

4 USEFUL TOOLS AND METHODS

4.1 Overview

There are a great many tools and methods which can be applied to information needs analysis. Any particular analysis may require only a subset of these, the most appropriate methods depending on its depth, the nature of the issues being addressed, the range of stakeholders involved, and the previous experience of the team. Most methods are designed to **clarify goals** and, in some cases, **achieve consensus** amongst stakeholders with widely differing perspectives.

Structured approaches are suitable in situations where information needs are already broadly defined, and the goal is to elaborate these in more detail. Questionnaires are particularly useful in situations where organisations are mandated to prepare information in a prescribed form, and feedback is required from users on the quality of the information supplied, or ideas for future improvements. Structured interviews provide an opportunity to engage users in free-flowing discussions, yet keep to an agenda with a fixed set of questions.

Where new information capacities are being developed, perhaps by a series of collaborating organisations, more sophisticated techniques may be employed to engage stakeholders in consultation. Less structure may be feasible during the analyses, leading to the use of alternative, participatory approaches, such as visioning exercises, brainstorming and problem tree analysis.

Finally, process models can be employed at any stage in the information needs analysis to illustrate the relationship between information sources and selected processes in an operation. They serve to simplify and consolidate otherwise complex flows.

4.2 Structured Approaches

- Questionnaires

Questionnaires are a highly structured method of data collection which can be used in one of two ways:

1. As a 'fill in the blanks' form, completed with supervision or in the respondent's own time.
2. As a checklist or aide-memoire during face-to-face interviews.

A well-designed questionnaire promotes the **systematic collection, cataloguing and evaluation** of data, which eases the process of summarising basic facts and trends. If applied to the right tasks, questionnaires can be an extremely inexpensive and efficient method of data gathering.

Questionnaires are best applied to the collection of facts or opinions on carefully specified issues. They enable information professionals to segment users into classes on the basis of their responses, each class possessing a characteristic range of information needs. They can also be used to 'screen' potential users for their relevance to an issue, or to enable identification of key groups for study in more depth. They can also be applied to wider tasks, such as the gathering of basic data on organisations to enable them to cooperate more effectively (see Volume 6).

Questionnaires have limitations for open-ended or general analysis of information needs and past experience has shown very low response rates are obtained from 'blind' distributions (mailings without advance warning or explanatory material). Response rates can be improved by including a supporting letter or brochure outlining the purpose of the study, together with a sample questionnaire completed as an illustration. Another technique is to have the questionnaire filled out to the maximum extent before it is distributed, to save recipients the bother of entering obvious data themselves (e.g. name and address of their organisation), while encouraging them to update entries that are inaccurate or incomplete.

Even with this level of assistance, respondents may leave some questions blank, misinterpret questions, or bias answers according to their own individual assumptions. The chances of generating 'true' information from a questionnaire are, therefore, relatively low compared with face-to-face techniques. Of course, response rates can be improved by following up questionnaires personally with telephone calls or site visits (see Volume 6 for a full discussion).

- **Interviews**

The structured interview involves obtaining views through direct questioning and discussion. The interview is 'structured' in the sense that there are particular topics and/or questions which are asked in all cases, and standard explanatory information is provided in advance. Interviews may be conducted **individually or as a group**. Individual interviews can be conducted formally (questions are asked and responses recorded on tape or written down), or informally (a questionnaire or checklist is used to prompt discussion on key topics). Naturally, interviewing techniques will vary according to the cultural norms of the organisations and individuals concerned.

Group interviews are useful where discussion and consultation are the preferred way to establish answers. As above, a questionnaire or checklist can be used to guide discussions and record answers from individual participants, following which the responses of the overall group can be summarised. As with other kinds of group approach, it is useful to have one person facilitating the discussions (chairperson or facilitator) and another recording what is said (rapporteur). Group interviews often benefit from a short presentation on the topic before opening up the discussion more widely.

4.3 Participatory Approaches

- **Visioning exercises**

Having determined which stakeholders need to be involved in discussions on a particular issue, the next step is to try and formulate a consensus on how to proceed. For instance, this could be through the development of new or refined policies, by means of specific projects, via changes to organisational structures and management systems, or by selected investments and capacity building measures.

Visioning exercises bring stakeholders together to develop, and sometimes negotiate, solutions to problems which satisfy many perspectives. The aim is to release ideas, viewpoints and needs from participants, and structure these into a common vision of the problem, its solution and how to achieve that solution. As

with any strategic-planning exercise, the exercise seeks answers to the following three questions:

1. Where are we now?
2. Where do we want to be?
3. How are we going to get there?

One of the key requirements of a visioning exercise is **experienced, objective, facilitation**. The job of the facilitator(s) is to solicit contributions from participants and bring order and clarity into discussions, not to lead participants to conclusions no matter how obvious these may seem to the facilitator. At the end of the exercise, participants should feel that the achievements are theirs alone.

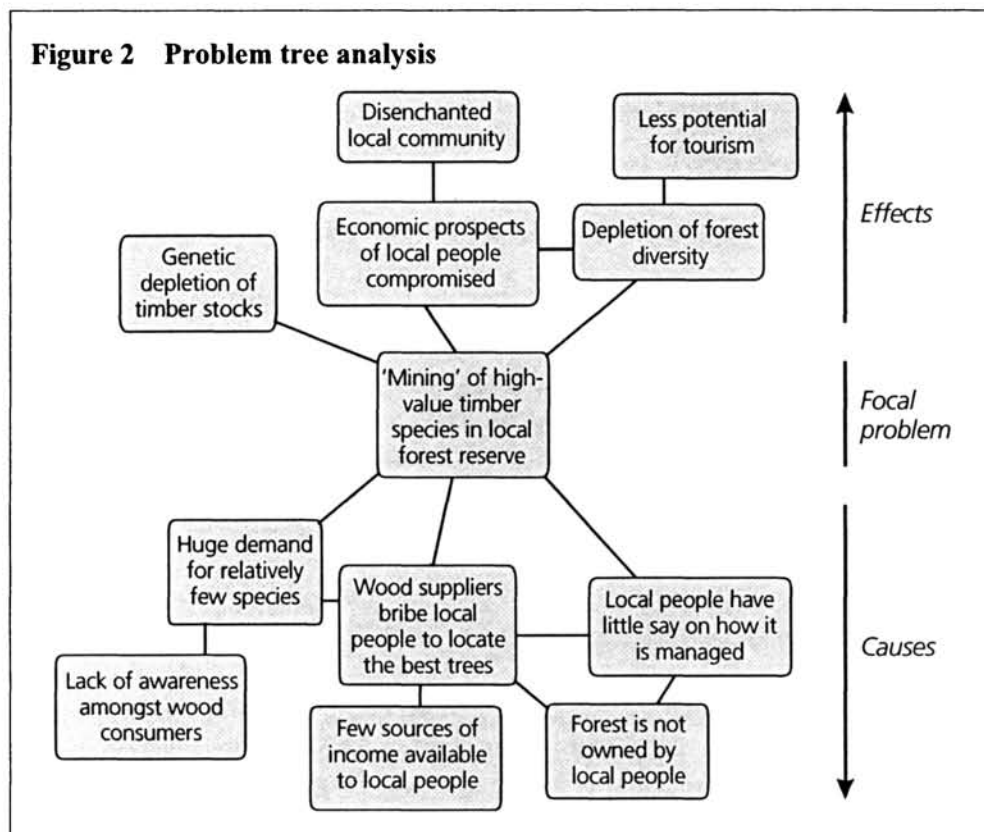
● **Brainstorming**

Brainstorming is similar to a visioning exercise, except that the goal is to **accumulate ideas** on a topic in a short space of time, rather than attempt to develop a consensus. A facilitator is needed to initiate and steer the session, as well as to create the right conditions for creative thought. In a brainstorming session, all individuals are free to speak and there is particular encouragement to put forward unusual and new approaches. All inputs are recorded. The ideas are then sorted and used where applicable in the context of the topic under discussion. Brainstorming is most useful when defining the initial scope of a policy or plan, when a change in strategy is required, or simply for an infusion of new ideas and inspiration. For example, brainstorming may be useful in trying to identify the key datasets in an organisation, or new forms of information products to influence decision-making.

● **Problem tree analysis**

Problem tree analysis is a useful method for enhancing problem definition so that policies and plans can be formulated to address their underlying causes. The analysis works by inviting those gathered to identify the key problems associated with a shared issue or concern. These are displayed on a flipchart or similar display device in group sessions, or simply noted down on paper in smaller gatherings. With the help of a facilitator, the group then decides which of the range of

Figure 2 Problem tree analysis



problems identified is the **focal, or pivotal, problem** to address. This is placed at the centre of the display, whilst the remaining problems are separated into **causes and effects** of the focal problem, and are placed below and above it respectively. The problem tree is completed by clustering together similar causes and similar effects and noting the linkages between them.

The resulting diagram places an issue into its wider context, in terms of its underlying causes, indicative effects, and related issues. This enables policy-makers and managers to target their investments more efficiently, with consequent improvements in impact and measurability. Problem tree analysis is a general method which can be applied to any form of complex problem definition, including resource management and information management issues alike. Figure 2 illustrates a typical problem tree diagram as applied to the issue of depleting stocks of timber in a forest reserve. In this example, the focal problem is the illegal 'mining' of high-value timber trees by non-local wood suppliers.

- **Working groups/workshops**

Working groups (sometimes known as working parties or task forces) are small teams of individuals formed to address specific issues and return their results in a **specified time-frame**. Working groups usually have no further role after their assigned task is complete, and are composed of experts in particular fields rather than representatives of organisations. They are a particularly efficient way of developing plans on specific topics (e.g. a working group on environmental indicators, or application of GIS technology) or with coming up with solutions to difficult problems and uncertainties.

Workshops are similar to working groups in having the objective of addressing a particular, perhaps wide-ranging topic. They bring together relevant expertise for a short period (usually one-half to 5 days) with the aim of achieving **better mutual understanding of issues**. Workshops often incorporate elements of training and, where a wide spectrum of organisations are involved, facilitate sharing of knowledge and expertise. External facilitators may be brought in to keep the workshop to an agenda, maintain objectivity in discussions, and ensure that all participants have an opportunity to contribute. A technique often used at workshops is to divide participants into small working groups to develop specific sub-topics or workshop themes. The size and composition of the working groups may be fixed at the outset of the workshop, or adjusted as it progresses in accordance with individual and workshop needs. Working groups normally present their findings to a plenary session of the workshop after their work is concluded.

4.4 Process Models

Process models (also referred to as data-flow diagrams) can be used to illustrate how **information and data flow between the processes of an operation** (e.g. an organisation, business or project). The role of a process model is to describe the operation in terms of its elemental processes and to define the flows of data and information which are needed to make it work.

A consistent diagrammatic convention is often applied (useful models can also be developed without formal notation). In one common convention, operations can be expressed as a collection of numbered processes shown in rounded rectangles. Each process may be broken down into sub-processes, which in turn may be split further,

and so on, with appropriate numbering being applied at each level. Sources of data (and information) used in the process may be depicted using rectangles and may be referred to as 'datastores' (this term implies no physical implementation; the data in a datastore may be in one or more databases or manual files). Arrows between processes and datastores indicate the direction of data flow. For clarity, it is conventional that each diagram should contain only a limited number of process boxes (usually 4-6) and datastores. The process model may be used equally well to illustrate an existing or planned operation.

Figure 3 illustrates a simplified process model for a land-use planning operation. It is divided into three processes. Firstly, data on leading land-use options are integrated to assess the capability of the land in question. The information resulting from this process is considered by a decision-making body which ranks the options according to agreed criteria. This information is communicated to stakeholders for comment and, hopefully, an acceptable solution is negotiated.

