

*Assessment of the Needs and
Opportunities in Post-Harvest
Systems of Non-Grain Starch Staple
Food Crops*



**Proceedings of a Workshop held
in Uganda**

6-8 October 1997



**NEEDS ASSESSMENT: A METHOD TO IMPROVE
THE IMPACT OF POST-HARVEST RESEARCH AND
DEVELOPMENT**

Proceedings of A Workshop held in Uganda

6-8 October, 1997

Compiled by G Bockett and N Marsland.

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INTRODUCTION

Background

The project focus

A Project titled “Transfer of Needs Assessment Methodologies and Post-Harvest Technologies for Non-Grain Starch Staple Food Crops in Sub-Saharan Africa” was initiated in 1993. The project is funded by the Department for International Development (DFID) and managed by the Natural Resources Institute. The project’s purpose is “Capability of National Agricultural Research Systems (NARS) improved to identify needs and opportunities accurately and efficiently within NGSS post-harvest systems and respond with appropriate post-harvest handling and processing technologies.”

The project concept arose out of the need to address the constraints impeding the improved use of a much neglected group of crops. These crops include cooking banana, cassava, sweet potato and yams and are known collectively as non-grain starch staples (NGSS). The NGSS crops have been neglected by the research community in favour of the ‘Green Revolution’ cereal crops such as maize, rice and wheat. The promotion of cereal crops has been so vigorous in certain areas that they are commonly grown in marginal conditions far better suited to NGSS crops. In recent years, development specialists have realised that NGSS crops perform a vital food security role in many communities in Africa. This is based on the fact that they are: (i) relatively easy to grow; (ii) tolerant of a wide range of environmental, biological and physical conditions; and (iii) yield reasonable levels without significant inputs in the form of labour, fertilisers and agro-chemicals. This is in contrast to cereal crops which tend to be demanding in their production requirements. Consequently, increasing attention is now being focused on NGSS crops to raise their status. This project forms part of that process and focuses specifically on the post-harvest sector.

The workshop

The Natural Resources Institute of the University of Greenwich in UK ran an international workshop on the use of Needs Assessment¹ in post-harvest technology research and development. This workshop was the key component in the dissemination of outputs arising from the project. The workshop was hosted by the National Agricultural Research Organisation of Uganda and funded by the UK Department for International Development.

The goal of the workshop was to improve the capacity of National Agricultural Research Systems to address the constraints that effect the enhanced use of NGSS food crops in Africa. This was to be achieved by:

1. Demonstrating the use of Needs Assessment techniques using project case studies thereby disseminating the project approach and outputs.

¹ Needs Assessment is the term given by NRI to denote the diagnosis of researchable constraints in farming systems using participatory methods.

2. Assessing the extent to which Needs Assessment techniques are already institutionalised.
3. Identifying the requirements for institutionalising Needs Assessment techniques in NGSS post-harvest research programmes undertaken by National Agricultural Research Systems.
4. Drawing up an action plan to promote the uptake of Needs Assessment techniques in the NGSS post-harvest research programmes undertaken by NARS.

A detailed workshop programme is presented in Annex 2. A summary of the programme is given here to denote the nature and content of the workshop.

Day 1

- Outline of project concept
- Introduction to Needs Assessment
- Presentation of project outputs and case studies

Day 2

With respect to including Needs Assessment methods in routine post-harvest research in NGSS systems identify:

- current resources
- current constraints
- key goals and objectives to incorporate Needs Assessment
- strategies to achieve goals

Day 3

Working group sessions to formulate an action plan to include Needs Assessment methods into routine practice. In particular to identify immediate-, short- and long-term objectives each with time-bound activities.

Participants comprised senior research managers, directors of research, regional network coordinators and donors. Twelve African countries in the sub-Saharan region were represented at the workshop. During the course of the three day workshop, all participants contributed to the key output, an action plan to promote the uptake of Needs Assessment techniques in post-harvest research in NGSS systems. This will, upon implementation, be tailored for specific use in each country by the relevant NARS. Full details of this action plan are provided in Section Three of this report.

OPENING ADDRESS

By

The Honourable Sarah Kiyingi,

**Commissioner For Agriculture,
Ministry of Agriculture, Animal Industry and Fisheries,
Entebbe, Uganda**

Welcome to the participants:

- | | | |
|----|-------------------|---|
| a) | No. of Countries: | 12 |
| b) | Facilitators: | NARO and NRI |
| c) | Participants: | who include Directors, Heads of Units and Departments |

This workshop is timely especially now when our continent is faced with poverty and food insecurity.

In Uganda, in particular, with our policies of Agricultural modernisation and eradication of poverty, the demand is even greater. This is because we need to have proper analytical skills in appreciating farmers real problems and identify needed intervention.

The challenge to Agricultural Research specifically are:

- to get farmers adapt technologies to improve their well-being.
- to get research to deliver and make impact.

To be able to achieve this, the researchers have to address real problems of the farmers i.e. conduct demand driven research. This can only be done through appropriate analytical methods that can analyse and identify farmers real needs. Invariably this will involve farmer participatory methods combined with an appropriate set of attitudes and skills. This may involve techniques such as;

- Participating Rural Appraisal (PRA)
- Rapid Rural Appraisal (RRA)
- Needs Assessment (NA)

The challenge of this workshop is to recognise that:

The development and application of needs assessment techniques involves many stakeholders who have to be sensitised to understand and appreciate the techniques. In this regard, different stakeholders may have institutionalised these techniques under one or the other approaches namely, farming systems approach, Participatory rural appraisal etc. This demands that these approaches be rationalised. The final output of needs assessment is improved welfare of the farmers. One might ask whether whatever techniques or approach we are using are making an impact on the smallholder farmer and if so whether the information generated is used and shared among stakeholders.

When these questions are answered, then we have made progress towards our goal. Ladies and Gentlemen, the challenge is big but we have to be prepared. I declare this workshop open.

Section One:

Demonstrating The Use Of Needs Assessment Approaches Using Project Case Studies.

Introduction

Needs assessment case studies from three countries were presented. This provided an opportunity to disseminate project outputs to the participants. These were undertaken to analyse post-harvest constraints affecting NGSS crops in Ghana, Tanzania and Uganda. The methodologies used during the needs assessment phase of the surveys form the focus of the presentations below.

The presentation of the case studies provided the lead to begin analysing the institutional requirements for NA use in NARS and the development of an action plan to achieve this. The institutional requirements and the action plan are presented in sections two and three respectively.

GHANA CASE STUDY:

A Low Cost Technique For Storing Fresh Cassava Roots: A Ghanaian Case Study

Presented by

Kwaku NICOL

Head, Post-Harvest Management Division
Agricultural Engineering Services Department
Ministry of Food and Agriculture, Ghana.

Introduction

Cassava is perhaps the most important crop in the agricultural economy of Ghana. It provides both sustenance and income for the rural producer. For tens of thousands of market operators, the majority of whom are women, cassava provides a livelihood from marketing and processing activities. Cassava is consumed in a variety of processed forms with enhanced storage properties. Although there has been scant recent work on consumer preferences for these different cassava foods, it appears that cooked fresh cassava, particularly in the form of 'fufu', is a preferred product. As consumers' incomes rise, they switch from less preferred products such as dried 'kokonte' to preferred products like 'fufu'. The demand for 'fufu' is thus substantial and growing.

The extreme perishability of the fresh cassava root imposes a number of costs on the marketing system. High transport costs and relatively high financial losses due to post-harvest deterioration result in high urban fresh cassava prices.

The rising demand for fresh cassava roots coupled with their extreme perishability indicate that constraints were likely to occur during the marketing of fresh cassava. To identify the key constraints in this dynamic system, a needs assessment survey was undertaken in the form of a rapid market appraisal (RMA).

Methodology: Constraint diagnosis using needs assessment

Planning and implementation

Before conducting the RMA, information was collected from a range of secondary sources to refine the objectives of the RMA. These included:

- (i) the COSCA study which suggested that 'fufu' is an important food in Ghana, accounting for over one fifth of processed cassava products;
- (ii) information from staff of the Post Harvest Development Unit (PHDU) of the Ministry of Agriculture revealed that 'fufu' is the preferred food in urban areas; and

(iii) the COSCA database which indicated that over two thirds of Ghanaian farmers perceived post-harvest losses to be a major risk factor in the production of cassava

The team that undertook the RMA comprised members of staff from the PHDU of the Ministry of Agriculture, NRI and CIAT.

Analysis:

There had been no systematic and in-depth recent studies of the fresh cassava marketing system in Ghana. Consequently, an RMA was undertaken to better understand the marketing of fresh cassava roots and identify key constraints.

Results: current cassava marketing practices

Using preliminary observations, it was clear that the marketing of fresh cassava is complex. Arrangements vary from the simplest form of farmer-traders, headloading their produce for retail at small rural markets, to complex chains of interaction between itinerant traders, middlewomen and retailers, some of whom offer credit facilities.

Key players

The key players identified in the marketing chain are;

- Farmer suppliers
- Itinerant traders
- Transporters
- Middlewomen
- Market women
- Market 'Queens'

Marketing chains and their evolution

In Ghana, the marketing chains for fresh cassava have evolved to cope with the key characteristics of cassava as a marketed crop, which are:

- extreme perishability of the crop
- wide geographic spread of production, often hundreds of kilometres from the final consumer
- predominantly smallholder production
- concentration of non-farm consumption in urban areas; and
- diverse end-uses of the crop.

Market structure and infrastructure

There are over 1000 markets in Ghana of which only half have permanent stalls. A recent study shows that facilities are generally rudimentary with “ ... some proportion of the traders under no shade at all, trading in the open on table tops or on the bare ground.”

Time and costs

The RMA took place over a period of 18 days during March 1992. Cost data are not available.

Conclusions

The analysis of the fresh cassava marketing system in Ghana showed that costs are imposed by perishability. Marketed fresh cassava is expensive because of the high marketing costs which are significantly effected by the high margins claimed by intermediaries. In order to reduce the marketing costs and 'add-value' to the fresh cassava roots as a marketed commodity, the introduction of a low-cost storage technique was suggested. This, it was intended, would reduce the costs associated with the perishable nature of the roots by pro-longing their storage life at the point of sale.

The technique selected was developed by NRI/CIAT scientists which was shown to be effective under South American conditions. So a project was proposed to adaptively test this technique under Ghanaian marketing conditions. This work is on-going.

TANZANIA CASE STUDY:

DIVERSIFICATION OF CASSAVA UTILISATION IN THE LAKE ZONE OF TANZANIA: A CASE STUDY

Presented by

Dr Regina Kapinga

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Introduction

Cassava is widely cultivated in Tanzania and it is an important food security crop. In coastal areas, and especially in Dar es Salaam, fresh roots are preferred by consumers. Processed products are important in the Lake and Southern Zones. In these areas, the major primary products include *makopa* (sun-dried pieces) and *udaga* (fermented dried pieces). Cassava utilisation is, however, limited in terms of diversity of uses in comparison with many other parts of Africa.

This paper describes work undertaken to diversify the range of uses of cassava in the Lake Zone of Tanzania. The need for this intervention was identified during a participatory needs assessment study undertaken in the Lake Zone of Tanzania. On the basis of this study a series of activities was developed with the aims of:

- determining the current utilisation practices for cassava in Lake Zone and identifying potential interventions;
- testing acceptability of a range of different cassava products; and
- disseminating appropriate information of cassava processing/product preparation.

Lessons learned from the technology adaptation and dissemination process are discussed.

Methodology: constraint analysis using needs assessment

Planning and implementation: identification of opportunities for product diversification

A participatory needs assessment study was undertaken in Lake Zone, Tanzania in October 1993. The study was organised by the Cassava Biotechnology Network (CBN) in collaboration with the National Root and Tuber Crops Programme, the Tanzania Home Economics Association and the Natural Resources Institute. The study mainly focused on relating farmer needs with biotechnology research on cassava, but a number of other needs and opportunities were identified. In the post-harvest area, these included the desire of woman to diversify their range of cassava products. The findings of this needs assessment study correlated with the interpretation of the analysis of data collected during the first phase of the Collaborative Study of Cassava in Africa (COSCA). In this study it was proposed that in view of the limited range of products prepared from cassava (compared with other countries in Africa), efforts should be made to diversify cassava utilisation. Such an approach would offer new marketing opportunities and so contribute to the developing market economy.

Analysis: current cassava utilisation practices

To strengthen and focus the understanding of the issues arising from the CBN and COSCA studies, a “feasibility study” was undertaken in certain urban and rural areas in Mwanza and Mara Regions of the Lake Zone. The study focused on the major urban markets and selected rural villages within the marketing chain. Semi-structured group and individual interviews were held with traders, restaurateurs, bakers, snack vendors and farmers.

Results

The feasibility study confirmed the importance of cassava as a main staple in rural and urban areas. Fresh roots and a sun-dried, fermented product (*udaga*) were the most commonly marketed forms of cassava. It was observed that women play a key role in the production, processing and certain sectors of the cassava market chain. In the urban markets and rural areas primary products were of paramount importance, whilst street vendors and cafe were involved in marketing a limited range of secondary products, namely *ugali* (flour and water paste) and occasionally *mbute* (boiled fermented pieces). The production of secondary products from cassava flour is limited largely due to the lack of knowledge concerning alternative utilisation practices and consumer preferences for other staples such as maize and rice.

The potential for cassava to substitute for other raw materials (such as wheat) in the preparation of certain products was evident. It was also suggested that preparation and marketing of products prepared from cassava flour could provide income generating activities at both the rural and urban levels.

Conclusion

The lessons learned from the “feasibility study” and the niche markets that were identified, indicated that a pilot phase to investigate the acceptability of different cassava products would be feasible.

The development of secondary processed products for any commodity carries a large element of risk. These risks are associated with resource investment by processors, identification of viable market niches and, in developing countries, with the mechanism of dissemination. It has been demonstrated that logical step-wise approach to product diversification can be effective. The key stages used in this study were:

- identification of the initial need;
- confirmation of the validity of the need through a “feasibility study” and cross-correlation with other secondary information; and
- an interactive pilot phase where detail was obtained on the factors that would facilitate sustainable uptake of the new knowledge.

UGANDA CASE STUDY:

NEEDS ASSESSMENT SURVEYS AND POST-HARVEST TECHNOLOGY DEVELOPMENT IN UGANDA: A CASE STUDY OF SWEET POTATO STORAGE

Presented by

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Introduction

A participatory needs assessment survey was undertaken during 1994 in Uganda as an initial phase of a project concerned with the adaptive transfer of post-harvest technology for sweet potato. The second phase of the project dealt with on-farm technology development and adaptation. The project was funded by the Department for International Development and conducted by the Natural Resources Institute in collaboration with the National Post-Harvest Programme, an institute within the National Agricultural Research Organisation (NARO) of Uganda.

Methodology: Constraint diagnosis using needs assessment

Planning: Secondary data collection, selection criteria and method validation

The first step of the planning phase defined clearly the objectives of the needs assessment survey. In broad terms, these were to identify researchable post-harvest constraints affecting sweet potato production. In order to do this however, it was necessary to understand the nature of the system in which farmers were operating. This includes cropping, economic, social and biological systems and their interaction. A detailed review of secondary data was therefore necessary in which an appreciation of the system was gained. This helped to place sweet potato and post-harvest constraints into the overall context of the farming system. The review of secondary data and information helped to indicate what technical constraints were likely to exist and provided an historical context.

The second step was to select the areas in which the needs assessment surveys were to be conducted. District agricultural NGO staff were consulted extensively as they often have an in-depth knowledge of the nature of the communities in which they operate. In selecting where the surveys were to take place, consideration was given to geographic location, socio-economic status, cultural influences and the level of interaction with researchers and extension staff. The objective was to identify communities with broadly similar characteristics that were representative of the district as a whole. Once a range of communities had been identified, a selection of them were chosen using random sampling techniques to indicate where the surveys should be conducted. In this way, the results of the needs assessment surveys would have greater 'statistical' validity throughout the district.

The third and final step of the planning phase was to validate the survey techniques by conducting a number of test runs with selected communities. This was a critical step as it enabled the survey team to: test the relevance of the techniques to be used and modify them if necessary; identify potential logistical problems; and practice the methods to achieve sufficient 'professional' competence.

Implementation: Primary data collection

The needs assessment phase undertook surveys in one parish in each of eight districts. In the parish, up to six households were involved. To collect information, informal methods were relied upon, with a bias towards participatory rural appraisal (PRA). The surveys were undertaken primarily by three socio-economists -- 2 Ugandan nationals and one British national. The professional background of the main socio-economist (a Ugandan) was as an agricultural science teacher and extension agent with degree level training in agricultural economics, an individual with extensive fieldwork experience and a natural rapport with farmers. The survey team was supplemented by visiting "technical" researchers - including the following disciplines: post-harvest technology, horticulture, entomology, food biochemistry and sociology.

Analysis

Needs assessment exercises were used to explore the communities at five levels, namely: farming as a livelihood strategy; general farming constraints; general post-harvest constraints; sweet potato constraints; and sweet potato post-harvest constraints. Thus, farmers were able to describe their sweet potato production and utilisation system and its constraints within the overall context of their livelihoods. This was essential as it enabled the researchers to place the post-harvest constraints affecting sweet potato into perspective. Thus, the relative importance of these constraints would neither be overstated nor understated.

The needs assessment surveys provided researchers and farmers with an opportunity to analyse constraints in situ. The patterns of planting, harvesting, consumption, choice of varieties etc. were examined in the context of the wider physical and socio-economic system. For example, in one survey it was noticed that farmers sold most sweet potato in February, this appeared to be related to the prolonged dry season. However, farmers explained that it was due to the need to raise cash to pay children's school fees rather than due to the lack of rain.

The final task in each needs assessment exercise was to conduct a feed back session. In this, researchers presented to farmers their understanding of the problems farmers were facing on the basis of the needs assessment exercise. Farmers were then asked to comment on these problems and in particular comment on the relative importance of these problems in terms of the wider farming system. Where necessary, the researchers then used the farmers' comments to modify their understanding of sweet potato post-harvest needs to compile a report containing recommendations on the nature of likely technology interventions.

Recommendations were focused specifically towards communities examined in needs assessment case studies but taking into consideration that the results would be more generally applicable given the survey sampling methods. This in turn was used to select "on the shelf" technologies for adoption and transfer or to help orientation of appropriate areas of applied

research. The reports were also used to highlight more general areas of technology policy associated with sweet potato post-harvest issues.

Time and Costs

The needs assessment surveys were conducted over a period of 9 months. On average, 10 days were spent in each parish visiting up to 6 house-holds. The surveys were intensive and used a range of disciplines to interpret results and discuss them with farmers. In this way, a strong relationship of understanding was promoted between the researchers and the communities so that both would feel relaxed.

Each 10 day visit (3 days training and 7 days survey) to a parish cost approximately \$1500. This included all travel and subsistence costs for the survey team. Overall, 9 such visits were made bringing the total cost of the needs assessment surveys to approximately \$13,500. These high costs were indicative of the long term nature of the survey, the subsistence rates payable in Uganda and to a lesser extent the cost of fuel. These costs should therefore be used only as a rough guide as they are specific to Uganda. It may well be the case that costs will be higher or lower in other countries. The overall message, however, is that if needs assessment exercises are to be undertaken correctly, they are expensive.

Results

Farming system

This farming system was characterised by the following features:

- i) sweet potato had become the major staple due to the decline in cassava production;
- ii) sweet potato is used as cash crop to some extent;
- iii) the climate is characterised by a severe and prolonged dry season;
- iv) traditionally, sweet potato is dried for storage in the dry season; and
- v) most people prefer to eat sweet potato in the fresh form.

Researcher preconceptions

For example, previous surveys using formal surveys had indicated that post-harvest losses were as high as 30-40% for sweet potato. This was due to preconceived ideas that researchers had about sweet potato. They had assumed that because sweet potato is a perishable crop, and the handling facilities appeared basic, then the losses would be high during marketing. This had been widely and erroneously reported in the literature and spawned a series of ideas to reduce losses in the handling of sweet potato during marketing.

Needs assessment

In reality, when participatory needs assessment was undertaken to verify previous findings, losses were found to be less than 10%. This was because handling was highly efficient and specifically adapted to the marketing system that existed. Farmers and traders had developed a system that would minimise delays during marketing.

Farmers were pre-warned when the buyers would arrive so they had time to dig up their roots, select those for sale and pack them in sacks which had been distributed before hand. When the traders arrived on a pre-arranged day, sales would be negotiated and the roots would then be loaded on the trucks. The trucks only moved at night mainly to avoid paying road taxes and

bribes to policemen looking for faults on the vehicles. This had the added advantage of moving the roots during the cool of the night so that moisture loss was kept to a minimum. The roots would, therefore, still appear fresh upon arrival at the market the next morning.

The results of the needs assessment survey indicated that marketing was not a problem as previously believed. Rather, the key constraint in the current farming system was a lack of on-farm fresh storage facilities.

In these areas, a traditional method of sweet potato storage is practised in which sweet potato is chipped and dried. However, this practice, in order to fit the food system, relied on the availability of fresh cassava to provide food towards the end of the dry season. With the disappearance of cassava due to a virulent pandemic of African Cassava Mosaic disease, dried sweet potato needs to provide the major source of food for an extended period – up to six months rather than three. Needs assessment studies identified that since the disappearance of cassava, the infestation of dried sweet potato slices by weevils in the fourth and fifth months of storage (April to June) had become a critical period. It was in this period that cassava would have been relied upon most heavily.

In order to reduce the constraints of the current system, fresh storage was considered an option for prolonging the period when fresh roots are available. It was anticipated that this would provide an opportunity for subsistence farmers to dry sweet potato later in the dry season. This it was hoped would lessen the constraint which arises from the short shelf life of dry sweet potato in the current storage system.

It was also anticipated that storage of fresh sweet potato would provide an opportunity for farmers to delay the sale of their crops and by doing so, to benefit from higher market prices later in the season. Farmers had indicated that the price of sweet potatoes could rise from Ush 4500 (US\$ 4.5) per bag (weighing 100 - 120 kg) at the onset of the dry season to Ush 15000 (US\$ 15) after three months of the dry season.

Conclusions

The needs assessment methodology used provided researchers with greater insights than more conventional formal methods. This was mainly due to the participatory nature of the methods used. Researchers had developed a more meaningful relationship with farmers due to trust developed over a significant amount of time spent in their communities. In those circumstances, farmers were more relaxed and prepared to take time to explain their constraints in detail.

Finally, the method of constraint diagnosis used, i.e. participatory needs assessment, was proved to be accurate (or validated). Needs assessment surveys identified the need for fresh root storage methods. These were introduced and adaptively tested with farmers. Spontaneous uptake of these methods by farmers outside the case study sites was subsequently observed. Farmers had therefore been convinced by the usefulness of the technology which must therefore have fulfilled a need in their livelihoods. The ultimate test, therefore, of accurate problem diagnosis is whether resulting technology is adopted. In this case it was.

Section Two:

Assessing The Extent To Which Needs Assessment Approaches Are Institutionalised within the NARS.

Introduction

Two instruments were used to assess the extent to which NA techniques are institutionalised within the various NARS represented at the workshop. First, participants were arranged into four working groups and asked to discuss a range of factors that affect the extent to which NA is currently used. Second, each participant was asked to fill in a questionnaire (Annex 4) covering three areas: funding of NGSS; types of approaches used to identify farmers needs, and; Needs Assessment and institutional issues. Both these exercises were informed by the principles set out in the NA paper (Annex 3), and taken together they formed a platform upon which the action plan could be put together.

The following section outlines the results of these two exercises.

WORKING GROUPS TO IDENTIFY INSTITUTIONAL NEEDS

WORKING GROUP 1:

- (a) Human Resources
- (b) Professional Reward Systems for scientists in NARS
- (c) Training
- (d) Higher Education

I Human Resources

What we have:

- staff situation to effect NA grossly inadequate in most of NARS
- P-H scientists either absent or grossly inadequate
- same apples for social scientists and related fields
- other PH scientists (e.g., nematologists)
- very few highly qualified (MSc and PhD) scientists in the NARS In many countries B.Sc. holders serving as scientists

II Professional Reward Systems

What we have:

Existing in some countries but absent in others.

Research advancement based on
scientific publications
academic qualifications
length of service

Research allowances paid to scientists according to research grade

In some countries, the possibility of obtaining scholarship for higher education are non-existent; lack of commitment by some NARS governments for higher education

In most NARS no guidelines for professional rewards

What we need:

- that research impact be considered in the promotion of researchers
- academic qualification be considered in the promotion of researchers
- relevance of the publication for advancement of researchers
- regular promotion sessions
- attractive salary package to retain and motivate scientists

III Training

What we have:

- training in participatory methods lacking or inadequate
- participatory methods training much needed in most NARS

What we need:

- more training in NA for technicians scientists and extensionists and other rural personnel
- popularise NA in all key players
- identify skilled personnel within the country to serve as trainers in NA
- development of NA training programmes with in the country.

IV Higher Education

What we have:

- most higher education programmes are too general and academic
- no specialisation programmes in agric. colleges in NA or aspects of participatory research

What we need:

- no skills in NA by graduate of agric colleges
- professors usually not farmer orientated also lack skills in NA

Gaps:

- professors to be exposed to the techniques of NA through short-term training within and outside the formal training
- training in agric schools to be more farmer-orientated; revision of syllabi in Agric. colleges.

WORKING GROUP 2

- (a) Institutional aspects
- (b) Links with other organisations

(a) *Institutional Aspects*

| Issues | What do we have? | What do we need? |
|---------------------|---|--|
| POLICY | <ul style="list-style-type: none"> • Mixed policy situation: Some countries have an explicit policy of incorporation of NA into NARS, other have implicit policy, other have no policy. | <ul style="list-style-type: none"> • Explicit policies |
| AWARENESS | <ul style="list-style-type: none"> • Only general awareness by research managers | <ul style="list-style-type: none"> • Get practitioners(?) / research managers (?) fully involved |
| STRUCTURAL LOCATION | <ul style="list-style-type: none"> • No specialised units • R & D team at each station • Socio-economists attached to commodity groups • Accessing teams from other institutions | <ul style="list-style-type: none"> • Specialised units / teams (long run / short run?) • Build skills of the socio - economists and other team members |
| STAFFING | <ul style="list-style-type: none"> • Insufficient no. of staff with NA skills • Retention problems of skilled staff | <ul style="list-style-type: none"> • Sufficient exposure of NARS staff to NA skills / techniques • Competitive rewards |
| TRAINING | <ul style="list-style-type: none"> • Discipline focused training with little or no NA orientation | <ul style="list-style-type: none"> • In-service training for existing staff (short term) • Include training in NA techniques (long term) |
| APPLICATION | <ul style="list-style-type: none"> • Limited application by NARS, NGOs, CBOs, Extension, farmers. • Variants of the "software" (tools) being used • Limited interest in NA techniques • Weak networking • Inadequate feedback of NA to end-users | <ul style="list-style-type: none"> • Documentation of best practices out of the variants of "software" (I.e. menu of techniques and approaches) • More sharing of NA outputs • Promotion of NA techniques |

(b) *Links with other institutions*

| Type | What do we have | What do we need |
|---------------------------------|--|--|
| EXTENSION | <ul style="list-style-type: none"> • Strong in some cases (e.g. Benin) • Weak in others (e.g. Ug. Tz.) <p>Strong desire for linkages (from Extension?)</p> | <ul style="list-style-type: none"> • Joint workshops for NA |
| IARCs | <ul style="list-style-type: none"> • Case studies / programmes driven by availability of funds | <ul style="list-style-type: none"> • Demand driven case studies / programmes |
| PRIVATE SECTOR | <ul style="list-style-type: none"> • Weak and uncoordinated linkages (e.g. (?) BAT programmes in Tz, Ug) | <ul style="list-style-type: none"> • Policy guidance • Sharing of research findings among stakeholders |
| NGOs and CBOs | <ul style="list-style-type: none"> • Linkages encouraged but driven by NGO / CBO agenda. • Interest of some NGOs in priority areas where they operate | <ul style="list-style-type: none"> • Networking |
| FARMERS / FARMERS ORGANISATIONS | <ul style="list-style-type: none"> • Evolving (e.g. Uganda National Farmer Association) policy, priority setting etc. (except Benin) • Farmer - NARS linkages strong | <ul style="list-style-type: none"> • Better integration - promoted (e.g.) by operational plans |
| OTHERS | <ul style="list-style-type: none"> • Existing links sporadic | <ul style="list-style-type: none"> • Closer working relationships (e.g. training in NA skills) |

WORKING GROUP 3

- (a) Government Attitudes Towards The Use Of Needs Assessment
- (b) Donor Attitudes Towards The Use Of Needs Assessment

(a) Government Attitudes Towards The Use Of Needs Assessment

A. General Impression

General Impression of Governments towards a participatory assessment technique was good. From examples that we had there were **recent** positive steps to include the approach in research programmes.

B: Influences on Government attitude.

- Cost (generally favourable perception in terms of improved impact).
- Credibility (generally good).
- Lack of uptake of previous technologies derived under old systems favours Needs Assessment.
- Political will (Is there the political will for use of needs assessment? - probably yes because of failures of past)

C: What to do?

From an attitude point of view the situation looks positive, however further effort is required to:

- Harmonise the stake holders in the constraint identification/research continuum
- Further sensitise Governments/National Systems to the benefits of a participatory approach to needs assessment.
- Further discussion is required on the roles of Regional Bodies (such as CORAF, ASARECA and SACAR) and regional research networks such as SARRNET and EARRNET. The adoption of needs assessment approaches in the research programmes of regional networks should be encouraged.

(2) DONOR ATTITUDES TOWARDS THE USE OF NEEDS ASSESSMENT

A. General Impression

There was perceived to be a variable donor attitude towards participatory needs assessment. Some were strongly in favour (such as World Bank).

B: Influences on Donor attitude.

The major influences of donor attitudes were considered to be:

- Source of the approach. (Donors favouring approaches devised by their own national scientists)
- Whether the decisions on how the research is done is made by the researchers, the “Government” or the donor.
- Whether or not the approach is perceived to lead to impact.

C: What to do?

- There is a need for more donor to donor interaction within specific countries to agree on approaches.
- National Programmes should have confidence in their research techniques (needs assessment), so that they can argue the case in favour of its use.
- Scope for National Programmes/ Regional Networks to promote approach to donors.

WORKING GROUP 4

- (a) Validation of research and impact
- (b) Links into Research and Extension

A. Validation of research and impact

What do we have in place?

1. Personnel
2. Farmers
3. Institutions and institutional framework: IARCs; NARS; Extension; NGOs.

What is needed?

Resources: Vehicles & fuel
Per diem

Personnel: Qualification
Training

Farmers: Motivation

Change of attitude

- Researchers
- Policy makers
- Research managers

Institutions: Linkages need strengthening

B. Links into Research and Extension

What do we have in place?

Donors/IARCs and NGOs dealing directly with farmers, thus by-passing the NARS and extensionists (typical in Uganda).

What is needed?

Collaboration at planning level

Suggested

Multidisciplinary meetings, to include:

- Research managers and researchers; Farmers; Donors and Donor agencies;
- Extension personnel; Policy makers; NGOs and international research agencies.

RESULTS OF THE RESEARCH DIAGNOSIS QUESTIONNAIRE

Funding

Participants were asked what proportion of the total NARS research budget was devoted to: (a) NGSS; (b) Post-harvest research in NGSS; and (c) Diagnosis of researchable post-harvest constraints in NGSS. Responses are given in columns 1(i), 2(i) and 3(i) in table 1. For each of these categories of expenditure, participants were asked whether they felt the budgetary allocation was adequate or inadequate. Responses to the adequate / inadequate questions are given in columns 1(ii), 2(ii) and 3(ii) in table 1.

TABLE 1: ADEQUACY OF FUNDING

| Country | 1(i) NGSS | 1(ii) Adequate / Inadequate | 2(i) Post-harvest NGSS | 2(ii) Adequate / Inadequate | 3(i) Post- harvest NGSS diagnosis. | 3(ii) Adequate / Inadequate |
|-----------------------------|----------------|-----------------------------------|------------------------------|-----------------------------------|--|-----------------------------------|
| Benin | 15 % | A | 3% | A | 1% | A |
| Cameroon | 15.4% | A | 4.1% | A | 3.6% | A |
| Congo - Kinshasa | 40% | I | 5% | I | 2% | I |
| Ghana | - | I | - | I | - | I |
| Ivory Coast | 15% | A | 1.5% | I | 2.25% | A |
| Kenya | - | - | - | - | - | - |
| Malawi | 7 - 10% | I | 3% | I | 1% | I |
| Mozambique | - | A | - | A | - | I |
| Tanzania | 15% | I | 10% | I | 1.5% | I |
| Togo | 10% | I | 2% | I | 1% | I |
| Uganda | 30% | A | 5 -10% | I | 0.5 - 1% | I |
| Zambia | 3.5% | I | 0.5 -1% | A | 0.35% | I |
| | | | | | | |
| Summed Responses | Mean: 15.2% | A = 5 I = 6 | Mean: 3.7% | A = 4 I = 7 | Mean: 1.3% | A = 3 I = 8 |

Note: “-” denotes no response.

In each of the three categories of budgetary allocation represented by columns (i), (iii) and (v), there is a considerable degree of variation between countries. It is important to note that the figures represent budgetary allocations as opposed to disbursements. Not surprisingly, in several cases, the former are much higher than the latter, in Congo Kinshasa, for example it was reported that none of the budgeted allocation for 97 /98 had been made available. The highest number of “inadequate” responses were recorded for diagnosis.

Needs Assessment and institutional issues

Participants were asked to answer whether in their judgement, it was necessary to increase the **number** and / or the **quality** of research diagnosis exercises undertaken by the NARS in relation to post-harvest NGSS issues and, if so, how difficult would this be and what were the main issues to be tackled in order to achieve increased numbers and / or quality. Table 3 below presents the results.

TABLE 3: NEEDS ASSESSMENT AND INSTITUTIONAL ISSUES.

| Country | (i) Increase: <i>Number?</i> | (ii) Increase: <i>Quality?</i> | (iii) Difficulty of achieving increased <i>Number</i> | (iv) Reasons for level of difficulty: <i>Number</i> | (v) Difficulty of achieving increased <i>Quality</i> | (vi) Reasons for level of difficulty: <i>Quality</i> |
|-----------------------------|------------------------------------|--------------------------------------|---|---|--|---|
| Benin | Y | Y | d | 2, 4, 6 | c | 3, 5, 6 |
| Cameroon | Y | Y | e | 1, 6 | d | 1, 6 |
| Congo - Kinshasa | Y | Y | b | 6 | b | 6 |
| Ghana* | Y | Y | c | 1, 2, 6 | b / c | 1, 2 |
| Ivory Coast | Y | Y | c | 1, 4, 5, 6, 8 | c | 1, 2, 3, 5, 6 |
| Kenya* | Y | Y | b / c | 2, 3, 7, 9 | b / c | 2, 3, 7, 9 |
| Malawi | Y | Y | e | 2, 7 | e | 2, 4 |
| Mozambique | Y | Y | d | 1, 5, 6, 7 | c | 1, 2, 6 |
| Tanzania | Y | Y | c | c | - | 1, 2, 5, 6, 7 |
| Togo | Y | Y | d | 1, 2, 4, 5, 6, 7, 8 | d | 1, 2, 4, 5, 6, 7, 8 |
| Uganda | Y | Y | c | 1, 4, 6 | c | 1, 2, 3, 5 |
| Zambia | Y | Y | c | 1, 5, 6 | c | 1, 3, 5, 6 |
| | | | | | | |
| Summed Responses | Y = 12 | Y = 12 | b = 2 c = 6 d = 3 e = 2 | 1 = 7 2 = 5 3 = 1 4 = 4 5 = 4 6 = 8 7 = 4 8 = 2 9 = 1 | c = 6 b = 3 d = 2 | 1 = 8 2 = 8 3 = 5 4 = 2 5 = 6 6 = 8 7 = 3 8 = 1 |

Key:

a = very easy

b = easy

c = will take some effort

d = quite difficult

e = very difficult

f = almost impossible

g = impossible

1 = Number of skilled staff

2 = Skill base of existing staff

3 = Attitudes of staff

4 = Reward systems for staff within NARS

5 = Institutional capacity

6 = Availability of funding for training

7 = Attitudes of Donors

8 = Concerns about validity of research

9 = Commodity focus in the NARS.

All participants, including those who stated that existing methods gave an accurate picture (see Table 2), felt that both the number and quality of diagnosis exercises should be increased. Perceived level of difficulty in achieving increases ranged from “easy” to “very difficult”. The most common perception was that increases would “take some effort”. When asked to explain the level of difficulty, all participants cited staff skill base and or the number of skilled staff. Availability of funding and institutional capacity for training were also frequently mentioned.

When asked to elaborate on the responses given, participants offered some interesting insights:

“Research is costly due to the terrain of the interior. We need more research technicians to assist research trainers in diagnostic methods”.(Cameroon).

“The NARS does not have the capacity to conduct training. We need to increase the number of skilled staff so that we can do more Needs Assessments. Existing reward systems need to be improved”. (Ivory Coast).

“ The key issue is the number of skilled staff, which is low. The skill base of existing staff is low, and attitudes are not conducive. We need funds and also for donors and government to change their attitudes.(Tanzania).

“ The problem is getting enough skilled people in the job in a sustained way. Thus training, recruitment and incentives and ultimately donor funding are the central issues”. (Uganda).

“More multi-disciplinary research is needed. A constraint here will be the number of skilled post-harvest researchers. There is a need for capacity building in post-harvest research in general” (Zambia).

Section Three:

An Action Plan To Promote The Uptake Of Needs Assessment Techniques In NGSS Post-Harvest Research Programmes Undertaken By NARS

GOAL:

To improve the capacity of National Agricultural Research Systems to address the constraints that effect the enhanced utilisation of NGSS food crops in Africa through institutionalising Needs Assessment.

OBJECTIVES:

1. Improved awareness and acceptance of Needs Assessment (NA) in post-harvest NGSS research by researchers, research managers and policy makers.
2. Improved incorporation of NA into relevant policy, programmes and projects
3. Development of capacity for NA application in post-harvest NGSS research

OUTPUTS:

1. Improved awareness and acceptance of NA in post-harvest NGSS research by researchers, research managers and policy makers.
 - 1.1 Advocacy of NA approach undertaken.
 - 1.2 Sustainable NA information system established.
2. Improved incorporation of NA into relevant policy, programmes and projects
 - 2.1 Policy, programme and project analysis and formulation undertaken.
3. Development of capacity for NA application in post-harvest NGSS research
 - 3.1 In-service training programmes for social and natural scientists improved.
 - 3.2 Incorporation of NA into the curricula of higher education institutions.
 - 3.3 Professional reward system for NA work improved.
 - 3.4 Links with Needs Assessment expertise outside the NARS improved.

ACTIVITIES:

- 1.1.1 Assess the level of awareness of (i) senior politicians, civil servants and donor representatives
(ii) NARS programme and commodity heads (iii) station level researchers.
- 1.1.2 Conduct 1 day workshops on the NA concept and its application to post-harvest NGSS research (to include field visits) for the above groups.
- 1.1.3 Review existing literature on NA (with specific reference to post-harvest NGSS research) and its application within and outside the country.
- 1.1.4 Establish advocacy mechanisms to transmit information on NA to key decision makers and researchers.
- 1.1.5 Evaluate the extent to which senior managers accept and encourage application of NA and its use in the field of post-harvest NGSS research.

- 1.2.1 Conduct stakeholder workshop involving all who use NA and all who could influence the planning and application of NA in NGSS related policies, programmes and projects undertaken through the NARS.
- 1.2.2 Formulate proposals for establishing / building on a systematic M&E system which tracks the performance of NA for post-harvest NGSS research within the wider demand driven research process.
- 1.2.3 Implement the system.
- 1.2.4 Documentation of impact made and lessons learned

- 2.1.1 Review existing relevant sectoral and research policies.
- 2.1.2 Develop a draft proposal on how the existing policies can incorporate NA with a specific focus on post-harvest NGSS research.
- 2.1.3 Hold a consultative workshop on the draft policy proposal.
- 2.1.4 Press for adoption of the NA policy proposal by national governments.

- 3.1.1 Review existing in-service training programmes (curricula, cost, responsible departments).
- 3.1.2 Build on / develop NA training programme with a first priority focus on post-harvest NGSS research.
- 3.1.3 Identify trainers skilled in NA from inside and/or outside the NARS.
- 3.1.4 Identify trainees.
- 3.1.5 Conduct NA training.
- 3.1.6 Evaluate training.

- 3.2.1 Review existing curricula.
- 3.2.2 Hold consultative workshop with key University and College departments.
- 3.2.3 Organise workshop for NARS and Higher education senior management.
- 3.2.4 Prepare and submit joint outline integrating NA - with a first priority focus on post-harvest NGSS issues - into relevant curricula.
- 3.2.5 Convene meeting(s) to study and endorse NA modules / programme.
- 3.2.6 Incorporate NA modules / programme into Higher education curricula.

- 3.3.1 Review present professional reward systems for NGSS researchers in the NARS.
- 3.3.2 Propose new ways in which excellence in the application of NA can be rewarded.
- 3.3.3 Hold consultative stakeholder workshop to achieve consensus on implementation of NA reward systems.
- 3.3.4 Implement agreed NA reward system.

- 3.4.1 Review present arrangements whereby the NARS interact with other agents (NGOs, CBOs, IARCs, donors, Private sector, Extension service, Government departments and Advisory bodies) in diagnosis of farming systems constraints.
- 3.4.2 Produce a draft proposal on how the NARS capacity to undertake NA in post-harvest NGSS research could most profitably benefit from the resources of other agents (manpower, skills, finance), and subject it to a stakeholder workshop
- 3.4.3 Produce co-ordination guidelines and MOU for expediting the agreed modalities.

OBJECTIVE 1: IMPROVED AWARENESS AND ACCEPTANCE OF NEEDS ASSESSMENT (NA) IN POST-HARVEST NGSS RESEARCH BY RESEARCHERS, RESEARCH MANAGERS AND POLICY MAKERS.

OUTPUT 1.1: ADVOCACY OF NEEDS ASSESSMENT APPROACH UNDERTAKEN

| ACTIVITY | LEAD RESPONSIBILITY | COLLABORATORS | SHORT TERM | | | | LONG TERM | | | ASSUMPTIONS |
|--|------------------------------------|--|-------------|--------|--------|--------|-----------|--------|--------|--|
| | | | N o w | 3 m | 6 m | 1 y | 3 y | 5 y | 7 y | |
| 1.1.1 Assess the level of awareness of (i) senior politicians, civil servants and donor representatives (ii) NARS programme and commodity heads (iii) station level researchers. | NARS HQ | | X | | | | | | | <ul style="list-style-type: none"> • Availability of funds |
| 1.1.2 Conduct 1 day workshops on the NA concept and its application to post-harvest NGSS research (to include field visits) for the above groups. | Researchers / (Regional?) networks | Regional networks / institutes / IARCs | | | X | | | | | <ul style="list-style-type: none"> • Literature exists • Collaborators are willing • Adequate funds are allocated |
| 1.1.3 Review existing literature on NA (with specific reference to post-harvest NGSS research) and its application within and outside the country. | NARS HQ | | | | X | | | | | <ul style="list-style-type: none"> • Those invited to the workshop are sufficiently interested to attend |
| 1.1.4 Establish advocacy mechanisms to transmit information on NA to key decision makers and researchers. | Researchers | M&E system; extension networks | | | | X | | | | <ul style="list-style-type: none"> • Adequate resources allocated • Collaborators willing to co-operate |
| 1.1.5 Evaluate the extent to which senior managers accept and encourage application of NA and its use in the field of post-harvest NGSS research. | NARS HQ | | | | | | X | | | <ul style="list-style-type: none"> • NA is institutionalised |

OUTPUT 1.2: SUSTAINABLE NEEDS ASSESSMENT INFORMATION SYSTEM ESTABLISHED

| ACTIVITY | LEAD RESPONSIBILITY | COLLABORATORS | SHORT TERM | | | | LONG TERM | | | ASSUMPTIONS |
|---|---------------------------------------|-----------------------|-------------|--------|--------|-------------|-------------|-------------|-------------|--|
| | | | N o w | 3 m | 6 m | 1 y r | 3 y r | 5 y r | 7 y r | |
| 1.2.1 Conduct stakeholder workshop involving all who use NA and all who could influence the planning and application of NA in NGSS related policies, programmes and projects undertaken through the NARS. | NARS | Relevant stakeholders | | X | | | | | | <ul style="list-style-type: none"> Political will exists Stakeholders are interested |
| 1.2.2 Formulate proposals for establishing / building on a systematic M&E system which tracks the performance of NA for post-harvest NGSS research within the wider demand driven research process. | Country dependent | Farmers | | | X | | | | | <ul style="list-style-type: none"> Adequate funds allocated Skill and will exist |
| 1.2.3 Implement the system. | NARS | | | | | X | | | | <ul style="list-style-type: none"> Adequate funds are allocated |
| 1.2.4 Documentation of impact made and lessons learned. | Researchers / M&E system / extension. | Various | | | | | X | | | <ul style="list-style-type: none"> Adequate funds allocated |

OBJECTIVE 2: IMPROVED INCORPORATION OF NA INTO RELEVANT POLICY, PROGRAMMES AND PROJECTS

OUTPUT 2.1:

POLICY, PROGRAMME AND PROJECT ANALYSIS AND FORMULATION UNDERTAKEN

| ACTIVITY | LEAD RESPONSIBILITY | COLLABORATORS | SHORT TERM | | | | LONG TERM | | | ASSUMPTIONS |
|---|---------------------|---|-------------|------------------|------------------|-------------|-------------|-------------|-------------|---|
| | | | N o w | 3 m o n | 6 m o n | 1 y r | 3 y r | 5 y r | 7 y r | |
| 2.1.1 Review existing relevant sectoral and research policies. | NARS | Sectoral ministry and relevant stakeholders | | X | | | | | | <ul style="list-style-type: none"> • Political will exists • Stakeholders are interested |
| 2.1.2 Develop a draft proposal on how the existing policies can incorporate NA with a specific focus on post-harvest NGSS research. | NARS | Sectoral ministry and relevant stakeholders | | | X | | | | | <ul style="list-style-type: none"> • Political will exists • Stakeholders are interested |
| 2.1.3 Hold a consultative workshop on the draft policy proposal. | NARS | Sectoral ministry and relevant stakeholders | | | | X | | | | <ul style="list-style-type: none"> • Political will exists • Stakeholders are interested • Funds are available |
| 2.1.4 Press for adoption of the NA policy proposal by national governments. | NARS; Ministers | Sectoral ministries | | | | X | | | | |

OBJECTIVE 3: DEVELOPMENT OF CAPACITY FOR NEEDS ASSESSMENT APPLICATION IN POST-HARVEST NGSS RESEARCH

OUTPUT 3.1: IN-SERVICE TRAINING PROGRAMMES FOR SOCIAL AND NATURAL SCIENTISTS IMPROVED

| ACTIVITY | LEAD RESPONSIBILITY | COLLABORATORS | SHORT TERM | | | | LONG TERM | | | ASSUMPTIONS |
|---|------------------------------------|---------------------------------|-------------|--------|--------|--------|-----------|--------|--------|-------------------------------------|
| | | | N o w | 3 m | 6 m | 1 y | 3 y | 5 y | 7 y | |
| 3.1.1 Review existing in-service training programmes (curricula, cost, responsible departments). | NARS training unit/ focal point | IARCs / (Regional?) networks | X | | | | | | | • Funds are available |
| 3.1.2 Build on / develop NA training programme with a first priority focus on post-harvest NGSS research. | NARS training unit/ focal point | IARCs / (Regional?) networks | X | | | | | | | • Funds are available |
| 3.1.3 Identify trainers skilled in NA from inside and/or outside the NARS. | NARS training unit/ focal point | IARCs / (Regional?) networks | | X | | | | | | • Trainers are available |
| 3.1.4 Identify trainees. | NARS training unit/ focal point | IARCs / (Regional?) networks | | | X | X | | | | |
| 3.1.5 Conduct NA training. | NARS training unit/ focal point | IARCs / (Regional?) networks | | | | X | X | | | |
| 3.1.6 Evaluate training. | NARS training unit/ focal point | IARCs / (Regional?) networks | | | | | X | | | • Trainees are retained within NARS |

OUTPUT 3.2: INCORPORATION OF NEEDS ASSESSMENT INTO THE CURRICULA OF HIGHER EDUCATION INSTITUTIONS

| ACTIVITY | LEAD RESPONSIBILITY | COLLABORATORS | SHORT TERM | | | | LONG TERM | | | ASSUMPTIONS |
|--|---------------------------|---|-------------|--------|--------|--------|-----------|--------|--------|--|
| | | | N o w | 3 m | 6 m | 1 y | 3 y | 5 y | 7 y | |
| 3.2.1 Review existing curricula. | NARS research managers | Higher education institutions | | X | | | | | | <ul style="list-style-type: none"> Funds are available |
| 3.2.2 Hold consultative workshop with key University and College departments. | NARS research managers | Higher education institutions | | X | | | | | | <ul style="list-style-type: none"> Funds are available |
| 3.2.3 Organise workshop for NARS and Higher education senior management. | NARS research managers | Researchers, HE representatives | | X | | | | | | <ul style="list-style-type: none"> Resources are not a limiting factor Adequate co-operation with the Universities |
| 3.2.4 Prepare and submit joint outline integrating NA - with a first priority focus on post-harvest NGSS issues - into relevant curricula. | NARS research managers | Training units / focal points in NARS and IARCs | | | | X | | | | <ul style="list-style-type: none"> Resources are not a limiting factor Adequate co-operation with the Universities |
| 3.2.5 Convene meeting(s) to study and endorse NA modules / programme. | Universities and colleges | | | | | X | X | | | <ul style="list-style-type: none"> Resources are not a limiting factor Adequate co-operation with the Universities |
| 3.2.6 Incorporate NA modules / programme into Higher education curricula. | Universities and colleges | | | | | | X | | | <ul style="list-style-type: none"> NA approach is still valid |

OUTPUT 3.3: PROFESSIONAL REWARD SYSTEM FOR NEEDS ASSESSMENT WORK IMPROVED

| ACTIVITY | LEAD RESPONSIBILITY | COLLABORATORS | SHORT TERM | | | | LONG TERM | | | ASSUMPTIONS |
|---|------------------------|------------------------|-------------|--------|--------|--------|-----------|--------|--------|---|
| | | | N o w | 3 m | 6 m | 1 y | 3 y | 5 y | 7 y | |
| 3.3.1 Review present professional reward systems for NGSS researchers in the NARS. | NARS Directors General | NARS Research Managers | | X | | | | | | <ul style="list-style-type: none"> DGs are amenable |
| 3.3.2 Propose new ways in which excellence in the application of NA can be rewarded. | NARS Directors General | NARS Research Managers | | | X | | | | | <ul style="list-style-type: none"> DGs are amenable |
| 3.3.3 Hold consultative stakeholder workshop to achieve consensus on implementation of NA reward systems. | NARS Research Managers | Relevant stakeholders | | | | X | | | | <ul style="list-style-type: none"> Stakeholders are co-operative |
| 3.3.4 Implement agreed NA reward system. | NARS | | | | | | X | | | <ul style="list-style-type: none"> Resources are available |

OUTPUT 3.4

LINKS WITH NEEDS ASSESSMENT EXPERTISE OUTSIDE THE NARS IMPROVED.

| ACTIVITY | LEAD RESPONSIBILITY | COLLABORATORS | SHORT TERM | | | | LONG TERM | | | ASSUMPTIONS |
|--|---------------------------|--|-------------|--------|--------|-------------|-------------|-------------|-------------|--|
| | | | N o w | 3 m | 6 m | 1 y r | 3 y r | 5 y r | 7 y r | |
| 3.4.1 Review present arrangements whereby the NARS interact with other agents (NGOs, CBOs, IARCs, donors, Private sector, Extension service, Government departments and Advisory bodies) in diagnosis of farming systems constraints. | NARS Directors General | NARS Research Managers | | X | | | | | | <ul style="list-style-type: none"> Other agents are willing to give information |
| 3.4.2 Produce a draft proposal on how the NARS capacity to undertake NA in post-harvest NGSS research could most profitably benefit from the resources of other agents (manpower, skills, finance), and subject it to a stakeholder workshop | NARS Directors General | Relevant stakeholders (NGOs, CBOs, IARCs, donors, Private sector, Extension service, Government departments and Advisory bodies) | | | X | | | | | <ul style="list-style-type: none"> Stakeholders are co-operative |
| 3.4.3 Produce co-ordination guidelines and MOU for expediting the agreed modalities. | NARS Directors General | Relevant stakeholders (NGOs, CBOs, IARCs, donors, Private sector, Extension service, Government departments and Advisory bodies) | | | X | | | | | <ul style="list-style-type: none"> Government accepts MOU |

SECTION FOUR:

NEXT STEPS

On the final day of the workshop the action plan was drafted. This has been outlined above. The extent to which the action plan will be achieved is dependent on the level of commitment to the process of change suggested by the action plan. In connection with this, the following pertinent remarks were made by Dr Nahdy in his closing address (Annex 5):

“ The impact of the workshop will largely depend on the implementation of the action plan that has been drawn up. This however, will be a function of how well we ourselves have internalised the concept, and the extent to which we will be prepared to commit our time and resources in developing and implementing in country strategies and plans. The ability to succeed will also depend on your understanding of the systems you work under and operational at various levels, and your ability to determine the best approach to introduce these useful tool for constrain identification, prioritisation and needs assessment.

One of the catalysts in the management of these changes will be continued interaction and collaboration among ourselves, to share experiences and learn from each other.”

In order to maintain the impetus for developing and implementing the action plan, the participants felt it was necessary to draw up a simple timetable, indicating time bound responsibilities to pursue. This is presented in Table 1 below.

Table 1: Next Steps to Implement the Action Plan

| TASK | RESPONSIBILITY | TIMING |
|--|--|---|
| 1. Finalise draft Action Plan and workshop report and send to workshop participants and other stakeholders. | NRI | Report and action plan finalised and sent out by G Bockett / N Marsland on 24.10.97 |
| 2. Tailor the draft Action Plan to country specific circumstances and send copies of country specific action plans to NRI. | Workshop participants | Country specific action plans to reach G Bockett, NRI by 31.12.97 |
| 3. Commence implementation of plans | Workshop participants | Implementation to begin during first quarter of 1998. |
| 4. Commence monitoring of plan implementation. | G Bockett / N Marsland to produce monitoring formats; workshop participants to facilitate completion of the formats. | First monitoring report due at end March 1998. |

The researchers in the NARS will need to develop short and long term strategies to meet the objectives set out in the action plan.

In the short term, researchers will be able to draw upon the resources immediately available in their own NARS and Ministries. They will be able to discuss the action plan with their colleagues to raise awareness concerning needs assessment techniques. Where appropriate, the researchers will be able to use these techniques in their work especially where they have used these techniques before. If further information is required, the researchers can contact a range of sources. These include regional networks operating in their region; donors and IARCS working in their sectors.

In the long term however, the achievement of all the objectives of the action plan, will require the use of extra resources - funds and manpower and technical advice and training. The following are suggested as possible sources for further support for: funds, manpower, technical advice and training

Funds and manpower:

- Government ministries
- Donors
- NGOs
- Regional networks

Technical advice and training:

- International institutes like NRI, IIED, ODI, IDS, CTA, Wageningen University and others that have developed considerable expertise in the development and use of participatory techniques. These institutions often provide a great deal of technical information free of charge.
- Local and international NGOs often have considerable experience in these techniques and are worth approaching for advice and training.
- Bi-lateral and multi-lateral donors.
- The social science faculties of local universities are a useful source of information.
- For those who have access, the Internet provides a wealth of information and contacts on participatory research methods. Its use should be encouraged wherever possible as it is easy and relatively cheap to use.

ACKNOWLEDGEMENT

This is an output from a Regional Africa Project funded by the Department for International Development of the United Kingdom. However, the Department for International Development can accept no responsibility for any information provided or views expressed. [Regional Africa Technology Transfer Project on Non-Grain Starch Staples].

ANNEX 1: PROJECT LOGICAL FRAMEWORK

Transfer of needs assessment methodologies and post-harvest technologies for Non-Grain Starch Staple (NGSS) food crops in Sub-Saharan Africa

| Narrative Summary (NS) | Measurable Indicators (OVI) | Means of Verification (MOV) | Important Assumptions |
|--|--|--|---|
| <p>Goal</p> <p>Food security and income generating capacities of rural communities in sub-Saharan Africa improved whilst supply of NGSS food crops in rapidly urbanising population centres improved.</p> | <p>Improved per-capita food availability and incomes of rural populations.</p> <p>Maintained/improved pricing structure and consumption of NGSS food crops in urban markets.</p> | <p>National statistics.</p> | |
| <p>Purpose</p> <p>Capability of NARS improved to identify needs and opportunities accurately and efficiently within NGSS post-harvest systems and respond with appropriate post-harvest handling and processing technologies.</p> | <p>- Incorporation of needs assessment methodologies and quality assessment protocols into activities of 50% of NARS in Sub-Saharan Africa where NGSS are significant food crops by 2005.</p> <p>- At least one technology transfer activity undertaken in a case study country replicated elsewhere by end 2000 where conditions are similar.</p> | <p>Project reports, Reports of NARS concerned.</p> <p>Reports of target institutions outside those of case study countries.</p> | <p>Improved technologies taken up by those involved in NGSS post-harvest systems.</p> <p>NARS able to influence National Government food policy.</p> |
| <p>Outputs</p> <p>*1. Needs assessment methodologies verified through case studies in strategically important countries.</p> <p>*2. Needs assessment methodologies made available to NARS.</p> <p>*3. Techniques for product sampling and quality assessment made available to NARS.</p> <p>+4. Post-harvest technologies transferred on a case study basis (needs identified in Output 1).</p> <p><i>5. Project outputs and approach promoted to target organisations and regional networks.</i></p> <p>6. <i>Level of impact of project outputs assessed.</i></p> | <p>1. At least one needs assessment validity study undertaken in each case study country (Ghana and Tanzania) in East and West Africa by December 1994.</p> <p>2.1. At least two researchers trained in each target country by end March 1995 (approximately 50 in sub-Saharan Africa).</p> <p>2.2. Needs assessment manual prepared by March 1996.</p> <p>3.1. Quality assessment protocols assembled as a manual and validated by NARS by December 1994.</p> <p>3.2. At least two researchers trained in each target country by end March 1995 (approximately 50 in sub-Saharan Africa).</p> <p>4.1. At least one "technology" in each case study country transferred to end users and impact assessed by June 1997.</p> <p>4.2. At least 2 needs assessment/technology transfer studies written by June 1997.</p> <p>5.1. Regional workshop attended by NARS and Regional Networks to promote the project outputs and approach held by October 1996.</p> <p>5.2. At least six promotional leaflets/articles distributed within the Regions by September 1997.</p> <p>6.1. Reports on project impact in Ghana and Tanzania prepared by December 1997</p> <p>6.2. Level of uptake of project outputs in target countries assessed by December 1997.</p> | <p>1. Project reports, case study reports.</p> <p>2. Project reports and workshop reports.</p> <p>3. Project reports and workshop reports.</p> <p>4. Project reports, reports of collaborating institutions.</p> <p>5. Workshop reports and proceedings, promotional literature.</p> <p>6. Project report and summaries.</p> | <p>NARS continue to invest in NGSS post-harvest activities and allow funds for future needs assessment studies</p> <p>Staff retained in post.</p> <p>Resources available to take up techniques.</p> <p>Quality remains a key issue in the development of NGSS commodities.</p> <p>Demonstration of post-harvest technology transfer on a case study basis is sufficient justification for NARS within the target countries to adopt strategies.</p> |

+ indicates item in progress, * indicates item completed, Items in italics are new for the extension

ANNEX 2: WORKSHOP TIMETABLE

| | |
|--------------|-----------------------|
| Day 1 | 6 October 1997 |
|--------------|-----------------------|

| <u>TIME</u> | <u>PRESENTATION</u> | <u>FACILITATOR</u> | <u>METHOD</u> |
|-------------------------|---|--------------------|---------------|
| <i>Morning Session:</i> | | | |
| 9.00 - 9.30 | Workshop opening | Guest speaker | |
| 9.30 - 10.00 | Introduction to the project: | Mr. G. Bockett | Presentation |
| 10.00 - 11.00 | Country Perspectives: | | |
| | (i) Ghana | Mr A Nicol | Presentation |
| | (ii) Tanzania | Dr R Kapinga | Presentation |
| 11.00 - 11.15 | <i>Coffee break</i> | | |
| 11.15 - 12.00 | Presentation of project case studies | Mr G Bockett | Presentation |
| | Project outputs (manuals, papers, etc.) | Mr G Bockett | Presentation |
| 12.00 - 13.00 | Video: "Always fresh Cassava" | | |
| 13.00 - 14.30 | Lunch | | |

| <u>TIME</u> | <u>PRESENTATION</u> | <u>FACILITATOR</u> | <u>METHOD</u> |
|---------------------------|--|-------------------------------|-----------------------------|
| <i>Afternoon session:</i> | | | |
| 14.30 - 16.00 | Needs Assessment techniques and alternatives (put role play here) <ul style="list-style-type: none"> • Attitudes and tools • Alternatives • Comparing alternatives: <ul style="list-style-type: none"> Methodology and science Resource implications | Mr G Bockett / Mr N. Marsland | Talk |
| 16.00 - 16.15 | <i>Tea break</i> | | |
| 16.15 - 17.15 | Results of questionnaire | Mr N Marsland | Presentation and discussion |
| 17.15 - 17.30 | Group formation and preparation for day 2 | Mr N. Marsland | |

| <u>TIME</u> | <u>PRESENTATION</u> | <u>FACILITATOR</u> | <u>METHOD</u> |
|---------------------------|--|----------------------------------|------------------|
| <i>Morning Session:</i> | | | |
| 9.00 - 9.15 | Introduction | Mr G Bockett | Presentation |
| 9.15 - 11.15 | Working Group Session I: * What do we need? * What have we got? * Key gaps. | Mr G Bockett / Mr N Marsland | Group discussion |
| 11.15 - 11.30 | <i>Coffee break</i> | | |
| 11.30 - 13.00 | Plenary and discussions | | Presentations |
| 13.00 - 14.30 | <i>Lunch</i> | | |
| <i>Afternoon session:</i> | | | |
| 14.30 - 15.00 | Introduction to Working Group Session II | Mr. N. Marsland | |
| 15.00 - 17.15 | Working Group Session II: * How do we get there?: formulation of working group action plans | Mr. G. Bockett / Mr. N. Marsland | Group discussion |
| 17.15 - 17.30 | Review and preparation for Day 3 | | |

Day 3

8 October 1997

| <u>TIME</u> | <u>PRESENTATION</u> | <u>FACILITATOR</u> | <u>METHOD</u> |
|---------------------------|----------------------------|------------------------------|---------------|
| <i>Morning Session:</i> | | | |
| 9.00 - 11.00 | Plenary and Discussions | Mr G Bockett / Mr N Marsland | |
| 11.00 - 11.15 | <i>Coffee break</i> | | |
| 11.15 - 13.00 | Finalise draft action plan | Mr G Bockett / Mr N Marsland | |
| 13.00 - 14.30 | <i>Lunch</i> | | |
| <i>Afternoon session:</i> | | | |
| 14.30 - 15.00 | Closing ceremony | Guest speaker | |
| <i>Evening:</i> | | | |
| 19.00 onwards | Cocktails | | |

ANNEX 3: NEEDS ASSESSMENT

THE PROS, CONS AND CHALLENGES OF USING NEEDS ASSESSMENT IN AGRICULTURAL RESEARCH

By

N Marsland and G Bockett

Natural Resources Institute, Chatham Maritime, Kent, UK, ME4 4TB.

1. What is needs assessment?

Needs assessment (NA) is a term used to describe both an **attitude** and a **range of techniques** to diagnose researchable constraints. The attitude is relaxed, non-formal open minded and analytical, the techniques are participatory - in other words farmers, instead of being passive **respondents** are active **participants** in the diagnosis process.

2. How is it used?

NA employs a mixture of techniques. These always include:

- **semi-structured interviewing**
- **direct observation**
and may include:
 - **drawing (e.g. mapping, creating matrices, creating timelines, creating seasonal calendars and time allocation timetables)**
 - **quantifying (ranking and scoring)**

In the course of using each and every technique, scientific enquiry is uppermost. Thus the attributes of hypothesis formulation, comparison, and analysis are central, and take place through an iterative process of discussion and explanation.

In addition to these core scientific attributes, NA is characterised by certain attitudes:

- **a certain degree of role reversal: researcher "hands over the stick" to the farmer;**
- **appropriate imprecision and optimal ignorance;**
- **non-formal;**
- **non-rigid: serendipity;**
- **interactive;**

3. Outputs:

Typical outputs of particular exercises could look like this:

- (i) Crop abundance scoring

Table 1: The relative abundance of different crops 3 months after harvest (scores out of 100).

| Crop | Score |
|--------------|-------|
| Cassava | 70 |
| Sweet potato | 31 |
| Beans | 23 |
| Maize | 26 |
| G. nuts | 5 |
| Irish Potato | 9 |
| Matooke | 13 |

(ii) Matrix scoring

Table 2: The relative importance of post-harvest constraints for the most important horticultural crops grown.

| CROP | Cabbage | Tomato | Onion | Rape | Shallots |
|-----------------|----------|----------|----------|----------|----------|
| ACTIVITY | | | | | |
| Harvesting | 1 | 5 | 2 | 4 | 3 |
| Storage | 2 | 5 | 1 | 4 | 3 |
| Processing | 2 | 5 | 1 | 4 | 3 |
| Marketing | 2 | 5 | 1 | 4 | 3 |
| Score | 7 | 20 | 5 | 16 | 12 |
| RANK | 4 | 1 | 5 | 2 | 3 |

Matrix scoring:

A score on a scale of 1 to 5 (1 = low level of constraints and 5 = high level of constraints) is applied to each post-harvest activity for each crop.

Overall **ranking** of crops on the basis of severity of post-harvest constraints as perceived by farmers:

A rank of 1 = crop where constraints are most severe to 5 = crop where constraints are least severe.

4. *The case for Needs Assessment*

Proponents of the use of NA for diagnosis of researchable constraints support their case by pointing to a number of ways in which NA is superior to the alternatives, the alternatives being (a) structured sample surveys and (b) visits to farms by specialist scientists followed by workshops and technical message formulation meetings at the research station.

- **Speed:** NA can be planned, trained for, executed and written up faster than conventional sample surveys. The superior speed of NA exercises is particularly apparent in the execution and report writing stages.

- **Cost and Logistics:** In addition to speed, NA exercises can be cheaper than sample surveys. Characteristically, they pose fewer logistical problems also, as they can be executed by small mobile teams which combine the functions of data collection, and a certain degree of analysis and writing up.
- **Technology fit:** NA is seen as a particularly appropriate start to the research process in areas and environments which are complex, diverse and risky, such as the rainfed tropics, hinterlands, hills swamps (Pretty and Chambers, 1993; Sumberg and Okali 1988). The physical conditions of these farmers are very difficult to capture ex-ante through a pre-determined questionnaire, and a necessary holistic understanding may easily elude even the most experienced scientist on a village visit. In such circumstances, an approach which combines a farming systems perspective, using multi-disciplinary teams, with analytical rigour and flexibility offers clear attractions for the researcher. NA offers the potential for more meaningful dialogue with communities than formal surveys and site visits. For this reason, NA reduces the likelihood of what Chambers (1983) has termed *professional bias* (specialisation, for all its advantages often makes it difficult for researchers to fully understand the true needs of poor communities). The logical outcome of a more appropriate constraints diagnosis process is more appropriate technology, measured by adoption rates. Good examples of this are cited by Roades and Booth (1982) and Bockett (1997).
- **Giving a voice to the poor:** With the combination of attitudes and techniques, NA holds out the prospect for a more meaningful dialogue with the resource poor farmer, women and other less advantaged groups within the community than either sample surveys or site visits. By promoting increased contact between researchers and poor communities, NA should reduce the likelihood of preconceived ideas upon which the researcher might base his or her research. Therefore, in comparison with site visits, the likelihood of *person bias*: contact with only men, elites, rather than the poorer people and *diplomatic bias*: courtesy and cowardice combining to inhibit the asking of pertinent questions of poorer people, is reduced (Chambers (op. cit.)).
- **Scientific methods:** Proponents argue that despite their origins in anthropology and "soft" social science, NA contains important elements of science. One of these is hypothesis formulation and testing. Even the most ardent sceptics of NA would be forced to admit that the methodology is well suited to generating testable hypotheses. What is less clear is whether NA is up to the task of rigorously testing hypotheses. This is related to the issue of generalising the results from NA, which in turn is related to representativeness. With careful use of secondary data, and sensible planning, NA exercises can take place in sites that are broadly representative of wider areas. This process of careful site selection has been seen as offering "windows into regions"². As such, NA can to some extent at least counter the criticism that in comparison to sample surveys it exhibits *spatial bias* (bias towards contact with people nearer population centres or roads). Within villages, random sampling can be used to select different households, and techniques such as wealth ranking have been demonstrated to deliver useful socio-

² This term was first coined by Senaratnes and quoted in Chambers (1983).

economic strata from which to sample. Within village representativeness, is also achieved through a process of "triangulation" or cross-checking of multiple sources of information gained during NA, to ensure that an accurate picture has been gained of farming constraints. In response to the criticism that NA may create numbers but is not susceptible to statistical analysis, proponents argue that techniques are available to analyse the sorts of unbalanced, binary, categorical and ranked data often generated by NA.

- **Links to the research process:** Another argument in favour of NA is that it is an appropriate start to a relationship of collaboration with farmers throughout the research process. Through interacting with farming communities during the diagnosis stage, NA, more than sample surveys or site visits, prepares the way for more consultative, collaborative or collegiate styles of research, whilst at the same time not prejudicing a more contractual route³.

5. *The case against NA*

Several criticisms have been levelled at NA, often on precisely those points which proponents claim are its strengths.

- **Speed:** The argument that NA exercises are always faster than sample surveys is a myth. In particular, difficulties arise at the stage of analysis when the complexity and wealth of often non-quantifiable data makes it difficult to draw out analytical threads.
- **Cost and Logistics:** Whilst NA may be cheaper in the field, this needs to be balanced against potentially high training costs. Moreover, NA is more likely than sample surveys or site visits to require external assistance. To be done well, NA demands a higher level of skills than any other form of exploratory fieldwork (indeed it has been compared to flying a 747 or playing concert piano!)⁴. Thus training takes longer and is therefore more expensive.
- **Scientific content:** Without a properly delineated sample frame and random sampling, it will be extremely difficult to gain a sample from which to generalise. Site selection will therefore be biased to some degree, and important segments of the population can be missed. In their attempts to present "hard" data, NA practitioners generate numbers that are short on analytical content and which cannot be generalised. These issues pose serious questions over whether the needs identified have any validity outside of the specific villages or households where NA takes place.

³ After Biggs (1987, 1989) four types of on-farm research can be identified. These are: Contract - scientists contract farmers to provide land and or services (non-participatory); Consultative - scientists consult farmers about their problems and develop solutions; Collaborative - scientists and farmers collaborate as partners in the research process; and Collegial farmers are the main actors and decision makers. The scientist's role is to encourage experimentation and to link farmers to information and resources.

⁴ Bentley (1994) has made this comparison.

- **Technology fit:** Despite the protestations of its proponents, NA, and the associated methods of on-farm participatory research have thus far generated few agronomic results. As suggested by Bentley (1994) this may be because the techniques gained academic popularity before they had proven their worth in the field.

6. *Future challenges*

Both proponents and critics of NA have a point. Whilst it is true that NA can be a powerful tool for diagnosis of researchable farming constraints in complex, and risk prone small-holder environments, it sometimes fails to live up to its potential. Moreover, even where constraints are correctly diagnosed, that in itself is not enough to ensure that solutions which farmers adopt willingly can be found. Finally, NA is not a panacea. It rose to prominence partly if not largely because of perceived shortcomings in the existing alternatives - i.e. statistical surveys and quick visits by scientists followed by technical meetings. Practitioners were looking for better answers, and thus some have seized on NA with perhaps more alacrity than was, in retrospect, prudent.

It is contended here however, that NA has its place, and it is an important place in the repertoire of diagnostic techniques open to scientists. If the potential of NA is to be fully realised within the NARS, then certain institutional challenges will need to be faced. These can be summarised as follows:

i) Professional identity and power relationships - Our role as agricultural scientists is influenced by farmer's expectations of us and our own professional identity as "experts" who give out advice and provide technical solutions. NA poses challenges to the traditional farmer - researcher relationship. It requires a change in roles, with the researcher becoming less of a teacher figure and more of a facilitator, and the farmer becoming less of a passive recipient *of* and more of an active participant *in* the research process.

ii) Skills provided by Higher Education Institutes - One of the factors that produces professional identity is the nature of the training that scientists undergo. Most of the institutes that produce graduates who go on to work in the NARS provide a quite formal scientific training in specific subject matter areas. Attributes of technical competence and empiricism are emphasised. But if it is to be done well, NA demands other attributes: a capacity to think laterally and the ability to have an empathetic⁵ understanding of farmers problems. To undertake effective NA, agricultural researchers need to be innovative and inquisitive, and to approach issues with an open mind. They need to believe that the information that farmers provide is worth serious investigation. This can be particularly testing when researchers are faced with information that appears to directly challenge their own training or even scientific logic.

⁵ The term empathetic understanding means having the ability to "stand in the farmers shoes" and see things from his or her perspective.

iii) Human resources - As in so many other sectors, poor pay and conditions have discouraged agricultural graduates from entering the NARS, and have encouraged them to leave quickly, lured by the prospect of careers in the better resourced NGO, private or donor sectors.

iv) Professional reward system - Career structures in the NARS tend to be based on academic qualification rather than professional achievement and impact in the field. The level of incentives provided by existing professional rewards do not promote the levels of commitment required for NA: long, intense hours in the field, the need to think on one's feet and a heavy writing load. Professional relationships that ensure success in a research career, often require that the individual is close to the "seat of power" not stuck out in the field.

v) Validity of research. - NA uses methods of information collection which are less structured than sample surveys and controlled experiments. As a consequence, although conforming to many precepts of the scientific method, reporting of NA results may not be acceptable in scientific journals, and to research managers and donors (generally the less applied the work the less acceptable). Junior researchers feel particularly vulnerable presenting such results to senior scientists. The challenge here is three-fold: (a) to make sceptics more aware of the inherent science within well-conducted NA; (b) to continue the search to integrate other methods with NA. This includes applying statistical methods to unbalanced data sets, as well as combining NA with sample surveys, and; (c) to point to the fact that NA can and has been directly responsible for identifying real problems that probably would not have been identified by other means.

vi) Institutional focus - Diagnostic exercises using NA invariably lead farmers to identify system constraints. This presents a problem for researchers who are focusing on one crop or system, in this case post-harvest. So while needs assessment can provide an accurate representation of constraints in a farming system, this may match poorly with the crop and disciplinary segregation of research programmes in the NARS. Linked to this point is the issue of **donor funding**, the nature of which tends to determine the direction of the research process. Some, donor funded projects will have a commodity focus. Others will have a systems focus. Some projects are short-term, others long-term. To the extent that NA generates findings that cut across commodity and system boundaries, it asks questions of an institutional set up that is more linear in its approach, and most NARS are more linear. Thus, if no institutional arrangements exist to ensure that there is cross complementarity between short- and long-term projects and commodity or systems focused projects, the benefits of NA to research will be lessened.

vii) Training - The need to develop 'in-house' training capacity in NARS is critical to the sustainable use and evolution of participatory techniques in the research process. Without 'in-house' training facilities, the impetus to maintain these techniques could falter owing to the considerable costs of using external trainers and training facilities.

7. *Conclusion*

It is important that research managers and donors recognise the implications of using NA. It implies flexibility in project design, timing and outputs, and a transfer of control from research managers to communities. NA may conflict with consensus needs identified by researchers at workshops, calling for a judicious (and diplomatic) balance between these two different ways of assessing research needs.

How can the challenges outlined above be met? One way of moving forward is to divide responses into short and longer term approaches. In the short term i.e. given the current structure of research programmes and funding availability, researchers can make themselves more familiar with the techniques and perhaps act as catalysts within their research stations for more interdisciplinary in field diagnosis methods. Practical ways to start this process would include:

- Accessing relevant literature. Much of the literature on NA can be accessed free of charge from organisations like IIED and NRI in UK
- Using available funds to conduct small training programmes for "core" teams within NARS in basic techniques. The team(s) should be interdisciplinary in nature and include women.
- Conducting one or two pilot NA exercises to demonstrate the uses of the NA, disseminating outputs to key decision makers.

In the longer term, the integration of NA methods within the NARS will mean that some fairly fundamental institutional issues will need to be tackled. The challenges outlined in section 6 above give some pointers as to the range of factors to be addressed. It should be noted that many of the issues described in section 6 are related to the way in which researchers behave and in turn the way in which this is related to the systems context of institutional structures, patterns of education, cultural factors and social adaptations.

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ANNEX 4: RESEARCH DIAGNOSIS QUESTIONNAIRE

NAME:

COUNTRY:

1. What proportion of the total NARS research budget is devoted to:
- (a) NGSS
- (b) Post-harvest research in NGSS
- (c) Diagnosis of researchable post-harvest constraints in NGSS

(NOTE: Please express proportions as percentages. Be as accurate as possible, a range e.g. 10 -15% is acceptable. Please specify period e.g. 1997 -98 or 1995 - 2000 etc.)

- 2(i). Do you feel that the figures given in answer to question 1((a), (b) or (c))are adequate or inadequate? (NOTE: Please tick the relevant box).

| Question | Adequate | Inadequate |
|----------|----------|------------|
| 1(a) | | |
| 1(b) | | |
| 1(c) | | |

- 2(ii) Please explain you answers.
-

- 3(i). How many qualified post-harvest researchers are there in your NARS?
-

- 3(ii) What are their responsibilities?
-

- 3(iii) How many social scientists work in the NARS?
-

- 3(iv). What are their responsibilities?
-

4(i). How are post - harvest constraints for NGSS diagnosed currently?
(NOTE: Please tick one or more)

- (a) Sample surveys
- (b) Visits to farms by scientists (site visits)
- (c) Use of participatory techniques
- (d) Other (specify)

4(ii). If you have ticked more than one, please indicate which is the most commonly used.

.....

5(i) Do you feel that the methods used for diagnosis at present give an accurate picture of post-harvest constraints?

5(ii) Please explain your answer

.....

6. What improvements can you suggest in current methods of diagnosis of researchable post-harvest constraints in NGSS?

.....

7(i). In your judgement, is it necessary to increase the **number** and/or the **quality** of research diagnosis exercises undertaken by your NARS in relation to post-harvest NGSS issues??

(NOTE: Please answer yes or no)

Number

Quality

7(ii) Please explain your answers

.....

8. If you have answered yes in relation to question 7(i), how do you judge the **difficulty** of achieving the following:

(a) Increasing the **number** of participatory diagnosis exercises (Needs Assessment) undertaken in relation to post-harvest NGSS issues?

(NOTE: Please tick **just one** of the boxes in the table)

| Very easy | Easy | Will take some effort | Quite difficult | Very difficult | Almost impossible | Impossible |
|-----------|------|-----------------------|-----------------|----------------|-------------------|------------|
| | | | | | | |

Please explain your answer:

HINT: You may wish to make use of any or all of the following headings:

- Number of skilled staff
- Skill base of existing staff
- Attitudes of staff
- Reward systems for staff within NARS
- Institutional capacity for training
- Availability of funding
- Attitudes of Donors
- Concerns about validity of research
- Commodity focus in the NARS.

(b) Increasing the **quality** of participatory diagnosis exercises (Needs Assessment) undertaken in relation to post-harvest NGSS issues?

(NOTE: Please tick **just one** of the boxes in the table)

| Very easy | Easy | Will take some effort | Quite difficult | Very difficult | Almost impossible | Impossible |
|-----------|------|-----------------------|-----------------|----------------|-------------------|------------|
| | | | | | | |

Please explain your answer:

HINT: You may wish to make use of any or all of the following headings:

- | | |
|--------------------------------------|-------------------------------------|
| Number of skilled staff | Availability of funding |
| Skill base of existing staff | Attitudes of Donors |
| Attitudes of staff | Concerns about validity of research |
| Reward systems for staff within NARS | Commodity focus in the NARS. |
| Institutional capacity for training | |

ANNEX 5: CLOSING ADDRESS

By

Dr S Nahdy,

Director, Kawanda Agricultural Research Institute, Kampala

On behalf of the Director General of the National Agricultural Research Organisation of Uganda.

- 1) Thanks to all participants and facilitators, for their time to travel and stay for these three days to deliberate on this important subject - which aims to answer the call for "Demand Driven Research".
- 2) In the opening speech a challenge was given which had to be met. These were:
 - * to get farmers adapt technologies to improve their welfare and well-being.
 - * to get research to deliver and make impact
 - * to develop better approaches to problem identification using participatory techniques.
- 4) During the deliberations, experiences were exchanged and discussions held in which:
 - * the effective use of needs assessment in various countries were demonstrated.
 - * the requirements for institutionalising needs assessment techniques in the NARs were identified.
 - * the extent to which needs assessment techniques are already institutionalised assessed, and finally, and most importantly.
 - * an action plan for the institutionalised of needs assessment techniques in the research systems were drawn up.

The impact of the workshop will largely depend on the implementation of the action plan that has been drawn up. This however, will be a function of how well we ourselves have internalised the concept, and the extent to which we will be prepared to commit our time and resources in developing and implementing in country strategies and plans. The ability to succeed will also depend on your understanding of the systems you work under and operational at various levels, and your ability to determine the best approach to introduce these useful tool for constrain identification, prioritisation and needs assessment.

One of the catalyst in the management of these changes will be continued interaction and collaboration among ourselves, to share and experiences and learn from each other.

In the past NRI has played a key role in facilitating such processes, and I would like to register our collective appreciation and gratitude to NRI. We hope that their support be

maintained and expanded in the future, and more specifically support will be provided for follow up to support exchange of experience and collaboration effort.

On behalf of all the participants I would like to again thank the NRI for organising this workshop, and the facilities for ably steering us through the processes.

I would also like to thank the hotel management and staff for making our, (your) stay here comfortable.

Again I would like to thank the participants who devoted all their time to come and to fully get involve in all deliberations and discussions.

For those who came from outside Uganda, we hope during their short stay they got a glimpse of Uganda and have not been disappointed, and thus will come again.

We wish them a safe journey home and wish all luck in their future endeavours to see needs assessment institutionalised.

With these, on behalf of the DG/NARO and on behalf of NARO I declare the workshop closed.

ANNEX 6: REPORT CIRCULATION LIST

Participants listed at Annex 8

NARS (Invited to the workshop but who were not able to attend) representing:

- Angola
- Burundi
- Ethiopia
- Madagascar
- Nigeria
- Senegal
- Sierra Leone
- Rwanda

DFID advisers

Regional network Co-ordinators: ASAREACA
EARRNET
SARRNET
CORAF
PRAPACE
BARNESA

CG Centres: CIP
IITA

ANNEX 7: PROJECT OUTPUTS

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harvest systems: A case study to improve the marketing and post-harvest
handling of cassava entering Dar es Salaam, Tanzania. Presented at the
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Lilongwe, Malawi, 23-27 October 1995. Report: NGSS 95/96 IC5
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Biotechnology Network: Proceedings of the Second International Scientific
Meeting, Bogor, Indonesia 22-26 August 1994. Cali, Colombia: Centro
Internacional de Agricultura Tropical. Report: NGSS 95/96 IC4.

ANNEX 8: LIST OF PARTICIPANTS

Yona BAGUMA (M.Sc.)

National Agricultural Research Organisation

Namulonge Agricultural and Animal Production Research Institute

Box 7004, Kampala

Tel: 00 256 41 341554

UGANDA

Specialism: Agronomy

Years of experience: 9 research (6 technology transfer)

Main responsibilities:

1. To develop improved cassava agronomic practices.
2. In team to transfer appropriate technologies to clients.
3. To train extensionists/farmers as required.
4. Information management at the institute level.

Geoffrey BOCKETT (Facilitator)

Food Security Department

Natural Resources Institute

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Kent ME4 4TB

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UK

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Specialism: Agricultural development

Years of experience: 10

Main responsibilities:

1. Participatory methods in agricultural research.
2. Policy formulation and implementation.
3. Institutional capacity building.

David CRENTSIL (M.Sc.)

Post-Harvest Officer in Charge of Root and Tuber Crops (Senior Agricultural Officer)

Ministry of Food and Agriculture

Agricultural Services Department, PO Box M82, Accra

GHANA

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Specialism: Agronomy/Post-Harvest Technology of Tropical Crops

Years of experience: 11

Main responsibilities:

1. Post-harvest constraint diagnosis for root and tuber crops.
2. Adaptive (post-harvest) research on root and tuber crops.
3. Management of MoFA/NRI research project on yams.

Jasper K IMUNGI (PhD)

Chairman of Department

Department of Food Technology and Nutrition

University of Nairobi, PO Box 29053

Kabete

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KENYA

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Specialism: Food Science and Technology

Years of experience: 14

Main responsibilities: 1. Administration.
2. Teaching in University (fruits and vegetable technology).
3. Research (Post-harvest and processing of perishables).

Flavia KABEERE (PhD)

Senior Research Officer/Seed Technologist

National Agricultural Research Organisation

Kawanda Agricultural Research institute PO Box 7065 Kampala

UGANDA

Tel: 00 256 41 567708

Specialism: Seed Technology

Years of experience: 26

Main responsibilities: 1. Plan and execute research on post-harvest systems.
2. Participate in all post-harvest research planning.
3. Teaching at the undergraduate and post-graduate levels.

John J HAKIZA (PhD)

Head Potato Programme

National Agricultural Research Organisation

Kalengyere Research Station

PO Box 722, Kabale

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UGANDA

Fax: 00 256 486 23935

Specialism: Breeding

Years of experience: >20 years

Main responsibilities: 1. General Administration of Station and Programme.
2. Guide research planning and implementation.
3. Soliciting for funds for research and development.
4. Interface with other institutions and stakeholders.
5. Write up and disseminate research results / findings.

Monsiapile G KAJIMBWA (B.Sc.)

Regional Agriculture Economist

Ministry of Agriculture and Co-operatives

PO Box 512, Mtwara

Tel: 00 255 59 333621

TANZANIA

Fax: 00 255 59333268/621

Specialism: Rural economics
Years of experience: 6
Main responsibilities: 1. Monitoring of regional extension programmes.
2. Planning for agricultural extension services in the region.
3. Co-ordinating the agriculture-extension-research linkage.
4. Explaining policy changes and their implications.
5. Training extension staff in participatory methods.

Evans KAPEKELE (B.Sc.)

Agricultural Economist

Luapula Regional Research Station

PO Box 710129, Mansa Tel: 00 260 2 821617

ZAMBIA Fax: 00 260 2 821798

Specialism: Agricultural Economics
Years of experience: 3
Main responsibilities: 1. Conduct economic analysis on agronomic trials.
2. Conduct surveys on impact assessment, diagnostic surveys.
3. Monitoring and evaluation of research and project activities.
4. Participate in annual research planning meetings.

Regina KAPINGA (PhD)

Agricultural Research and Training Institute - Ukiriguru

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Specialism: Roots/Tubers Agronomist
Years of experience: 13 years research/5 years technology transfer
Main responsibilities: 1. Post-harvest research on cassava and sweet potato crops.
2. Conducting on-farm studies on various areas.
3. Technology transfer on crop post-harvest techniques.
4. Conducting baseline, impact and needs assessment studies.
5. Coordination of the root and tuber crops research programme

Dan KISAUZI (PhD)

Head, Planning, Monitoring and Evaluation Unit

National Agricultural Research Organisation

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UGANDA

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Specialism: Animal physiology
Years of experience: 20
Main responsibilities: 1. Planning (priority setting, programme formulation).
2. Monitoring and evaluation.
3. Research policy.

Singi LUKOMBO (M.Sc.)
Head of National Cassava Programme (PRONOM)
PRONAM/INERA
Program National Manioc
13 Avenue Ileo/Gombe, BP 2037, Kinshasa I
CONGO (Kinshasa)

Specialism: Food Science
Years of experience: 11
Main responsibilities: 1. Planning of activities for PRONAM.
2. Planning post-harvest research activities.
3. Participate in the planning of research in Congo.
4. Development and improvement of cassava based products

Diankenda LUTETE (B.Sc.)
Head of Phytopathology Section
INERA/PRONAM
13 Avenue Ileo/Gombe, BP 2037, Kinshasa I
CONGO (Kinshasa)

Specialism: Pathology
Years of experience: 11
Main responsibilities: 1. Cassava pathology.
2. Co-ordinator of COSCA study in Congo.
3. Farming systems research.

G Norbert MAROYA (B.Sc.)
National Co-ordinator ESCaPP
INRAB
01 BP 884 Cotonou
BENIN
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Fax: 00 229 30 07 36
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Specialism: Plant breeding
Years of experience: 13 research (4 technology transfer)
Main responsibilities: 1. Head, Root and Tuber Crops Programme.
2. Cassava breeding and selection.
3. Analysis of the cyanogenic potential of cassava.
4. Representative on the Administrative Council of INRAB.
5. Administrative responsibility for the ESCaPP-Benin Project.

Neil MARSLAND (Facilitator)
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Chatham
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Specialism: Agricultural economist
Years of experience: 6
Main responsibilities: 1. Development and use of participatory methods in research.
2. Monitoring and evaluation.
3. Food security and nutrition policy planning and analysis.

Isabel J B MONJANE (B.Sc.)

Post-harvest researcher

Instituto Nacional de Investigacao Agronomica (INIA)

AV FPLM, Caixa Postal No 3654, Mavalane

Maputo Tel: 00 258 1 460190

MOZAMBIQUE Fax: 00 258 460074

Specialism: Horticulture
Years of experience: 2 years
Main responsibilities: 1. Conduct on-station trials.
2. Organise post-harvest loss assessment surveys.
3. Develop improved storage and processing technologies for tuber crops.

Kwasitse MOUVY

Direction de la Protection des Vegetaux

BP 1263 Lome,

TOGO

Tel: 00 228 25 37 73

Specialism: Entomology
Years of experience: 16
Main responsibilities: 1. Head of Training and Transfer of Technology Section.

Margaret NABASIRYE (PhD)

Research Officer

Kawanda Agricultural Research institute

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Kampala

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UGANDA

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Specialism: Biometrics
Years of experience: 12
Main responsibilities: 1. Provide statistical advisory service to research scientists on:
- design of agricultural research experiments and surveys
- analysis and interpretation of research results
2. Work on gender related aspects of the post-harvest research programme activities.

Silim NAHDY (PhD)

Director of Research, Kawanda, Agricultural Research Institute
National Agricultural Research Organisation
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Kampala

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UGANDA

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Specialism: Post-harvest entomology

Years of experience: 18

Main responsibilities: 1. Manage and Co-ordinate Research Programmes.
2. Plan, assess and evaluate research.
3. Conduct research on station and on farm.

Kwaku NICOL (M.Sc.)

Head, Post-Harvest Management Division
Agricultural Engineering Services Department
Ministry of Food and Agriculture

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GHANA

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Specialism: Post-harvest

Years of experience: 27

Main responsibilities: 1. Post-harvest policy formulation.
2. Post-harvest programme implementation.
3. Supervision of post-harvest personnel.
4. Post-harvest subject matter specialist trainer.

Peter NGATEGIZE (PhD)

Director of Research/Head Socio-economics
National Agricultural research Organisation

PO Box 185, Mukono

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UGANDA

Fax: 00 256 41 543373

Specialism: Agricultural Economics

Years of experience: >8

Main responsibilities: 1. Provide leadership and co-ordinate socio-economic research.
2. Provide leadership and co-ordinate coffee research.
3. Undertake research of a policy nature.
4. Teaching at MSc and PhD level at Makerere University.

Jacob M NGEVE (PhD)

Director of Research
Institute for Agricultural Research for Development (IRAD)

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Yaounde

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CAMEROON

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Specialism: Breeding/pathology
Years of experience: 15
Main duties/responsibilities: 1. Root crops breeding.
2. Root crops pathology.
3. On-farm and farming systems research.
4. Agricultural research administration.

Kephas NOWAKUNDA (B.Sc.)

Kawanda Agricultural research Institute
National Banana Research Programme, PO Box 7065
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Specialism: Food science
Years of experience: 3
Main responsibilities: 1. Planning and proposal development on banana post-harvest.
2. Carry out need oriented research on banana post-harvest.
3. Summarise and analyse data.
4. Participate in surveys done by National Banana Programme.

Joseph OPIO-ODONGO (PhD)

Sustainable Development Adviser
UNDP, 15 Clement Hill Road, PO Box 7184 Tel: 00 256 41 233440
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Specialism: Rural Sociology
Years of experience: 15
Main responsibilities: 1. Integrating environment into development.
2. Strategic planning and policy formulation.
3. Capacity building of NGOs.

Vito SANDIFOLO (B.Sc.)

Post-harvest Technologist
Department of Agricultural Research
Chitedze Research Station, PO Box 158,
Lilongwe Tel: 00 265 767222
MALAWI Fax: 00 265 784184

Specialism: Food Science
Years of experience: 3
Main responsibilities: 1. Head of research programme in central region of Malawi.
2. Implement national post-harvest research on root crops.
3. Co-ordinate with industries and the nutrition department on issues pertaining to cassava and sweet potato utilisation.

Andrew WESTBY (PhD)

Head, Post-Harvest Horticulture Group

Food Security Department

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UK

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Specialism: Food technology

Years of experience: 13

Main responsibilities:

1. Head Post-Harvest Horticulture Group.
2. Lead post-harvest work on root and tuber crops.
3. Manage specific projects.

Koffi YAO (MSc)

Researcher, Post-harvest research on roots, tuber and fruit and vegetables.

CIRT 08 BP 881 Abidjan

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COTE D'IVOIRE

Fax: 00 225 44 53 45

Specialism: Food Science and Technology

Years of experience: 13

Main responsibilities:

1. Head of laboratory of food preservation.
2. Preservation of plantain banana under controlled atmosphere.
3. Preservation of plantain in rural areas using improved traditional methods.
4. Preservation of yam tubers.
5. Processing of plantain.