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Harvesting local forestry knowledge: A comparison of RRA and conventional surveys

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• Introduction

The RRA survey described in the following notes set out to collect socio-economic and socio-ecological information which could be directly compared with the results of a formal questionnaire survey conducted by a social forestry project in Sierra Leone, West Africa. Whilst not conclusively proving that RRA is more accurate than conventional surveys (although some of the results are very revealing), we certainly proved RRA to be more efficient than the standard formal questionnaire.

• The study

The RRA survey was conducted during July 1990 by a 4 person team. The team, led by a social forester (Andy Inglis, then of the Edinburgh Centre for Tropical Forests), included a demographer (Jeneh Pemagbi¹), a planner and community worker (Val Woodward), and a final year forestry, agriculture and rural economy undergraduate (Rebecca Badger).

As well as the main academic objective of comparing the results with those of a statistical survey, our practical objective was to provide an FAO Fuelwood Project's management staff with accurate information regarding fuelwood

marketing structures and species preference variations in selected locations in the Western Area. This information was to enable them to devise an appropriate strategy for marketing mangrove and acacia fuelwood produced by the Project. These subjects had also been included in a questionnaire survey designed by Dutch statisticians and carried out by 6 Project staff, most of them forestry trained, during a 6 week period in March and April 1990 (ie 3 months earlier).

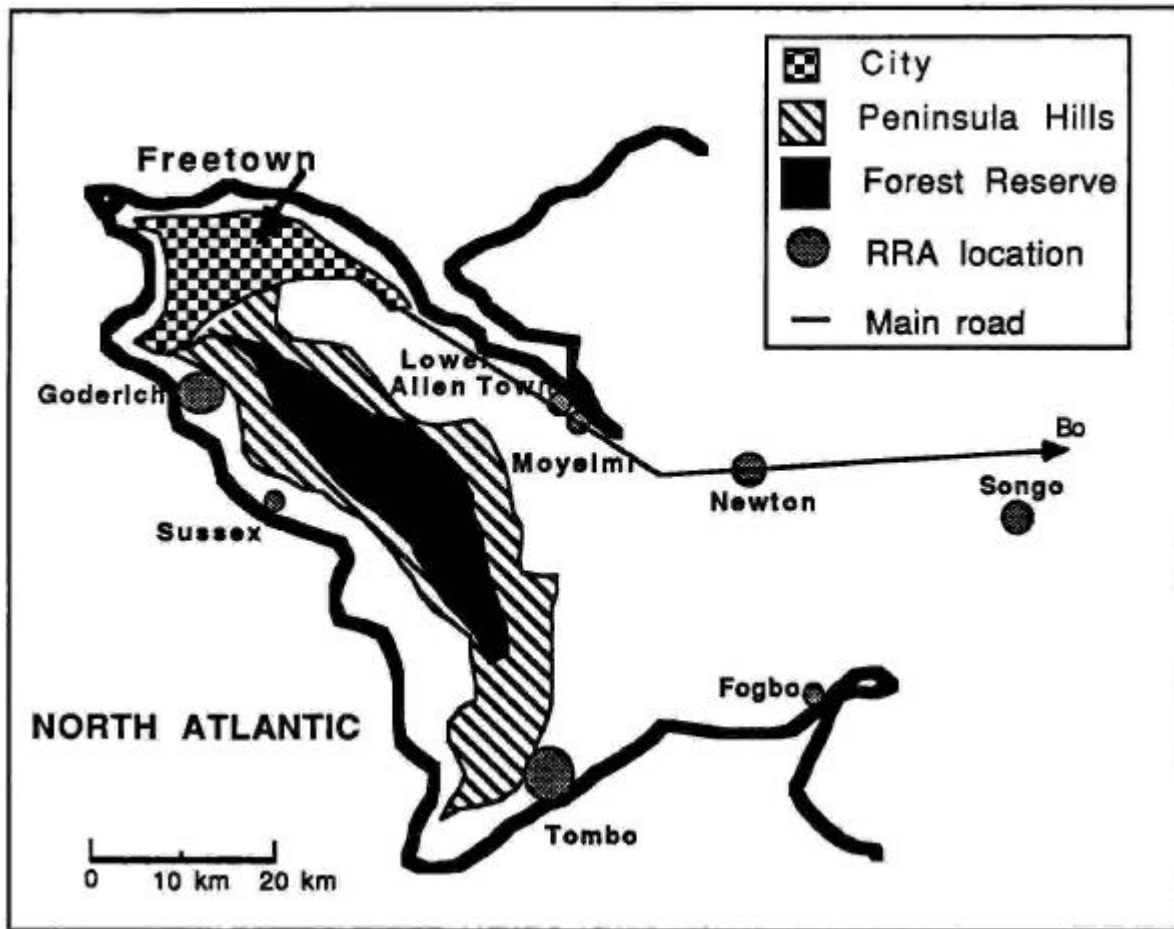
• The RRA fieldwork

During a 3 week period, we surveyed 2 villages (Sussex and Moyeimi), 4 small towns (Fogbo, Lower Allen Town, Newton and Songo), 2 large towns, (Goderich and Tombo), and the capital city, Freetown (see Map 1).

Five of these locations (Fogbo, moyeimi, Newton, Songo and Tombo) were selected because they were part of the FAO conventional questionnaire survey, and Sussex was used as a training and pilot survey location for the RRA team. None of us had any previous field experience with RRA.

¹ Jeneh, who had been trained to use formal sampling, started off being very sceptical about RRA, but was soon advocating its worth to any who would listen, eloquently attacking sceptical project managers and officials with the zeal of a convert!

MAP1. Western area of Sierra Leone and RRA locations



The RRA trials and training period lasted four days and took place in Sussex Village during the first week of July. RRA techniques were used by the team on an experimental basis to create a full socio-economic and socio-ecological fuelwood profile for the village. All of the techniques were successful, and we were able to use the experience and confidence gained by this initial exercise when the main survey began three days later.

Not all four team members were available every day of the survey due to illness, job interviews, conferences etc, although there were always at least three of us. To compensate for this, the smaller locations were covered on the days when the team only had three members (the three had to operate together so less area could be covered). When all four were present, we split into 2 pairs: usually the social forester (who could speak the local language) and the planner; and the forestry student and the Sierra Leonean demographer. Sometimes each pair would

cover the same subject areas in different geographical areas of a research location. At other times each pair would cover the same geographical area but concentrate on different subjects or different end user or socio-economic groups. The latter method provided more scope for the triangulation of results.

The following techniques were used by the team:

- interviews: based on a prearranged checklist of topics, lasting between thirty seconds and one hour in length. The respondents in this study normally included individual and groups of fuelwood buyers, traders or subsistence collectors.
- Key informant interviews: with local community development workers, foresters, experienced fuelwood traders, farmers and local community leaders.
- Mapping: the drawing of a rough freehand map of the study area, wherever

possible by a local person (often a key informant) on arrival at the location to show main and minor roads, the location of fuelwood traders, fuelwood sources and various individuals such as subsistence collectors and commercial fuelwood users.

- Preference pair ranking: to obtain the views of local people on the virtues and drawbacks of different local species of fuelwood. This was useful for comparing and contrasting species knowledge, species preference and differing preference criteria for the different locations and user groups.
- Indicator identification: to help us to interview a socio-economic cross section of the community (ironically women selling firewood in some of the communities studied is an indicator of severe poverty). Indicators of fuelwood related resource management issues were also noted by the team (soil erosion, use of valuable species as fuelwood, very short fallow periods, etc).
- Fuelwood measurement: the prices and weights and estimated volumes of several fuelwood bundles are recorded in each location (sometimes a bundle of fuelwood had to be purchased before the trader agreed to it being weighed, or even sometimes before they would agree to talk).
- Direct observation: fuelwood related events, processes, and human relationships were recorded in written notes and diagrammatic form.

We divided specific information gathering areas of responsibility between us. These delegated duties included:

- drawing pair ranking matrices and recording pair preference results;
- measuring and weighing fuelwood;
- recording rough transcripts and key points of interviews;
- conducting interviews;
- identifying and recording fuelwood type and species;
- drawing maps/plans of the research station,
- prompting the interviewer if necessary;
- noting species preference criteria;

- checking that all socio-economic and fuelwood using groups were included in each survey, and,
- carrying equipment and supplies.

The pair ranking matrix technique (see Figure 1) worked very well as many respondents who at first said they had no species preference were within a matter of minutes giving intricate technical details of why they did indeed have species preferences. However, we found the technique to be a tedious exercise when conducted in full, five or six times a day, every day. It was progressively shortened as the survey progressed, using three well known common indicator species from the previous results (i.e. one very good, one medium, and one poor quality fuelwood species) to generate the criteria and ranking order. After a few aborted attempts, we gave up the pair ranking exercises in the large urban centre, Freetown, where the very low or non-existent levels of species knowledge made them impossible to do.

The use of interviews, and trading flow diagrams were the main RRA techniques used to generate the marketing structure results for each location. The diagrams were simple to draft and amend in the field and effectively synthesised a large amount of information into a form that was understandable and was able to be verified when interviewing respondents.

• Survey biases

We attempted constantly to recognise the research biases of the survey and to adjust our fieldwork methodology to overcome them. Consequently, the following strategies and unwritten rules were evolved to try to counteract the main biases.

- Main road bias. A rough map of the location was drawn as early in the day as possible, to plan the survey strategy and record where interviews etc took place. In the early afternoon we would meet and discuss geographical gaps in the map that had to be filled, and also if there was a bias towards any particular socio-economic group that had to be redressed before we left the location at the end of the afternoon. It was a strict rule of the team that if one of us noticed a small path

or side street and suggested that the team follow it, then it had to be done (no matter what the weather, time of day, how muddy the path, how deep the water, how tired we were, how much any of us complained or swore, etc, etc). We called this our "team contract".

- Local knowledge bias. Some of the locations were known to the team leader and invariably some of the key informant and other interviews in these locations occurred because of previous indirect and direct working or social relationships with these respondents. However, to ensure that the proportion of these respondents was kept to a minimum, we decided to introduce a rough method of random selection of respondents. Consequently if, in the course of each survey, anybody (wood trader/cutter/buyer or not) invited us in to their house or asked what we were doing there, or were in some other social setting with us (in a bar, shop or sheltering under a tree for example), then that person or persons would be interviewed. This technique also reduced the time spent in finding respondents, and if they were not directly involved in any aspect of the fuelwood trade, they provided objective information which was often useful in the triangulation process. However, it must be said that not all of the people who invited us into their homes were reliable or cooperative respondents. Often they were drunk and/or were only wanting an argument. All part of the fun of RRA, really.
- Seasonal bias. This was recognised by the team - in fact it was very difficult to forget, as the frequent heavy rains soaked us and made walking and fuelwood measuring difficult or impossible. Seasonal factors relating to fuelwood trading, cutting and buying were discussed during interviews. Diagrammatical seasonal calendars were used to begin with, but were found to be too complicated for the simplistic wet/dry season division generally used by respondents. It was very difficult to judge how strong an influence seasonal factors have on issues such as fuelwood price

increases. Were they due to seasonal factors or to general inflation?

On the positive side, the heavy rains provided a good excuse for stopping and seeking shelter which usually culminated in successful interviews with those providing the shelter. Additionally, the fish smokers, who are notoriously difficult to interview when they are busy, do not have so much fish in the wet season. Consequently, it can also be the slack period for the fishing community fuelwood traders. It was therefore fairly easy for them to be interviewed in a relaxed, but very damp, atmosphere.

- Previous reading biases. By reading relevant research papers before conducting the survey, it may have been possible for the team to be heavily influenced and prejudiced or biased by their findings. However, because we were aware of this, we were very careful to use the information only to provide points of reference to be raised with respondents in interviews. This turned out to be very important as we could win the confidence and attention of respondents very quickly by showing them that we knew the general subject area and technical vernacular of fuelwood collecting, buying and selling very well, but nothing about the specific local situation. This enabled the team to go into technical details very quickly, something that has to be done if an RRA survey of this type is to be successful.

There was also a bias in favour of resident people, which was unfortunate as important people such as the travelling wood traders were seldom interviewed. This would have helped with the triangulation of results, but we found it impossible to plan for interviewing itinerant traders when we were only in each location for one day.

As the fieldwork was so intensive (10 locations in 10 days) there was no time or energy for the fieldwork to be written up as the work progressed. (This was not helped by the lack of a lap top word processor which had been recommended by an experienced RRA

researcher but had been unobtainable/unaffordable.) However, the information gathered from each location was always discussed, and the resulting conclusions decided on and entered on the diagrams before the next location was surveyed.

The two most important aspects of our information collation and analysis activities were that:

- species preference results, interview details and fuelwood price and measurement information were always collated and numerically referenced in location-specific notebooks; and,
- a fuelwood trading flow diagram was always drafted and discussed before leaving a research location.

At the end of the fieldwork period these rough notes and diagrams were used immediately to provide the FAO Fuelwood Project with an interim marketing strategy report. The (ten) notebooks were brought back to Edinburgh to complete the written presentation and graphics production.

• **Presentation**

The RRA survey reports produced for each location include:

- a brief description of the location;
- a plan of the study area showing where the team conducted the research (except Freetown, where street names are included), and what RRA techniques were used with which respondents;
- a diagrammatic and written analysis of the location's fuelwood trading systems and the major participants. The thickness of the arrow lines in the diagrams indicate relative quantities of fuelwood flow in each location and are not drawn to a universal scale (Figure 2). The three

sections are not titled in any of the diagrams as they vary from location to location, depending on the information gathered. However, in all cases the right column represents the actual end use observations of the team; the middle column the different trading systems observed by or reported to the team; and the left hand column represents the observed primary source or sometimes the reported initial source (as far back in the trading system as could be accurately determined, in other words);

- a diagrammatic report of the pair ranking exercises in each location. The criteria generated by the pair ranking exercises are also illustrated, and the quantity of them is used as an indicator of species knowledge;
- a list, in expanded note form, of socio-ecological issues relating to fuelwood collection, trading and use; and,
- a brief summary of local fuelwood marketing best bets.

The standardised reports were presented in alphabetical order, ie, there was no classification of locations according to size or their main economic activity. This was done deliberately to maintain the important location specific information gathering and analysis nature of an RRA survey. To report objectively on the situation in each specific location gives the desired and necessary emphasis on differences in local forestry technical knowledge. To amalgamate, aggregate and average the results according to whether they are large or small population, or "farming communities", etc nullifies the importance of the often, subtle variations of information gathered. If the decision maker/project managers want to use the information collected to make decisions regarding specific policy planning issues affecting wider, regional areas, then further analysis may be justified.

Figure 1. Example of fuelwood pair ranking matrix

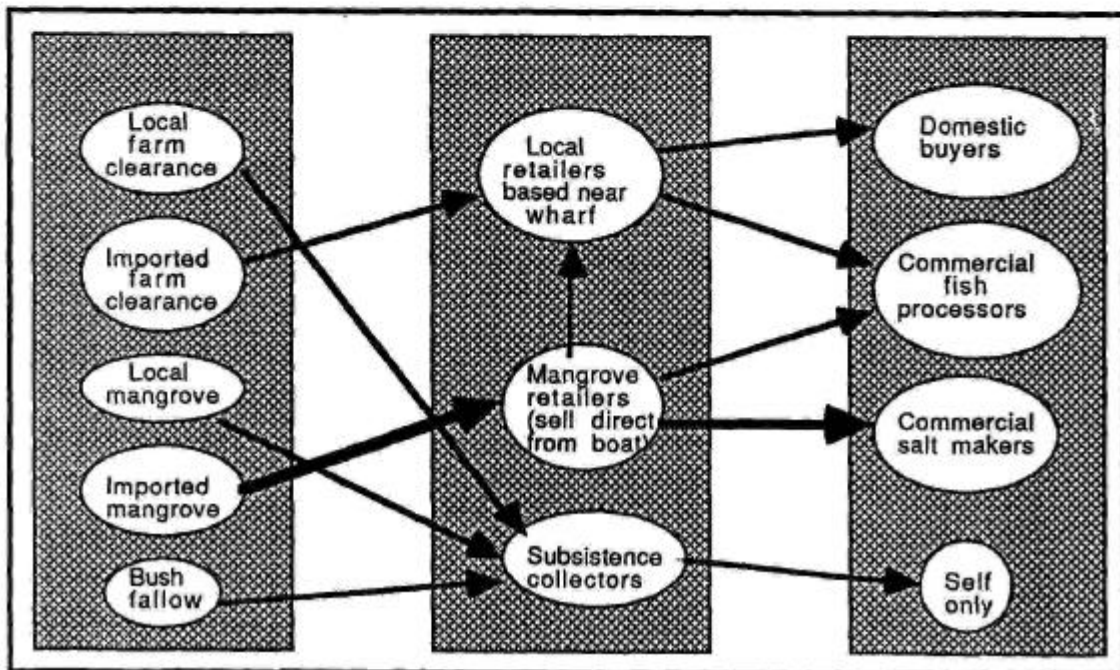
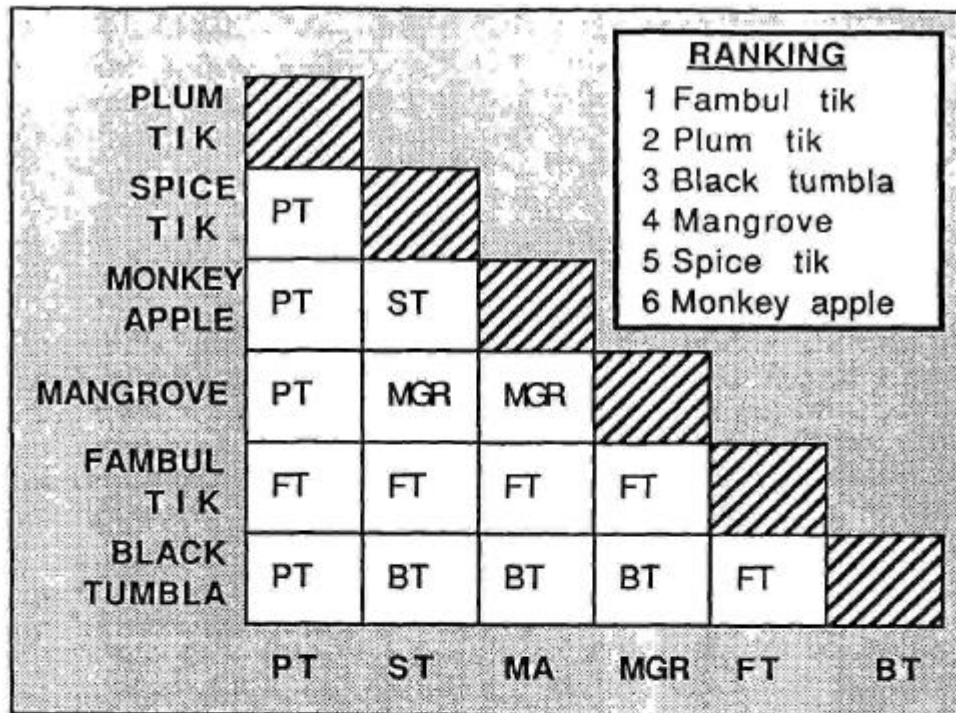


Figure 2. Example of a fuelwood trading flow diagram

Additionally, and importantly, if the location reports are kept as free standing documents they can be used in the same location as discussion papers with local people to check and/or update the results in the future.

• Results

The final results of the formal statistical survey were not available, as they had still not been produced in report form at the beginning of August (4 months after the questionnaire fieldwork). However, using a tabulated summary of the results produced by the fuelwood project, obtained from the fuelwood species preference question in the questionnaire (Question 33 out of a total of 278), it was possible to compare the results.

There are subtle variations in the results for some of the locations, and a wide discrepancy for one of the major fuelwood using communities, Tombo. According to the questionnaire survey, Tombo has a very low level of species preference. The RRA survey found it to have the highest. Also, the most preferred species according to the questionnaire results did not appear in the top three species according to the species preference ranking of the RRA exercise. More alarmingly, this species, which was also top in a previous questionnaire survey (1986), is not mentioned at all in the 1990 formal survey results.

Again, from the results of the formal questionnaire survey's fuelwood marketing questions, there are subtle variations in the results for all the locations, and a wide discrepancy for one of the locations, Songo. The RRA survey for Songo clearly shows a well organised fuelwood trading system satisfying both local and external (urban) demands, operated by eight local static traders. However, the tabulated questionnaire results

indicate that there are no fuelwood sellers at all in Songo! This is despite the same questionnaire survey producing a result which indicates that 75% of the community buy fuelwood.

• Conclusions

Whilst perhaps not a role model for a participatory approach to planning social forestry activities (this particular project was too far gone down a technical blind alley for that), the RRA survey generated useful results that should help the project management staff market the fuelwood they will be producing in an efficient and locally appropriate way.

As a contribution to the RRA versus formal statistical surveys debate, the comparison between the results obtained by the different methods throws up interesting similarities and differences. It could be argued that, backed up by the available evidence, the two main variations described above indicate that RRA is a far more appropriate and accurate way to collect socio-economic and socio-ecological information for social forestry projects.

In any case, as the analysis of the questionnaire results have only just been produced the number of similarities in the information collected definitely show that worthwhile information can be collected and presented in a far shorter amount of time, using fewer resources and enabling the respondents to enjoy a professional chat about their livelihood or kitchen habits, instead of being subjected to an intrusive 278 question questionnaire by bored enumerators.

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