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NSSP Workshop Report # 23

VALIDATION WORKSHOP ON PRIVATE IRRIGATION AND AGRICULTURAL MECHANIZATION IN NIGERIA

(Prepared by Hyacinth Edeh)

Nigeria Strategy Support Program (NSSP)
Workshop Report

June 28, 2011

IFPRI-ABUJA

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THE NIGERIA STRATEGY SUPPORT PROGRAM

WORKSHOP REPORTS

ABOUT NSSP

The Nigeria Strategy Support Program (NSSP) of the International Food Policy Research Institute (IFPRI) in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD) has an initiative to strengthen evidence-based policymaking in Nigeria in the areas of rural and agricultural development. This initiative, facilitated by USAID, supports the implementation of Nigeria's national development plans by strengthening agricultural sector policies and strategies through:

- Enhanced knowledge, information, data, and tools for the analysis, design, and implementation of pro-poor, gender-sensitive, and environmentally sustainable agricultural and rural development policies and strategies in Nigeria;
- Strengthened capacity for government agencies, research institutions, and other stakeholders to carry out and use applied research that directly informs agricultural and rural policies and strategies; and
- Improved communication linkages and consultations between policymakers, policy analysts, and policy beneficiaries on agricultural and rural development policy issues.

ABOUT THESE WORKSHOP REPORTS

The Nigeria Strategy Support Program (NSSP) Workshop Reports provide a review of the presentations delivered during workshops and key comments from the audience and group discussions. The comments from the participants do not necessarily reflect those of IFPRI.

VALIDATION WORKSHOP ON PRIVATE IRRIGATION AND AGRICULTURAL MECHANIZATION IN NIGERIA¹

Kano, Nigeria

June 28, 2011

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Introduction

The International Food Policy Research Institute (IFPRI) in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD) continues to work towards strengthening evidence based policymaking, generating policy research to fill key knowledge gaps and improving national capacity for policy analysis in Nigeria. In view of this, the International Food Policy Research Institute (IFPRI) is undertaking research on private irrigation in Nigeria under the Feed the Future (FtF) initiative of the United States Agency for International Development (USAID). The FtF program expects to support the governments and technical agencies of some 20 “focus countries”, including Bangladesh, Cambodia, Nepal and Nigeria in programs focused on:

1. Production technology: R&D to enhance the availability of high and optimum yielding germplasm (seeds, varieties, and breeds), improved production practices, pest control, and soil and water management;
2. Irrigation and water-use improvement, such as rehabilitation and construction of new structures and wells;
3. Post harvest technology, including primary processing, handling, drying, and storage; and
4. Agricultural extension (training and communication) on the above topics.

This workshop is an integral part of IFPRI Nigeria research strategy to harvest experiences of distinguished researchers in Nigeria as well as actively involve them into key discussions on the proposed study on private irrigation and agricultural mechanisation in Nigeria.

The main objectives of the workshop are to:

- Discuss preliminary findings from irrigation and agricultural mechanization study based on data collected for second and third National Fadama Development Projects in Nigeria
- Validate draft questionnaires, and survey methodologies for planned irrigation survey

The workshop was attended by 53 participants consisting of agricultural economists, agricultural engineers, independent consultants and researchers from various universities and research institutes (Appendix 2). It was held at The Department of Agricultural Economics, Faculty of Agriculture, Bayero University, Kano on June 28, 2011.

Opening Ceremony

The workshop commenced at 9.30 a.m. with Sheu Salau of IFPRI welcoming the participants. He then introduced the Chairman of the workshop, **Professor Simeon Jekayinfa** who presided over the proceedings of the workshop, and four other dignitaries who were scheduled to present their goodwill messages. Those who presented the goodwill messages were **Dr. Hiroyuki Takeshima** (IFPRI, Nigeria), **Dr. Sunday Uhiene** (PPAS/CAADP, Federal Ministry of Agriculture, Abuja), **Dr. S. C. Okoli** (NFRA, Federal Ministry of Agriculture, Abuja) and **Prof. A. Auwalu** (Dean, Faculty of Agriculture, Bayero University, Kano).

Dr. Takeshima Hiroyuki, Acting Program Leader of the NSSP, officially welcomed all the participants to the workshop and introduced IFPRI as an international non-profit organization with its head office in Washington; and having country offices across the globe including Nigeria. He mentioned that IFPRI activities in Nigeria, which basically involves engaging in evidence-based research towards increasing agricultural productivity and reducing food insecurity problem, is supported by **USAID**. He thereafter explained that the workshop was an integral part of IFPRI research strategy to harvest experiences of distinguished researchers on the chosen research field. He concluded by appealing to the participants to contribute meaningfully to the workshop, as this will enrich the proposed study on private irrigation and agricultural mechanisation in Nigeria.

In his goodwill message, Dr. Sunday Uhiene of the PPAS/CAADP of the Federal Ministry of Agriculture and Rural Development (FMARD), Abuja, lauded IFPRI's activities in Nigeria, and was specific on this particular workshop as a revolutionary step in the irrigation and mechanization sub-

sector of the agricultural sector in Nigeria. He stressed that IFPRI has always played both supportive and collaborative roles with FMARD, particularly in the aspect of policy making as well as personnel training. He took time to expatiate on the “Comprehensive African Agricultural Development Programme” (CAADP), an idea pioneered by IFPRI as a policy measure of convoking Sub-Sahara African leaders towards investing in value-chain addition of agricultural products. He emphasised that if IFPRI’s vision works as being rolled out in Nigeria, then Nigeria will soon take its rightful position among the committee of nations, and also achieved food self-sufficiency. He enjoined the participants to support IFPRI in all its activities including the CAADP zonal workshops which will soon take place across all the geo-political zones in the country.

Dr. Silas C. Okoli in his goodwill message highlighted the activities of National Food Reserve Agency (NFRA) to include supervising all the Programme Coordinating Units (PCUs) of Agric Development Programmes (ADPs) which exists across all the states in Nigeria. According to him, their impact is actually felt from such programmes as FADAMA I, FADAMA II, and the on-going FADAMA III. He thanked IFPRI for always being at the fore-front of gathering needed data for policy adjustment, as such acts of IFPRI is an essential ingredient towards making NFRA’s vision achievable.

The Dean, Faculty of Agriculture, Bayero University, Kano, Prof. Auwalu, in his goodwill message subscribed to the fact that Nigeria is bestowed with all resources to be a successful nation: land, water, population, weather, etc, but very unfortunate that the country still wallows in poverty and food insecurity. He testified that if this kind of gathering as conceptualized by IFPRI could be positively harnessed, then Nigeria will soon be leapfrogged into the committee of blissful nations through the agricultural sector. On behalf of Bayero University, Kano and the Faculty of Agriculture, he welcomed all the participants and wished them a fruitful discussion.

Summary of Presentations

The introduction and goodwill messages were followed by paper presentations, which witnessed the presentation of three IFPRI- authored and five other short-listed papers. The paper presentations were made by Dr. Hiroyuki Takeshima (IFPRI), Dr. Abdullahi Abbas Yakubu (Usmanu Danfodiyo University, Sokoto), Prof. Idowu, E. O. (Obafemi Awolowo University, Ile-Ife), Dr. K. K. Salimonu (University of Ibadan, Ibadan), Dr. Segun Ademiluyi (Centre for Agricultural Mechanization, Ilorin) and Dr. Segun B. Fakayode (University of Ilorin, Ilorin).

Dr. Hiroyuki Takeshima presented his first paper on ‘**Preliminary findings on irrigation patterns in Nigeria-Crop and Seasonality**’. In this paper, he presented the common irrigation seasons and crops irrigated in Nigeria, and key implications from such findings. He identified about 8 types of irrigation in Nigeria based on crops and seasonality, and observed that just 1% of cultivate area in Nigeria is irrigated. The paper also highlighted the distribution and proportion of irrigation patterns by crops and seasonality based on Fadama III data and the production from such crops. He questioned the observed irrigation patterns as not being explained by latitude and rainfall, citing the noted strange examples, and then stated the hypotheses of the study. He concluded the paper with some potential policy implications which included: labour-support for labour saving devices usable for irrigation, land support for high yielding varieties that reduce the competition over land, cash support for agricultural finance, and finally he advocated for crop and season specific support.

His second presentation was on **farmers’ investment patterns for farm tools in Nigeria- Evidence from FADAMA II Project**. In this second paper, Dr. Takeshima highlighted challenges in supporting sophisticated farm tools like tractors in developing countries like Nigeria and the observed low-level of current farm mechanization in the country. He also cited the complementarities and competition between farm tools, and itemised the various use of farm tools from literature. Having described the second National Fadama Development Project (FADAMA II), and having obtained his result through descriptive statistics and models with rational explanation and constraints, Dr. Takeshima concluded with the following implications of the results: Farmers prefer to invest in specific farm tools; farmers

owning certain farm tools were more likely to invest into the same tools while less likely to invest into other tools even though they can be potentially complementary to each other; targeting of farmers is more important when supporting adoptions of particular farm machineries; and finally, that Nigerian governments continued focus on tractorization make some sense.

After Dr. Takeshima's presentations, other papers were presented. The first was on **profitability analysis of selected crops in Kano River Irrigation Project, Kano, Nigeria** presented by Dr. Abdullahi Abbas Yakubu of the Agricultural Economics and Extension Department, Usmanu Danfodiyo University, Sokoto, Nigeria. In this paper, Dr. Abdullahi raised the issue of important constraints in processing, particularly for rice. It was also mentioned that the irrigation of tomato led to excess supply (glut) in the year 2002, thus reducing the tomato price. Consequently the irrigation activities for that year brought loss to irrigators. Highlighting the importance of processing, and storage of tomato, he submitted that this will enable the farmers to irrigate at the profitable price.

The second paper on **sustainable irrigation policy reform in Nigeria with the Sepeteri Irrigation Project in Oyo State, Nigeria** as example was presented by Prof. E.O. Idowu of Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria. In this paper, the author pointed out the important constraints in obtaining credit for irrigation, and low public funding as well as low demand by farmers. These he argued generally led to unprofitable and unsustainable irrigation systems in the western region of Nigeria.

Dr. K. K. Salimonu of the University of Ibadan, Nigeria presented the third paper on **investment decision on agricultural mechanization use among food crop farmers in Nigeria: Implication for agricultural development**. He identified the importance of agricultural mechanisation and its need in Nigerian agriculture and categorized agricultural mechanization in Nigeria into 6 modules. He further explored the farm tools and machinery used in Nigeria and the extent of use among farmers as recorded in the literature. The challenges to farmers' decision to adopt agric mechanization were stated with their implications on agricultural development. He finally called for strategic actions such as government support to farm machinery rental market to benefit small farmers; empowerment of farmers to invest in required equipment; periodic survey to encourage feedback from the farmers; and promotion of agricultural processing and rural based agricultural industries.

In the fourth paper, Dr. Segun Ademiluyi of the National Centre for Agricultural Mechanization (NCAM), Ilorin, Kwara State, Nigeria made a presentation on **Sawah technology for rice production in Nigeria**. This technology is fast gaining popularity in Nigeria. He provided detailed characteristics of Sawah production technology, and its uniqueness. He emphasized that the choice of appropriate location is key for successful implementation of the Sawah technology.

The fifth paper was on **commercialization of irrigation in Nigeria based on the econometric appraisal of the Nigerian farm** by Dr. Segun Fakayode of the University of Ilorin, Ilorin, Kwara State. The presenter pointed out the key constraints of farmers as inadequate funds, pest and diseases and those of poor input supply and availability. The author also emphasized the importance of rental market for major farm machineries, which can increase the use of machineries by resource-poor farmers.

These presentations were followed by another presentation by Dr. Takeshima on **key issues on the questionnaire for proposed irrigation survey**. He emphasized that the purpose of the survey was to understand the diversity of irrigation systems in Nigeria, their profitability, and farmers' decisions to choose particular irrigation systems. He then listed various questions regarding farmers' irrigation use in Nigeria, which can help in designing and obtaining valuable information from the respondents.

Plenary Session: Comments and Observations on presentations by Dr. Takeshima

The main presentations were followed by comments, questions and suggestions in the plenary session:

The major issues raised in the papers presented are summarized below.

The first issue raised was the storage problem for various irrigation crops, including tomatoes. This was noted from the findings of one of the presenters, and it was observed that irrigation is practiced in the locations and by the farmers in unprofitable environment. It was also pointed out from the findings in the presentation made by Dr. Takeshima that the lack of storage facilities has discouraging effect on farmers' investment into various agricultural machineries. It was urged that the issue of storage should be seriously taken up by the government.

Secondly, some corrections were made on the presenter's remark about the Fadama II project, that Fadama II project ended in 2009, after the Fadama III project had started, as opposed to the presenter's remark that it ended in 2006. Again, it was observed that tractors were not likely be part of Fadama II project as it was not appropriate for pro-poor motivations of the project. Lastly, the little vegetables, such as garlic, and other exotic vegetables are actually more important irrigation crops and needs to be explicitly included in the questionnaires.

Further, it was pointed out that, while the presenter mentioned the irrigation of cassava, sorghum or millet in Fadama III dataset, it is actually difficult to find such irrigators in Nigeria, and that the presenter should actually confirm such irrigation practices from the sites.

It was also noted that one of the biggest constraints for irrigation in Nigeria is weeds, and the questionnaires should include detailed questions about the problems of weeding, and how irrigators deal with the problem.

Concern about possible multicollinearity in the estimation was raised, as the model included relatively large number of explanatory variables.

The need to consider the importance of the character of farmers, particularly gender as female and male are both involved with and benefit from irrigation in different ways was stressed.

It was also suggested that the irrigation types can be classified more informatively not by crops and seasonality, but by the types of technologies used for irrigation. Secondly, it was noted that while agro-ecological zones and geo-political zones are very important, studies based on the dataset from Fadama II only include Imo State for South East and does not include any state in the South South Zone. The strange results were attributed to the mixed cropping practiced. For example, maize and cassava are grown in the same plots, and while only maize may be irrigated, cassava may also be considered irrigated.

Comments and observations on the questionnaire

Several issues were raised regarding the questionnaire for the survey on private irrigation in Nigeria. These include:

- The first issue raised was that the questionnaires do not include many questions on sustainable irrigation, and the history of farmers' production, such as past yield, crops grown, etc., can explain the types of farmers who will irrigate.
- It was advised in the workshop that the questionnaire should also capture the financing of irrigation, particularly the equipment costs, and farmers' access to credit. Also re-emphasized is the importance of processing and storage issues that are inherent in irrigated crops in Nigeria. Mentioned was the inclusion of the border irrigation as another water application method widely used in Nigeria, as current questionnaire only captures the furrow and basin methods. Lastly, it was mentioned that the topography of the plot may be difficult for farmers to answer, and should be asked in other appropriate way. The need to restructure the questionnaire was therefore stressed as its current forms are difficult for farmers to answer as they do not keep records at the plot level.
- The workshop suggested the need to include questions regarding the reliability of irrigation resources, particularly the water sources, in the questionnaire. Re-emphasized was the importance of including environmental impact of irrigation, and farmers' perceptions on such impact. It was also pointed out that the information on the periods of sales is critical and should be more explicitly asked. Lastly, a few other important irrigation crops in Nigeria such as sweet potato, Irish potato, water melon and garlic were listed.
- Again, it was suggested that the questionnaire should separate household asset and farm asset, and should be shorter if all questions will be asked during one visit. It was emphasized that

the exotic vegetables should be included in the questionnaire, given their popularity as irrigation crops. Lastly, it was pointed out that the land rental along the stream is highly common in Nigeria and that the questionnaires should reflect such aspects.

- It was advised that the questionnaire should start from the questions in which interviewees are interested, such as the yield or production, or problems regarding the production.
- It was mentioned that the commonality of conflict associated with the payment for water among users, in particular among public irrigation scheme should be included in the questionnaire.
- It was also pointed out that the questionnaire should include the detailed questions of the cost of irrigation equipment. The importance of assessing the uses of water other than irrigators was mentioned. It was further emphasized that the questionnaire should ask the health and environment related questions, given the important effects irrigation can have on these aspects in Nigeria. Lastly, the importance of distinguishing adult family labor by gender and children was emphasized.
- Finally, the workshop pointed out that questionnaire should separate the technical question from more general questions relevant to farming activities, as that is more effective way for soliciting the information.

The plenary session provided various constructive comments for all presenters, as well as the general inputs into questionnaire.

Small group discussions and reporting

The plenary session was followed by the small group discussions where each group discussed more in detail about each sections of questionnaire. Group 1 discussed the general questions as well as plot survey and land transaction question. Group 2 discussed the irrigation modules while Group 3 discussed the production, sales modules. After the discussion, each group reported back during the second plenary session. The specific comments and suggestions made by each group are listed below.

Group I Report

- Address, LGA and village should be removed
- A2 – 9 and 10 should be taking to page 4 of the questionnaire
- A2 (9) should go to module D, which is the module on marketing information
- A2 (10): Options should be limited to (i) Daily (ii) Weekly (iii) Monthly.
- A2 Membership: Options should be numbered i, ii, iii
- A2 (11) Ethnicity should be removed
- A3: The title should change from household composition to Socio-Economic Characteristics of respondents
- A3: Column on Name and Age should be deleted
- B1 Column 2 (location) should be changed to size in hectares
- B1: Column 8 (water retention rate), columns 11 and 12 should be deleted

Group II Report

- Use the same plot ID a assigned in B1
- “if plot is not irrigated, skip these questions” should be inserted at the top of table C.1.
- C.1, column 3 {crop (see crop code)} should read “Crop Name” and additional column should be added to read “Crop Code”.
- Column 13 of C.1 should be added the Naira (₦) sign
- Column 17 should read, “estimated quantity of water applied”
- Column 18 should be removed
- Same changes were recommended for table C.2.
- Table C.3 should be reframed to allow for the separation of capital cost from recurrent costs, and for other costs like labor

- The term, “Best tools” on C.4 column 6 should be well defined. It could read, “how many days per week, month or year”
- Table C.5 row 2 should read, “How many years have you been using the source (s)?” Options should then be given.
- “Check the type of interviewee from C.1 and C.2” below the title of C.6 should read, “Use as applicable from C.1 and C.2”
- Row 2 of C.6 should read, “how often do you change the time of irrigation”
- Rows 3 and 4 of C.6 should “Why do you not irrigate during.....”
- Row 1 under WUA ie “are you a member of the water user association?” should read “are you a member of Water User Association?”
- Add “Others (specify) to C.10 column 1
- Title of C.11 should read, “Perceptions of climatic risk: compare last season with present season”
- C.12 and C.13 should be removed

Group III Report

- The title of D.1 should be **Production Modules** since consumption and sales are not discussed on the table in question.
- *Water* should be included as part of input in the 8th column.
- Columns for labour used on land preparation and water application should be added under the last two columns of table D.1
- Post harvest cost (i.e. farm level processing and storage cost) should be captured with an additional column on table D.1
- Value of domestic consumption (including quantity given out as gifts) should also be captured in a separate column on table D.1
- The above should be repeated for the table on rainy season
- D.2.1 column 9 (**unit**) should be deleted
- D.2.1 column 12 should read, “Do you transport all crops at the same time?”
- Option 7 (= 70Kg) for primary sale unit on table D.2.1 should be 100Kg not 70Kg
- The unit of measurement should be basket or bag
- On table D.2.2, the unit of measurement should be basket or bag and **bags or bundle** for sugarcane while 100kg should replace 70kg
- The cassava in column 1 of table D.2.3 should be replaced by Irish and sweet potatoes as cassava is seen as a non-irrigated crop
- Other irrigated crops like melon, okro, watermelon, Amaranthus, cucumber, carrot, hot pepper, garden egg, garlic, beans, green pepper should be included among the crops to be considered in column 1 of table D.2.3
- On E.1.; the “retirement” on the first column is so ambiguous. There is a need for clarity.
- On E.1.1.; the second column should be “Off-farm within the locality” and the third column should be “Income outside the locality”
- Assets in Table E.1.2 should be categorised into **functional and non-functional**
- Examples of Assets in each category should be specified at the footnote.
- The table (crop code) should be upgraded based on the suggested crops to be added on page 23.
- Cassava, yam should be removed
- Fad fruit is not clear
- Calabash is not a crop

Key suggestions were made question by question, including the insertion of appropriate information and removal of irrelevant questions, clarification of terms, appropriate use of item keys, and some restructuring of questionnaires were made. The suggested changes will be incorporated into the revised questionnaires which will be later tested and used for the pre-testing.

Appendix A: Invitation Letter

Invitation to the Nigeria Strategy Support Program (NSSP) Workshop on Irrigation and Agricultural Mechanization; June 28, 2011

The International Food Policy Research Institute (IFPRI) in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD) continues to work towards strengthening evidence based policymaking, generating policy research to fill key knowledge gaps and improving national capacity for policy analysis in Nigeria.

As part of activities under IFPRI's Feed-the-Future (FtF) initiative supported by USAID, we are pleased to invite you to a validation Workshop on Tuesday 28th, June 2011 at the department of Agricultural Economics and Extension, Bayero University, Kano (BUK).

The main objectives of the forum are to:

- Discuss preliminary findings from irrigation and agricultural mechanization study by Dr. Hiroyuki Takeshima, Post doctoral Fellow of IFPRI based on data collected for second and third National Fadama Development Project
- Validate draft questionnaires, and survey methodologies for planned irrigation survey

IFPRI will cover the costs of your participation at the workshop. Please we will be sending you a document detailing all logistics arrangement including accommodation, travel reimbursement shortly.

We look forward to your active participation at the workshop. We also try to allocate time if you could present any recent research on irrigation and agricultural mechanization in Nigeria. Please note that the workshop starts at 9am prompt.

To confirm participation, please contact [Amina Yakubu {amcee07@yahoo.com}](mailto:amcee07@yahoo.com) with a cc to Edeh, Hyacinth h.edeh@cgiar.org or call 07033791153.

Thank you and we look forward to working with you on this project.

Yours sincerely,

James Sackey
Program Leader
IFPRI-Abuja

Appendix B: Agenda

Validation Workshop on Private Irrigation and Agricultural Mechanization in Nigeria

Bayero University, Kano

28th June, 2011

Agenda

Chair: Prof. Jekayinfa Simeon

- 8:30- 9:00 **Registration of Participants**
- 9:00- 9:30 **Goodwill Messages**
Dr. James Sackey, International Food Policy Research Institute (IFPRI), Abuja
Dr. Sunday Uhiene, PPAS/CAADP, Federal Ministry of Agriculture, Abuja
Dr. S. C. Okoli, NFRA, Federal Ministry of Agriculture, Abuja
- 9:30 - 10:10 **Preliminary Findings on Irrigation Patterns in Nigeria - Crop and Seasonality**
Dr. Hiroyuki Takeshima, Postdoctoral Fellow, International Food Policy Research Institute
- 10:10-10:30 **Investment Patterns for Farm Tools in Nigeria – Evidence from Fadama II Project**
Dr. Hiroyuki Takeshima, Postdoctoral Fellow, International Food Policy Research Institute
- 10:30-10:50 Tea Break
- 10:50- 11:05 **Profitability Analysis of Selected Crops in Kano River Irrigation Project, Kano, Nigeria**
Dr. Abdullahi Abbas Yakubu, Department of Agric. Economics and Extension, Usmanu Danfodiyo University, Sokoto
- 11:05-11:20 **Sustainable Irrigation Policy Reform in Nigeria: A Study of Sepeteri Irrigation Project**
Prof. E. O. Idowu, Department of Agric. Economics, Obafemi Awolowo University (OAU), Ile-Ife
- 11:20-11:35 **Investment Decision on Agricultural Mechanization Use Among Food Crop farmers in Nigeria: Implication for Agricultural Development**
Dr. K. K. Salimonu, Department of Agric. Economics, University of Ibadan (UI), Ibadan.
- 11:35-11:50 **Sawah Technology for Rice Production in Nigeria: Demonstration, Dissemination and Basic Requirements**
Dr. Segun Ademiluyi, National Centre for Agricultural Mechanization, Ilorin
- 11:50-12:20 **Key Issues on Proposed Irrigation Survey Questionnaires**
Dr. Hiroyuki Takeshima, Postdoctoral Fellow, International Food Policy Research Institute
- 12:20-1:20 **Plenary Session**
- 1:20 - 2:20 Lunch
- 2:20 - 3:20 **Small Group Discussion: Irrigation findings, Questionnaire-related issues**
Group 1 Leader: Prof. Adetola Adeoti
Group 2 Leader: Prof. J.G. Akpoko
Group 3 Leader: Prof I.U. Abubakar
- 3:20- 4:50 **Plenary: Reporting, Questions, Answers and Observations**
- 4:50- 4:55 **Vote of Thanks**
Luke McCarthy, International Food Policy Research Institute

Appendix C: Participants List

s/n	Name	Designation	Department/Institute	M/F
1	Dr. Raufu M. O	Dr	Agricultural Economics	M
2	Adetola Adeoti	Dr	Agricultural Economics, University of Ibadan.	F
3	J.O Olaoye	Dr	Dept. of Agric & Bisystem Extn, Uni Ilorin.	M
4	S.O Jekayinfa	Dr	Agric Engr Dept. LAUTECH, Ogbomosho	M
5	S.C. Okoli	Engr	NFRA, FMARD Abuja	M
6	Durowoju M. O	Dr	Mechanical Engrg, LAUTECH.	M
7	Ojediran J. O	Prof	Agric. Engrg, LAUTECH.	M
8	Luqman Oyero	Mr	Independent consultant, Ibadan.	M
9	Mrs A. I. Achke	Dr	Agric Economics, University of Nigeria Nsukka.	F
10	Muhammed Lawal Abdulazeez	Dr	University of Illorin	M
11	Luke Mccarthy	IFPRI	Research Assistant	M
12	Fabina A. S	IFPRI	Collaborator	M
13	Aminu Abbas	Dr	Agric Economics & Extn, BUK.	M
14	M. A. Hussaini	Dr	Agronomy, BUK.	M
15	Oni Oluwatayo Olatunde		Agric Econs & Extn	M
16	Dr. Kazeem Adekunle Adebisi	Reader	Mechanical Engrg, LAUTECH.	M
17	Idris Olabode Badiru	SA-ZOC (SW)	National Fadama Coordinating Office	M
18	Obayelu Abiodun Elijah	Dr	Dept. of Agric Econs & Farm Mgt, UNAAB.	M
19	Ezekiel Olukayode Idowu	Prof	Dept. Of Agric Econs, OAU, Ile- ife.	M
20	J. O. Alimba	Prof	Dept. Of Agric Econs & Extn, Ebonyi State University	M
21	M. O. Akinola	Senior Lecturer	Agric Econs & R/Sol, ABU Zaria.	M
22	Engr. Dr. B. G. Umara	Senior Lecturer	Agric & Env. Engrg, Unimaid.	M
23	B.M. Auwalu	Prof	Dept. Of Agronomy	M
24	Isa A. Fagam	AD	HJRBDA, Kano.	M
25	A. A. Olufayo	Prof	Agricultural Engineering	M
26	Samuel Sule	Dr	Agric Engr, Fed Poly, Bauchi.	M
27	Sunday Uhiene	Head CAADP	FMARD CAADP secretariat.	M
28	A. M. Bakori	Dr	Agric Econs & Extn, BUK.	M
29	M. I. Daneji	HOD	Agric Econs & Extn, BUK.	M
30	Ibrahim Abbas Sanusi	Senior Agric	HJRBDA, Kano.	M

		Engr		
31	M. O. Adenimi	Senior Lecturer	University of Ilorin	M
32	Ademola A. Azeez	Lect. 1	University Of Uyo	M
33	G.O. Akolade	Chief Lecturer	Lagos state Polythecnic, Ikorodu.	M
34	I. U. Abubakar	Prof	Dept. Of Agronomy, ABU Zaria.	M
35	Dr. S.B Fakayode	Lect. 1	University of Ilorin	M
36	Dr. L. A. Akinbile	Lecturer	Dept. of Agric. Extn. & Rural Dev. University Of Ibadan.	M
37	Abdullahi Abbas Yakubu	Lecturer	Dept. Of Agric Econs & Extn, UDUS.	M
38	J.E. Onyibe	Lecturer	NAERCS, ABU.	M
39	J.G. Akpoko	Lecturer	ABU, Zaria.	M
40	S. G. Mohd	Lecturer	BUK	M
41	Dr. Adesope O. M	Snr Lecturer	Agric Econs & Extn, University Of Port Harcourt	M
42	Ade S. Olomola	Prof & Dir. SFD	NISER, Ibadan.	M
43	Dontsop Nguezet Paul	Researcher	Africa Rice	M
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47	Sodeinde I. abdulrahman		Centre for Development	M
48	Badru N. Kolawole	PSO II	National Bureau of Statistics	M
49	Prof. K. M. Baba	Prof	FUT, Minna.	M
50	Dr. Ahmed M. M	Lecturer	Agric Econs & Extn, BUK.	M
51	Iwegbu Andrew	PJ	National Bureau of Statistics	M
52	I. Mohammed	Prof	SAAT, ATBU.	M
53	Dr. Salimonu K.K	Academics	Agric Econs, U.I.Ibadan	M