

SSACP

Kano-Katsina-Maradi [KKM]

Pilot Learning Site

Validation Report



SUB SAHARAN AFRICA CHALLENGE PROGRAMME

KANO-KATSINA-MARADI (KKM) PILOT LEARNING SITE

Validation Report



**Forum for Agricultural Research in Africa
12 Anmeda Street, Roman Ridge,
PMB CT 173, Accra, Ghana
2012**

Citation: FARA 2012. Sub Saharan African Challenge Program, Kano-Katsina-Maradi (KKM) Pilot Learning Site Validation report. Forum for Agricultural Research in Africa.

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Forum for Agricultural Research in Africa (FARA)
12 Anmeda Street, Roman Ridge,
PMB CT 173, Accra, Ghana

Tel: + 233 302 772823 / 302 779421

Fax: + 233 302 773676

Email: info@fara-africa.org

ISBN 978-9988-8440-0-X (PDF)

Validation team

Skill/Expertise	Team Jim Ellis-Jones, A4D, Silsoe, UK		
	Maradi Sub-team	Kano Sub-team	Katsina Sub-team
1. Policy Analysis		Prof. J.O. Gefu ¹ (NAPRI/ABU, Zaria)	Mr. Muhammad Badawi ¹ , KNARDA, Kano
2. Agri-business Enterprise Development	Ibrahim Kongori, Director of Olga Oil, Maradi	Mrs Hajia Hauwa'u Kabir Ahmed, Excel Farm Care Service Ltd, Kano	Mr. Mohammed Aminu Audi, MD, Extracta Foods Ltd. Kano
3. Socio-economics/ extension	Mme Ibro Germaine De Souza ¹ , INRAN, Niamey	Dr.(Mrs) AS. Sanni, IAR/ABU, Zaria	Dr. (Mrs) D N. Maigida, IAR/ABU, Zaria
4. Agronomy/ Soil Science	Mr. Nouri Maman, INRAN, Maradi	Dr. J.E. Oyibe NAERLS/ABU, Zaria	Dr. M.A. Hussaini, Bayero University, Kano.
5. Integrated Pest Management	Dr. Toudou Adam, Univ. of Niamey	Dr. M.O. Ogunlana, IAR/ABU	
6. Post Harvest Technology and Agric. Engineering	Mr. Kaka Saley, INRAN,	Dr. Y.D. Yiljep, NAERLS/ABU	Engr. A.O. Lawal, NAERLS/ABU
7. Animal Science/Health	Dr. Marichatou Hamani	Mr. S.M. Otaru, NAPRI/ABU	Dr. G. N. Akpa, FOA/ABU

¹ Sub-team leaders

RESOURCE PERSONS

Overall coordination	Professor Alphonse Emechebe
Gender Analysis	Dr. (Mrs) D. Maigida, IAR, ABU, Zaria. (also a team member)
GIS	Dr. Chris Legg, IITA, Ibadan
Crop Improvement	Mr. Sanusi Mohammed, Bayero University, Kano.
Water Management	Dr. A.A. Ramalan, Dept of Agric. Engineering, ABU, Zaria.
FARA facilitation team	Assetou Kanoute, Prof N Nashlai (F&M Consortium),

Acknowledgements

The validation team would like to acknowledge the invaluable contributions made by the many stakeholders who have provided freely of their time and expertise to provide the information provided in this report. Contributions have been made by farmers, male and female, young and old, their leaders, traders, input suppliers, processors, Government officials and village extension workers.

The Validation team would also like to express thanks for contributions from the IARCs centres (ICRISAT, IITA and ILRI), the NARES (IAR, INRAN, NAPRI and NAERLS), State ADPS at Head Office and village level, SG 2000, Premier and Alheiri Seeds and the All Farmers' Association of Nigerian

Finally we wish to acknowledge the support of IITA in facilitating our work through provision of transport, arranging accommodation and providing office facilities thereby ensuring we were able to work with minimal disruption and complete an onerous task within a 30-day period.

Acronyms and abbreviations

ADPs	Agricultural Development Programmes (acronym for State Agricultural Development Authorities)
AFAN	All Farmers' Association of Nigeria
ABU	Ahmadu Bello University
CBOs	Community based organisations
CORAF	Conseil Ouset et Centre Africain pour la Recherché et le Developement Agricoles
FARA	Forum on Agricultural Research in Africa
GIS	Geographic information systems
HIV/AIDS	Human immuno-deficiency virus/ acquired immune deficiency syndrome
IARIs	International Agricultural Research Institutions
IAR	Institute for Agricultural Research
IAR4D	Integrated agricultural research for development
ICLS	Integrated crop and livestock systems
IITA	International Institute for Tropical Agriculture
ILRI	International Livestock Research Institute
INRM	Integrated natural resource managment
IPM	Integrated pest management
IPPM	Integrated pest and production management
IRRI	International Rice Research Institute
ISWFM	Integrated soil, water and fertility management
KKM	Kano, Katsina and Maradi
KNARDA	Kano National Agricultural Rural Development Authority
MDGs	Millennium development goals
NAPRI	National Animal Production Research Institute
NARES	National agricultural research and extension institutions
NARIs	National agricultural research institutions
NAERLS	National Agricultural Extension and Research Liaison Sevices
NEPAD	New Partnership for African Development
NGOs	Non Governmental organisations
NRM	Natural Resource management
PSC	Programme steering committee
PLS	Pilot learning site
SG 2000	Sasakawa Global 2000
SSA CP	Sub-Saharan African Challenge Programme
WARDA	West African Rice Development Association
WECARD	West and Central African Council for Agricultural Research and Development

Report of the Validation Team, Kano-Katsina-Maradi Pilot Learning Site
Synthesis of 20 Village Reports and three Area Reports

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EXECUTIVE SUMMARY

Introduction, objectives and methodology

FARA's SSA CP is based on the IAR4D paradigm, designed to foster synergies among disciplines and institutions, along with renewed commitment to change at all levels, from farmers to national and international policy-makers. For the first phase of the Programme, three PLS were selected one site per sub-region in SSA. The site selected for West Africa was the KKM Niger and Nigeria transect which includes Kano, Katsina, part of Kaduna and Maradi. The launching workshop was held in Kano during March 2005, during which it was decided to constitute a team to conduct validation studies for constraints and entry points. This report presents the findings of that study. The validation exercise was undertaken by a team of eighteen people split into three sub-teams supported initially by specialist in appropriate fields, to undertake the validation at four levels (community, area, state, and region), including farmers, traditional leaders, marketers, government and NGO, private sector and researchers. Over 90% of the time was spent at local community level, using participatory methods, in 20 villages selected as being representative of the PLS. The work was undertaken over a 30-day period, resulting in 20 village, three area and this overall synthesis report.

Constraints, opportunities, entry points, hypotheses and outputs

Constraints were prioritised (Table 1) along with opportunities, from which entry points and hypotheses were derived. Only constraints are shown in this summary.

Table 1: Constraints shown in priority order

Priority	Intensification	Natural resource management	Marketing	Policy
i)	Pest/diseases/weeds of crops	Land degradation as a result of declining soil fertility, erosion and siltation, deforestation, over grazing and desertification	High cost of inputs	Resource use conflicts between pastoralists and farmers
ii)	Drudgery due to high labour demand requiring labour-saving devices for field and processing produce	Limited grazing land due to encroachment by crop farmers, increasing livestock and overgrazing	Low prices of output	Ineffective implementation of regulation on livestock and crop theft (often as a result of conflict over NR)
iii)	Insufficiency of crop and livestock inputs	Drought	Adulteration of inputs (e.g. Agro-chemical and fertilizer)	Funding to control desertification
iv)	Pest/ and disease of livestock	Drying up <i>fadama</i> and <i>goulbi</i> as a result of upstream dams,	Poor access roads & market facilities	Low Local Government involvement in agriculture
v)	Inadequate appropriate technologies for crops and livestock profitability.		Inadequate working capital	Ineffective and inadequate extension
vi)	Inadequate irrigation infrastructure and facilities		Weak linkages with agro-processors	Low awareness or ignorance of existing government policies by farmers, traders, and others leading to breaking regulations
vii)				Inadequate and high cost of capital
viii)				Poor policies to control adulteration;
ix)				Inadequate subsidies ensuring farmers and not middlemen are the beneficiaries, lack of guaranteed prices.
x)				Inadequate infrastructures for marketing (roads, poor social infrastructure, electricity, water)
xi)				Limited Agro-processors incentive policies

Role of research

We see that the research undertaken in the first phase of the SSA CP will largely draw on the shelf and near market technologies, following a process, referred to as “due process”, which includes:

- Confirming priority problems
- Establishing local coping strategies
- Identifying best bet or near market technologies and evaluation criteria
- Identifying local groups to test farmer selected technology options
- On-farm testing/research over a period of 2-3 years
- Participatory evaluations at the middle and end of each season
- Facilitating scaling-up through stakeholder involvement during the research.

Empowering stakeholders

In order to ensure sustainability of IAR4D activities, we have identified through discussion with stakeholders the capacity building requirements, improvements to communication and knowledge systems, institutional and organisation change that should be considered.

Next steps

We have used the outputs derived from the hypotheses, entry points, opportunities and constraints that can be used to assist in the development of a logframe for the SSA-CP KKM programme. This includes 16 Outputs (Intensification-6, NRM-4, Markets-2, and Policy-4) (Table 2). Empowering actions are cross-cutting and should form part of project outputs and activities that will help in ensuring sustainability. This provides a framework for achieving, “Improved food security, reduction in poverty and vulnerability and improvement in livelihoods of communities in KKM”, through enhancing farmer competence and increasing the productive NR base (Figure 1).

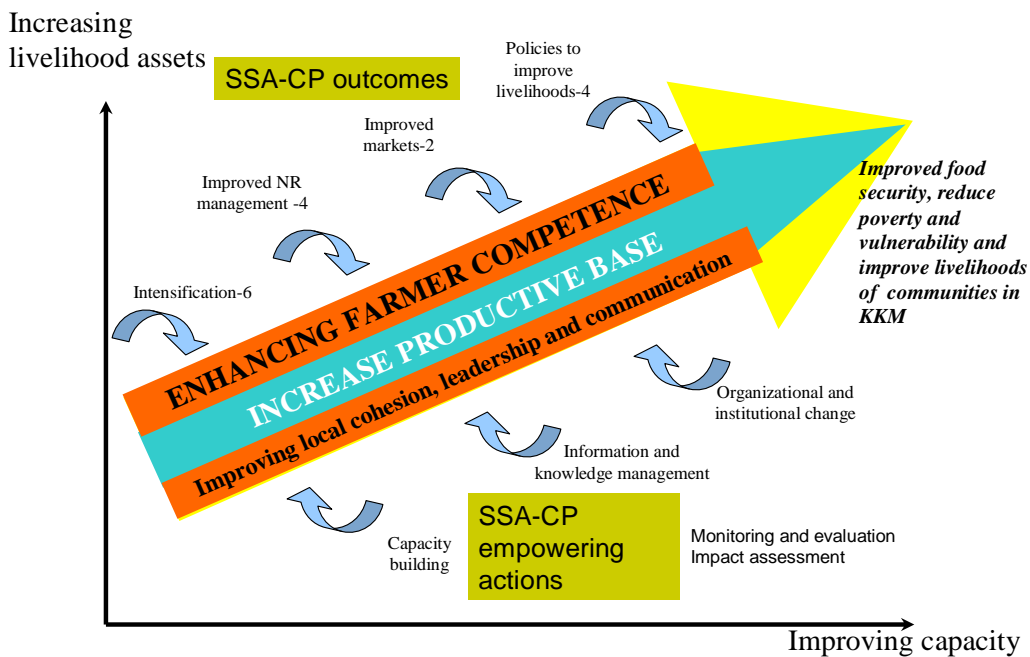


Figure 1: Enhancing farmer competence through an increased productive base

Table 2: Towards a logframe

Purpose or Outcome 1	Purpose or Outcome 2	Purpose or Outcome 3	Purpose or Outcome 4
Intensified and productive <u>smallholder farming systems</u>	Improved and sustainable management of <u>natural resources</u>	Efficient and effective input and output <u>marketing systems</u> developed	Improved <u>policy environment</u> for sustainable management of land, crops and livestock
Outputs	Outputs	Outputs	Outputs
<p>1.1 Increased production and productivity and reduced storage losses resulting from improved control of crop production and post harvest pests</p> <p>1.2 Increased production and productivity of labour through development of labour saving devices and technologies.</p> <p>1.3 Increased production and productivity of crops and livestock through development of appropriate improved low cost inputs (seed, ISWFM, ICLP) and cropping systems</p> <p>1.4 Increased livestock production and productivity resulting from improved pest and disease prevention/control through improved drug and vaccine availability and use.</p> <p>1.5 Increased crop and livestock production and productivity through development of appropriate technologies (cultural practices, varieties, high value products) linked to markets</p> <p>1.6 Increased crop production and productivity through development of appropriate irrigation technologies (for large, medium and small schemes)</p>	<p>2.1 Reduced land degradation and increased productivity through development of appropriate practices (agro-forestry, ISFM, ICLP and fuel saving alternatives)</p> <p>2.2 Improved management and rehabilitation of community grazing areas through community identification, selection and implementation (with community regulation) of appropriate options</p> <p>2.3 Increased production and productivity through development of appropriate small scale irrigation, rain water harvesting techniques, soil and water conserving practices</p> <p>2.4 Loss of valuable fadama and gulbi reduced through more effective environmental and social assessments of potential dam sites, providing a basis for improved policy in dam development</p>	<p>3.1 Increased profitability of agricultural enterprises through capacity building of farmer groups to access inputs, negotiate fair prices and access credit</p> <p>3.2 Increased productivity of both processors and farmers through improved links and partnerships resulting from contract farming, guaranteed prices and agro-processor supplied extension services.</p>	<p>4.1 Reduced conflict and NRM improvement resulting from development of a new approach involving LG, traditional leaders and farmer organisations to land management that can act as a blueprint for new policy.</p> <p>4.2 Improvement of local infrastructure for resolving problems of access for production and marketing as a result of community empowerment and provision of labour and LG provides materials and guidance in construction.</p> <p>4.3 Faster scaling-up and scaling-out of benefits from R&D as a result of improved extension approaches.</p> <p>4.4 More effective delivery of subsidies to resource poor farmers through voucher schemes</p>

1. BACKGROUND

The Sub-Saharan Africa Challenge Programme (SSA CP) is based on the “Integrated Agricultural Research for Development” (IAR4D) paradigm, designed to foster synergies among disciplines and institutions, along with renewed commitment to change at all levels, from farmers to national and international policy-makers. IAR4D draws on integrated natural resources management (INRM), which takes a systems approach to managing the interactions between crops, soils, pests, water, and human interventions in agriculture, but also encompasses the domains of policies and markets, and the effects that these have on the productivity, profitability and sustainability of agriculture (FARA, 2004).

The SSA CP, led by the Forum for Agricultural Research in Africa (FARA) identified three issues as the most significant constraints to reviving agriculture

- Failure of agricultural markets,
- Inappropriate policies, and
- Natural resource degradation.

Taking these constraints into consideration, the research and development agenda of IAR4D focuses on four objectives:

- i. To develop technologies for sustainably intensifying subsistence-oriented (low-input) farming systems.
- ii. To develop small-holder production systems that is compatible with sound natural-resource management.
- iii. To improve the accessibility and efficiency of markets for small-holder and pastoral products.
- iv. To catalyze the formulation and adoption of policies that will encourage innovation to improve the livelihoods of small-holders and pastoralists.

The broad scope of this work requires four support pillars to foster internalization of the new way of doing business, scaling-up programme outcomes to neighbouring villages and similar agro-ecosystems elsewhere on the continent, and to connect with local, national and international governments and institutions and the private sector. These are:

- i. Promotion of organizational and institutional change to enable cross-disciplinary research and development, and multi-institutional collaboration;
- ii. Capacity building for project teams, farmers and scientists in African institutions;
- iii. Information and knowledge management (including documentation of new methodologies developed) to disseminate widely the findings of IAR4D work; and
- iv. On-going monitoring and evaluation, and a systemic approach to impact assessment, to track programme progress towards overall goals, signal the need for mid-course adjustments, and document the returns on investment in IAR4D.

This framework of pillars and objectives, or outputs (Figure 2) has been used to structure this report.

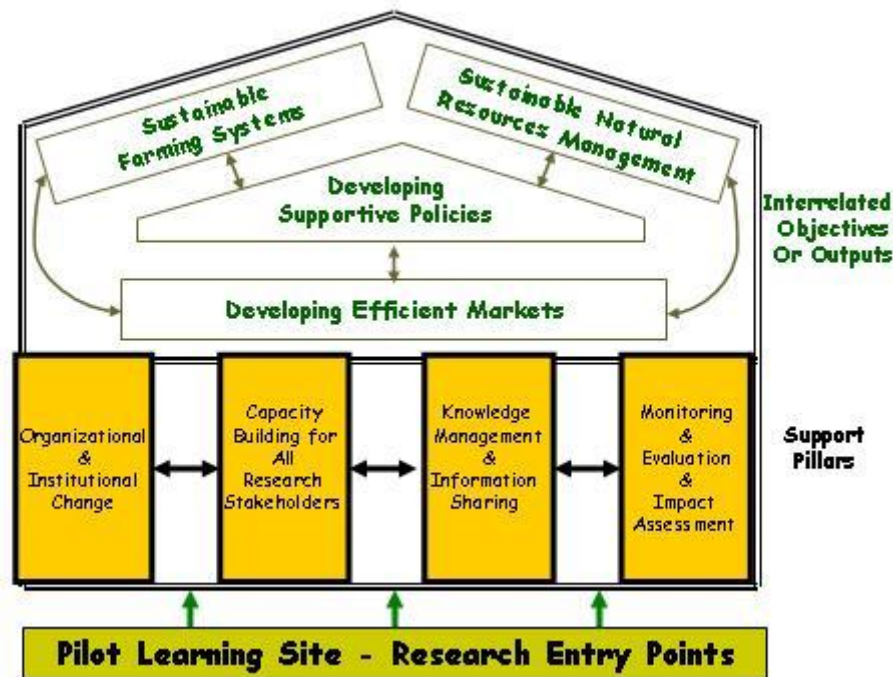


Figure 2: SSA-CP support pillars and interrelated objectives or outputs (FARA, 2004)

For the first phase of the Programme, Pilot Learning Sites (PLS) were selected by the Sub-regional Research Organizations in West, East/Central and Southern Africa, one site per sub-region, each characterized by a different but complementary set of constraints to sustainable development. The site selected for West Africa is the Kano, Katsina, Maradi (KKM), Niger and Nigeria transect. This covers approximately 85, 000 km², which range from 350 to 1200 masl. As one moves from the southern to the northern parts of the PLS both average annual and the length of the growing period decreases. Mean annual rainfall varies from 400-1100 mm and the length of the growing season from 2.5 to six months as one moves south. Temperatures range from a minimum of around 20C during the dry season (December-February) to a maximum of about 45C during the hot season (April-June). The area is predominantly flat grassland interspersed by *fadama*. Farmers rely primarily on rainfed mixed cropping systems (cereals-legumes). *Fadamas* offer opportunity for rice and horticultural crops as well as providing valuable grazing during the dry season. There is also a major irrigation scheme of 18000 ha in Kano State, as well as a number of underutilised large dam resources. The area has a good network of paved roads with Nigeria's major railway line passing through the area. Kano has an international airport and there are domestic airports in Sokoto and Maradi. Cross border trade between Maradi and Katsina and Kano is well established. The total population living in the area is approximately 18 million (218 km²), 60-80% of whom live below the poverty line (US\$1 per day) (FARA, 2004). The annual population growth rate is estimated to be 2.4% with an expected population of 51 million by 2030.

A Pilot Learning Team (PLT) was formed to address priority problems identified with local communities. The PLT is comprised of members from a variety of scientific disciplines (biophysical and social) and from diverse institutions (national agricultural research institutes, universities, CGIAR Centres and advanced research institutes; extension agencies; NGOs, community-based and farmers' organizations; and the private sector). The Launching Workshop of the KKM PLT was held in the Royal Tropicana Hotel, Kano, Nigeria from March 22-24, 2005. One of the major outcomes of the Launching Meeting was the decision

to constitute a team to conduct validation studies for constraints and entry points. This report presents the findings of that study. Terms of reference for the study are shown in Annex 1.

2. OBJECTIVES OF THE VALIDATION

The overall objective of the validation exercise was to develop and apply a workable, innovative, interactive and truly multi-stakeholder participatory approach to:

- (i) Identify the major constraints/problems for sustainable increase in productivity and profitability of the principal agricultural production systems – with concomitant improvement in food security and livelihoods and consequent reduction in poverty of both rural and urban poor – while maintaining and/or enhancing the natural resource base;
- (ii) Identify the major opportunities available now and in the future for improving food security and livelihoods and consequent reduction in poverty of stakeholders along the commodity chain and the resource-to-policy continuum; and
- (iii) Identify and prioritize inputs/contributions that stakeholders expect from research to alleviate the constraints/problems and realize the opportunities, with the biggest possible impact on livelihoods of not only the smallholders and pastoralists but also urban consumers and all other actors in the product chain whose collective participation is essential for alleviating the problems/constraints and realizing the opportunities.

Eleven specific objectives were identified in the terms of reference (Annex 1) each with an expected Output. These are detailed in this report. These outputs constitute information that IITA (the lead institution), CORAF/WECARD, and the PLS MC will use to formulate the research programme and the subsequent call for task forces to address the problems/constraints/issues and entry points. We have developed Outputs from hypotheses which can be used in development of a research programme.

3. METHODOLOGY

3.1. Validation teams

The validation exercise was undertaken by a team of eighteen people divided into three sub-teams, one for Kano, one for Katsina and a part of Zaria (both in Nigeria) and one of Maradi (in Niger). Each sub-team comprised 5-7 persons with broad expertise and skills in areas that were identified from available information as being necessary for affective implementation of the validation exercise. These included: socio-economics/sociology/extension, agronomy/soil science, animal science/health, integrated pest management, post-harvest processing, policy analysis, business enterprise development, and agricultural engineering/mechanization. In addition each sub-team had two women ensuring that women-related issues were appropriately addressed. Persons in each sub-team were fluent in Hausa, the local language.

3.2. Validation Approach and Tools

The KKM VT¹ developed an innovative, iterative and participatory approach using appropriate tools to guide and facilitate stakeholders to analyze their situation, analyze and prioritize their problems and identify existing opportunities and potential solutions for alleviating their constraints: The VT spent four days developing the approach subsequently used by each sub-teams in their field work. Key principals were i) that each member of the

¹ Most team members came from institutions active in the PLS. The VT was chaired by a scientist with acknowledged experience in the modern multiple stakeholder participatory approach, especially in respect of project identification and planning.

team was familiar with the components of the validation approach, ii) the same approach was used throughout with only minor modifications as dictated by local circumstances, iii) facilitation methods were designed to ensure full community participation, with special efforts made to include all factions and marginalized groups and iv) ensuring stakeholders were able to freely contribute their knowledge and experience and to develop interest in, and ownership of the activities and outcomes of any follow-up project.

To ensure a critical mass of expertise for the development of the approach, the core team was supported by resource persons with skills and expertise in: gender analysis, water management, GIS, crop improvement, the IAR4D approach, and facilitation.

3.3. Levels of Validation

Validation was implemented at four stakeholder levels.

- i) Community or Village level. This comprised all persons resident or working in the village or community and included three broad groups:
 - Farmers including both crop and livestock producers. This was considered the most important group whose detailed views were obtained on every aspect of the validation exercise.
 - Agricultural commodity marketers/traders (both retailers and wholesalers), agricultural product processors, artisans, petty traders, politicians, public servants, employers and employees of private sector, (including both men and women). These were often farmers and participated in the community discussions. Some individuals were interviewed separately.
 - Agricultural NGOs and village extension agents (VEAs) actually working in the community, regardless of whether they lived in or outside the community. Less time was spent with this group as their views complemented those of Group 1 and 2. The VEAs and/or NGOs will also serve as guides and/or interpreters.
- ii) Local and State Government Levels. Officials of Local Government together with those of the State Extension Agency introduced the VT to the community. Their views and those of other relevant State Government Officials were also obtained.
- iii) State Extension Agency Level, whose officials provided valuable secondary data, as well as valuable useful information on market and policy issues as well as on capacity development needs. In addition they formally introduced the VT to the community and authorized their staff to work with the team. Each of the two tiers of government was also informed of the report of the validation as part of effort to sensitize them on the SSA CP and its imminent field implementation in their areas of authority.
- iv) Those institutions operating at Regional at State level who have a key interest in development in KKM. This included CG centres, NARES, NGOs, private sector companies and one APEX farmers' organization. Reports of discussions with each of these institutions are available (Annexure 2)

3.4. Approaches used in each community

After appropriate courtesy visits to Local Government Headquarters, District Heads and traditional leaders a meeting was convened with as many community members as were able to be present. After introductions and establishing the purpose of the meeting a plenary discussion on the history of agriculture in the area was invited. This was followed by a series of parallel focus groups discussions with different groups within the community (Table 3).

This format was modified according to circumstances pertaining at the time. Each meeting took place over a period between two and four days with discussions lasting 4-5 hours each day. As far as possible a summary of each focus group discussion was presented by back to a plenary meeting of the community. This provided time for follow-up discussions with other stakeholder groups as well as collation and analysis of the results. Reports from each village would be returned to each village when completed².

Table 3: Structure of community discussions

Discussion	All	Men	Women	Young men	Young women	Other stakeholders
Livelihoods	X					
Resource (Wealth) ranking	X					
Infrastructure	X					
Institutions		X	X			
Networks, communication, knowledge and skills		X	X			
Cropping based systems		X	X			
Livestock based systems		X	X			
Seasonal calendar, labour issues and constraints (including HIV-Aids)		X	X			
Markets, inputs and processing		X	X			X
Problems		X	X	X	X	
Opportunities		X	X	X	X	

Participatory tools used in the discussions included: livelihoods analysis, resource (or wealth) ranking, institutional analysis, seasonal calendars, gender analysis as well as various ranking techniques (preference and pair-wise ranking). All team members participated in training in participatory methods, assisting in development/modification of appropriate tools through role play and discussion during the 4-day preparatory phase. This was supported by resource persons.

3.5. Selection of the villages/communities

The criteria used for selection of the village and communities included those identified by stakeholders at the Kano Launch meeting, namely: availability of information, year round accessibility, workability in terms of probability of success based on knowledge of the community, representative of broader target areas and speed and ease of predicted achievement. Within this framework biophysical and socio-economic criteria were considered including rural population density, rainfall (and hence length of growing period), access to markets and previous collaborative research (Manyong *et al.*, 1999). Selected villages are shown in Table 4 and Map 1 and detailed in Maps 2-4 (Annex 2).

² This had not yet occurred, as priority was given to completion of this synthesis report.

Table 4: Villages/communities selected by the VT

Area/village	Rainfall mean annual mm	Population density		Market access G, M or P
		people per km ²	H, M or L	
<u>Kano</u>				
Bunkure	700-800	250-340	H	M
Gabasawa	600-700	210-250	M	M
Kofa	700-800	250-340	MH	G
Maimakawa	600-700	210-250	M	M
Rogo	900-1000	170-210	ML	G
Shanono	600-700	210-250	M	P
Ungogo	600-700	340-570	H	G
<u>Katsina/Zaria</u>				
Anchwa	800-900	210-250	M	M
Gangara	900-1000	250-340	H	G
Kafur	800-900	140-170	ML	P
Makera	700-800	120-140	ML	P
Maiduwa	500-600	250-340	MH	G
Unguar-Fulani				
Yankara	800-900	100-120	ML	G
Zango Daura	500-600	250-340	MH	P
<u>Maradi</u>				
Dan-Saga	400-500	40-70	L	P
El Gueza	400-500	40-70	L	P
Kandamao	500-600	100-120	ML	M
Sae-Saboua	400-500	40-70	L	P
Safo	400-500	70-100	ML	G

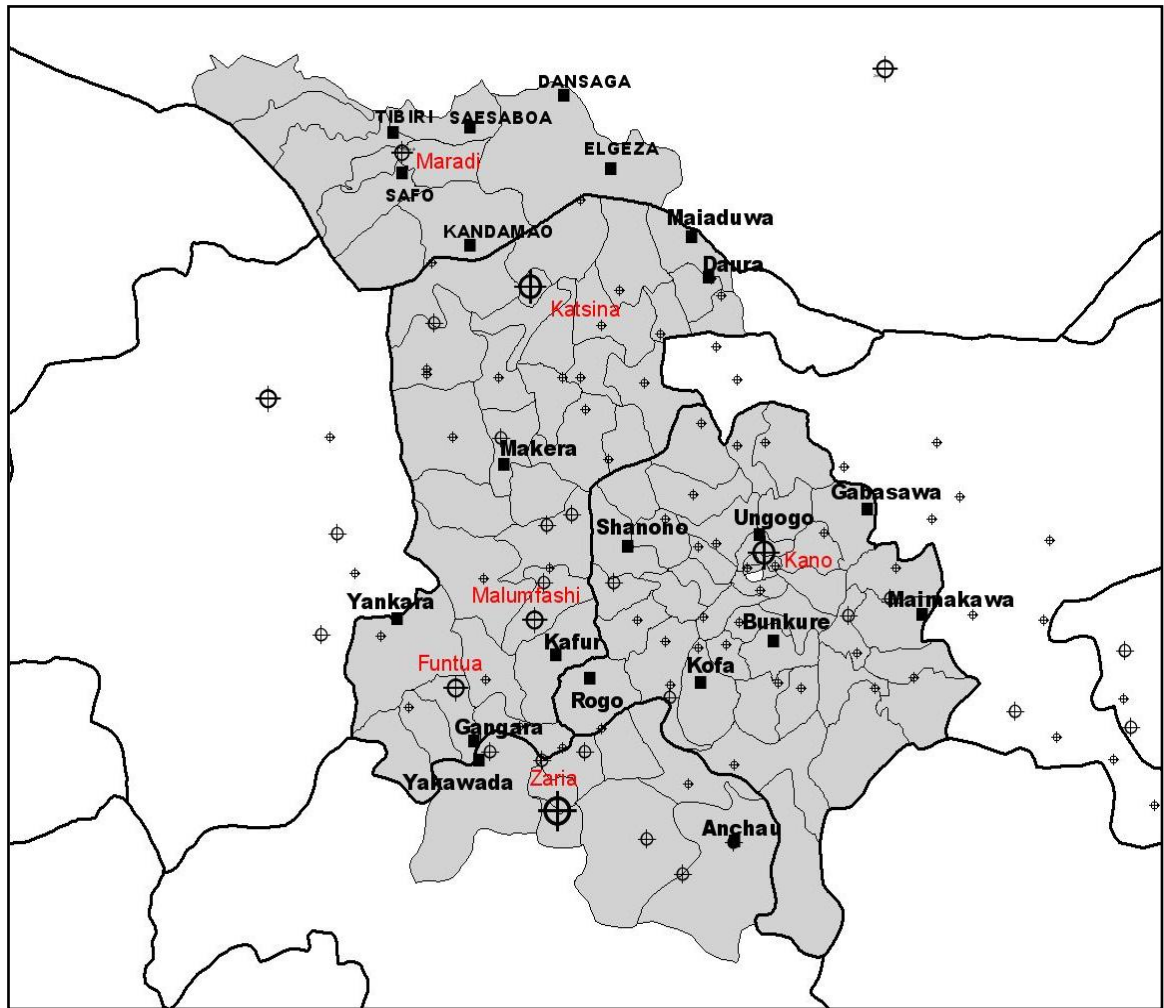
NGS=Northern Guinea Savanna, SS=Sudan Savanna, S=Sahel Savanna.

G=Good, M=Medium, P=Poor

H=High, M=Medium, L=low

Source: IITA GIS data³

³ Maps were provided by Chris Legg during the preparation workshop.



Map 1: Location of selected villages

3.6. Approaches used with other stakeholders

Semi-structured interviews⁴ were held with other stakeholders at Local and State Government level to obtain their views on the expected outputs of the validation exercise. The meeting was also used as an opportunity to brief stakeholders of the approach and challenges of the SSA-CP KKM pilot study.

3.7. Use of secondary data

Since the main purpose of the validation exercise was to obtain stakeholder perceptions, no detailed literature review was undertaken. However, the VT was provided with literature some of which was relevant to the PLS. This occurred both before and during the study period. This has been used to verify some of the findings and fill gaps where we were unable to obtain the necessary information. A list of documents consulted is shown in Annex 4

3.8. Period of study

The study was undertaken over a 30-day period (Annex 3) with field work being undertaken over a 20 day period (11th-31st August), during which reports from each village were compiled. More detailed analysis and a report for each team was compiled over the period 1-2 September with presentation of each team's findings given and discussed on 3rd and 4th September. This final synthesis drawing together the key components of each area's individual report was compiled and presented as a draft on the 8th September.

⁴ These were based on FARA's four objectives and four pillars

3.9. Problems faced

The VT was met with an enthusiastic response from each community, who were keen to participate in discussions, at times over-enthusiastically which made control of discussions and facilitation challenging at times, especially so with some women's groups where the VT was short of facilitators. Discussions lasted longer than intended in every case, meaning that teams worked long days with evenings used to review information collected and capture it electronically. As a result time proved a continual constraint not only to complete individual village reports, but also area reports.

4 COMMUNITY CHARACTERISATION

Each village was further characterised using information provided by the community (summarised in Tables 6-8). This was based on a livelihood framework, assessing the relative assets (natural, physical financial, human and social) in each community on a gender basis, the main livelihoods and the proportion of poor people in the community. This represents a quick assessment providing greater detail than the GIS derived classification. From this we have identified seven classifications, based on AEZ, land type, access to market, population density (Table 5).

Table 5: Kano, Katsina and Maradi village characterisation

	Area	Village	AEZ	Land type			Market	Population	Poor in community
				U	F	I			
1	KZ	Makera	NGS	U	F	I	MG	M	85
1	KZ	Yankara	NGS	U	F	I	G	ML	70
2	K	Rogo	NGS	U	F		MP	ML	na
2	KZ	Anchau	NGS	U	F		G	MH	75
2	KZ	Gangara	NGS	U	F		M	H	70
2	KZ	Unguar-Fulani	NGS	U	F		M	L	90
3	K	Bunkure	SS	U	F	I	G	H	70
3	M	Kandamao	SS	U	F	(I)	P	ML	70
4	K	Maimakawa	SS	U	F		MG	M	55
4	KZ	Kafur	SS	U	F		M	M	75
4	K	Kofa	SS	U	F		P	MH	70
5	K	Gabasawa	SS	U			M	M	60
5	K	Shanono	SS	U			M	M	65
5	K	Ungogo	SS	U			G	VH	65
6	M	El Gueza-Golom	S	U	F	I	P	L	90
6	M	Safo	S	U	F	I	M	L	60
6	KZ	Mai' Aduwa	S	U	F	I	M	H	90
7	KZ	Zango Daura	S	U			G	H	85
7	M	Dan-Saga	S	U			P	L	75
7	M	Sae-Saboua	S	U			M	L	60

AEZ=Agro-ecological zone, NGS=Northern Guinea Savanna, SS=Sudan Savanna, S=Sahel

U=Upland, F=Fadama, I=Irrigation, (I)=Irrigation under construction

G=good, M=medium, P=Poor, H=High, M=Medium, L=Low

K=Kano, KZ=Katsina-Zaria, M=Maradi

na=not available

1= NGS, upland farming with existing irrigation facilities

2= NGS upland and fadama farming but with no irrigation

3= SS, upland and fadama farming with existing irrigation facilities

4= SS, upland and fadama farming with no irrigation

5= SS, upland fadama farming only

6= S, upland and fadama farming with existing irrigation facilities

7= S, upland farming only

Access to market and population density as intensification and market drivers represent further subdivision of this classification. Although livestock were important in all zones, their relative importance increased in the drier areas. As more land was devoted to crops, the conflicts between crop-based and livestock-based systems tended to increase. The percentage of poor households in the community (derived from community discussions) ranged from 55% to 90%. No obvious differences occurred between AEZs, either with or without fadama or irrigation facilities, but Maradi was definitely poorer than either Kano or Katsina. Gender differences are readily apparent throughout the PLS, with women tending to be poorer with less access to resources and specifically concentrating in certain production areas, notably small ruminants, and crop processing activities. In general women were less able to read or write and lacked contact with extension agents. Young men were more inclined to production of cash crops and were keen to see labour saving technologies introduced. We have addressed the special needs of women and young farmers in capacity building needs

Table 6: Kano Village characterisation

			Ungogo		Shanono		Bunkure		Kofa		Maimakawa		Gabasawa		Rogo	
GIS data	Rainfall (mm pa)		600-700		600-700		700-800		700-800		600-700		600-700		900-1000	
	Market accessibility	H, M OR L	H		M		M-H		M-H		M		M		M	
	Population density		340-570		210-250		250-340		25-340		210-250		210-250		170-210	
Assets			<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>
Natural	AEZ	NGS, SS, S	SS		SS		SS		SS		SS		SS		NGS	
	Upland	Y or N	Y		Y		Y		Y		Y		Y		Y	
	Fadama	Y or N	N		N		Y		Y		N		N		Y	
	Irrigation	Y or N	N		N		Y		N		N		N		Y	
	Underutilised water	Y or N	N		N		N		N		N		N		N	
Physical	Tools	G, M or P	P		M		M		P		G		P			
	Houses	G, M or P	M		M		G		P		P		M			
	Stocks (food, seed)	G, M or P	M		M		G		M		P		G			
	Infrastructure	G, M or P	G		M		G		M		P		M			
Financial	Cash/savings	Y or N	Y	N	N	N	Y	N	N	N	N	N	N	N	Y	N
	Credit	Y or N	Y	Y	N	Y	Y	Y	N	N	N	N	Y	Y	Y	Y
	Input markets	G, M or P	G	G	M	M	M	M	P	P	G	G	G	G	G	G
	Output markets	G, M or P	G	G	M	M	M	M	P	P	G	G	G	G	G	G
Human	Skills	G, M or P	M	M	M	M	M	M	G	G	P	P	M	M	G	G
	Contact with R&D	G, M or P	P	P	P	P	M	M	P	P	P	P	P	P	G	G
Social	Institutions/networks	G, M or P	P	P	P	P	P	P	P	P	M	M	P	P	G	G
	Communications	G, M or P	G	G	P	P	P	P	P	P	P	P	M	M	G	G
Livelihoods	Crops-based	%	80		90		80		80		90		90		95	
	Livestock-based	%	8		9		5		6		11		10		8	
	Agro-processing	%	1		3		4		2		2		5		5	
	Agro-trading	%	5		40		39		30		33		35		40	
	Rural artisans	Y or N	Y		Y		Y		Y		Y		N		Y	
	Poor in community	%	65		65		70		70		55		60		-	

M=Men, W=Women, H=High, M=medium, L=Low

AEZ=Agro-ecological zone, NGS=Northern Guinea Savanna, SS=Sudan Savanna, S=Sahel

Y or N=Yes or No, G, M or P=Good, medium or poor

Table 7: Katsina-Zaria Village characterisation

		Z/Daura		Mai'aduwa		Makera		Kafur		Yankara		Gangara		Unguwar Fulani		Anchau	
GIS data	Rainfall	450 - 500		450 - 500		750 - 800		850 - 900		850 - 900		850 - 900		900 - 1000		900 - 1000	
	Market accessibility	G		G		M		G		G		M		M		G	
	Population density	250 - 340		250 - 340		120 - 140		140 - 170		00 - 120		50 - 340		< 100		210 - 250	
	NGS, SS, S	S		S		SS		S		NGS		NGS		NGS		NGS	
Assets		M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W
Natural	AEZ																
	Up-land	Y or N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Fadama	Y or N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Irrigation	Y or N	N	N	N	Y	Y	Y	N	N	Y	Y	Y	Y	M	N	M
	Under utilised water	Y or N	N	N	N	N	Y	N	N	N	N	M	M	M	M	N	M
Physical	Tools	G, M or P	M	P	M	P	M	P	G	P	G	P	M	M	P	P	M
	Houses	G, M or P	M	M	M	M	M	M	N	M	M	M	P	P	P	M	M
	Stocks	G, M or P	P	P	P	P	P	P	M	M	M	M	M	M	M	M	M
	Infrastructure	G, M or P	G	G	G	G	P	P	M	M	M	M	M	M	P	P	M
Financial	Cash/savings	Y or N	N	N	N	N	N	N	Y	Y	N	N	N	N	Y	Y	Y
	Credit	Y or N	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	M	M	Y
	Input markets	G, M or P	M	M	N	N	P	P	M	M	P	P	P	P	P	P	M
	Output markets	G, M or P	G	G	G	G	M	M	G	G	M	M	M	M	M	M	G
Human	Skills	G, M or P	M	P	M	P	M	P	M	M	M	M	P	M	P	P	M
	Contact with R&D	G, M or P	M	M	M	M	M	M	M	M	P	G	G	P	P	P	M
Social	Institutions/network	G, M or P	M	M	M	M	G	G	M	M	P	P	M	G	P	P	G
	Communications	G, M or P	M	M	M	M	M	M	M	M	M	M	M	P	P	M	M
Livelihoods	Crops	%	90	100	100	83	80	20	99	99	99	99	100	85	60	40	85
	Livestock	%	95	100	100	60	100	100	30	20	99	60	80	65	85	60	45
	Agro-processing	%	40	20	40	20	30	20	20	10	20	15	30	20	25	10	40
	Agro-trading	%	45	15	60	15	35	10	60	15	30	15	20	20	15	10	20
	Artisans	Y or N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	N	Y
	Poor in community	%	90	95	95	90	95	95	85	90	85	90	75	85	60	75	65

M=Men, W=Women, AEZ=Agro-ecological zone, NGS=Northern Guinea Savanna, SS=Sudan Savanna, S=Sahel, Y or N=Yes or No, G, M or P=Good, medium or poor

Table 8: Maradi Village characterisation

			El Gueza/Golom		Dan Saga		Sae Saboua		Safo		Kandamao	
			500 - 600		400-500		400 - 500		450-550		500-600	
GIS data	Rainfall	(mm)	M		M		M		M		P	
	Market accessibility	G, M or P	M		M		M		M		P	
	Population density	People km ²	50		33		40-70		150 - 180		100-120	
Assets			<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>	<i>M</i>	<i>W</i>
Natural	AEZ	NGS, SS, S	S	S	S	S	S	S	S	S	SS	SS
	Upland	Y or N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Fadama	Y or N	Y	Y	N	N	N	N	Y	Y	Y	Y
	Irrigation	Y or N	Y	Y	N	N	N	N	Y	Y	Y	Y
	Underutilised water	Y or N	N	N	N	N	N	N	N	N	Y	Y
Physical	Tools	G, M or P	P	P	P	P	M	P	M	P	P	P
	Houses	G, M or P	P	P	P	P	M	M	M	M	P	P
	Stocks (food, seed)	G, M or P	P	P	P	P	M	P	M	P	P	P
	Infrastructure	G, M or P	P	P	P	P	M	M	M	M	P	P
Financial	Cash/savings	G, M or P	M	P	P	P	M	M	M	M	M	P
	Credit	Y or N	N	N	N	N	N	N	N	N	N	N
	Input markets	G, M or P	M	P	P	P	G	M	G	M	M	P
	Output markets	G, M or P	M	P	P	P	G	M	G	M	M	P
Human	Skills	G, M or P	M	P	M	M	M	M	M	M	P	P
	Contact with R&D	G, M or P	G	P	G	M	G	G	M	M	P	P
Social	Institutions/networks	G, M or P	M	P	M	M	M	M	M	P	P	P
	Communications	G, M or P	P	P	P	P	M	M	M	M	P	P
Livelihoods	Crops	% (*)	100	100	100	80	100	100	90	100	100	100
	Livestock	% (*)	80	50	60	80	100	100	80	80	90	100
	Artisans	%	50	40	50	30	7	30	50	1	35	0
	Agro-processing	%	1	70	5	50	2	100	5	80	0.05	75
	Agro-trading (crops)	%	10	15	15	5	20	15	20	25	15	1
	Agro-trading (livestock)	%	5	0	5	0	5	0	2	0	5	0
	Poor in community	%	90	95	75	85	60	75	65	80	70	90

M=Men, W=Women, AEZ=Agro-ecological zone, NGS=Northern Guinea Savanna, SS=Sudan Savanna, S=Sahel
Y or N=Yes or No, G, M or P=Good, medium or poor, (*) % of active population

5 CONSTRAINTS, OPPORTUNITIES, ENTRY POINTS AND HYPOTHESES

A summary of the constraints in priority order (Table 9) shows six constraints under Intensification, four under NRM, six under marketing and 11 under policy. Clearly there is a close inter-relationship between the many of these constraints and placing in a different category could be justified. Where possible we have tried to avoid duplication, though this proved difficult in areas of policy.

Table 9: Constraints shown in priority order

Priority	Intensification	Natural resource management	Marketing	Policy
i)	Pest/diseases/weeds of crops	Land degradation as a result of declining soil fertility, erosion and siltation, deforestation, over grazing and desertification	High cost of inputs	Resource use conflicts between pastoralists and farmers
ii)	Drudgery due to high labour demand requiring labour-saving devices for field and processing produce	Limited grazing land due to encroachment by crop farmers, increasing livestock and overgrazing	Low prices of output	Ineffective implementation of regulation on livestock and crop theft (often as a result of conflict over NR)
iii)	Insufficiency of crop and livestock inputs	Drought	Adulteration of inputs (e.g. Agro-chemical and fertilizer)	Funding to control desertification
iv)	Pest/ and disease of livestock	Drying up <i>fadama</i> and <i>goulbi</i> as a result of upstream dams,	Poor access roads & market facilities	Low Local Government involvement in agriculture
v)	Inadequate appropriate technologies for crops and livestock profitability.		Inadequate working capital	Ineffective and inadequate extension
vi)	Inadequate irrigation infrastructure and facilities		Weak linkages with agro-processors	Low awareness or ignorance of existing government policies by farmers, traders, and others leading to breaking regulations
vii)				Inadequate and high cost of capital
viii)				Poor policies to control adulteration;
ix)				Inadequate subsidies ensuring farmers and not middlemen are the beneficiaries, lack of guaranteed prices.
x)				Inadequate infrastructures for marketing (roads, poor social infrastructure, electricity, water)
xi)				Limited Agro-processors incentive policies

Lack of, inconsistent or inability to implement policy are major constraints to agricultural development. We believe that an important principle is that stakeholders should be given a greater role in resolving many of the constraints where policy has proved ineffective and Government should concentrate on enabling policies. This includes areas such as land degradation where Government policy may be impossible to enforce. Instead policy could concentrate on enabling effective change at community level through encouraging increased community

regulation. For example lack of grazing due to land degradation and the need for improved NRM could be addressed in a manner whereby grazing users are facilitated to identify problems, the cause of these problems, existing coping strategies, suggest means of improvement and work with researchers in rehabilitation approaches which could combine the use of local practices and indigenous systems with those already developed by researchers and now regarded as best bets. The successful development of such an approach would provide an example for policy makers and encourage further use of community based management systems, which could help in conflict resolution.

Constraints identified by research and development professionals⁵ at the Stakeholder Workshop held in Kano during March 2005 are shown in Table 10.

Table 10: Constraints identified by R&D professionals (Kano Workshop, March 2005)

Priority	Intensification	Natural resource management	Markets	Policy issues
i)	Low and declining soil fertility	Land degradation and soil erosion	Poor pricing of primary farm products	Inconsistent Government policies
ii)	Parasitic weeds, other pests and diseases	Insufficient and erratic rainfall	Poor access to markets	Lack of enabling Government policies
iii)	Low livestock productivity	Low biodiversity	Unavailability of improved seeds	Inability to implement policies
iv)	Lack of knowledge on available post harvest technologies		Unavailability and high cost of inputs	Lack of political will
v)	High cost of storage technology		Poor and no access to credit	Population pressure on land
vi)	Unavailability of appropriate storage technologies		Poor input quality and adulteration	Inappropriate land tenure systems
vii)	Poor post harvest processing technologies			Inappropriate technology transfer system
viii)				Tariff barriers

Comparisons between Tables 9 and 10 show broad agreement between R&D professionals and the VT. However the VT used slightly different classifications which represented farmer and other stakeholder views provided during the validation. Although we have compared the opportunities, those of the R&D professionals are not presented. However farmers and stakeholders were able to identify more opportunities as detailed in the next section.

Constraints, opportunities, entry points and hypothesis for each SSA-CP objective area presented under Objectives 1-4 (in Table form). Constraints are shown in priority order as established through farmer discussions, although clearly these did vary slightly from village to village. Opportunities have also been ranked within each constraint area. Entry points provide a blend of farmer and other stakeholder identified opportunities. A hypothesis was established for each major constraint area taking into account both opportunities and entry points.

⁵ The VT did not have access to this information before completion of the validation

6 ROLE OF REASEARCH

We have broadly identified the role of research as i) development of new technologies and systems, including social and economic evaluation, ii) facilitating participatory research of best bet options and ex-ante impact assessment, iii) capacity building (training of trainers), iv) assessment of alternative policy options and v) ex-post impact assessment.

We make frequent reference to “Due Process”, which we have defined as a process that encompasses:

- Confirming priority problems, which the VT has undertaken, but require further confirmation as a research project is initiated
- Establishing local coping strategies and local systems (indigenous knowledge systems -IKS)
- Identify best bet or near market technologies and evaluation criteria, through review
- Identify local groups to test farmer selected technology options
- On-farm testing/research over a period of 2-3 years
- Participatory evaluations at the middle and end of each season
- Facilitating scaling-up through stakeholder involvement during the research.

It is considered important this process is followed to ensure stakeholder involvement and ownership of future research activities.

Objective 1: Intensification of cropping systems

Constraints by priority	Opportunities by priority	Entry points	Hypotheses	Target communities
i) Pest/ diseases/ weeds of crops	<p>i. Promotion of IPM and IKS for both crop production and storage. Particularly important are integrated Striga control and tolerant varieties</p> <p>ii. Development of suitable storage technologies and structures;</p>	Identification and on-farm testing of best bet IPM, with IKS through due process	That widespread adoption of improved IPPM crops as a result of farmer testing will result in better control of production and post harvest pests, leading to increased productivity, reduced storage losses, improve food security, reduced poverty and improved livelihoods	Those communities identifying pests of crops as priority problems
ii) Drudgery due to high labour demand requiring labour- saving devices for field and processing produce	<p>i. Promotion of appropriate labour saving devices such as Animal traction, and tractors or tillers Herbicides Threshing and processing equipment This requires the skills for manufacture, repair and maintenance</p> <p>ii. Improve training for village level artisans</p> <p>iii. Targeting men and women</p>	<p>-Identify and confirm appropriate technologies using due process -NARES and DCs to work with fabricators and farmers in testing Artisans to fabricate and sell to farmers</p> <p>Establishment of training facilities for artisan in fabrication and maintenance of (appropriate /improved) agricultural tools, implements and processing equipment</p>	That widespread adoption of labour saving devices as a result of improved artisan capacity and farmer testing will make agricultural production and processing less arduous, more timely as well as encourage farmers, particularly youth and female farmers to undertake profitable agricultural activities	In areas where drudgery and lack of tools, implements and village level processing equipment are seen as priority problems
iii) Insufficiency of crop and livestock inputs	<p>i. Commercialization and promotion of community and private seed production, distribution and marketing,</p> <p>ii. Integrated soil fertility management including compost, manures, inorganic fertilizer, agro-forestry, micro-dosing, rock phosphates) (NRM)</p> <p>iii. Integrated crops-livestock production- ICLP (AT, manure, transport, crop residue, dual purpose crops)</p>	<p>Awareness raising for farmers on the advantages of quality seed Promotion of contract and community seed production On-farm testing of farmer selected alternatives, following due process</p> <p>On-farm testing of farmer selected options using due process</p>	That widespread adoption of appropriate improved low cost inputs (seed, ISFM, ICLP) as a result of farmer testing leading will result in increased production and productivity leading to improved food security, reduced vulnerability and poverty and improved livelihoods	Those communities identifying insufficiency of inputs as priority problems
iv) Pest/ and disease of livestock	iv. Retention of local breeds and maintenance of this gene pool for disease resistance and production attributes	<p>Identification and characterisation of gene pool. Take measures as necessary for use in cross-breeding and protection</p>	That widespread adoption of improved pest and disease control in livestock as a result of farmer testing of appropriate options, improved drug availability and use and improved fodder availability will lead to increased livestock production and productivity	Those communities identifying pests and diseases of livestock as priority problems

Constraints by priority	Opportunities by priority	Entry points	Hypotheses	Target communities
			resulting in improved food security, reduced poverty, vulnerability and improved livelihoods	
	v. Promotion of improved supply and use of veterinary drug (including storage)	Support-train existing suppliers Link with community-based local healers		
v) Inadequate appropriate technologies for and livestock bility.	i. Promotion of improved cultural practices and systems (rotations, cereal-legume mixes, improved fallows, green manuring) ii. promotion of appropriate varieties, early maturing, drought tolerance, pest resistance, low fertility, high nutrients , dual purpose etc) iii. Promoting use of high value niche crops	-On-farm testing of farmer selected alternatives, following due process -On-farm testing of farmer selected alternatives, following due process -Linking farmers to markets for crops such as sesame, gum-arabic, rosell, high demand vegetables	That widespread adoption of appropriate technologies (cultural practices, varieties, high value crops) as a result of farmer selection and testing will lead to increased crop and livestock production and productivity resulting in improved food security, reduced poverty, vulnerability and improved livelihoods	In areas where appropriate technologies for crops and/or livestock are identified as priority problems
	iv. Introduction of breeding program using appropriate indigenous genetic potential.	-On-farm testing of farmer selected alternatives, following due process		
vi) Inadequate on infrastructure and as	i. Development of irrigation potential using appropriate technologies (such as rain water harvesting, wash bores, water diversion, treadle pumps)	-Review low-cost appropriate irrigation systems (large, medium and small scale) -On-farm development of farmer selected alternatives, following due process -Review available information on underground water supplies	That development of appropriate irrigation technologies (for large, medium and small schemes) as a result of farmer selection and testing will lead to increased crop production and productivity resulting in improved food security, reduced poverty, vulnerability and improved livelihoods	In areas where development of irrigation potential (on schemes or where fadama or goulbi) provide opportunity for reducing inadequate irrigation constraints

Objective 2: Natural resource management

Constraints	Opportunities	Entry points	Hypothesis	Target communities
1. Land degradation as a result of declining soil fertility, erosion and siltation, deforestation, over grazing and desertification	<ul style="list-style-type: none"> i. Agro-forestry practices ii. Integrated soil fertility management (ISFM) iii. Crop-livestock integration practices (CLI) (see Intensification) iv. Fuel wood-saving alternatives v. Community based rehabilitation and conservation of NRM practices such as range management and gully control measures (see 2 below) 	On-farm testing of farmer selected alternatives, following due process	That widespread adoption of appropriate practices (agro-forestry, ISFM, CLI and fuel saving alternatives) identified as opportunities and tested by farmers with support from research and extension will reduce land degradation and increase productivity leading to poverty reduction and improved livelihoods	In areas where land degradation is perceived as a high priority problem by the local community
2. Limited grazing land due to encroachment by crop farmers, increasing livestock and overgrazing	<ul style="list-style-type: none"> i. Improved Crop-livestock integration; ii. Promotion of community managed grazing land and rehabilitation. This could include agro-forestry, gully control and pasture repair or reseeded 	See intensification Community development of farmer selected range management and improvement strategies, following due process	See intensification That community (farmer and pastoralist) identification, selection and implementation (with community regulation) of options for improved management and rehabilitation of community grazing areas resulting from research-extension facilitation will result in improved range management, increase in grazing availability and reduced conflict situations, increased livestock production	In areas where shortage of grazing is a priority problem for livestock owners
3. Drought	<ul style="list-style-type: none"> i. Soil and water conservation practices, rain water harvesting and small scale irrigation ii. Drought tolerant varieties 	On-farm testing of farmer selected alternatives, following due process See intensification	That widespread adoption of appropriate small scale irrigation, rain water harvesting techniques, soil and water conserving practices selected and tested by farmers with support from research and extension will mitigate the effects of drought and increase productivity leading to poverty reduction, reduced vulnerability and improved livelihoods.	Primarily in Sahel and Sudan Savanna AEZs.
4. Drying up <i>fadama</i> and <i>goulbi</i> as a result of upstream dams,	<ul style="list-style-type: none"> i. Periodic release of water ii. Consensual use of trans-boundary water (P) 	-More attention to environmental assessment before dam construction. -Increased awareness raising and compensation to resolve loss of valuable land in the case of existing dams. Indicate likely outcomes of alternative policy options to decision makers	That effective environmental assessments will result in more careful selection of dam sites, mitigating loss of valuable NR, providing a basis for policy development	Those communities losing access to <i>fadama</i> or <i>goulbi</i> as a result of dam construction

Objective 3: Efficient and effective input/ output marketing systems

Constraints	Opportunities	Entry points	Hypotheses	Target communities
1. High cost of inputs	i. Enhancing accessibility to low-cost (unadulterated) inputs (fertiliser seed, chemical, equipment)	Develop a strategy for the efficient use of subsidies	Empowering farmer groups through capacity building, improving information and communication and institutional strengthening will facilitate: i. Improve d access to quality inputs fair ii. producer prices iii. improved access to capital/credit which will increase profitability of agricultural enterprises, profitability of commodity marketing and improve livelihoods	In areas high cost of inputs, low producer prices, adulteration and lack of capital are identified as priority constraints
	ii. Formation/ strengthening farmer groups to purchase inputs	Support and strengthen existing farmer groups (as 1 st priority) before encouraging new groups		
	iii. Tax-free (concession)/ importation of agric inputs (policy)	See policy		
	iv. Phased use of subsidies			
2. Low prices of output	i. Formation and strengthening farmer groups to store and sell produce	Support and strengthen existing farmer groups (as 1 st priority) before encouraging new groups		All areas
	ii. Enhancing accessibility to information on market outlets and prices.	Providing timely access to market information through use of media and mobile phone networks		
	iii. Enhancing accessibility to improve storage facilities	Ensuring access to technology and fiancé to acquire storage facilities		
	iv. promotion of investment in ago processing enterprises	Ensuring access to technology and fiancé to acquire processing facilities		
3. Adulteration of inputs (e.g. Agro-chemical and fertilizer)	i. Strengthening existing dealers associations to police their members	Support and strengthen existing dealer groups	(This covers constraints 1-3 and 5)	
	ii. Standardization of products and regulation of activities of input dealers (policy), including packaging	Enforcement of legislation on activities of dealers by suitably trained inspectors		
4. Poor access roads & market facilities	i. Joint public/private partnership to provide needed facilities (roads, water, power, power (policy) and market facilities	Strengthen LG ability to respond to community requests and consider cost sharing arrangements at local level, with communities supplying labour and LG materials. Friendly fiscal and monetary policies to facilitate the mobilization of investable funds	Provision of infrastructure through State or National funding for main roads and power needs combined with LG-community joint funding for local infrastructure will improve market access, reduce the cost of inputs thus enhancing the performance of agriculture and agri-business	Maimakawa (Kano Site)
5. Inadequate working capital	i. Accessibility to low-cost credit (for Farmer Groups., output merchants, input suppliers and processors)	Capacity building at all levels to manage and control fiancé, to facilitate credit applications to existing sources of finance	See hypothesis for 1-3	
		Provision of concessions on tax, excise and duties, facility e.g. warehouses, etc and other cost saving measures incl. low-cost credits,		

Constraints	Opportunities	Entry points	Hypotheses	Target communities
6. Weak linkages with agro-processors	i. Development of partnerships/linkages/contracts between producers-marketers/agro-processors	transport and transportation Inventory of agro-processor users, marketers and markets Dev capacity to strengthen linkages between stakeholders	That strengthening links and developing partnerships between producers and agro-processors through contract farming, guaranteed prices and agro-processor supplied extension services will benefit both producers and agro-processors through enhancement of economies of improving scale and increased profits	In areas where agro-processing opportunities are already in existence and linkages are seen as benefiting both parties

Objective 4: Policy to support innovation

Constraint (all high priority)	Opportunity	Entry point	Hypothesis
1. Resource use conflicts between pastoralists and farmers	Community resource management (NR) Encourage greater livestock-crop interactions to increase fodder availability (I) Build capacity of local leadership and LG to facilitate. (C)	Land laws for the people by the people	That LG, traditional leaders and farmer organisations can develop a new approach to land management. Through a process of consultation, they will formulate a set of management rules to improve and enforce improved NR management, leading to reduced conflict, and increased livestock production.
2. Ineffective implementation of regulation on livestock and crop theft (often as a result of conflict over NR)	-Strengthen capacity of traditional authorities including representative CBOs in conflict resolution and facilitating change. -Strengthen links between community vigilante groups and police. -Improved policing and law enforcement		
3. Funding to control desertification	To be addressed at a community level in the first instance		
4. Low Local Government involvement in agriculture	Pilot schemes were LG adopt participatory approaches acting as facilitators and not enforcers or teachers. Encourage joint funding of infrastructure needs where communities supply labour and LG materials	Where opportunity exists for improving local infrastructure to improve access during the rainy season	That local communities will contribute their labour to improve infrastructure, such as seasonally flooded roads where LG provides materials and guidance in construction so resolving problems of access for production and marketing
5. Ineffective and inadequate extension	Consider alternative extension approaches Increased funding for extension	Increased use of participatory approaches (PREA, FFS) Encouraging farmer-to-farmer extension Private companies, commodity associations, APEX organisations, More female extension workers	That alternative extension approaches (to be used under I, NR and M) will lead to increased farmer adoption of appropriate technologies, increased productivity, reduced poverty and vulnerability and improved livelihoods informing new policies on alternative extension delivery approaches
6. Low awareness or ignorance of existing government policies by farmers, traders, and others leading to breaking regulations	Increase awareness of existing regulations during capacity building by those affected (C) Better enforcement of regulations	Through appropriate capacity building activities and regulation enforcement	That better awareness of policy will lead to increased observance of regulations
7. Inadequate and high cost of capital	-Facilitate training in financial and business management for groups and individuals to reduce the risk of financiers thus reducing interest rates (M) -Govt provision of improved credit guarantees to lending institutions -Promoting micro-credit schemes	Training Involving credit institutions in establishing revolving loan funds to producer groups	That improved productivity and risk reduction through use of appropriate technologies will encourage credit arrangements between financial institutions and producer groups and lead to improved loan recoveries to serve to inform policy makers on best practice.

Constraint (all high priority)	Opportunity	Entry point	Hypothesis
8. Poor policies to control adulteration;	-Encourage manufacturers to educate importers, wholesalers and retailers (M) _better quality control to ensure minimum standards (M) -Enforce legislation (M)	Encourage skills and product training by manufacturers to retailers and farmers Inspections and sanctions	That adulteration of inputs will be reduced through improved training of sellers by manufacturers, distributors and commodity associations and farmer groups and where incidences occur sanction will be affected by user groups or their representatives.
9. Inadequate subsidies ensuring farmers and not middlemen are the beneficiaries, lack of guaranteed prices.	-Pilot schemes where vouchers are given to neediest farmers to acquire inputs (seed and fertiliser). Vouchers are exchanged by input suppliers for cash with ADPs or NGOs Review cross-border tariffs which impede local markets	In an area where access to inputs is reasonable but prices are unaffordable by resource poor farmers	That subsidies targeted through voucher schemes will ensure fair access and fair prices for resource poor farmers most in need of price support
10. Inadequate infrastructures for marketing (roads, poor social infrastructure, electricity, water)	-Increase budget allocation on basic infrastructure. -Encourage cost sharing arrangements between communities and LG. -Strengthen LG and SG ability to attract increased funding for local level infrastructure.	Strengthen community-LG links and improve LG ability to respond to community requests	That improvements in infrastructure will lead to better access and reduced costs of inputs and increased prices of primary agricultural products
11. Limited Agro-processors incentive policies	-Improved infrastructure (power, water) for local entrepreneurs in clusters -Providing tax rebates on profits for time bound periods.	Where infrastructure can be provided for cluster development	That provision of appropriate infrastructure and tax incentives will encourage investment in agro-industries that will improved linkages between farmers and agro-processors leading to more stable or guaranteed prices of products, contract farming, private-sector extension

7 HYPOTHOSES AND OUTPUTS

Identification of an hypothesis for each constraint area within each Objective, allowed an Output for each to be developed (Objectives 1-4-in Table form). Outputs could be considered for use in developing a logframe for the research programme, where individual projects would address each output.

Objective 1: Intensification of cropping systems

Hypotheses	Output	Target areas
That widespread adoption of improved IPPM crops as a result of farmer testing will result in better control of production and post harvest pests, leading to increased productivity, reduced storage losses, improve food security, reduced poverty and improved livelihoods	Increased production and productivity and reduced storage losses resulting from improved control of production and post harvest pests	Those communities identifying pests of crops as priority problems
That widespread adoption of labour saving devices as a result of improved artisan capacity and farmer testing will make agricultural production and processing less arduous, more timely as well as encourage farmers, particularly youth and female farmers to undertake profitable agricultural activities	Increased production and productivity of labour through development of labour saving devices and technologies.	In areas where drudgery and lack of tools, implements and village level processing equipment are seen as priority problems
That widespread adoption of appropriate improved low cost inputs (seed, ISWFM, ICLP) as a result of farmer testing leading will result in increased production and productivity leading to improved food security, reduced vulnerability and poverty and improved livelihoods	Increased production and productivity of crops and livestock through development of appropriate improved low cost inputs (seed, ISWFM, ICLP) and cropping systems	Those communities identifying insufficiency of inputs as priority problems
That widespread adoption of improved pest and disease control in livestock as a result of farmer testing of appropriate options, improved drug availability and use and improved fodder availability will lead to increased livestock production and productivity resulting in improved food security, reduced poverty, vulnerability and improved livelihoods	Increased livestock production and productivity resulting from improved pest and disease prevention/control through improved drug and vaccine availability and use.	Those communities identifying pests and diseases of livestock as priority problems
That widespread adoption of appropriate technologies (cultural practices, varieties, high value crops) as a result of farmer selection and testing will lead to increased crop and livestock production and productivity resulting in improved food security, reduced poverty, vulnerability and improved livelihoods	Increased crop and livestock production and productivity through development of appropriate technologies (cultural practices, varieties, high value crops) linked to markets	In areas where appropriate technologies for crops and/or livestock are identified as priority problems
That development of appropriate irrigation technologies (for large, medium and small schemes) as a result of farmer selection and testing will lead to increased crop production and productivity resulting in improved food security, reduced poverty, vulnerability and improved livelihoods	Increased crop production and productivity through development of appropriate irrigation technologies (for large, medium and small schemes)	In areas where development of irrigation potential (on schemes or where fadama or gulbi) provide opportunity for reducing water constraints

Objective 2: Natural resource management

Hypothesis	Output	Target areas
That widespread adoption of appropriate practices (agro-forestry, ISWFM, ICLS and fuel saving alternatives) identified as opportunities and tested by farmers with support from research and extension will reduce land degradation and increase productivity leading to poverty reduction and improved livelihoods	Reduced land degradation and increased productivity through development of appropriate practices (agro-forestry, ISFM, ICLS and fuel saving alternatives)	In areas where land degradation is perceived as a high priority problem by the local community
That community (farmer and pastoralist) identification, selection and implementation (with community regulation) of options for improved management and rehabilitation of community grazing areas resulting from research-extension facilitation will result in improved range management, increase in grazing availability and reduced conflict situations, increased livestock production	Improved management and rehabilitation of community grazing areas through community identification, selection and implementation (with community regulation) of appropriate options	In areas where shortage of grazing is a priority problem for livestock owners
That widespread adoption of appropriate small scale irrigation, rain water harvesting techniques, soil and water conserving practices selected and tested by farmers with support from research and extension will mitigate the effects of drought and increase productivity leading to poverty reduction, reduced vulnerability and improved livelihoods.	Increased production and productivity through development of appropriate small scale irrigation, rain water harvesting techniques, soil and water conserving practices	Primarily in Sahel and Sudan Savanna AEZs.
That effective environmental assessments will result in more careful selection of dam sites, mitigating loss of valuable NR, providing a basis for policy development	Loss of valuable fadama and gulbi reduced through more effective environmental and social assessments of potential dam sites, providing a basis for improved policy in dam development	Those communities losing access to fadama or gulbi as a result of dam construction .

Objective 3: Efficient and effective input/ output marketing systems

Hypotheses	Output	Target areas
<p>Empowering farmer groups through capacity building, improving information and communication and institutional strengthening will facilitate:</p> <ul style="list-style-type: none"> • Improved access to quality inputs • fair producer prices • improved access to capital/credit <p>which will increase profitability of agricultural enterprises, profitability of commodity marketing and improve livelihoods</p>	<p>Increased profitability of agricultural enterprises through capacity building of farmer groups to access inputs, negotiate fair prices and access credit</p>	<p>In areas where high cost of inputs, low producer prices, adulteration and lack of capital are identified as priority constraints</p>
<p>Provision of infrastructure through State or National funding for main roads and power needs combined with LG-community joint funding for local infrastructure will improve market access, reduce the cost of inputs thus enhancing their performance of agriculture and agri-business</p>	<p>Advocacy to Policy makers</p>	<p>Policy makers</p>
<p>That strengthening links and developing partnerships between producers and agro-processors through contract farming, guaranteed prices and agro-processor supplied extension services will benefit both producers and agro-processors through enhancement of economies of improving scale and increased profits</p>	<p>Increased productivity of both processors and farmers through improved links and partnerships resulting of contract farming, guaranteed prices and agro-processor supplied extension services.</p>	<p>In areas where agro-processing opportunities are already in existence and linkages are seen as benefiting both parties</p>

Objective 4: Policy to support innovation

Hypothesis	Output	Target
That LG, traditional leaders and farmer organisations can develop a new approach to land management. Through a process of consultation, they will formulate a set of management rules to improve and enforce improved NR management, leading to reduced conflict, and increased livestock production .	Reduced conflict and NRM improvement resulting from development of a new approach involving LG, traditional leaders and farmer organisations to land management that can act as a blueprint for new policy.	Areas where P1-3 constraints are high priority
That local communities will contribute their labour to improve infrastructure, such as seasonally flooded roads where LG provides materials and guidance in construction so resolving problems of access for production and marketing	Improvement of local infrastructure for resolving problems of access for production and marketing as a result of community empowerment and provision of labour and LG provides materials and guidance in construction.	Areas where P4 constraints are high priority
That alternative extension approaches (to be used under I, NR and M) will lead to increased farmer adoption of appropriate technologies, increased productivity, reduced poverty and vulnerability and improved livelihoods informing new policies on alternative extension delivery approaches	Faster scaling-up and scaling-out of benefits from R&D as a result of improved extension approaches.	Policy makers
That better awareness of policy will lead to increased observance of regulations	Advocacy to policy makers	Policy makers
That improved productivity and risk reduction through use of appropriate technologies will encourage credit arrangements between financial institutions and producer groups and lead to improved loan recoveries to serve to inform policy makers on best practice.		Policy makers
That adulteration of inputs will be reduced through improved training of sellers by manufacturers, distributors and commodity associations and farmer groups and where incidences occur sanction will be affected by user groups or their representatives.	Advocacy to policy makers	Policy makers
That subsidies targeted through voucher schemes will ensure fair access and fair prices for resource poor farmers most in need of price support	More effective delivery of subsidies to resource poor farmers through voucher schemes	Policy makers
That improvements in infrastructure will lead to better access and reduced costs of inputs and increased prices of primary agricultural products	Advocacy to policy makers	Policy makers
That provision of appropriate infrastructure and tax incentives will encourage investment in agro-industries that will improved linkages between farmers and agro-processors leading to more stable or guaranteed prices of products, contract farming, private-sector extension	Advocacy to policy makers	Policy makers

8 EMPOWERING STAKEHOLDERS

In order to ensure sustainability of research and development activities, we have identified the capacity building requirements, improvements to communication and institutional and organisation change that should be considered. We have referred to this as empowerment. These have been derived from discussions with each stakeholder (IARCs, NARES, NGOs and private sector companies) and are shown in Annex 5. This includes a list of technologies either on the shelf or near market which could be considered for on-farm testing and use in the research programme.

Empowering stakeholders through capacity building, information and communication improvement and institutional and organisational change

Stakeholder	Capacity building	Information and communication needs	Institutional and organisational change
Farmers	<p>Training on group formation, operation and management (Group dynamics)</p> <p>Leadership and communication training</p> <p>Responsibilities of individuals and leaders within a group to encourage farmer –to –farmer extension</p> <p>Technical training related to priority problems such as seed multiplication, animal traction, storage, processing and packaging, improved production practices for crops and livestock)</p> <p>Farmer field school approaches and participation in PREA.</p> <p>Awareness raising of existing agricultural policies</p> <p>Providing adult (basic) education</p>	<p>Farmer to farmer extension,</p> <p>On farm testing/demonstrations</p> <p>Exchange visits to other farms and research stations</p> <p>Contact with extension agent through groups</p> <p>Extension material in local languages, using local measures (leaflet, poster, pamphlet)</p> <p>Trade fairs (seed etc)</p> <p>Field days linked to on farm testing</p> <p>Access to market information (through radio, mobile phones)</p> <p>Radio and TV messages</p>	<p>Organisational, management and technical support for farmer groups and associations for acquiring inputs, securing credit, storage and marketing produce.</p> <p>links to agro-processors (contracts)</p> <p>Membership/Formation of commodity groups APEX farmer organisations to strengthen farmer groups</p> <p>Rural banking scheme should be encouraged to enhance easy access to credits and mobilize savings.</p>
Young men (additional requirements)	<p>-greater orientation towards cash crops</p> <p>-greater interest in labour saving techniques</p>		
Women farmers (including young women) – additional requirements	<p>Targeted training with emphasis on those areas where women are already active</p> <ul style="list-style-type: none"> - Improving provision and use of improved crop threshers and processing machines - Small scale ruminant and poultry production practices - Establishment/ maintenance of small-scale agro- business enterprises. - Training on non-farm income generation activities (pomade, soap, knitting) 	<p>Contact through female extension agents will be particularly important. This could include women in other professions (teachers, nurses etc.)</p> <p>Targeting women through programs should be intensified and aimed at those areas where women are already active.</p>	<p>Organisational, management and technical support for women groups for acquiring inputs, securing credit, storage and processing farm produce</p> <p>Improving access to micro-credit (savings clubs)</p>
Artisans (blacksmiths, welders)	<p>Technical training (fabrication and maintenance of equipments)</p> <p>Improving access to raw materials/tools and micro-credit</p> <p>Training in business skills</p>	<p>-access to market information (raw materials and finished products)</p> <p>Trade fair (tools, equipment)</p> <p>Field days for artisans</p> <p>Radio and TV messages</p> <p>Participatory testing/demonstrations</p>	<p>Organisational, management and technical support for artisan groups</p>

Empowering stakeholders through capacity building, information and communication improvement and institutional and organisational change

Stakeholder	Capacity building	Information and communication needs	Institutional and organisational change
Input suppliers (wholesalers and retailers)	Technical training in handling, use and packaging of products sold (seed, chemicals, fertiliser, feeds, vet products)	Production and market trends (demand, supply, price movement) Info on new technologies Need to strengthen delivery of market information to users through appropriate media	Organisational, management and technical support for input groups
Output buyers (traders)	Training in appropriate measurement, grading, purchase and storage of products (incl. other quality control issues) Training in business skills	Information on new products Consumer preferences dynamics Cross-border trade opportunities & regulations	Organisational, management and technical support for output groups
Agro-processors (village level)	Technical training in processing (recipe development) and use of processing machines Management/org skill development (operational issues) Assistance for machine acquisition/maintenance Linkage with markets (produce users) Training in business skills	Info on consumer preference Info on new markets Info on new flow-lines & machines (technologies)	Organisational, management and technical support
Agro-processors (medium and large)	Improved linkage with markets (farmers and produce users) and financial institutions Training in business skills	Info on consumer preference Info on new markets Info on new flow-lines & machines (technologies) Supply, demand and price dynamics Trade regulations	Networking among agro-processors for better synergy and linkages with output dealers & suppliers
Financial institutions	Knowledge of agricultural calendar, economics of production and agricultural business skills	Output forecast Farmer organizations Linkage with R&D (for technical info. update re: project viability)	Expansion of service to rural clientele Improving level of services provided

Empowering stakeholders through capacity building, information and communication improvement and institutional and organisational change

Stakeholder	Capacity building	Information and communication needs	Institutional and organisational change
Traditional leaders	Create awareness on implementation of public programmes Role of farmers' groups in rural development Good leadership for enhanced development Strengthen capacity in conflict resolution	Awareness of activities of extension and research organisations Problems and prospects of agricultural production in their domain Cell phones and radio sets	Improve linkage with government (local, state, Federal) and other (ADPs, NGOs CBOs etc) organisations. Improved participation as much as possible in Agric Dev. Activities
Extension agents (Govt and NGO)	Technical training (crops, livestock, agro-forestry, IPM, fisheries) -Improved communication and facilitation skills -Group formation and dynamics PREA FFS	On farm testing/demonstrations/field days/workshops Exchange visits to farms and research stations Extension material in local languages, using local measures Market price information Farmer Service Centres	Testing different methods of delivering extension to farmers Improved funding Full ADP departmental status for extension Provision of incentives for EAs Strengthen linkage with research institutes and NGOs
Commodity associations	Assistance in organisation and management of their associations Credit sourcing and management Marketing strategies and export promotion Measures, grading and packaging	Markets and market price information (local & foreign) Sources of credit and loans for members Agricultural production estimates to advise members on market trends Weather forecasts Availability of inputs and cost of production	Secure good storage facilities and be independent of govt. in operations Representation in all agro-ecological zones Strengthen linkages with other stakeholders (NARS, EPZ, Banks, Markets, ADPs, Insurance etc) Ensure membership links are maintained
APEX farmer organisations	Group dynamics Book keeping and accounting Marketing strategies and market information network for members Credit sourcing and management Bank and banking transactions Fostering relationships and linkages (with govt. and other agencies) Improve financial standing to provide loans to farmers at harvest to stabilise market prices	Market price information Sources of credit and loans and inputs Interactive tours, field days & agric shows/fairs Cell phones, radios Farmer information centres	Build capacity of farmers' groups and farmers Participate in input procurement and sales Provide storage facilities and evolve effective marketing strategies Strengthen linkage with NARS, ADPs, Min of coops, Financial Institutions etc. Promote production of priority crops Rendering extension support to members
Policy makers (Local, State and National levels)	Support in policy formulation Increase awareness of stable and enabling policy options for medium and long term	Impact/performance of past policies/policy review Briefing on the likely outcome of alternative policy options	Institutionalisation of participatory approaches for decision making Enforce monitoring of policy implementation.

Empowering stakeholders through capacity building, information and communication improvement and institutional and organisational change

Stakeholder	Capacity building	Information and communication needs	Institutional and organisational change
Researchers	<p>Improved funding</p> <p>Appropriate logistics (vehicles, lab and computer facilities)</p> <p>Updating in new methodologies and approaches</p> <p>Orientation in participatory approaches, How to be holistic in looking at farmers' constraints and opportunities, avoiding being technology driven, translating science into development</p>	<p>Acquisition and training in use of computer based systems</p> <p>Improving use of information technology, to access data bases and share information with others</p>	<p>More and better linkages between research institutions.</p> <p>Better synergy of research institutions and NARES avoiding of duplication of activities</p> <p>Consider rationalisation of some activities</p> <p>Less bureaucracy</p> <p>Strengthen management and accountability to manage research projects</p> <p>Appropriate reward systems</p>

9 NEXT STEPS

Towards a Logframe

We have used the outputs derived from the hypotheses, entry points, opportunities and constraints to assist in the development of a logframe for the SSA-CP KKM programme.

We have suggested a Goal derived from the higher objectives of FARA, namely: “To improve food security, reduce vulnerability and improve the livelihoods of rural communities in KKM”

The purpose would be: “To improve sustainable agricultural production in KKM”, through four Outcomes⁶:

- Intensifying smallholder farming systems
- Sustainable natural resource management
- Developing efficient markets
- Developing supportive policies

In developing this framework, four logframes are suggested one for each outcome.

Outputs (as identified by the VT) could be considered for each of these Outcomes. Indicators, means of verification, assumptions and risks could be developed for each. Empowerment actions (SSA-CP Pillars) would cross-cut outputs meaning that project activities would need to include empowering actions to ensure sustainability.

Our suggestion for developing a logframe is shown in Figure 3.

Project level logframes

At project level each of the four Programme Outcomes (or Purposes) becomes a Project Goal. The programme Goal can be regarded as a super Goal. Each Programme Output, as identified by the VT then becomes a Project Purpose. Outputs and activities each with its own indicators, means of verification, assumptions and risks would be developed by project proposers.

⁶ Alternatively these could be regarded as four purposes each with its own set of Outputs

Figure 3: Towards a logframe

SSA-CP KKM Programme Goal
To improve food security, reduce vulnerability and improve the livelihoods of rural communities in KKM
Programme Purpose
To improve sustainable agricultural production in KKM, through
<ol style="list-style-type: none"> 1. Intensifying smallholder farming systems 2. Sustainable natural resource management 3. Developing efficient markets 4. Developing supportive policies

Purpose or Outcome 1	Purpose or Outcome 2	Purpose or Outcome 3	Purpose or Outcome 4
Intensified and productive <u>smallholder farming systems</u>	Improved and sustainable management of <u>natural resources</u>	Efficient and effective input and output <u>marketing systems</u> developed	Improved <u>policy environment</u> for sustainable management of land, crops and livestock
Outputs	Outputs	Outputs	Outputs
1.7 Increased production and productivity and reduced storage losses resulting from improved control of crop production and post harvest pests 1.8 Increased production and productivity of labour through development of labour saving devices and technologies. 1.9 Increased production and productivity of crops and livestock through development of appropriate improved low cost inputs (seed, ISFM, ICLP) and cropping systems 1.10 Increased livestock production and productivity resulting from improved pest and disease prevention/control through improved drug and vaccine availability and use. 1.11 Increased crop and livestock production and productivity through development of appropriate technologies (cultural practices, varieties, high value products) linked to markets 1.12 Increased crop production and productivity through development of appropriate irrigation technologies (for large, medium and small schemes)	2.5 Reduced land degradation and increased productivity through development of appropriate practices (agro-forestry, ISFM, ICLP and fuel saving alternatives) 2.6 Improved management and rehabilitation of community grazing areas through community identification, selection and implementation (with community regulation) of appropriate options 2.7 Increased production and productivity through development of appropriate small scale irrigation, rain water harvesting techniques, soil and water conserving practices 2.8 Loss of valuable fadama and gulbi reduced through more effective environmental and social assessments of potential dam sites, providing a basis for improved policy in dam development	3.3 Increased profitability of agricultural enterprises through capacity building of farmer groups to access inputs, negotiate fair prices and access credit 3.4 Increased productivity of both processors and farmers through improved links and partnerships resulting from contract farming, guaranteed prices and agro-processor supplied extension services.	4.5 Reduced conflict and NRM improvement resulting from development of a new approach involving LG, traditional leaders and farmer organisations to land management that can act as a blue-print for new policy. 4.6 Improvement of local infrastructure for resolving problems of access for production and marketing as a result of community empowerment and provision of labour and LG provides materials and guidance in construction. 4.7 Faster scaling-up and scaling-out of benefits from R&D as a result of improved extension approaches. 4.8 More effective delivery of subsidies to resource poor farmers through voucher schemes

Annex 1: Terms of Reference

2.1. Overall objective

The overall objective of the validation exercise is to develop and apply a workable, innovative, interactive and truly multi-stakeholder participatory approach to:

- (i) Identify the major constraints/problems for sustainable increase in productivity and profitability of the principal agricultural production systems – with concomitant improvement in food security and livelihoods and consequent reduction in poverty of both rural and urban poor – while maintaining and/or enhancing the natural resource base;
- (ii) Identify the major opportunities available now and in the future for improving food security and livelihoods and consequent reduction in poverty of stakeholders along the commodity chain and the resource-to-policy continuum; and
- iii) Identify and prioritize inputs/contributions that stakeholders expect from research to alleviate the constraints/problems and realize the opportunities, with the biggest possible impact on livelihoods of not only the smallholders and pastoralists but also urban consumers and all other actors in the product chain whose collective participation is essential for alleviating the problems/constraints and realizing the opportunities.

2.2 Specific objectives:

These include:

- (i) To ascertain stakeholders' perceptions of the major constraints/problems for sustainable increase in productivity and profitability of the principal/priority agricultural production systems – with concomitant improvement in food security and livelihoods and consequent reduction in poverty of both rural and urban poor – while maintaining the natural resource base.
- (ii) To determine stakeholders' perceptions of opportunities/innovations (available now and in the future) for sustainable intensification of farming systems integrated with improved markets and policies that will result in improvement in food security and livelihoods and consequent reduction in poverty as well as maintain and/or enhance natural resources.
- (iii) To ascertain stakeholders' perceptions of opportunities/innovations (available now and in the future) for production systems (across sizes of farm enterprises) that will maintain and/or enhance natural resources (land, water, agro-diversity) while intensifying their use.
- (iv) To determine stakeholders' perceptions of opportunities/innovations for enhancing the accessibility and efficiency of markets (rural, inter-rural, urban, cross-border, intraregional) for agricultural products (processed and unprocessed) – including opportunities for value addition and exploitation of emerging markets – and inputs.
- (v) To ascertain stakeholders' perceptions of opportunities/innovations accruable to them (now and in the future) from government policies specifically formulated to improve markets (domestic and regional) and to encourage innovations and investment towards improved natural resources management, sustainable improved productivity/profitability and livelihoods and address gender and equity issues.
- (vi) To evaluate stakeholders' capacity building/development needs for their effective participation in IAR4D.
- (vii) To assess stakeholders' information and communication technology needs and proffer solutions for improvement towards fruitful and effective participation in IAR4D by stakeholders
- (viii) To evaluate organizational/institutional changes in the PLS's organizations and institutions that will enable cross-disciplinary, multi-institutional and multi-stakeholder implementation of IAR4D.
- (ix) To determine stakeholders' expectations of what research can do to help them to realize present and future opportunities/innovations, interests and aspirations and to alleviate major constraints to principal farm enterprises.
- (x) To compare the constraints/problems/issues, opportunities/innovations identified by stakeholders from previous workshops and documents with those identified during the validation exercise and then synthesize a composite list of major, common and priority constraints and opportunities whose alleviation and realization, respectively, would result in quick impact.
- (xi) To propose priority entry points (starting points for exploring the full dimensions of focal problems and opportunities across the agricultural system and resource to policy chain) to solve the negotiated/harmonized priority problems and to realize the opportunities/innovations. These entry

points need to address both issues specific to visited sites and also issues of relevance to the entire KKM PLS and beyond. In proposing entry points, the Team shall take into consideration the criteria for entry point identification developed by the Launch Meeting. Thus the selected solutions/entry points should:

- Be preferably “off-the-shelf” or at least “on-the-shelf” – derived from past R&D activities – for quick start;
- Have the potential for rapid impact;
- Solve problems that are of major interest to many people (so as to build on trust and benefit from interaction);
- Solve the most crippling or constraining problem(s) or bottleneck(s);
- Be logical (e.g. they should appear to be what really need to be done first);
- Wherever possible, serve as a “bright spot” of R&D effort (i.e., provide light – from previous R&D efforts in a well-researched area – on solution of similar problems in areas that have had little comparable R&D activities).

3. Outputs:

The outputs of the validation exercise will include the following:

- (i) List and ranking of major constraints/problems for sustainable increase in productivity and profitability of principal/priority agricultural production systems produced - see specific objective (i).
- (ii) List and ranking of stakeholders’ perceptions of opportunities/innovations for sustainable intensification of farming systems provided - see specific objective (ii).
- (iii) List and ranking of stakeholders’ perceptions of opportunities/innovations for production systems that will maintain and/or enhance natural resources produced –see objective (iii).
- (iv) List and ranking of stakeholders’ perceptions of opportunities/innovations for enhancing the accessibility and efficiency of markets for agricultural products and inputs available – see specific objectives (iv).
- (v) List and ranking of stakeholders’ perceptions of opportunities/innovations accruable from government policies formulated to improve markets, encourage investments and innovations, etc documented – see specific objective (v).
- (vi) Stakeholders’ capacity building needs determined and ranked - see specific objective (vi).
- (vii) Stakeholders’ information and communication needs and solutions for improvement ranked and documented – see specific objective (vii).
- (viii) Organizational and institutional changes to facilitate cross-disciplinary, multi-institutional, multi-stakeholder IAR4D implementation determined and ranked – see specific objective (viii)
- (ix) Stakeholders’ expectations of what research can do to help realize opportunities/innovation and alleviate major constraints to principal farming enterprises produced and ranked – see specific objective (ix).
- (x) Compromise list of major, common, and priority constraints and opportunities/innovations whose alleviation and realization, respectively, would result in quick impact provided and ranked see specific objective (x).
- (xi) Entry points and hypotheses (in the broad sense) to solve the harmonised priority problems and to realize the opportunities/innovations proposed and ranked – see specific objective (xi).

(It is noted that these outputs will constitute the information that the Lead Institution, CORAF/WECARD, and the PLS MC will use to formulate the research programme and the subsequent call for task forces to address the problems/constraints/issues and entry points).

4. Duration of the Validation Exercise

The exercise must be completed within 30 days from the date of signing the contract, i.e., the first day at work for the core team.

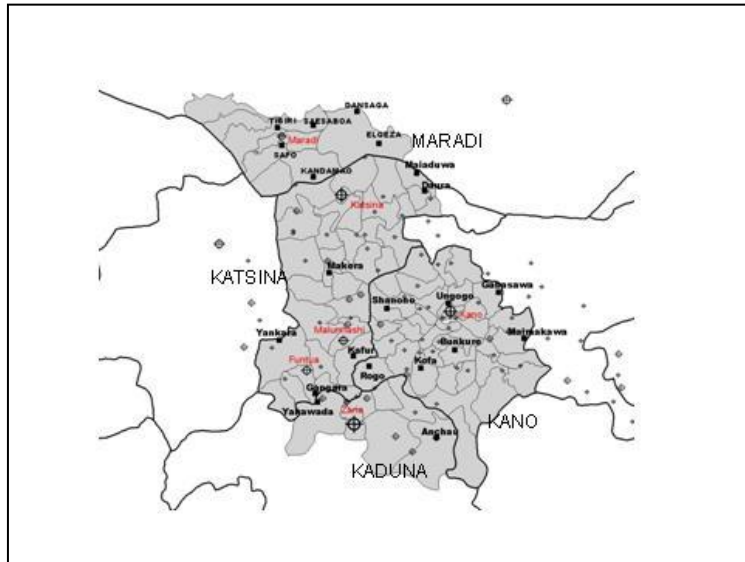
Annex 2: Maps of the KKM PLS

Map 2: Village locations

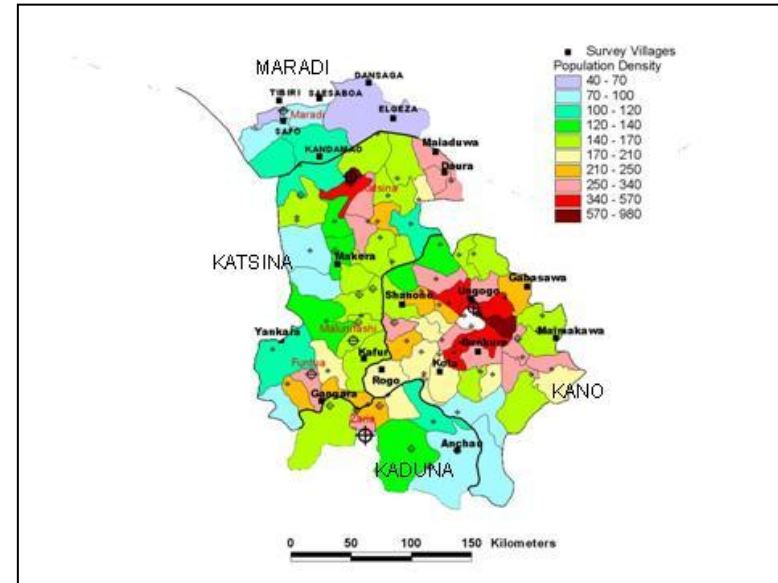
Map 3: Survey villages (Mean annual rainfall and agro-ecological zones)

Map 4: Survey villages (Mean annual rainfall and agro-ecological zones)

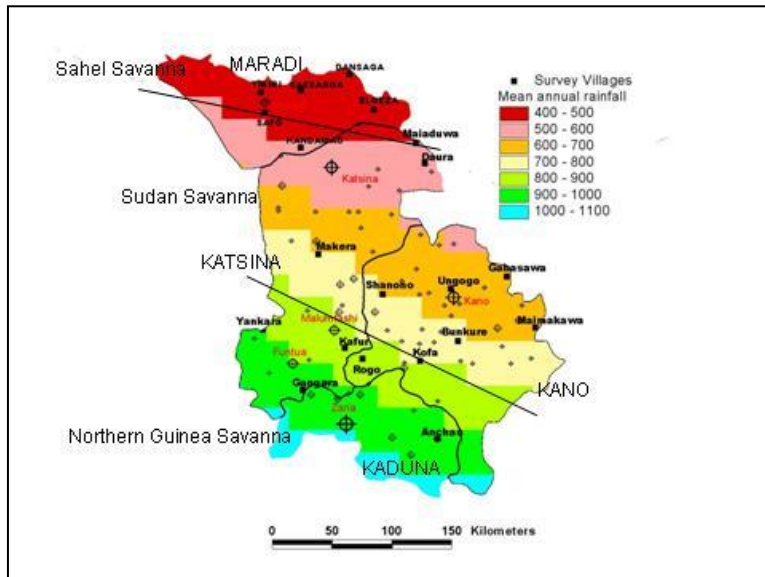
Map 5: Survey villages (Access to markets)



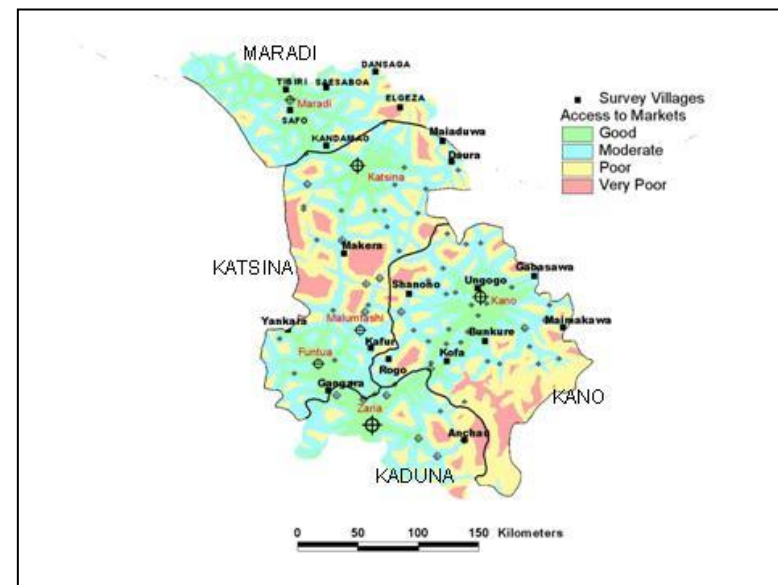
Map 6: Village locations



Map 8: Survey villages (population density)



Map 7: Survey villages (Mean annual rainfall and agro-ecological zones)



Map 9: Survey villages (Access to markets)

Annex 3: Programme of activities

Community	Week 1						Week 2						Week 3						Week 4						Week 5														
	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6									
Kano																																							
Rogo	<i>Preparatory workshop in Kano</i>																							X	X	X	Team report	Team presentation	Final draft										
Bunkure															X	X	X																						
Kofa																			X	X	X																		
Ungogo									X	X																													
Shanono												X	X	X																									
Gabasawa																									X	X				X									
Maimakawa																						X	X	X															
Katsina/Zaria																																							
Zango Daura	<i>Preparatory workshop in Kano</i>							X	X	X	X																					Team report	Team presentation	Final draft					
Mariduwa								X	X	X	X																												
Makera													X	X																									
Kafur																X	X	X	X																				
Yankara																X	X	X	X																				
Anchwa																									X	X	X	X											
Gangara																					X	X	X	X															
Ungwar-Fulani															X	X	X	X																					
Maradi																																							
Dan-Saga	<i>Preparatory workshop in Kano</i>										X	X												X								Team report	Team presentation	Final draft					
El Gueza Golom												X	X															X											
Sae-Saboua																	X	X											X										
Safo																			X	X										X									
Kandamao																							X	X						X									

Annex 4: Literature consulted

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Annex 5: Reports of Regional Research Institutions, NARES, NGOs and the private sector

(Supplied as separate files)

