

## Editorial

This fifth issue of RRA Notes includes for the first time a short comment on a previous article. The correspondent suggests an alternative way in which the ranking of browse species (in RRA Notes 3) could have been conducted, to give the pastoralists more say in deciding the final ranked categories. We would welcome more comments on previous articles, or indeed letters with more general comments, criticisms etc.

The four articles in this issue illustrate a very wide range of applications of the RRA approach:

- Introducing the idea of farming to alley communities in Nigeria.

The article describes how a participatory drama, 'The Fertiliser Bush', got around some of the initial communication barriers and became a springboard for discussions on the alley farming technology.

- Planning fuelwood initiatives in Nepal.

The authors describe the whole sequence of an exploratory RRA, which covered many other issues in addition to the fuelwood focus, and which combined technical measurements with more qualitative investigative techniques.

- Assessing food security in Sudan.

This RRA used an apt ranking technique of looking at food security, dividing a plate of sorghum grain into different portions, each representing a particular group within the community.

- Involving farmers in agricultural research in Australia

This article describes one of the few examples of where RRA has been applied in a developed country, and illustrates well how the RRA techniques are equally applicable to such situations.

As a final note, if any names and addresses were misspelt in the distribution list (sent with RRA Notes 4) or in the subsequent up-date lists, or if you know of anyone else who should be on the list, please let us know.

• <b>Jennifer McCracken</b>
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# 1

## The 'fertiliser bush' game: a participatory means of communication

Kristin Cashman

### • The problem - alley farming

This paper describes some of the problems I encountered, and the strategy I used to resolve them, while supervising an on-farm-research (OFR) project in south western Nigeria during 1985 and 1986 for the International Institute of Tropical Agriculture (IITA). This involved living in villages comprising the research site and working closely with community members.

I was hired by IITA to live and work in some of the Yomba villages comprising IITA's on-farm-research sites. My job involved 'testing' alley farming under field conditions with limited resource farm families. As a change agent I was constantly faced with dilemmas related to managing and facilitating the change process that alley farming involved. This job was made even more difficult since my 'clienteles' were resource poor and illiterate.

Three factors discourage farmers adopting, much less experimenting, with alley farming technologies. One is the need to satisfy certain essential subsistence requirements. The second is the reluctance of small farmers to adopt conservation farming techniques because the benefits accrue well beyond the limited planning horizons within which they are accustomed to operate. Third, in Nigeria, there are important differences between men and women in the terms under which they gain access to resources. Men inherit their land, while women usually farm on land allocated to them by their husbands or other male villagers.

Being a woman I was keenly aware of how these factors usually make conventional extension channels impractical, especially

since the vast majority of change agents in Africa are men. Clearly, there was a need for mechanisms to help change agents and their constituencies respond to change brought about by the introduction of alley farming and to adapt effectively.

Now I do not know how many of you are familiar with the alley farming technology. I would like to ask you for the moment to just pretend you know nothing about the technique and just look at the words 'alley farming'.

Let us see... 'alley farming', well 'farming' tells me it must have something to do with agriculture, but there is no word in the three major languages spoken in Nigeria that is even remotely similar to the word 'alley'.

This was unfortunate, indeed, a great deal of time and money was spent on designing a poster illustrating and explaining the alley farming system. And although the poster was translated into a number of African languages, there were no indigenous equivalents to the English phrase 'alley farming'. When I came across a number of technicians in the field, speaking their local dialect to promote alley farming, I was disappointed and shocked to hear them repeatedly fail to translate the phrase 'alley farming'. Even if it could be sufficiently translated, what does an avenue of sorts have to do with farming and what do trees have to do with crop production?

An additional weakness of the poster as a mechanism to aid in the transfer of the alley farming technology was its continuous use of the word 'trees' and its use of scientific measurements to convey the precise distance between the alleys and the shrubs within each

row. These explanations were so technical and alienating that they were useless to the farmers in the area.

### Finding a logical solution

I tried to encourage farmers' active participation, but came up against more, equally troublesome, constraints. There are a number of reasons why people will not accept something that is deemed beneficial in the eyes of others. Perhaps the most important is that many African farmers share the conventional belief that trees have no place on the farm field. The farmers in my area reported spending more time and money clearing the land (i.e. cutting and burning brush), than any other stage of production. So when an outsider like myself happens on the scene and says "you all should plant trees on your farms because it will bring you benefit", a number of things happen.

- One, when I explained to the men and women that if they plant trees, they can farm on the same piece of land continuously, their initial reaction was "You've got to be crazy! Why do you think we pulled all the trees out for, so some white whimsy looking woman could come and tell us we made a mistake?";
- Two, as I mentioned before, in Nigeria men control most land resources. Men own and allocate land to women to farm on. Traditionally, trees left standing on a farm offer direct economic benefit and are considered men's domain. Although women are actively engaged in farming, they are reluctant to plant, fearing the repatriation of the farmplots. In addition 98% of the extension agents in Africa are men, therefore it is generally men who are engaged in outreach programs in alley farming. Other studies, as well as my own work, indicate that husbands often do not pass on to their wives complete and accurate information concerning an innovation; and,
- A third problem was getting farmers to sit and listen to the detailed explanations of planting an alley farm, as well as the new

management strategy necessary to reap the benefits of the system.

### The participatory approach

There were other constraints inhibiting adoption, as well, but by far the biggest one, at least initially, came with using the word 'tree'. What I came up with, in partnership with a few villagers and primary school teachers, was a play or drama, titled 'The Fertiliser Bush', or 'Igbo Ajile' in the local Yoruba dialect.

The skit deliberately played down the fact that alley farming involved planting trees on farms. The phrase 'fertiliser bush' made the alley farming system immediately appealing, conveying the primary attribute of the system in one short phrase. Therefore, if villagers could not be present for an explanation, or just overheard others talking about it, they would have a general idea of the primary attribute of the innovation.

The village theatre, composed of 5 community members, was based upon the long established and respected method of relaying important historical information known as 'oral tradition'. All the roles in the play were acted out by community members. The lively drama and catchy tunes informed whole communities about the powers of the fertiliser bush invoking a sense of project ownership. The script, though never the same twice, highlighted the salient features and critical processes necessary to make alley farming a success. The drama was presented to whole villages. The broad based appeal of the group allowed the community to judge the worth of alley cropping whether participating or not.

The play was presented within the framework of a family squabble, where the husband tries to pass his worthless farm off to his wife and shift to better land. She is annoyed at the prospects, but feels pressured to take it despite its low worth, lest she be left with nothing. A friendly peer appears on the scene, with her child hoisted on her back, offering advice on alley farming based on her experience. Their curiosity is aroused. All questions posed by the couple are answered in a gentle, casual way. All objections are handled with an eye to

involving all able bodied family members to assist in the experience.

- **All things start with the soil**

Throughout the play the problem of poor production is constantly related to soil quality. The costs of applying commercial fertiliser are weighed against the cost of abandoning the farmland and beginning anew somewhere else, where the long term is no more promising than the present circumstances. The play proposes using alley farming as a superior choice.

### Taming the tree

The bearer of alley farming method was deliberately cast as a woman and her child to encourage women to participate. In addition, traditionally, trees have always been a man's domain in Nigeria. Women were dissuaded, even scared off, from planting trees on their farms, lest they forfeit their rights of tenancy. The very idea of planting a tree on a farm was contrary to any planned farming activity for the people in the OFR area, men as well as women. Consequently, the decision to refer to cassia and leucaena as the fertiliser bush was a deliberate attempt to dampen any objection and calm any initial fears of its use. The attribute fertiliser made planting trees immediately appealing, while conveying the fundamental benefit of the system. When the first unhappy, now curious farmer displays his knowledge that cassia is actually a tree, the alley farming friend is able to focus attention on the management aspect of farming and reinforce the attractive attribute of fertiliser. The pertinent exchange runs as follows:

- **Farmer:** Look here, cassia is a tree, like the one growing over there. What about the roots, won't they disturb my crop?
- **Alley farming friend:** Good question. But you are the farmer and it is your farm, so if you want trees, well, then let it grow to a tree. Otherwise igbo ajile is maintained as a bush, periodically cut back. When you continue to prune your leucaena and cassia you force the roots of igbo ajile to go down, down, down, deep into the ground. These deep roots bring moisture and nutrients to the upper layers of the soil.

When a weak protest is made about the amount of work involved in managing an alley farm, the friend explains how the whole family benefits and how each able bodied person should be involved. The whole family was usually involved in the planning to safeguard against anybody mistakenly weeding leucaena and cassia seedlings. Some of the inter-household processes of farming are brought to light in the play's opening song:

Please people come out and hear what we have to say because the Ministry of Agriculture, University of Ibadan, and IITA are here with the igbo ajile.

We are talking to everybody, both male and female, calling all of you people to come out and hear what we have to say. What are you doing shifting your farm from one place to another and spending all your hard earned money clearing the land and making new heaps?

If men plant the igbo ajile, with nurturing and care they will succeed and they will be praising God.

If women plant the igbo ajile, they will have more security on their farms, no need to be nagging after the men in the village for new farmland once their old one has lost its fertility, and they will be praising God.

Yes, even children come close. If you plant igbo ajile you will spend less time fetching firewood, weeding, and making new heaps. Praise be to God!

The alley farming woman, eager to demonstrate her knowledge, starts to explain the spacing in terms of centimetres within rows and meters between row. The squabbling couple now turn their ridicule towards her, teasing her mercilessly for adopting the foolish terminology of the white people. After joining them in a good laugh, she proceeds providing the couple with some practical training using a more traditional yardstick, "let's see...25 centimetres is about the size of your foot, and 4 to 5 metres between these rows is about equal to 4 to 5 strides".

After a detailed and thorough explanation, the once curious now excited husband and wife are anxious to obtain the seeds to plant the fertiliser bush to solve their production problems. "Now wait a minute", the alley farmer warns. "The fertiliser bush is not magic. You should know by now that nothing in life is free and easy". Again, she explains by using her own situation analogously. "The fertiliser bush is like this small child on my back. During the first year both need care and attention, even a little nurturing wouldn't hurt". At this point she removes the child from her back and places her next to her husband's drum. "Now ask her to play this drum". The child taps it, but loses her balance and the drum tips over.

She continues with her analogy. "I don't see much return from the fertiliser bush, but I continue my vigil because I know in time it becomes like this school child. If I am as good a farmer as I am a parent, I will begin to see a number of benefits". She grabs a child from the audience and asks him to play the drum. As most village boys do, he plays quite well. "After the first year the fertiliser bush is like this child and I begin to see some returns to my labour. I can send him to fetch some water or firewood and he can help me on the farm and he is even attending school!"

"This is all fine and good but my love and attention doesn't stop here because I know in time it will become a partnership, like husband and wife". At this point she is standing beside her husband and her child with her hands on her hips and a suspicious looking smile, she says, "At this point, you see, the fertiliser bush and the farmer is like husband and wife. I take care of him and he sure takes care of me". After this line the whole troupe breaks into song, dancing off, singing the wonders of the fertiliser bush.

- **Kristin Cashman**, CIKARD, Iowa State University.

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## 2

# Rapid appraisal for fuelwood planning in Nepal

John Soussan and Els Gevers

### • Introduction

Collecting information for planning complex problems such as fuelwood in rural areas is difficult. These problems are highly variable, express themselves indirectly and are locality-specific. Their investigation requires sensitivity to local situations across a variety of fields. Fuelwood problems are about far more than just energy: land use and tenure, forestry, environmental stress and farming systems must all be looked at if these problems are to be understood and effective solutions developed. And yet people involved directly in planning never have the luxury of time to assess the situation, and should be reluctant to commit large quantities of resources which could be used to finance direct activities.

The Dhanusha District Sustainable Fuelwood Strategy and Action Plan is a project financed by the EEC and executed by the Forestry Department, Government of Nepal. The ETC Foundation was commissioned to evaluate the situation and prepare an action plan to enact sustainable solutions to the District's problems. Substantial prior experience of fuelwood Planning has taught us the following:

- Fuelwood problems and intervention opportunities are specific to people and places, and are a function of access to land resources;
- Fuelwood problems express themselves indirectly; as a series of responses to resource stress;
- Fuelwood stress is basically an issue of poverty, and is closely related to wider environmental stress; and,
- Successful fuelwood interventions will frequently be indirect and small-scale. Packages of appropriate initiatives which are tailored to local opportunities and incorporate local knowledge and priorities must be developed.

These initial assumptions formed the basis of a rapid appraisal of Dhanusha District in southern Nepal. The appraisal aimed to identify the form fuelwood problems take and local initiatives and resource opportunities on which sustainable interventions could be built. An initial appraisal of the district showed that three types of locality needed to be assessed. These were rural areas in the Terai Plain, the main urban area and the designated forest area in the Siwalik Hills.

A reconnaissance survey was carried out to obtain general knowledge about the district's physical and social characteristics, which also included general observation of the landscape and assessment of the existing woody and other biomass resources.

Twenty villages, representing all parts of Dhanusha District, were visited during the reconnaissance survey. The field team prepared detailed notes on each village, while impressions were fresh, and discussed them with forestry officials, local people and district-level development actors.

Out of the 20 villages covered in the reconnaissance survey, 5 villages were chosen for in-depth inquiry: Tadiya, Ramdaiya, Sabaila, Goth Koilpur and Thadi. The main criteria for selecting these sites were:

- Their distance from the forest area in the north;

- Their accessibility to the district's transport network; and,
- The magnitude of their fuelwood problem.

Four major techniques were employed for the collection of data:

- Detailed observation of landscape, housing pattern, trees and vegetation cover, cropping and livestock patterns, etc. A series of sketch maps and check lists were prepared to represent this information;
- Group discussions with local people regarding fuelwood problems, biomass resource management practices and attitudes towards forestry and other intervention options;
- Discussions with selected individual members of the community on general socio-economic issues, the availability of local resource opportunities and responses to fuelwood problems at the household level, in which both men and women were included; and,
- In-depth structured interviews with 30 households in each village involving both men and women. These households were chosen from 6 major tenural classes: landless; below 1 bigha; 1 to 2.5 bigha; 2.5 to 4 bigha; over 4 bigha; tenants/shareholders.

Land tenure patterns, livestock ownership, fuel use patterns and details of the numbers and the types of trees grown were issues covered in the interviews. These in-depth interviews were designed to identify the resource base and the intervention possibilities across the various tenural classes.

### Urban area study methodology

In the urban area, a number of households, large and small fuelwood-using industries and urban fuelwood dealers were visited by the team members, and informal discussions were held in order to collect information on the pattern of fuel demand, the existing supply situation and the price of fuel in urban areas.

In order to understand the fuel use pattern and the possibilities of fuel saving/switching at the household level, the urban population was broadly divided into low, middle and upper income households and 13 households were interviewed from each category, thus totalling 39 households.

In both rural and urban areas local people were hired for the in - depth structural interviews and for the translation and the tabulation of all the data collected.

### Methodology for the forest area in the Siwalik Hills

During the field work a forest exit survey was executed with the help of 6 local people from Ramdaiya. The amount of fuelwood, fodder and timber which was brought out of the forest, was counted for one week, day and night. This occurred at the three main exit points at Chisapani, Tulsipato, and Bistrampur. Typical weights for different types of load were calculated and the data was used to assess the quantity of woody biomass being extracted from the forest area.

The broad quantity of woody biomass in the forest area was also assessed. Data collection on the woody biomass supply from different strata of the Siwaliks was done as follows:

- In each stratum (riverine stream banks: Siwalik Hills southern part, Siwalik Hills northern part) one plot was taken to measure trees and in each plot two sub-plots for measure of undergrowth.

Each Plot: 100m wide and 1000m long (100,000 m<sup>2</sup>). All trees measured > 5cm dbh (diameter breast height).

Total: 4 plots.

Each sub-plot: 2m wide and 5m long (10m<sup>2</sup>). All undergrowth was cut and weighed; fresh to dry weight is discounted by 30%.

Total: 8 sub-plots.

- The volume figures were transferred into weight figures using 600 kg/m<sup>3</sup> which was transferred into tonnes/ha. Tree yield was

based on a 100 year rotation. The quality of the forest cover in different areas was also assessed by observation, as were signs of environmental stress, selective extraction of tree species and areas which appeared to offer potential for intervention.

The duration of the fieldwork was approximately 2 months, during which time links were also established with local officials and selected community groups in order to establish an institutional structure for the implementation of the fuelwood strategy. The goal was to establish 'user groups' among target communities such as the landless, small farmers or women. These user groups were to be the executing agency for a series of small, local initiatives which they would develop in partnership with staff from district-level institutions such as the forestry department and the agriculture extension service. The goal was to give these target groups control over the choice of intervention to address their fuelwood problems and control over the resources (both land and financial) needed to execute the interventions.

The adoption of a rapid appraisal technique permitted us to identify the sections of the community facing fuelwood stress, their responses to this stress and the local resource opportunities for interventions to build a sustainable fuelwood future. For this, rigorous quantification of supply and demand *is* not necessary and pre-determination of technical choice *is* an irrelevance. The basis of sustainable development, harnessing local knowledge and building on local initiatives, requires a flexible, participatory approach to planning. For this a rapid appraisal approach is ideal.

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## 3

## Rapid food security assessment: a pilot exercise in Sudan

Simon Maxwell

### • Introduction

These notes report on an application of RRA techniques to the question of understanding the causes, dimensions and characteristics of food insecurity: a procedure I have dubbed 'Rapid Food Security Assessment' (RFSAs). The 'pilot' in the title betrays the fact that this was a first attempt on an experimental scale - just nine communities across the whole of Sudan in only two working weeks. The eventual intention *is* to structure RFSAs in the mode of a 'sondeo': multiple case studies in a single area, carried out over the course of a week by a multi-disciplinary team and resulting in a written report before leaving the field area. The pilot gave us enough information to confirm that this is a feasible and worthwhile objective.

We need to know more about food insecurity so that we can assess the impact of existing policies on food insecure groups and plan better policies to help them. The starting point is a model of food security that goes beyond the simple question of access to food ('enough food for an active, healthy life', (World Bank, 1986)) and locates food security in the context of secure and sustainable livelihoods for poor people. A recent definition runs as follows:

"A country and people can be said to be food secure when their food system operates efficiently in such a way as to remove the fear that there will not be enough to eat. In particular, food security will be achieved when the poor and vulnerable, particularly women, children and those living in marginal areas, have secure access to the food they want. Food security will be achieved when equitable growth ensures that these groups have

sustainable livelihoods..." (Maxwell, 1988).

### • Starting with secondary sources

Our task in Sudan was to support food security planning by putting together a picture of food insecurity for the country as a whole. To fit the model, this meant combining specific data on malnutrition with more general data on poverty and access to resources. The secondary sources were of some help, but left surprising gaps. Thus:

- we knew that levels of malnutrition were high across the country and not just in marginal areas; but we knew very little about the socio-economic characteristics of malnourished or undernourished individuals;
- we knew that income distribution was poor and getting worse, but we had very little information about the social relations underlying poverty, especially in rural areas where there was said to be a land frontier; and,
- we knew from the experience of the drought in 1984/85 that many people in Sudan were vulnerable to a sudden collapse of livelihood and food security; but it was not clear how vulnerability was distributed through the population, nor how vulnerable groups could be identified.

We hypothesised that poverty, vulnerability and malnutrition were three interlocking phenomena and that the most severe problems of food insecurity (what the World Bank calls 'chronic' food insecurity) would be concentrated where the three overlapped. A large number of people would be poor and

vulnerable but not currently malnourished: these would be subject to possibly frequent episodes of food insecurity (what the World Bank calls 'transitory' food insecurity). By manipulating the data on nutrition and poverty, we were able to estimate that 2m people (13% of the population) were probably in the category of chronically food insecure (that is poor, vulnerable and malnourished) and that another 7m (37%) might be transitorily food insecure (poor, vulnerable but not currently malnourished). But could we find out more?

### Field work in nine communities

We started with a checklist (see Appendix) and set out to investigate food insecurity in communities across the country. We were constrained by time, access and language, but were able to cover nine communities: three of these were in illegal settlements of mostly displaced people around Khartoum; two more were in the poorest parts of the towns of Nyala and Gedaref; the remaining four were in villages, one in Kabbala Province and three in different parts of Darfur. The biggest omissions were the camps of displaced Southerners along the border between North and South Sudan; and nomadic groups in Northern, Darfur, Northern Kordofan and Red Sea Hills.

The RFSAs were carried out by a mixed team of Sudanese and outsiders. The outsiders were members of a World Bank food security team (and included one eminent Sudanese); in Khartoum, the insiders were staff of the Ministries of Agriculture and Health and the Economic and Social Research Council; elsewhere they were staff of the Ministry of Agriculture or of projects working in each area. The size of the team varied from 2 to a dozen and the time spent in each community from three hours to about six.

In each case, our procedure was roughly as follows:

- Preliminary meeting of the team to explain the purpose of the study, review the questionnaire and discuss background information.
- Make contact with the sheikh or other local leader, explain the purpose of the visit, conduct a preliminary interview on

the history and current situation of the community and discuss food issues. This often turned into a group interview. One important outcome was a social stratification of the community to provide the basis for the next step.

- With the sheikh's assistance, identify representative households in the community, for example, a landless family, small and middle sized farmers, a female-headed household etc... Interview these families in their own homes, using the checklist as the basis for an unstructured conversation. Some of these case study interviews also turned into group interviews: there were about fifty of them altogether across the nine communities studied.
- Visit the shops or market, if any, to collect data on food prices and have further conversations. Again, these visits often resulted in group interviews or discussions, sometimes with twenty or thirty people.
- Walk around the village to observe conditions and chat to passers-by.
- Regroup out of the village for a detailed review of findings and a discussion of possible interventions.
- Write up a brief report of the visit, the same evening if possible, using a laptop computer.

Mostly, we just talked to our respondents, singly or in groups, but we also tried some tricks of the trade, with generally satisfactory results. For example:

- To help put together a picture of social stratification, we used a plate of sorghum or small stones to represent the village. We could then ask the sheikh (or the group) to estimate what proportion of the village was landless, or female-headed or from Northern Darfur or whatever, by dividing the grain into piles. This was particularly successful in a group situation and could develop into quite a sophisticated analysis by taking grains or stones away as the village was

progressively stratified: first the landless are taken out, then the farmers below 5 feddans, then those from 5-15 feddans and so on. We were able to cross-check the results by repeating the exercise with different groups. On several occasions, the exercise was carried out by drawing a large circle in the sand and taking slices off it.

- Getting income and expenditure to add up is notoriously difficult in informal interviews of this kind. On several occasions, we used small stones or grains of sorghum to represent daily or weekly income and then subtracted progressively the main items of expenditure listed by the household. This gave us a graphic demonstration that reported expenditure exceeded income and provided the basis for further questioning.
- Group interviews were held in almost every community. We did not try wealth ranking, but we did try to characterise rich and poor people, for example by holding up two shoes, one representing a rich person and one a poor person, and asking people what was the difference between them. It took quite a bit of probing to move beyond stock responses like “it is the will of Allah” and establish the importance of e.g. cash to hire labour; and on one occasion, the group became restless because “these people are trying to make trouble between us”.
- We were interested in the balance between food crops and cash crops, millet and groundnuts particularly, and developed comparative ranking lists of crops e.g. in South Darfur, millet is regarded as less work and more drought tolerant, but has a more variable price, is more susceptible to pests and has greater weed problems than groundnuts.
- Cross-check ‘surveys’: on many occasions in group interviews, we broke off general discussion, which was often inevitably dominated by a few individuals, to ask each person individually for a piece of information e.g. whether they owned land, their main occupation, whether they

worked yesterday, the wage rate for a particular job, meals eaten yesterday etc...

## • The results

RFSa made an important contribution to our work in bringing the statistics to life and in making it possible for our report to be written, so to speak, from the bottom up, starting with the food security situation of the people we met and moving from there to policy. It also gave us useful insights into food insecurity among the poorest people in Sudan (see Maxwell, 1989, for full results):

- Confirmation that urban poverty and food insecurity are far more prevalent than might be expected in Sub-Saharan Africa, mainly because of large scale migration to Khartoum by refugees from the civil war in the South.
- The discovery of sharp income inequalities even in villages with good rainfall and a land frontier, mainly because poorer households cannot afford to cultivate their own land throughout the rainy season and have to seek a cash income by labouring for richer households. We recommended new forms of consumption credit or asset distribution that would allow poorer households to develop their own farms.
- The striking vulnerability of the poorest people, especially to illness or natural disasters and the absence of assets, savings or other buffers in times of need. This led us to recommendations about a programme to provide assets for the poor, along the lines of the Indian IRDP or the Grameen Bank in Bangladesh.
- The operation of a scissors effect between wage income and food prices, analogous to that between livestock prices and cereal prices. In good years, the amount of employment in agriculture and the average wage both rise; at the same time, the price of cereal staples falls. In bad years, wage income falls and food prices rise, sometimes by up to four times. This led us to recommendations about income support through public works; and grain price stabilisation through village grain banks

and improvements to government sorghum policy.

- The very high proportion of functionally female-headed households among food insecure groups, up to 50% in some villages, coupled to a high degree of social and economic isolation for women. We developed proposals for easier transmission of remittances and for targeted interventions aimed at women.

### Follow-up

None of these insights is particularly startling but they are not generally common currency in the literature on food insecurity in the Sudan. RFSA gave us some confidence that the literature had missed important phenomena. We can confirm our findings with wider-scale and better structured RFSA and we have also identified topics that require more rigorous and longer-term research.

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#### NOTE

This note is a spin-off from a World Bank mission in November 1988 of food security issues in the Sudan. The mission report is expected to be published in 1989, under the title "Toward an action plan for food security: stimulating growth and designing interventions". Thanks are due to the Bank and in particular to Jack van Holst Pellekaan for allowing publication of this account of part of our work. Responsibility is mine.

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## Appendix

### Food insecurity case studies

#### Information checklist

##### Introductory note:

The purpose of this checklist is to help you gather the information you need to write up short case studies of individuals or families thought to be food insecure. It is not a questionnaire. This means it is not necessary to present the questions in the order asked, nor use the exact phrasing in the checklist. However, you should try to cover all the points listed in the checklist and present your report in the order of the questions.

The questions on the checklist fall into four main sections:

- Information on the community;
- Background information on the family;
- Current sources of livelihood; and,
- Food issues.

#### Checklist

##### The community

(NB: These questions can often be answered by community leaders at the beginning of the visit)

- History of settlement;
- Size and composition of population (ethnic, family structure, occupations);
- Social/political leadership;
- Government and voluntary agency programmes; and,
- Community problems and needs.

##### Background information

- Location;
- Name of respondent;
- Family composition (adults, including children over fifteen; children; other dependants);
- Length of time in present location;

- Place of origin, date of leaving, reason for leaving;
- Occupation in place of origin; and,
- Future plans to stay or move.

### **Current livelihood**

- Resources available to the family (land, land improvements - including trees), labour, animals, machinery, equipment, household goods, cash, gifts/zakat;
- Security of tenure;
- Description of housing (materials, size, cooking facilities);
- Activities undertaken (amount and description, including seasonality, location and who in the family does what): agriculture, herding, employment self-employment, trading etc.;
- Estimate of income earned, per period, by person;
- Level of risk and coping strategies in times of hardship; illness, theft, physical security, natural disasters; changes to normal pattern of activity; and,
- Access to services (health, education, transport).

### **Food issues**

- Level of nutrition of family members;
- Composition of diet, by family member and time of year;
- Sources of food: production, purchase, exchange, free distribution;
- Problems of availability of food in the market (especially bread, sugar, sorghum);
- Ownership/validity of ration card;
- Prices paid for food in most recent purchase, sugar, bread, sorghum, beans etc.;
- Source and price of water; quantity consumed; storage;
- Source and price of fuel for cooking; and,
- Views on food security issues.

## 4

## RRA has a role to play in developed countries

Peter Ampt and Raymond Ison

### • Introduction

Innovations in agricultural research and development characterised by FSR, FSR&D, FSR&E, farmer first and last models and the utilisation of RRA/agroecosystems analysis have been almost totally confined to developing countries. Despite a long established tradition of agricultural research in Australia there have been few recent innovations in research methodology other than the development of quantitative or simulation modelling (see Remenyi, 1985) and more recently an increased focus on expert systems. The international debate surrounding the conceptual validity of the 'transfer of technology' model of research and development is only beginning to be heard in this country. The debate is being fostered by farmers (e.g. Martin, Baldwin and Hutchings, 1989) and others concerned with the widening gap between research and extension and the failure of 'technology adoption' (Anderson, 1983; Johnston et al, 1983). Here we report on the first RRA conducted in Australia. We are aware that RRA has been utilised in Minnesota (Vernon Cardwell pers. comm.) and that there is increasing interest in these research approaches in the U.S. (Anon. 1989).

A two-phased RRA which could now be described as an initial exploratory and subsequent topical RRA (Conway, McCracken and Pretty, 1987) was conducted in the Forbes Shire of central western New South Wales during 1988. The basis for the RRA location and organisational context was the 1986 acquisition by the School of Crop sciences of a leased research site 15km east of Forbes. The Central West Research Unit (CWRU) was established on the site with the intention that it would be a research base for the University in

the wheat/sheep belt of N.S.W. It was envisaged that a research program would be established at the unit but that increasingly, much of the research would be carried out with the collaboration of farmers on their properties. RRA was seen to have the potential to identify problems for research, as a means for encouraging collaboration with farmers and as a problem identification method that warranted evaluation in a developed country context.

### Aims

The aims of the exploratory RRA were to:

- forge closer links between researchers and farmers involving both in the problem identification process;
- invite and encourage farmers' interest and involvement in research so that their knowledge and expertise could be utilised;
- achieve shared understanding and insights by participation in an interdisciplinary group learning process;
- obtain information from which patterns of production and likely directions for future production could be identified; and,
- identify and define the major problems as perceived by farmers and researchers and to determine possibilities for future agronomic research in the area.

Further aims were identified for the topical RRA:

- to analyse selected problems identified and translate them into relevant and feasible research or development projects;
- to involve academic staff of the School of Crop Sciences who were likely to be involved in the on-farm research programme. The aim was to ensure a

united approach within the School and to improve the communication and collaboration between staff and the producers; and,

- to disseminate the information generated to research organisations and the relevant Rural Industry Councils.

## Methods

- Information was collected on the Forbes Shire from published sources and key individuals in the area;
- Two teams of researchers were assembled:

A ten member team including representatives from agronomy, horticulture, soil science, animal husbandry, agricultural economics, social anthropology, social work and human ecology for an exploratory RRA undertaken in February and

An eight member team with expertise in the fields of crop and pasture agronomy, animal husbandry, biometry and farming systems research for a topical RRA in October/November.

Participation was by invitation (i.e. all team members were willing to participate with no financial inducement, other than covering costs during the RRA, even though many had never heard of RRA);

- Both teams attended team building workshops or were otherwise informed prior to undertaking the RRA to acquaint them with the information collected on the area and the methodology used. Particular attention was paid to the conduct of the semi-structured interview;
- The teams carried out 60 initial interviews of producers on their properties within a 30 km radius of Forbes on Feb. 15-19 and Oct. 30, 1988;
- Producers were chosen with the assistance of a number of key informants to include a wide range of properties, enterprises, and management strategies;
- Interviewers worked in pairs, which were changed each day. They began with open ended questions aimed at determining the farmers' perception of their situation, and

then focused in on areas of widespread concern. The observations that researchers made whilst on farms were also of great importance to the study;

- Each day the teams would meet to share their experiences and to focus on areas of concern which emerged during the course of the interviews;
- At the end of the February RRA the team collaborated to document the issues of importance. An initial report was then prepared for presentation to the head of the School of Crop Sciences. Other copies were circulated for further comment to the members of the RRA team, some of the participating farmers and other interested people in the Forbes Shire;
- Following the initial interviews, the October/November team collaborated to decide on the particular agronomic problems to be pursued at more depth, and the appropriate approach for the repeat interviews;
- Thirteen farmers were revisited for a repeat interview. This enabled the team to focus in more detail on the problems identified during the initial interviews and collect more specific, relevant information for further analysis. Farmers for repeat interviews were chosen for some or all of the following reasons:

they viewed the problems identified by the February RRA as being important in their initial interview;

they were recognised by other farmers as being leading farmers;

they had expressed interest in participating in on-farm research in collaboration with researchers;

- Following the interviews, the team discussed the information received and organised it into principal problems and their ramifications. Factors causing or contributing to the problems were discussed and promising areas of research were tentatively formulated, either to further define the problems or to test possible improvements;
- The team again discussed the findings of the interviews in the light of the feedback

from the meeting. Their comments on the process and content of the RRA were elicited; and,

- Finally, a further report was prepared after the topical RRA for circulation to the participating farmers, team members, the School of Crop Sciences, NSW Agriculture and Fisheries personnel, Rural Industry Research Councils (RIRC) and other interested parties.

## Results

Team members offered several ways of interpreting the large amount of data and the varied experiences resulting from the interviews. One approach was to describe the farming systems based on agricultural landuse: e.g. irrigated vs. dryland; crop and pasture types; soil types etc. An important distinction between 'graziers' and 'farmers' which affected agricultural lands became apparent.

A second approach was to describe the farming systems based on the management structure. A model of the family structures which were involved in farming in the Forbes Shire and some generalisations concerning the advantages and disadvantages of each structure were put forward by the social anthropologist and other team members.

A third approach was to share and collate insights of team members. Those aspects of particular relevance were:

- Even taking into account the desire to obtain a sample of respondents which represented the full range of producers, the team was struck by the diversity in people, properties, enterprises and practices;
- A dynamism and acceptance of change was exhibited by producers. Whilst many would not consider major changes to their farming operations, they had nonetheless evolved a system flexible enough to undergo internal change;
- There were three broad management strategies evident in the district. Possibly the most successful and most common strategy was to make gradual and conservative adjustments to

production rather than dramatic changes or to remain static;

- Producers viewed themselves as either graziers or farmers, and true integration was rare. This distinction was determined largely by social factors and had marked effects on their management strategies; and,
- The management structure of the property had a marked effect on its performance. The important determining factors were the possibility of conflict between and within generations and the level of demand for capital from the family group governed by factors completely separate from the technical demands of the property.

During the interviews producers spoke of a number of specific technological, including agronomic, problems. In addition, the team members, both individually and in groups, suggested what seemed to them to be important problems and opportunities for research.

## Problems identified by producers

The six problem areas listed below were the most frequent identified by producers; many other problems were identified by just one or two producers. The problems included:

### The residual effects of herbicides

There was widespread concern about the long and short-term effects of the use of various herbicides in the cropping phase (approx. 33% of those interviewed). Of particular concern was the residual effect of herbicides on the pasture phase following cropping. It was suspected by many producers (about 20%) that the herbicides retarded the establishment of clovers and/or virtually eliminated native grasses in some areas. In addition, about 20% of producers expressed a more general concern for the potential long-term damage to the environment caused by herbicides and other pesticides.

The same producers saw herbicides as an essential factor at present in ensuring



profitable crops. However, they would use alternative strategies if they were available.

### The application of nitrogen fertilisers

The determination of the correct rates and the optimal timing of N fertilisers on crops was of concern to at least 20% of the producers interviewed. A large number of strategies for the use of N fertilisers were encountered, including soil testing, use of paddock records, standard rates every year, only applying when cash available or intuitively based on many factors.

The lack of consensus in nitrogen use strategies indicated to the team that the optimum approach was not evident. Many producers expressed interest in participating in trials to determine the optimum timing and rate of N fertilisation and the effect of legume crops on fertiliser requirements.

### Soil problems

The most frequently mentioned soil problems were crusting (15%) and compaction (16%). There was interest in the use of gypsum to ameliorate these problems, although some doubted the economy of its use. Many producers were interested in the likely effects on the soil of the use of legume crops in the rotation. Of particular interest to some was the optimal method for handling the stubble.

Erosion problems were mentioned by 7% of producers, as were problems associated with the considerable variability between soils even in the one paddock. There was a general perception that soil degradation was not occurring provided that an adequate rotation was being maintained. However, many producers pointed out that others were 'flogging' the soil and then selling the property in a degraded state.

### Wheat varieties and diseases

There was a perception by a number of producers that there were deficiencies in many of the recommended wheat varieties (also oats to a more limited extent). The most common criticisms were:

- the poor germination of the dwarf and semi-dwarf varieties;
- the poor quality of the stubble produced, as indicated by the poor performance of stock on new varieties in comparison to the old; and,
- the lower protein content of the grain of new varieties.

### Pasture varieties and establishment

There was widespread concern about pasture management and establishment (about 30%). Some producers were interested in new legume varieties (14%) and in investigating establishment methods to improve their pastures. The loss of native grasses was noted by about 5%, and the need for suitable replacement grasses, particularly perennials was perceived.

### The establishment of trees

About 10% of producers felt that their area had been overcleared and that a tree planting programme was required. A smaller number had undertaken some form of tree planting with variable success.

### Problems identified by the team

The following problems and related research opportunities became apparent to members of the team, although they were not necessarily perceived as problems by the producers:

#### The late summer/autumn feed gap

At the time of the first interviews (mid February) most producers were hand-feeding their stock. In fact it is a routine practice in most years to overcome a lack of feed in late summer and autumn. The producers did not perceive this as a problem, possibly because it seemed to be accepted as a 'fact of life' in the district. Members of the interviewing team felt, however, that there were many, possible avenues which could lead to greater feed availability at that time of year. This was investigated in greater depth in the topical RRA when the links between agronomic problems became more apparent (Figure 1).

Figure 1. Links between agronomic problems identified during the conduct of a topical rapid rural appraisal.



It was evident to team members that at least some of these problems were not new, and that information which would enable them to be alleviated was already available. This indicated that there was a communication gap between researchers and producers and added weight to the argument that the traditional research-extension-producer model for the

transfer of technology had not been successful in achieving adequate awareness or adoption of new technology or alternatively the technology was inappropriate to producers.

## Tillage practices and moisture conservation

A widespread practice in the area is to establish a long fallow in late spring and to rework it after rain. The rationale given for this was the conservation of moisture. However, problems with soil crusting, poor infiltration and compaction were identified by farmers. In addition, the silting of dams and the prevalence of dust storms points to some degree of soil erosion, possibly due to overworking the soil. It was by no means obvious that cultivating would necessarily conserve moisture.

Other issues included the appropriateness of soil test kits; limited experience of producers with pasture establishment and management; and soil variability at the paddock, farm and Shire level.

### • **Conclusions**

A number of conclusions/action strategies which arose from this two-phased RRA are summarised:

- The School of Crop Sciences will continue to develop its collaborative on-farm research program due to the enthusiasm from the producers and the prospects for improvements. The School could also play a role as the instigator of an interdisciplinary and multi-institutional research program involving NSW Agriculture and Fisheries. Expressions of interest have already been received.
- The School of Crop Sciences is to make available an annotated list of producers who have been involved and have expressed an interest in being included in ongoing research on particular aspects of the problems described. This will enable other research and development organisations to utilise these producers' knowledge and resources.
- The School will seek further funding to appoint a co-ordinator/ researcher with experience in farming systems research methodologies, to organise an integrated program with a number of component projects. This role could possibly be undertaken by staff members of a Rural

Industry Research Council (RIRC). It would be essential, however, that an on-site coordinator be appointed to maintain continuity of contact with producers once projects were under way. These duties may be performed by one full-time or two part-time people.

- The information generated by this RRA has been made available to the relevant RIRCs so that it might be taken into account when determining their priorities for funding projects and in their pro-active role in encouraging or contracting out research according to their priorities. One RIRC has commissioned a review of the conceptual basis of Australian extension, drawing on national and international developments. Three members of the RRA team are involved in the conduct of this review.
- The RRA methodology will be used in future to monitor and evaluate the progress of the research and to provide ongoing identification of further problems and opportunities as they arise.

Whilst further evaluation of the RRA methodology is still in progress, it is clear that it has advantages over other survey methodologies (such as questionnaire surveys) or informal contacts and tours by individuals or small disciplinary groups. The following advantages of RRA were evident in this case:

- It provides researcher participants with a far wider range of contacts within the farming community and a firmer understanding of the social, economic, political and biological context in which research is undertaken. It is an extremely rich learning experience.
- It has opened avenues for ongoing collaborative research with producers.
- It has been successful not only in identifying, but also in analysing and defining a wide range of problems.
- It has brought a number of producers together, thus stimulating informal farmer to farmer interaction and learning.
- It has raised the profile of the School of Crop Sciences in the Shire and communicated to farmers the nature of the School's commitment in establishing the CWRU and its existing research program.

In addition to these advantages, there have been a number of activities instigated as a consequence of the RRA. These are summarised below:

- The team members of the February RRA have been trained in the use of the methodology and a number of them have undertaken RRAs for other purposes, e.g. in a study of the poultry industry and in a soil conservation/sustainable agriculture project.
- The use of information and insights gained during the RRA has led to the instigation of a collaborative project to study inheritance and inter-generational transfer in rural communities.
- The generation of the notion that enthusiasm is a higher order concept than the team's initial perception that farmers could be labelled as 'information rich' or 'information poor' is being further developed in a collaborative paper and as the foundation of a review of the conceptual basis of extension. The basis of this insight was that people who were 'enthusiastic' appeared more able to manage their own realities and to accommodate change. A key strategy was thus seen to be generating enthusiasm in people for who they are and what they are doing, working on the belief that all people are information rich and are capable of making the best sense of their realities.

### Limitations of the study

The first Australian RRA has given rise to all of the above activities and an original assumption, that many of the problems that have been evident in developing countries are also evident in developed countries, has been born out in the findings. Yet there is still a long way to go before RRA is likely to be implemented on a wider scale in this country. Research and development remains strongly discipline and commodity bound with little evidence of many people involved in the rural research 'industry' perceiving the need to make the 'frame shift' from the 'transfer of technology' based approach to 'farming systems research' or 'farmer first and last'

approaches. Should these approaches fail to be institutionalised in developed countries then there are bound to be continuing reservations on the part of donor agencies and agricultural ministries in developing countries as indicated by Frankenberger et al 1989) for FSR/E.

In respect of our study the next step would appear to be to encourage people in positions of power and influence within the system to become personally involved in one or a number of future RRAs. The selection of team members was certainly one of the major limitations of this study, in that many of those involved had an initial knowledge of, and interest in, FSR and RRA and so their learning tended to be a reinforcement of views already held rather than 'revelations'. However, a number of the team members who were self-confessed 'hard-nosed' reductionist scientists did say that their eyes had been opened to the complexity of the producers' decision-making environment. This had helped them to see why new technologies were not always readily adopted. Thus if senior administrators from research funding bodies and research organisations in this country could be persuaded to be involved, they may also undergo a similar learning process.

In addition, this two stage RRA did not actively involve farmers as members of the team. They were included in the decision-making to a small degree with the meeting held during the second or 'topical' RRA. It was debated initially whether to include farmers on the team but it was decided not to invite them on the strength of research done in this country showing closed communication networks amongst groups of farmers (Anderson, 1984). An alternative strategy to this could have been to invite producer participation with acknowledgement of the possible problems and to see if they did in fact arise. Thus the RRA could have become more of a unifying force in the district, rather than accepting farmer networks as an immovable obstacle.

Another limitation of the study was that the interviews and analysis were undertaken prior to our access to recent developments in ranking methods (Pretty et al 1988), sustainability analysis (Craig, 1988) and agricultural triage (Craig and Sukapong,

1988). These tools may have enhanced both our consolidation of the data collected and the themes and hypotheses generated.

Research for Developing Countries.  
ACIAR Proceedings No.11. ACIAR  
Canberra.

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