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Rapid assessment of artisanal systems : a case study of rural carpentry enterprises in Zimbabwe

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• Introduction

Although rapid and participatory information gathering techniques such as RRA and Farmer Participatory Research often espouse 'holistic' or 'systems' approaches, the actual terms of reference tend to be strongly biased towards agricultural activities and to marginalise study of other rural income sources. To some extent this is a result of agriculture's domination of the labour calendars, physical environment and income-generation of many rural populations in developing countries. However, it also reflects the professional biases of many so-called 'multidisciplinary' study teams. Failure to consider rural off-farm activities adequately is not only to ignore their contribution, role and potential within the rural sector, micro-economic systems and service infrastructure but also to adopt the very tendencies of ill-informed descriptiveness that Rapid Rural Appraisal et al seek to overcome.

Involvement in socio-economic analysis of rural production and processing activities other than, or in addition to, agriculture has, for me, sharply highlighted the agrocentric nature of many current methodologies. A case study of one such non-agricultural field-study is outlined below. Originally the material contributed to an internal project feasibility report for ITDG. By presenting the study in the RRA Notes, I want to:

- draw attention to the need and potential for a less agrocentric approach to rural appraisal;
- share the lessons of an attempt to apply rapid participatory appraisal methods to

data collection in one non-agricultural sector of rural production; and,

- encourage the development of survey techniques that enable an understanding of rural circumstances above and beyond the agriculture alone.

I make no excuse for the lack of a methodological acronym - Technical Overview Using Rapid Information Search Techniques (TOURIST), Consideration Of Farm Family External Earnings (COFFEE), Technological Ecosystem Analysis (TEA) or even Multidisciplinary Investigation of Local Kraftwerk (MILK) are all possibilities... Other and better terms will no doubt be developed if this area of study attracts attention!

• Rapid assessment of rural carpentry enterprises in Zimbabwe

Background

Since mid-1986 ITDG has been involved in a programme of technology transfer involving the training of rural carpenters in Malawi and Zimbabwe to self-capitalise by making wooden carpentry tools. The tools are low-cost, locally produced and locally repairable in contrast to the imported metal tools currently available (approximate financial cost ratios are 7:1 in Malawi and 2:1 in Zimbabwe). Following a positive evaluation of the pilot phase in Malawi, a study was commissioned in early 1988 to investigate the operating environments of rural carpenters in Zimbabwe and the potential for a similar project there.

The study was undertaken by a three-member rapid assessment team consisting of an ITDG Project Economist (the author), an ITDG Project Engineer (the designer of the tools and trainer of carpenters in Malawi) and a Zimbabwean trainee carpenter recruited in-country and familiar with ITDG's wooden tools.

The study was conducted during April and May 1988 during a season of relative prosperity in the rural areas (harvest-time following good rains in 1987), active transport networks and dry roads. However, with this in mind, it was possible to obtain representative information about other seasons and years.

Following a week of preparation, including meetings with appropriate local organisations and consultation of secondary sources of information, two weeks were spent interviewing thirty rural carpenters at their workplaces. Visits were also made to urban and peri-urban carpentry workshops and product sales points as well as to timber merchants and tool retailers in both rural and urban areas. A final week was spent in-country, grafting the study report and discussing its contents with local development organisations.

Methodology

Area selection

Three survey areas were selected using secondary sources and in consultation with local organisations. Selection was stratified to optimise diversity between population densities, economic bases, ecological regions, market access and geographical dispersion.

Interviewee selection

It was originally intended to draw a sample from the records of institutions involved in the training of carpenters in Zimbabwe's rural areas. However, in view of the time required to draw the sample, establish contact and make all the subsequent arrangements required, it was decided instead to make enquiries at small rural settlements and thus to locate carpenters operating in the surrounding areas by word of mouth. This method was generally found to be satisfactory (despite the absence of some

carpenters) and, considering the high number of carpenters encountered who had no formal training, probably more representative than the sampling methods first envisaged.

Interviews

Carpenters were interviewed at their workplaces, which ranged from a plank under a tree to purpose-built brick premises with both working and display areas. Each interview generally required one to one-and-a-half hours. Although questions and approaches were adapted in the light of information collected the following broad stages were followed throughout:

Guided interview: covering socio-economic and financial issues including occupation(s), raw materials, output, demand, credit and payment systems, logistics, employees and training as well as interviewees' own assessment of problems and solutions.

Technical appraisal: covering selection, seasoning, storing and preparation of timber; marking, cutting and fixing joints; finishing of products; recording and scoring of tools; recording and scoring of products.

Tool demonstration: the team carried prototype samples of some ITDG-designed, wooden-bodied tools made at a workshop in the capital (jack plane, rebate plane, grooving plane, mortise gauge and try square). These were taken to each interview site but only mention on completion of stages (1) and (2).

Following a brief demonstration and explanation by the Zimbabwean team member, carpenters tried out the prototypes on scrap timber and were encouraged to evaluate the tools. This, combined with a review of material covered in the preceding sections, generated immediate technical and economic feedback.

Techniques

During the three stages outlined above we experimented with a range of techniques for rapid information gathering. Well-known appraisal techniques such as cash-flow analysis were also used but are not described below.

Scoring

1. Tool scoring:

Tools owned by each carpenter were scored out of ten by the Project Engineer on the basis of quality, condition and maintenance. Scores were then summed and divided by the number of tools to produce an average score for each carpenter.

Comment: While the results of “the scoring system were not in themselves illuminating beyond giving a general indication of the spread of tool qualities,

the processes involved forced consideration and discussion of local levels of knowledge, maintenance practices, availability of tools, materials etc”.

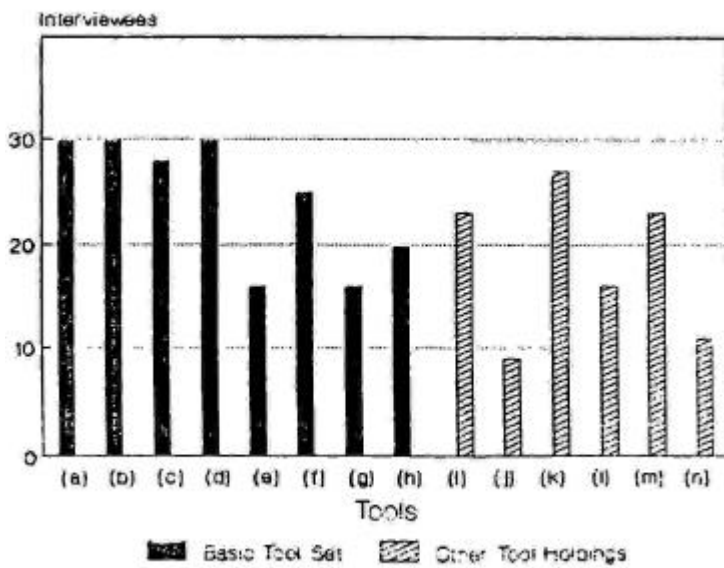
Attempts to attach a weighting system to reflect the relative importance of each item were felt to be inappropriate in view of the spurious accuracy of the results likely to be generated. Instead a matrix of tools and interviewees was drawn up. The tools required in a basic carpentry tool kit were ranked in descending order of importance and additional tools found were also shown (see Table 1). This illustrated clearly the areas of tool deficit.

Table I(a). Tools owned by interviewees

INTERVIEWEE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	TOTAL
(a) HANDSAW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10
(b) PLANE (jack)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10
(c) CHISEL	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	19
(d) CLAMP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10
(e) TONGUE SAW	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14
(f) SQUARE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
(g) GAUGE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
(h) SILLICONE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	20
(i) BRACE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	23
(j) GROOVING PLANE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9
(k) HAMMER	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	27
(l) SAW FILE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16
(m) SCREWDRIVER	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	13
(n) VICE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	11

(a) - (n) = basic set of tools required (MTR)

Table 1 (b). Aggregated tool data



Holding of (a) – (b)	Interviewees
8	9
7	5
6	8
5	7
4	1

All interviewees had at least 50% of basic tool set. Items lacking were:

Item	Interviewees
Marking gauge	14
Tenon saw	14
Oilstone	10
Try square	5
Chisel	2

2. Skill scoring:

Two systems were used:

- Products on view at the workshop were scored on the basis of the quality of their construction and finish and average scores were calculated as per the tools.
- Carpenters were asked to describe or demonstrate briefly how they undertook the following operations:
 - Tool sharpening;
 - Timber seasoning;
 - Preparation of wood for work (use of face marks, gauging to thickness etc);
 - Marking of joints for cutting;
 - Cutting of joints;
 - Types of joints used in their work;
 - Method of holding timber steady while working on it; and,
 - Glueing up.

In this way detailed impressions were gathered concerning differing levels of local technical resources and knowledge.

As with the tool scoring, the numerical results were of secondary importance to the in-depth

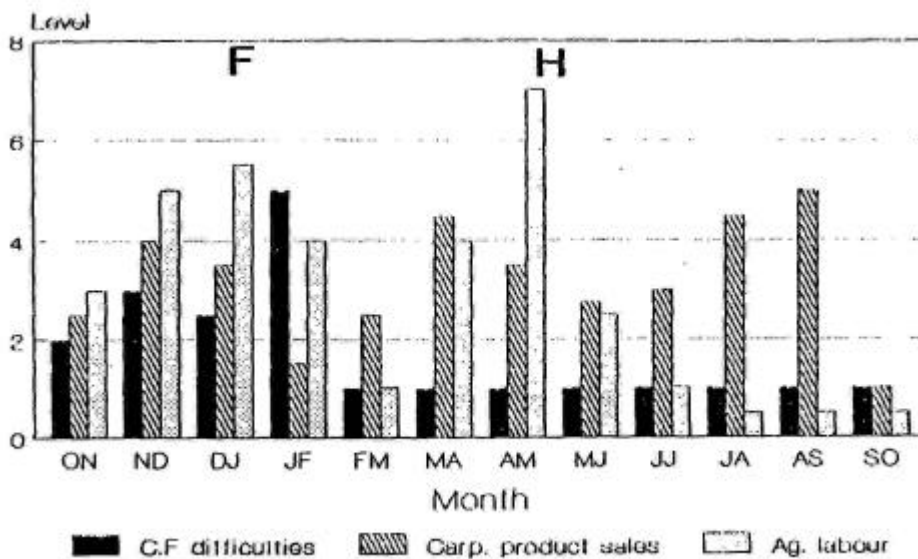
discussions that this approach provoked on a range of economic, technical and other issues. In addition, the combination of hands-on activity and discussion was found to be a very effective means of encouraging and sustaining debate and confidence.

Calendars

The different occupations of each interviewee were listed and approximate labour and income calendars drawn for each on the basis of identifying peak months and then ranking the remainder on the basis of pairwise comparison or at least grouping into 'very busy', 'medium' and 'quiet' months.

Since most interviewees' labour use was closely tied to the agricultural cycle this tended to dominate their involvement in other activities. Similarly, since severe lack of working capital meant that carpenters tended to make to order rather than keep stocks, production of carpentry items tended to mirror periods of rural prosperity (harvest) and hardship (payment of school fees.) These relationships can be seen in the example of agricultural labour, cash-flow difficulties and carpentry product sales calendars shown in Table 2.

Table 2. Calendars (source: field notes)



F= school fees
H= harvest

Ranking

1. By interviewees

Much of the questioning centres around the ranking of items or issues by the interviewees. These included the following:

- Constraints on their activities (esp. carpentry);
- Own perception of needs;
- Own perception of training requirements;
- Own perception of tools lacking; and,
- Preference among ITDG tools demonstrated (and reasons).

The results were listed in matrices in descending order, showing the number or percentage of interviewees identifying each problem. This enabled both individual perceptions and shared or recurrent topics to emerge. Table 3 is an example of one ranking exercise conducted with the interviewees.

Products were also ranked on the basis of the frequency of manufacture. This led to discussion of the timing of sales and saleability of different items in relation to local sources of income. It would be interesting to compare the relative prosperity of agricultural cycles over time with the number of wardrobes (a relatively large and, therefore expensive item) ordered from local carpenters within a given region.

Table 3. Interviewees' perception of major constraints on their carpentry activities (percentage responses)

	Cashflow	Materials	Tool lack	Demand
Area 1	79	7	14	0
Area 2	47	29	12	12
Area 3	60	20	8	12
Average	61	20	11	9

2. By team

Information was collected on a range of topics, including:

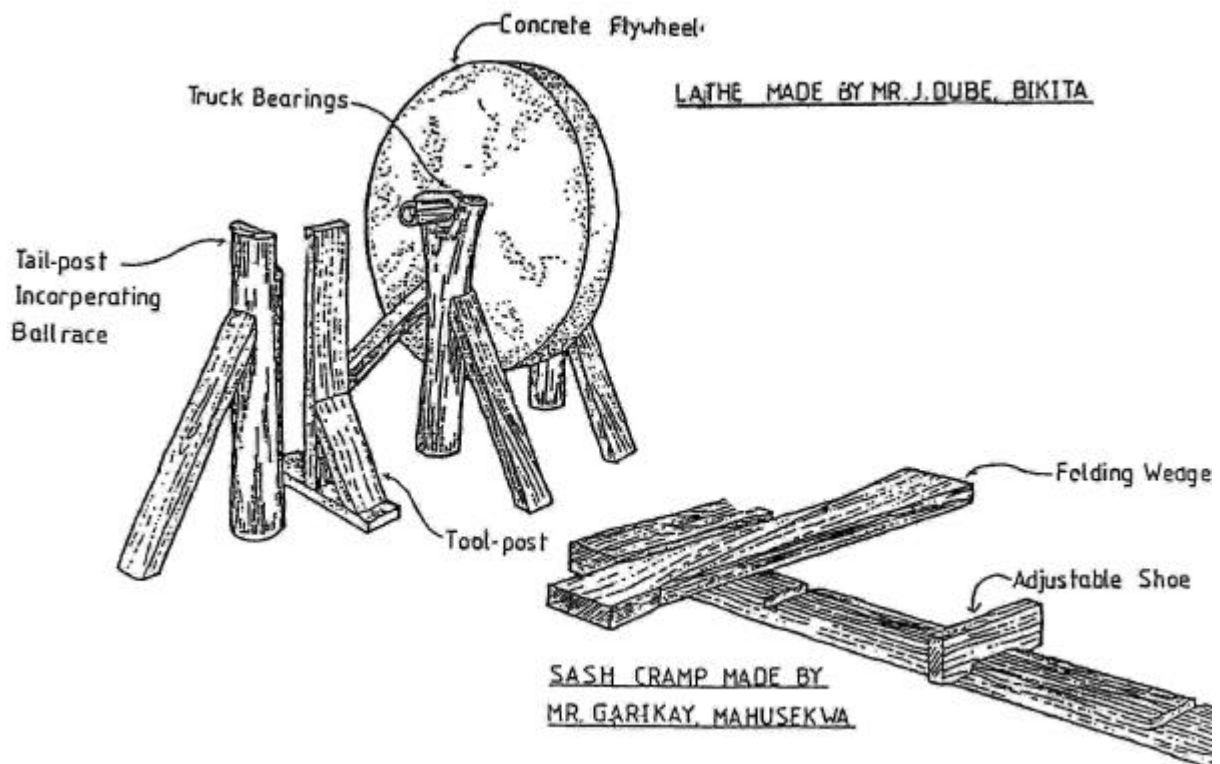
- sources of present training means of tool acquisition income sources;
- motives for choosing carpentry;
- number and type of home-made tools types and sources of timber used workplace types;
- employment of trainees; and,
- product and raw material price ranges.

These were ranked by the team on a number or percentage bases to bring out trends within the responses.

Drawing

Tools which had been innovated locally (for example home-made brace and bit, home-made sash cramp and home-made lathe) or products of interesting design were sketched for reference. Here are two:

Figure 1. Sketches of locally innovated tools (AT Moore (ITDG))



• Conclusions

The techniques described above owe much to other work in the field of rapid assessment and are an attempt to adapt these methods for use in the appraisal of artisanal activities. In retrospect, greater use could have been made of calendar presentations and the exciting results obtained on occasions when groups of carpenters were interviewed (using a similar methodology to that described above) suggest that panel/group interviews or reviews would also have been productive.

Nevertheless, the study was able to reach conclusions concerning:

- socio-economic conditions facing rural carpenters;
- the status, problems and workings of the rural carpentry sector;
- details of local training and other needs in this sector; and,
- viability of the proposed project and conditions for its success.

Many survey methods currently available are effective only in determining local perceptions and priorities relating to the known status quo and are generally unable to include new options in their terms of reference. One feature of the study described here that is denied to many others was the availability of prototypes of the technology being appraised for transfer. Immediate feedback on these enabled us to learn very rapidly about carpenters' perceptions of the prototypes, their requirements and reasons for modifications (even including suggestions for a catchy Shona brandname) and their attitudes about confidence concerning the various project options discussed with them. This ability to conduct instant field trials at the project/product design stage has been very useful both in subsequent project planning and in technical modification of the prototypes.

It should be stressed that the techniques and methodology described above are only selected aspects of the study. Questions and discussion around the data collected by these methods was at least as important as the information itself in providing understanding.

Consequently the final report was based on considerably more material than is presented here. The specialised but multidisciplinary nature of the team and the inclusion of a Zimbabwean team member were also major assets in probing for and discussion of information.

Finally, humour, generally omitted in manuals of social science techniques, was vital in obtaining time and information. In particular, light-hearted role-playing, good-humoured mutual mockery and willingness to discuss topics apparently irrelevant to the matter in hand are the unsung keys to many explanations (as opposed to superficial statistics). Uptight or self-important researchers, however well-equipped with matrices, maps and interview guidelines etc, are likely to miss important pieces of information.

As many rural populations encounter problems of rising unemployment and agricultural marginalisation the need for alternative sources of income becomes ever more acute. Consequently (and at the risk of provoking an explosion of jargon) methods adapted for analysis of rural productive activities other than agriculture are required. Furthermore, truly rural appraisal must take great account of the multiplicity of complex, interrelated and changing activities undertaken by rural communities. Not only do such activities often provide essential sources of income on which household security or the pursuance of other activities (education, access to agricultural inputs etc) may depend, but they are also likely to be of increasing importance for rural development.

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