

THE NIGERIAN RICE ECONOMY IN A COMPETITIVE WORLD:
CONSTRAINTS, OPPORTUNITIES AND STRATEGIC CHOICES

Report of the stakeholders workshop

November 8-9, 2001, Ibadan

Organized by
Nigerian Institute for Social and Economic Research (NISER) &
West African Rice Development Association (WARDA)

Funded by US-AID

West Africa Rice Development Association (WARDA)¹
Bouake, Côte d'Ivoire

¹ The workshop is part of an USAID-funded project and jointly implemented by WARDA and NISER. The views expressed in this report are those of the individual project scientists and do not necessarily reflect the views of USAID, WARDA or NISER.

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1 Workshop background and objectives

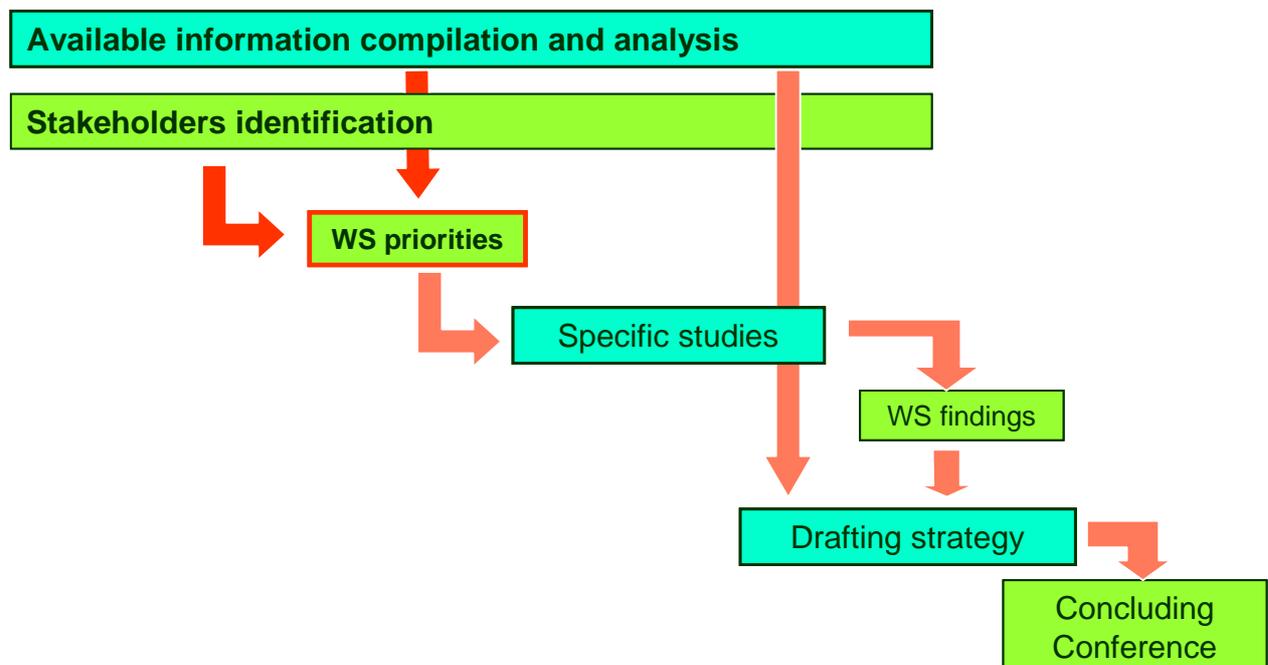
1.1 Strategy formulation for the sustainable development of the Nigerian rice sector

The workshop was held within the frame of the project entitled “*The Nigerian Rice Economy in a Competitive World: constraints, opportunities and strategic choices.*” The aim of the project is to contribute to the formulation of a sound strategy for the development of the Nigerian rice sector. The project is build around two components:

- An up to date analysis of the evolution of the various components of the rice sector, from the production to the consumption side, based on literature review, expert consultation and primary data collection as necessary.
- The set up of a policy dialogue to generate a shared vision of rice development issues in Nigeria and to formulate a rice development strategy that takes into consideration the concerns of the various stakeholders.

This workshop is the first of three workshops/conferences envisaged by the project. This first workshop was organized to derive priority areas for further research needed in order to develop the strategic plan. To facilitate this, the workshop: (i) gathered a selected audience of experts and stakeholders (as identified during the prior consultation) and (ii) presented the outcome of the literature review and expert consultation carried out by the project team. A second workshop is foreseen in the last half of the project cycle, at the initial stage of the strategy formulation, to review the results of the additional research. The draft strategy will subsequently be presented to a larger audience of decision makers and donors at the end of the project life in a concluding conference (Figure 1). The workshop is the first milestone in the implementation of the policy dialogue component of the project.

Figure 1: Schematic sequence of the project implementation process



1.2 Workshop objectives

1.2.1 Participants

The workshop gathered a selected number of stakeholders representative of the large diversity of agents and institutions involved in the Nigerian economy operation and its development. A total number of 22 persons attended the workshop (see Annex 1), including the head of a rice growers association, the head of rice miller association, seed growers, an agricultural machinery manufacturer, the head of an NGO involved in rice development, a representative of the Federal Ministry of Agriculture, the head of the monitoring and evaluation unit of the Program Coordination Unit, and researchers from NISER, WARDA and IITA. Unfortunately some invited stakeholders - such as the economist from NCRI, the research economist of the Central Bank of Nigeria and the coordinator of the NAERLS - were not able to attend the workshop in the end. The person invited to represent the US-AID office in Nigeria was not able to attend either.

1.2.2 Workshop objectives & outputs

The workshop aimed at initiating a dialogue among stakeholders to generate a first input into the formulation of a shared vision for the development of the Nigerian rice economy. More specifically the workshop aimed:

- To identify the constraints perceived by the different stakeholders as a first input to the formulation of the strategy.
- To identify research areas to fill knowledge gaps for the formulation of the strategy.

The workshop was envisaged to achieve the following outputs:

- Stakeholder dialogue initiated;
- Shared and better understanding of the rice economy amongst stakeholders;
- Priority constraints identified;
- Priority research areas identified;
- Some key elements for a development strategy identified.

1.2.3 Workshop agenda

The workshop lasted for one and half day only (see Annex 2). The short duration specifically took into consideration the time constraints of the stakeholders coming from the private sector.

After an opening ceremony chaired by the Director General of NISER, the first half day was devoted to the presentation of the information review by the WARDA team and to the presentation of additional communications by the various stakeholder on their areas of expertise (see Annex 3).

The core of the workshop revolved around constraint analysis and the identification of priority research areas. To facilitate the discussion and exchanges of views the workshop made use of two working group sessions.

2 Communications

In his welcome address, the Director General of NISER, Dr Olu Ajakaiye, expressed his gratitude to US-AID for its financial support to the project and to WARDA for having initiated this collaboration with NISER. He emphasized the importance of the rice consumption growth in Nigeria and the consequent importance of the rice sector on the government political agenda. He stressed the multiple implications of rice sector development on the balance of payment, the generation of income and employment in rural areas.

2.1 State of the art paper

Godwin Akpokodje presented a state of the art paper on the rice sector. The paper presents the information accumulated during his one year assignment as a WARDA visiting scientist. The paper reviewed the major trends of the rice economy on the supply and demand side based on state level data. It subsequently presented the different type of rice based systems encountered in Nigeria and the most recent data on their respective profitability. It is worth noting that in most of the references identified, lowland rainfed rice systems have a higher profitability than upland rice. A subsequent section dealt with the processing and marketing of rice. The review highlighted the limited information available on this segment of the food chain compared to the production aspects. The last part of the paper reviewed the various sequences of the rice policy implemented in Nigeria since the seventies. The paper concludes by underlining that although a lot of work has been done on rice, this material is not easily accessible whereas it does not properly document how the removal of the rice ban import has affected the Nigerian rice economy.

2.2 Other communications

2.2.1 *Nova technology*

Mr Bankole Oyeniyi from Nova Technologies briefed the audience on the potential gain that appropriate machinery can provide to the efficiency of the rice commodity system from the production stage to the processing stage. He presented the different types of partnership through which Nova technology operates to adapt prototypes developed by research institutions to end-users reflecting current economic conditions and technical capabilities. He also mentioned several constraints such as research institutes guarding results (making commercialisation of technologies difficult) and government inaction. He assured that the demand for improved equipment is there but that actual development and use of such equipment needs an enabling environment.

2.2.2 *Rice miller association*

Mr Muoneke from the Abakaliki Rice Mill Owners Ind. Association highlighted several production, processing and consumption issues. He stressed the need for government to address the real issues on the ground, instead of just another academic exercise. Rent seeking by some that benefit from imported rice was seen as undermining the willingness to develop local rice production. Although rice can be grown in every state, rice production was not an interesting alternative any more for farmers under the current situation. As a result, banks were no longer willing to provide credit for rice production investments. He also highlighted

that wage costs were high and called for mechanisation (especially of upland production and processing), private land property rights and information sharing through demonstration farms. He also mentioned that input subsidies were typically misappropriated and did not end up with the intended farmer beneficiary. He mentioned that Nigerian consumers tended to prefer imported goods and called for support for the domestic economy – for instance by importing paddy instead of rice. Finally, he mentioned that the Nigerian rice consumer preferred pure white rice (associated with local rice) instead of transparent rice (typically imported), other things being equal.

2.2.3 Premier seed

Dr Joshua from Premier seeds presented his experience in the seed sector. He stressed the importance of developing alternative ways to the formal public systems, in particular by combining private ventures and locally based seed production systems to ensure an adequate and affordable supply of improved seeds to rice producers.

2.2.4 Rice farmer representatives

Pastor Bode Adenekan, head of the Ogun state rice farmers association provided an overview of the various crop management practices applied by rice farmers in its state and the related constraints (including soil fertility, birds and labor needs). He stressed the peasant nature of rice farmers and the importance of access to credit and information (particularly new technologies). He also highlighted the need for an enabling environment and that policy changes and inconsistency were the number one constraint.

Mr Oreke, a rice farmer from Ebonyi state, presented some of the many constraints from the farmer viewpoint – including access to inputs and seed in particular; biophysical constraints (such as iron toxicity and African rice gall midge); access to services (particularly credit, resulting in informal credit at 50-100% interest over 3 months) and misappropriation of producer subsidies. He also highlighted that the lifting of the ban on rice imports aggravated the rice production problems and resulted in farmers shifting out of rice and decreasing rice production.

2.2.5 NGOs

Ms Ekop of the Family Unity For Sustainable Development Foundation (FUSD) presented some of the activities of this NGO that particularly works in inland valleys in Northern Nigeria. Rice production is important in this environment and crop residues are fed to livestock. She stressed the need for gender analysis in technology development and dissemination so as to ensure that the right people were targeted. She also highlighted the need for farmer organization and for participatory approaches that incorporate indigenous technical knowledge and take into account farmers' constraints. In view of the limited reach of public extension services, there is a need to involve NGOs and community based organisations (CBOs).

Dr Fagade of the Share Foundation stressed the need to coordinate efforts to develop rice production, in particular in relation to the research to development continuum; the public and private sector (including NGOs); and non-distorting government incentives. Integrated technologies (including management of water, nutrients and seed) need to be developed with participation of the farmers.

2.2.6 Program coordination unit

Dr Oklaobia from the monitoring and evaluation of the PCU presented the latest estimations in terms of rice production area, yield and prices. He listed the different constraints faced at each stage of the commodity system: access to chemical inputs, inadequate technology for processing, lack of good rural roads and inconsistency in government policy. He also highlighted the constraints of the extension service, in particular in terms of staff (having only 1 extension staff per 3000 farm households instead of 1 per 900 as originally foreseen) and lack of mobility. The ADPs focus on small-scale farmers as these are the main producers.

2.2.7 Federal ministry of Agriculture and development

Mr Taiwo, the rice officer at the Federal Ministry of Agriculture and Rural Development reviewed the different programs implemented by the Ministry to support the development of rice production. He emphasized the negative impact of changes in policy on the implementation of the special program and the constraints induced by the reduction of funds allocated to rice development programs.

2.3 Main points of the plenary discussion

During the plenary discussion of the presentations, several pertinent issues were raised. The attempt to provide the state of the art was highly commended. Still, there were some warnings of taking data at face value. Some state level reported production figures and yields appeared to be high. The question was also raised whether re-exportation (particularly undocumented cross-border trade) was taken into consideration – as failure to do so may inflate apparent consumption.

Various rice production issues were stressed, including the current production technologies being used (water, nutrient and pest management; varieties), the limited availability of inputs and the need to assess the economics of rice production (profitability; competitiveness vis-à-vis imports; and comparative advantage of the different rice producing states/systems). The potential contribution of varietal improvement and access to improved varieties was stressed. Storage problems were also flagged, as lack of storage capacity was perceived to induce farmers to sell at harvest time when prices were low. It was also noted that agricultural universities did not address rice production as such in their curricula. There was also the perception that current technical knowledge was underutilized and that more use should be made of technological demonstrations to farmers (e.g. on demonstration farms).

In terms of consumer preferences, several pertinent views were exposed. It was suggested that poorer consumers opted for local rice – basically in response to the lower price of local rice. At the same time it was suggested that imported rice is a preferential good for the better-off consumers. Consumption of imported rice in general, and some imported brands in particular, was suggested to be a status symbol now. However, this preference for imported rice was largely related to the quality difference in terms of foreign materials. It was suggested that if the cleanliness of the local rice could be assured, even the better-off consumer would buy local rice in view of its inherent quality. However, the current price differential between local and imported rice was seen as insufficient by some to reward any investment in enhancing the quality of local rice. Still, it was highlighted that in some instances local rice could fetch a higher price than imported, depending on the variety, parboiling and milling process. Other location specific consumer preferences that may be relevant include stickiness (as related to amylose content) and grain length.

In terms of processing, it was noted that some processing equipment may be underreported. For instance, several parboiling plants (including mechanised ones) were available but not always operational. Some large-scale mills had no significant rice to process (e.g. Newi). Most of the millers are small-scale and these do not necessarily have a destoner. Still several destoners are present. For instance, in Abeleki 22 destoners were known to exist (including 10 imported), in Lafia 4 and in Markurdi at least one (Egufun farm). More problematic was the fact that destoning added costs (an estimated N20/kg), whereas consumers were not always willing to pay for the service. Furthermore, it was suggested that the consumer perceptions of the actual volume bought and lack of consumer confidence about actual rice quality undermined their willingness to pay. The quality of parboiled paddy was hampered by the mixing of varieties. In some areas, different varieties are grown and these have different processing requirements. However, different varieties are typically lumped by the farmer, whereupon some varieties would be overcooked and others undercooked when parboiled in the same batch. The university at Ife and NCRI were mentioned as having done substantial work on processing.

3 Constraint analysis and priority information needs

3.1 Constraint analysis

3.1.1 Methodology

A brainstorming session was held to assess the constraints to the sustainable development of the Nigerian rice sector. To facilitate this the workshop participants were divided into two separate groups, assuring an adequate partitioning of the various stakeholders across groups (Table 1). Each group was guided by a facilitator and given the same terms of reference. Specifically, each group was requested:

1. To brainstorm about the constraints hindering the development of the Nigerian rice sector (including both production and non-production aspects);
2. To assess interrelationships between the identified constraints (including grouping and identifying cause-effect);
3. To review the identified constraints in terms of their specificity in time and space (For instance, whether constraints were specific for certain settings, and if so, to identify the corresponding extrapolation domain. Also whether constraints were new or old).
4. Prioritisation of constraints based on the foregoing.

Due to time constraints, the working groups in the end emphasised tasks 1 and 4. Each group subsequently presented their findings in a plenary session to compare results and achieve consensus on the main constraints.

Table 1 Group composition

Group 1			Group 2		
Conference room (plenary)			Meeting room		
	Name	Institution		Name	Institution
1	Tunji Titilola	NISER	1	Adekunle Adeniyi	LAUTECH
2	Bankole Oyeniyi	Nova Technology	2	Wale Adekunle	IITA
3	A. Joshua	Premier Seed	3	Anthony Muoneke	Rice miller association
4	S.O. Fagade	Share Foundation	4	O. Osiname	WARDA
5	Adams Elegbode	ORGA	5	Bode Adenekan	ORGA
6	Mercy Ekop	FUSD Foundation	6	Oke Oreke	Rice producer Ebonyi
7	E.J. Oklobia	PCU	7	Adelola Carim	NISER
8	O ni, T.O.	NISER	8	Ogundele, O.O.	NISER
9	Munemyana, A	WARDA	9	Taiwo, T.A.	Federal Ministry of Agr.
10	G. Apko kodje	NISER	10	Bole Ankanji	NISER
11	O. Erenstein	WARDA	11	F. Lancon	WARDA

3.1.2 Outcome

Each group came up with a comprehensive list of constraints hindering the development of the Nigerian rice sector. The various constraints could be grouped into five larger domains (Table 2):

- Policy;
- Production;
- Institutional;
- Processing;

- Marketing / Consumption.

Within the numerous constraints identified, each group came up with the priority constraints within each domain and across domains (Table 3). Although the exact priorities within each domain and across domains diverged between the two groups, considerable consensus on the main overarching issues was achieved. In particular, three main constraint themes became apparent across groups:

- *Efficiency and profitability of rice based production systems*: This appeared to be the overarching constraint in terms of production systems and their institutional setting, including rural infrastructure, technology use and technology dissemination;
- *Reward to quality & profitability of processing technology*: This appeared to be the overarching constraint in terms of processing (including equipment), marketing (including storage) and consumption (including consumer preferences);
- *Rice policy* (in particular trade policy and trade implementation).

3.2 Priority information needs

3.2.1 Methodology

A second working group session was held to identify priority research areas for a strategy to alleviate the identified constraints. The workshop participants were again divided into the same two working groups. Specifically, each group was requested:

1. To review interventions that have been tried so far to cope with the constraints identified earlier;
2. To prioritize information needs to develop the Nigerian rice sector.

Information needs were thereby considered in the broad sense, including temporal (e.g. in terms of the need to update and monitor), spatial (e.g. in terms of geographic coverage) and thematic aspects (e.g. in terms of rice sector specific or of generic nature). Each group subsequently presented their findings in a plenary session to compare results and achieve consensus on the main constraints.

3.2.2 Outcome

Each group came up with a detailed list of information needs, including corresponding priorities (Table 4). Although the exact wording of the information needs differed, the content was remarkably similar. Indeed, three main information needs became apparent across groups:

- *Need to assess efficiency and profitability divergences between rice based production systems and technologies* (including the identification of systems and the assessment of production scale and actual technology use - inputs; varieties; mechanization);
- *Need to assess actual processing technology and consumer preferences*;
- *Need to provide a rice information base to substantiate rice policy*.

Several potential stakeholders in the Nigerian rice economy were identified that could help alleviate the information needs, including public agencies, private agencies and NGOs (Table 5).

Table 2: Constraints identification - Detailed list of priority areas

Domain	Group 1	Group 2
Policy	Lack of political will Low public investment R&D Policy inconsistency/lack of synergy Availability imported rice Macro-economic policy (exchange rate)	Inconsistent policy Trade policy Income constraint for rice consumers Low funding of govt for rice development prog and research Macro-economic policy (exchange rate, interest, budget...)
Production	Limited input use Resource constraints Labor constraints Bird scaring Unpredictability weather	Economic returns to farmer of rice production Crop management Controlling birds Climatic risk Seasonal supply of rice type
Institutional	Availability/access inputs <ul style="list-style-type: none"> • Improved seed • Fertilizer & agrochemicals • Equipment Rural infrastructures roads, energy Poor Research/Extension/Farmer linkages <ul style="list-style-type: none"> • Limited farmer participation in technology development • Lack of technology integration (impr & local) • Unsustainable adoption Technology • Lack of gender analysis in technology development and dissemination Delay variety development - release Service constraints <ul style="list-style-type: none"> • Poor dissemination (weak/uncoordinated) • Lack & quality of extension service • Inadequate enabling environment for private sector participation • Limited access to credit 	Lack of credit Extension services Land availability (tenure issue) Improve seeds availability Access to input
Processing	Equipment/technology constraints <ul style="list-style-type: none"> • Affordability • Availability • Limited use Low quality produce Paucity processing data	Investment in modern technology for milling Harvesting and threshing
Marketing / Consumption	Availability imported rice Uncertainty produce price Market power (middlemen) Limited awareness of quality local rice Preference for imported rice	Rice quality and consumers preferences Grading Price differential

Table 3 Selection of main constraints

Domain	Group 1		Group 2	
Policy	Policy implementation	1	Trade policy	5
Production	Limited input use Resource / labor constraints	2=	Crop Management and Economic returns to farmer of rice production	4
Institutional	Availability/access inputs Rural infrastructures Poor Research/Extension/Farmer linkages Lack & quality of extension service	2= 4 5	Extension services Lack of credit	3
Processing	Equipment/technology constraints Low quality produce	3	Investment in modern technology for milling, harvesting and threshing.	2
Marketing / Consumption	Preference for imported rice	6	Rice quality and consumers preferences Grading and packaging	1

Table 4 **Prioritized information needs**

Domain	Group 1	Group 2
Rice based system profitability	<ol style="list-style-type: none"> 1. assessment of efficiency differences between different rice systems and technologies (incl identification of systems; review of existing information and update where necessary) 2. inventory of actual technology use (inputs; varieties) <p>inventory agric finances inventory input requirements</p>	<ol style="list-style-type: none"> 1. Productivity differential among ecologies 2. Scale of production, technology and mechanization <p>Prod technology and dissemination network Seed distribution and market Input distribution and market Organic fertilizer and impact</p>
Quality reward and investment in processing (incl market and consumer preferences)	<ol style="list-style-type: none"> 1. Inventory of relevant publications (incl quality aspects; consumer preferences; processing technology; marketing, prices and grades; need assessment of processors and farmers) 2. On the ground inventory of <ul style="list-style-type: none"> • Processing equipment (eg what equipments exists; where are they located; how are they actually used) • existing prototypes • processor need assessment (incl gender aspects) 3. Update of inventory 1 with primary data collection where needed 	<ol style="list-style-type: none"> 1. Review of post-harvest/processing technology across location 2. Consumer preferences and rice quality attributes (on-farm and off-farm) <p>Reward to quality on the market Market integration and quality Consumers preferences and price, quality and seasonal factor Profitability of rice processing and handling technology Grading system</p>
Rice Policy	<ol style="list-style-type: none"> 1. rice statistics, in particular estimates of actual and potential rice area and yield by system 2. assess implications of WTO with particular reference to rice trade policy 3. assess input subsidies (fertiliser; seed; agro-chemicals) 	<ol style="list-style-type: none"> 1. Information base – food balance sheet at the state level, export... <p>Impact of macro-eco variable on rice sector (world market, wage level) Impact of subsidy level on optimal resource allocation Rice policy formulation at the federal and state level Review of selected ADPs activities Rice import organization and grading Government spending on rice development Potential for local rice export</p>

Table 5 List of potential partners

	Production	Processing	Policy
Public	National Crops Research Institute (NCRI, Badeggi) Planning & coordination unit (PCU) River Basin Development Projects (RBDP) National Seed Service (NSS) Fed. Ministry of Agric. & Rural Dev. (FMARD)	NCAM NCRI Agric. Mechanization Program (Zaria) River Basin Development Projects NSPRI (Ilorin) Crop Storage Unit (FMA) AIDU (Agric industrial development unit - FMARD) Proda (Enugu) Product research development agency	NISER Agric University Agric Faculties of other universities
Private	Seed producers (eg Premier Seed) Fadama Producers Association Rice Grower Associations at state level (eg Ogun)	Rice Millers Associations (eg Abakaliki) Equipment manufacturers (eg Nova technologies) Efugu Farms (Markudi) Addis (Lagos)	
NGOs	SG2000 Fadama Unions Farmer Development Union (Ibadan) Development exchange commission (Bauchi)	FUSD foundation (Kano)	

4 In conclusion

The workshop was successful in the sense that it achieved all envisaged outputs. The workshop provided a productive and good venue to initiate a dialogue amongst the stakeholders in the Nigerian rice economy. Not all relevant stakeholders could participate for various reasons. Still, the workshop gathered enough stakeholders for an in-depth exchange of views and valid prioritization of constraints and research needs.

The participants commended the endeavor of the literature review and expert consultation and the workshop initiative. As such the review and the workshop itself generated a shared and better understanding of the rice economy amongst stakeholders. The literature review also identified some gaps in the current knowledge base and these were confirmed during the meeting.

The workshop was also successful in the sense of identifying the priority constraints for the development of the Nigerian rice sector and the corresponding information needs. Priority constraints were related to policy, production, institutional, processing, marketing and consumption aspects. In the end, three main research needs were identified for the remainder of the current project phase:

- *Need to assess efficiency and profitability divergences between rice based production systems and technologies* (including the identification of systems and the assessment of production scale and actual technology use - inputs; varieties; mechanization);
- *Need to assess actual processing technology and consumer preferences;*
- *Need to provide a rice information base to substantiate rice policy.*

Finally, the workshop helped identify some of the key elements for a development strategy of the Nigerian rice economy. A first element is the comprehensiveness of the approach. Indeed, the workshop once more re-iterated that the main constraint is not rice cultivation per se, but the profitability of rice production and intensification; the profitability of rice processing; the need for an enabling institutional and policy environment. A second element is the inclusiveness of all major stakeholders. Indeed, a sustainable development will only be achieved by actively involving some of the non-traditional yet essential stakeholders. A final element is the validity of the underlying data. The review and workshop itself have highlighted the difficulty to distinguish between fact and anecdote in the Nigerian setting. This calls for convincing research to substantiate the facts. Only on these will we be able to build a valid foundation a strategy to develop the Nigerian rice economy.

Annex 1. List of participants

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Annex 2. Workshop program

THURSDAY (NOV. 8 2001)

- 9.00 – 10 a.m. - OPENING CEREMONY
- Introduction of Dignitaries – Professor S. O. Akande
- Welcome Address by the Director-General of NISER
- Goodwill message from USAID representative
- Introduction of Participants
- Vote of Thanks – Dr. Bola Akanji
- Group photograph
- Tea Break
- 10.00 – 10.45 a.m. - Presentation of the project and workshop objectives – WARDA
(Dr. Frédéric Lançon & Dr. Olaf Erenstein)
- 10.45 – 12.00 noon - State of the art: Current knowledge gaps based on
literature review and expert consultation – WARDA
(G. Akpokodje)
- 12.00 – 1.00 p.m. - Contributions and comments by participants
Working Lunch
- 1.00 – 1.30 p.m. - Introduction to working group sessions (Group
formation, review of group TOR)
- 1.30 – 4.00 p.m. - First Working Group discussion: Constraint analysis
(Tea served)
- 4.00 – 5.00 p.m. - Plenary Report of Working Groups
- 5.00 – 5.30 p.m. - Synthesis of discussions

FRIDAY (NOV. 9 2001)

- 8.30 – 10.00 a.m. - Second Working Group discussion: Identification
of information needs and corresponding research
priorities to develop a strategy to alleviate perceived
constraints
- 10.00 – 11.00 a.m. - Plenary Report of Group discussions
(Tea served)
- 11.00 – 12 noon - Synthesis and Closure of Meeting.

Annex 3. List of documents distributed to the participants

Adenekan, Bode. Rice production in Ogun State of Nigeria: Constraints and opportunities - a farmer's experience. 2001.

Ajakaiye, D. O. Welcome address delivered by the director-general of NISER at the NISER/WARDA Nigerian Rice Economy Stakeholders Workshop, Ibadan, 8-9 November 2001.

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