibility between the goals of livestock farmers and crop farmers	3.48	2.7	45.9	27.1	2.1	16.7	0.0	2.1	4.2	47.9	54.2
	Injustice in the distribution of arable land	4.04	2.7	54.2	37.5	2.1	14.6	0.0	2.1	6.3	37.5	45.9
	Differences in the rate of economic progress of different groups.	3.75	2.7	48	31.3	4.2	12.5	0.0	6.3	4.2	41.7	52.2
	Unkept promises made by the authorities.	3.69	2.7	48.1	31.3	4.2	12.5	0.0	4.2	2.1	45.8	52.1
	Differences in the values and culture of different groups	3.52	2.6	45.9	27.1	2.1	16.7	0.0	4.2	4.2	45.8	54.2
	Lack of functioning mechanisms for dialog and communication.	3.65	2.6	48	25.0	6.3	16.7	2.1	2.1	6.3	41.7	50.1
Katsina												
	Competition over land resources	5.59	1.9	84.7	32.6	47.8	4.3	0.0	0.0	6.5	8.7	15.2
	Incompatibility between the goals of livestock farmers and crop farmers	5.35	1.7	84.8	17.4	47.8	19.6	2.2	2.2	2.2	8.7	11.1
	Injustice in the distribution of arable land	5.67	1.4	89.2	26.1	45.7	17.4	2.2	0.0	6.5	2.2	8.7
	Differences in the rate of economic progress of different groups.	5.50	1.9	82.6	39.1	28.3	15.2	0.0	0.0	13.0	4.3	17.3
	Unkept promises made by the authorities.	5.26	1.7	84.8	19.6	34.8	30.4	2.2	0.0	6.5	6.5	13.0
	Differences in the values and culture of different groups	6.52	0.6	100	58.7	34.8	6.5	0.0	0.0	0.0	0.0	0.0
	Lack of functioning mechanisms for dialog and communication.	6.61	0.5	100.0	60.9	39.1	0.0	0.0	0.0	0.0	0.0	0.0
Kn & Kt												
	Competition over land resources	4.83	2.4	49.2	33.0	27.7	8.5	1.1	2.1	5.3	22.3	30.7
	Incompatibility between the goals of livestock farmers and crop farmers	4.39	2.4	64.9	22.3	24.5	18.1	1.1	2.1	3.2	28.7	34.0
	Injustice in the distribution of arable land	4.84	2.3	71.3	31.9	23.4	16.0	1.1	1.1	6.4	20.2	27.7
	Differences in the rate of economic progress of different groups.	4.61	2.5	64.9	35.1	16.0	13.8	0.0	3.2	8.5	23.4	35.1
	Unkept promises made by the authorities.	4.46	2.4	65.4	25.5	19.1	21.3	1.1	2.1	4.3	26.6	33
	Differences in the values and culture of different groups	4.99	2.4	72	42.2	18.1	11.7	0.0	2.1	2.1	23.4	27.6
	Lack of functioning mechanisms for dialog and communication.	5.10	2.4	73.4	42.6	22.3	8.5	1.1	1.1	3.2	21.3	25.6

Annex 4. KKM – PLS policy gap and resource use conflicts study

FORM HH1

HOUSEHOLD QUESTIONNAIRE

IDENTIFICATION

State: Enumerator

ADP Zone: Interview date (dd/mm/yy)

LGA: Reviewed by:

Community Name: Reviewed Date (dd/mm/yy)

Community No. Farmer Number

Farmer Name : Relationship to hh head*

**(head, spouse, child, others Specify)*

FARMER CHARACTERISTICS

H1 Age of farmer (yrs): H2. Sex of farmer (M/F):

H3 Ethnic group: H4. Years living in village:

H5 a) Has the farmer attended school, and if so what kind?*

0. None; 1= Koranic; 2= Formal; 3= Both Koranic and formal; 4 = other (specify)

b) If the farmer attended formal school, what was the highest level attended?

0 = none; 1= literacy classes; 2= Primary, 3=JSS, 4=SSS; 5 = Post-secondary

H6 Household Composition by age, gender and main occupation

How many people currently live in this household?

	Members		
	Male	Female	Total
Adults > 60 years			
	Farming		
	Livestock		
	others		
Adults 16 – 60 years			
	Farming		
	Livestock		
	others		
Children 0-15 years			
	Farming		
	Livestock		
	others		

(Include household members who are normally resident, including children away at boarding school and adults temporarily away including for example, migrant laborers. Enter number of people, including zeros. Probe checks consistency and inclusion only of normally resident members).

HOUSEHOLD ECONOMY

H7. Approximately what percentage of its annual income does the household get from the following sources? *Read out all sources to the farmer before asking for a response for each. Use the 10 fingers method.*

- Crop sales Livestock/livestock product
- Casual paid employment of h/h member(s) Cash
- Non-farm business

Other (Specify): -----

H8. Approximately what percentage of its food does the household get from the following sources?

- Own farm production Purchased:
 - Gifts: Other (Specify) -----
- Check sum 100%*

H9. Does the household own any of the following assets?
(If no then enter '0' against owned < if yes for any item then enter '1' against owned and ask)

What is the working condition at the time of the survey?

	Owned? No/Yes (0/1)	Working condition at time of survey*
Bicycle		
Motorcycle		
Car		
Radio		

**Code: 0 = not working, 1= working, 9 = not known. If the household owns more than 1 and at least 1 is working, code 1*

H10. Approximately what percentage of its labor does the farmer get from the following sources?
(Read out all sources to the farmer before asking for a response for each. Use the 10 fingers method)

Household: Hired: Exchange: Other: Checksum 100%

H11. Has the farmer received credit for farming activities in the last 12 months from the following sources?
(Name each source and record 0 for 'No' 1 for 'yes' or 9 for 'unknown')

- Commercial bank: Trader: Money lender: Relative:
- Government: Other (specify) -----

(Note that credit may be received in cash or kind)

H12. Has the farmer received any farming information in the last 12 months from the following sources? *(Name each sources and record 0 for 'No' or 1 for 'yes' or 9 for 'unknown')*

Radio TV: Agric Extension or Research: Specify:

Other (specify) -----

(Agric extension or Research, specify agency – this may include Universities, Institutes, ADPs, NGOs, etc)

H13. Does the farmer belong to any agricultural organization?
(If No then record 0 and move to next question, if yet, then record '1' and ask)

What type of organization is this?

H14. Has the farmer used any of the following inputs in the last 12 months?
(If 'no' then enter 0 against 'Use' and 'Source' and move to next item. If 'yes' for any item then enter '1' against 'Use' and then ask)

From what source did you obtain this input?

*(*sources codes: 0= not used; 1 = market/commercial/ company purchase; 2 = government, 3 = NGO; 4 = other (specify); 9 = not known)*

	Use (1/0)	Sources*
Fertilizer		
Herbicide		
Agrochemicals		
Improved seeds		
Animal feed		
Veterinary drugs		

H15. What are the major difficulties the farmer faces?

ASSESSMENT OF POLICY GAP

H16. Please assess the effectiveness of the implementation and impact of the following policies by indicating your level of agreement or disagreement with the statement against the policies. *(Please ask the respondent to agree or disagree with the following statement. If he agrees or disagrees with the statement, circle the word “agree” or “disagree” then ask the respondent to state how strongly he agrees or disagrees with the statement with the aid of the relevant point scale on which the number ‘1’ stand for mild strength of agreement or disagreement and the number 3 stand for very strong agreement or disagreement. If the farmer is indifferent to the statement, then circle both “agree” and “disagree”)*

1. Pricing and marketing policies

a. Because of government policy, information is being provided that will help me know the best price at which to sell my produce.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

b. Because of government’s policy of being the buyer of last resort which is aimed at stabilizing prices is in place and working.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

c. Because of government policy on buffer stock, storage scheme of the State Government has been established and is working well.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

2. Seed policies

a. Because of government policy, the introduction, distribution and adoption of seeds and seedlings have improved.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

3. Fertilizer policies

Because of government policy of privatization and liberalization, I can now buy or receive the quantity and quality of fertilizer that I need in a timely way.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

4. Credit supply policies

a. Because of government policy, I have access to micro-credit and rural credit institutions.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

b. Because of government policy there are self-help groups in my community which help us to mobilize credit delivery activities.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

5. Agricultural cooperative policies

a. Because of government policy, farmers in my community are being mobilized for agricultural and rural development activities through cooperative organizations and farmer associations.

iv. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

v. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

vi. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

6. Land use policy

a. State and Local government policies are ensuring access to land for all those wishing to engage in farming.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

b. Because of government policy, there are programs in place to conserve and sustainably manage the natural resources in the community for the benefit of present and future generations.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

7. Livestock production policies

a. Because of government policy, water access points for livestock in the LGA have been developed.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

b. As a result of government policies grazing reserves are being reactivated and preserved to enhance the interaction among farmers, pastoralists, and rural dwellers.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- c. Because of government policy, my community is benefiting from incentive policies (subsidies, etc) for livestock farmers to procure vaccines and veterinary drugs.

- i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

8. Water resources and irrigation development policies

- a. Because of government policy, programs for the management of irrigation areas, irrigation facilities and dams are in place and functioning.

- i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

9. Rural infrastructure development policies

- a. Because of government policy, government is providing infrastructures and incentives to encourage the development of rural banking, primary health care, and cottage industries.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- b. Because of government policy, the level of government investments in building rural roads has improved from the last five years.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

10. Agricultural extension and technology transfer policies

- a. Government policy supports the funding of agricultural research and this is resulting in the development of appropriate technology for agriculture and all categories of farmers are having access to the output of the research system through the extension services of the states and local governments.

iv. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

v. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

vi. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- b. As a result of government policies at the Federal level, the gap between potentially realizable yields and actual yields realized on farmers' fields is narrowing.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- c. Because of government policy, the unified and all inclusive extension delivery system under the Agricultural Development Projects is in place and working.

iv. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

v. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

vi. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

11. Gender policy

- a. Because of government policies, women in my community are being empowered and unequal power relations between men and men are being removed at all levels.

i. I am satisfied with the implementation of the policy

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

ii. The policy has been integrated into state/LGA policy framework

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

iii. The policy is being successfully implemented by the State/LGA

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

NRM CONFLICTS AND MANAGEMENT

H17 Source of the natural resources management conflict

((Please ask the respondent to agree or disagree with the following statement. If he agrees or disagrees with the statement, circle the word "agree" or "disagree" then ask the respondent to state how strongly he agrees or disagrees with the statement with the aid of the relevant point scale on which the number '1' stand for mild strength of agreement or disagreement and the number 3 stand for very strong agreement or disagreement. If the farmer is indifferent to the statement, then circle both "agree" and "disagree")):

- a. I am happy with the way land is accessed by all parties in the area.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

(If he is happy, move to question i.)

- b. Conflicts over land use in the areas arise because of competition over land resources.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- c. Conflict over land use in the area arises because; the goals of the livestock farmers and the crop farmers are incompatible.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- d. Conflicts arise over land resources because of unjust distribution of arable land.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- e. Conflicts arise over land resources because things have gotten worse than what they were before and my group is much poorer today than in the past.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- f. Conflicts arise over land resources because promises made to us by the authorities have not been kept.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- g. Conflicts arise over land resources because the values and culture of the two parties (crop and livestock) are different.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- h. Conflicts between the two groups have increased because of poor functionality mechanism for dialogue and communication.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- i. There are no conflicts over land use in the areas because there are no competitions over land resources.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- j. There are no conflicts over land use in the area because; the goals of the livestock farmers and the crop farmers are compatible.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- k. There are no conflicts over land resources because of just distribution of arable land.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- l. There are no conflicts over land resources because things are better than what they were before and my group is much richer today than in the past.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- m. There are no conflicts over land resources because promises made to us by the authorities have been kept.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- n. There are no conflicts over land resources because the values and culture of the two groups are the same.

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

- o. There are no conflicts between the two parties because of good functionality mechanism for dialogue and communication

	Very slightly	Moderately	Very strongly
Agree	1	2	3
Disagree	1	2	3

H18 RESOLUTION OF THE CONFLICTS

- a. Please tell us in your own words what you think are the three most important areas we should focus on if we want to successfully resolve existing conflicts and prevent future conflicts.

- b. Please tell us in your own words how you think we should go about addressing these issues.

- c. How do you feel the Local Government should collaborate with your community in the process of conflict management?

- d. Are there traditional approaches in place that have been effective for managing conflicts? Are they getting more effective or less effective? Why?

