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METHODS FOR CONDUCTING AN ON-SITE VISITOR QUESTIONNAIRE SURVEY

(Second Edition)

by

Kay L. Booth

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Keywords: questionnaire, methods, visitor, survey, on-site visitor questionnaire survey

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METHODS FOR CONDUCTING AN ON-SITE VISITOR QUESTIONNAIRE SURVEY (Second Edition)

by

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ABSTRACT

Questionnaire surveys can provide a wealth of information about visitors to a recreation site and are often used by resource managers to learn more about their clients. Well-designed surveys avoid costly and consuming mistakes. This report outlines the steps involved in undertaking a questionnaire survey. It describes in detail suggested methods for designing a questionnaire and a sampling approach. Standard questions are provided for often-asked questions.

1 AIM OF THE REPORT

These suggested methods aim to provide a simple introduction to visitor questionnaire surveys in response to a need expressed within the Department of Conservation The intended audience is DOC managers, however students and other researchers may also find the report a useful resource document.

Discussion focuses upon on-site visitor questionnaire surveys, both self-completion and interviewer-administered questionnaires. Alternative survey methods and sources of information about visitors are discussed in Section 4, Choice of Method.

The methods draw upon literature already written on survey procedures, in essence highlighting and summarising the information available from other sources. A selected bibliography for further reading is given at the conclusion of this report.

These methods are part of a long-term goal of a standardised approach to recreation surveys in New Zealand.

2 PLANNING A VISITOR QUESTIONNAIRE SURVEY

2.1 Survey Planning Process

For a successful visitor survey, the following steps must be worked through:

¹ Contract funded by the Department of Conservation.

- (i) Statement of Objectives
- why is the information needed
- what information is required
- how will the be used

(ii) Choice of Method

- what data collection methods are available and appropriate

- is an on-site visitor questionnaire survey the best method

(iii) Survey Notificationwhat is required and why

(iv) Questionnaire Design

- how should each item of information be framed into a question

- how should questions be ordered to form a questionnaire

- (v) Sample Design
- who should be surveyed
- how many should be sampled
- how should they be selected
- when and where should they be surveyed

(vi) Pre-tests

- how to test the questionnaire and sampling procedures

(vii) Data Preparation

- how to check and code data for computer analysis

(viii) Data Analysis

- what analyses are relevant
- what does the computer printout mean

(xi) Reportwhat should be included

2.2 Resources Required

Ensure that you allocate sufficient **time** to each step in the process. Too often an inadequate amount of time is allowed for steps i-v.

- printing questionnaires/interview schedules
- postage and stationery
- typing and clerical assistance
- field workers
- survey co-ordinator or supervisor
- travelling expenses

- computing
- printing the final report

The following sections discuss each step in the planning process in detail.

3.3 Expert Advice

While this report presents survey concepts and the steps to be addressed in the design of a survey, it cannot be overemphasised that every survey needs to be uniquely designed because of differences in site, information needs and resources available. Throughout these guidelines, the reader is referred to the Department of Conservation's social scientists. It is important that this expert advice is sought. Non-departmental readers should seek advice from other known experts.

3 STATEMENT OF OBJECTIVES

The first step is to clearly identify your information needs. Questions to be considered include:

- (i) What is the information needed for and what is its priority?
- (ii) What information is required? Do you want to know the numbers of visitors (where and when?); visitor characteristics (which?); preferences (about what?) ...
- (iii) How will the information be used be specific.
- (iv) When and how often is the information required? Is the need for on-going or 'oneoff' study, perhaps with periodic updates.

Responses to these questions should form a **clear written statement describing the information requirement.** Avoid vague statements such as 'visitor information to assist with park management.' The statement must be specific so that at later stages (questionnaire design, data analysis) it is clear what data you require -and what you do not.

Use the following headings as a framework for listing each item of information:

- the number and distribution of visits;
- the characteristics of the visit;
- the characteristics of the visitor;
- visitor experience;
- the views of the visitor.

EXAMPLE: Information on visitors to Mt Aspiring National Park has been accorded a high priority by management. The information will be used:

- to ascertain whether there is a demand for a visitor centre in the northern sector of the park.
- to gauge the likely success of a pack in-pack out rubbish system
- to find out what sort of person is visiting the park
- to better understand why they are visiting
- to determine the popularity of sites within the park
- to ascertain the use of facilities and services.

The information listed below will address these objectives. The information should be updated in five years time or when changes in the nature of visitors and their visits is suspected. All information will be directly fed into management decisions.

Information to be collected:

Number and distribution of visits

- frequency of visits
- sites visited within conservation area
- sites stayed overnight

Characteristics of the visit

- length of time spent in the park
- use of tracks
- use of visitor centre
- activities undertaken

Characteristics of the visitor

- age
- gender
- town and country of origin

Visitor experience

- reason for visit

Views of the visitor

- opinion of pack-in/pack-out rubbish system
- attitude towards a proposed visitor centre
- general comments section for visitor to fill in (unprompted).

Listing information items in this way is a **prerequisite for question formulation**. Do not be tempted to skip this step and go straight into question wording.

Beware of including a lot of unnecessary information. The above example outlines the information required by the Field Centre. It does not include all possible types of information. Your needs will be different. Spend time deciding the type of information you need. A lot of time and money will be wasted if the data is not required or justified.

4 CHOICE OF METHOD

To obtain the information outlined in the statement of objectives, the method of data collection needs to be considered. Points to consider:

1. Is the information already available?

The information may be available in whole or in part or perhaps some closely related data can be used as a surrogate. For example, if trends in numbers of overseas visitors to a park is desired, then overseas visitor bednights in accommodation units known as bases for park visitors, would provide a partial picture.

Check possible sources, including:

- reports, files and databases of your organisation
- other government departments and organisations
- regional/local authorities
- universities
- interest groups and local associations

2. If the information is not available from these sources, then the most appropriate form of data collection must be decided. Data about visitors may be collected via:

- visitor monitoring techniques e.g. mechanical counters, registers (such as hut books)
- observation
- interviews
- off-site survey (telephone, postal, interviewer-administered, self completion)
- on-site survey (interviewer-administered, self-completion).

An off-site survey may be directed solely at visitors; for example those people who signed the visitor centre's visitors book. Alternatively the target population may be the public, which could include some visitors to a particular site. One option is to utilise already existing off-site surveys (e.g. NZ Tourism Department).

When choosing between the different options, you should consider:

- type of information: simple descriptive factors or attitudes -motivations -opinions
- amount of information required
- timing of data collection -periods of year when the information is required
- from whom the information is to be collected
- location(s) to which the data apply (local, regional, national)
- time, personnel and funds available

Be aware that it is deceptively simple to opt for a new visitor survey. The time and costs however are considerable and all alternatives should be carefully considered.

3. If an on-site survey is the most appropriate data collection method, the choice must be made between interviewing visitors or distributing questionnaires for them to complete themselves. Interviews are preferable as a means of collecting information from visitors because a higher response rate is achieved, however the costs of this method far outweigh a self-completion survey. The decision should be taken with a view to the objectives of the survey and intended use of the data.

The following sections focus upon on-site questionnaire visitor surveys. If a different method of data collection is chosen, then refer to the **Selected Bibliography** for suitable reference material (e.g. Gardner, 1978; Moser and Kalton, 1971).

5 SURVEY NOTIFICATION

5.1 Department of Conservation

To ensure that all questionnaire surveys undertaken by DOC are of a high quality, the Social Science group of Science and Research Division (Wellington) must be contacted at the initial planning stage. The Social Science group is the coordinating body of surveys undertaken by or for DOC and the social scientists have expertise in questionnaire and sample design to assist with your enquiries.

Contact a social scientist at an early stage, once you have worked through the steps outlined in the previous sections. Your first discussion with the social scientist should cover:

- what information is required
- why the information is needed
- that the information is not available elsewhere
- how it will be used
- preparation of the questionnaire
- outline of sample design
- what analyses are required
- computer facilities available
- resources, particularly survey staff
- future involvement of the social scientist

5.2 Department of Statistics

Under the Statistics Act 1975, approval of the Minister of Statistics must be sought and obtained before any government department carries out a new statistical survey or makes a substantial alteration to an already existing survey (Section 6, Statistics Act 1975). This includes surveys conducted by the department or for the department on contract.

In 1989, the Department of Conservation obtained a waiver from the Minister of Statistics, allowing DOC to proceed with on-site visitor surveys without the requirement to apply for the Minister of Statistics' approval. The waiver applies to on-site visitor surveys which collect information of the following type to assist management of a particular conservation area:

- visitor characteristics
- visit characteristics
- satisfaction with visit
- attitudes to park management

You must inform the Department of Statistics when you intend to carry out a visitor survey under the waiver and give broad details of its subject matter. You should contact a social scientist in the Science and Research Division who will liaise with the Department of Statistics. See Appendix 1 for an example of a letter to the Department of Statistics. Off-site surveys, and surveys with wider policy implications than the management of a particular conservation area, are not covered by the waiver and the Minister of Statistics' approval must be obtained. See Department of Statistics' *Handbook on Survey Procedures* (1986) for explanation of the approval process and consult with a social scientist in the Science and Research Division.

6 SAMPLE DESIGN

The sampling procedures discussed in this section relate to interviewer-administered surveys and/or personally distributed, self-completion surveys (where respondents are personally approached and asked to complete a questionnaire at a later date and return it to a given place e.g. visitor centre or postal address).

6.1 Introduction and Definitions

It is seldom possible to survey all visitors, nor is it necessary. Virtually all on-site visitor surveys are sample surveys. This means that a limited number of individuals are selected as a sample to represent all those people making visits during the time the survey is running (the survey period).

This section is designed to assist in the selection of the sample - who to survey, when, where and how many people to sample. A good sample design is important to provide the right balance between accurate data and reasonable cost.

An on-site visitor survey is designed to collect information about visits and/or visitors to a site or sites during the survey period. The information about the visits is collected from the individuals who make the visits, the visitors.

The base unit of the survey (or the sampling unit as it is called) is either the person-visit, the visitor, the group, or the group-visit. The choice of sampling unit will depend on the information being collected and should be discussed with a social scientist from the Science and Research Division. If the desired information relates primarily to characteristics of the individual's visit (length of stay, activities undertaken, etc.) then the person-visit is the correct sampling unit. If most questions cover characteristics and opinions of the visitor, then the visitor is the most appropriate sampling unit. The group and group-visit are appropriate when questions apply to the total group or their visit (respectively).

If the person-visit is the sampling unit, it must be clearly defined. Consideration should be given to situations where visitors may leave and re-enter a site several times during their stay.

The sample provides information about the survey population. The survey population is defined as the total number of sampling units (e.g. person-visits) at a site during the survey period, and should be defined as tightly as possible. For example, recreational person-visits is more definitive than person-visits. It is evident from this section that some key decisions about the size and nature of the survey need to be made as a first step in the design of the sample. They include:

1. When the survey should be run and for how long (the survey period) e.g. summer (perhaps defined as 26 December to 28 February), all year.

2. What visits or visitors are in the survey population. In most cases the survey population will be either:

- all recreational visits to the site during the survey period or
- all recreational visitors to the site during the survey period.

You may wish to exclude visitors/visits made by people under 15 years old and those who do not speak English. Note any exceptions relevant to your survey objectives.

In conjunction with the survey, visitor monitoring systems should be put in place to **count** the number of visits or visitors to the survey sites during the survey period. Consider track counters, door counters, observers and similar techniques, to record the counts relevant to your survey.

For surveys focused on visits to the site, for example, you will require counts of:

- visits on interview days
- visits over the total survey period (if possible and practical)
- numbers in group from which respondents were drawn (this could be formed into a question).

Within your visitor monitoring design, consider whether all access points to the survey site should be covered and, if counting visitors, whether re-entry during one visit is possible and how this will be dealt with.

This counts information can be used for weighting purposes (see Section 9.7).

For discussion purposes, the following sections assume the sampling unit is the visit.

6.2 Sampling Method

The sample design of many surveys is focused on selecting a sample from a list of the survey population, for example telephone surveys which sample from telephone directories. No such lists exist for on-site visitor surveys. Instead the sample design is based on visit times and locations. For example, the sample may be selected by choosing 40 survey days divided evenly between four survey sites, so that 10 days are spent surveying at each site. The visits by people who are interviewed/surveyed during these days form the sample. Therefore, rather than randomly selecting the visits, the sample is based on a random selection of survey days at survey locations.

Stratified sampling can be used to ensure that the sample better represents the survey population than if the sampling was completely random. The principle of stratified sampling is to divide the survey population of total visits into subpopulations or subgroups (called strata, hence the name stratified sampling). Each subgroup is sampled separately, then the results amalgamated to represent the total survey population. In most cases, proportional allocation of the sample across the strata will be the most appropriate. This approach ensures that all subgroups are represented in the sample, in proportion to their size. For example, if visits during high-use times comprise 70% of all visits, then 70% of the sample should be drawn from this high-use subgroup. If 20% of visits end at the northern carpark, then 20% of the sample should be from that carpark.

Non-proportional allocation may be desirable in some situations, notably:

- to target a particular subgroup that is of interest or may not be sufficiently covered by a proportional allocation
- for logistical reasons such as difficulty in contacting some groups or underutilisation of field workers.

The following sections explain in detail how a stratified sample is constructed, using a proportional allocation.

6.3 Description of Visits

To identify the subgroups, information on the number and characteristics of visits to the survey area needs to be collated. Possible sources are results of previous visitor surveys, data from visitor monitoring techniques (e.g. track counters) and local managers' knowledge. Often only the last source is available, as one of the reasons for doing the survey is to collect this very information.

Prepare a description as follows:

1. Divide the survey period into distinct use periods, with consideration to the amount of use, type of use and type of visitor.

If you believe that every day of the survey period will experience the same amount and type of use, then the whole survey period can he treated as one use period. Otherwise write down the use periods. For each use period assign a proportion of the total amount of use during the survey period. Bear in mind that the use periods are differing lengths of time when you do this. The figures should sum to 100%. **EXAMPLE:** Survey use periods for a year-long survey

Use Period	Description	% use
26 Dec to 15 Jan	Peak use. Mainly NZers	40
16 Jan to 28 Feb	High-medium use	15
1 Mar to 2 April	Medium use. Mix of NZers	
	and overseas visitors	10
3 April to 6 April (Easter)	Peak use. Similar to 26 Dec to 15 Jan	10
7 April to 26 Oct	Low use. Local visitors mainly.	5
27 Oct to 29 Oct	Peak use. Similar to 26 Dec to	
(Labour Weekend)	15 Jan and Easter	10
30 Oct to 25 Dec	Medium use. Many overseas visitors.	10

Note that three use periods are considered to experience the same type of use (26 Dec - 15 Jan, Easter, Labour Weekend). In total they represent 60% of use.

2. Identify survey locations. Initially focus on exit points (e.g. car parks, track entrances/exits). For an area with multi-exit points, choose the high-use exits.

If you feel that exits will not produce adequate survey sites, identify sites within the survey area where visitors gather and interviews could take place, or questionnaires be distributed.

Consider any bias associated with your choice of survey site. For example, if entry/exit points are used, the choice of visitors being included in the sample is affected by the length of their visit - the longer the visit, the smaller the chance of selection. Note the bias in the survey report.

Assign a percentage to each listed site, based on the amount of total use that site would receive so that figures add to 100%

EXAMPLE: Survey locations of Abel Tasman Coastal Track survey

Location		% Use
Marahau		30
Totaranui		15
Wainui	5	
Boat access		50

6.4 Sample Format

Using the information on use periods and visit locations, as well as target sample size (see Section 6.7), the distribution of sampling can be defined over time and by location. The principle of proportional representation should be followed; that is, for each subgroup the sample size is proportional to the actual use within that subgroup. The following example uses the use period and location descriptions detailed in Section 6.3 and a sample size of 300 visits.

EXAMPLE: Sample design for a year-long survey on the Abel Tasman Coastal Track

1. Translation of sample size into survey days:

The first step is to calculate how many survey days will be required to achieve the target sample size, in this case, 300 questionnaires. The approach is different for interviewer-administered surveys from personally distributed, self-completion surveys.

Interviews:

Estimate how many interviews will be achieved in one day. Be conservative rather than over-optimistic. Divide the total sample size by the number of surveys per day to get the number of survey days required.

EXAMPLE: Estimation of survey days

The required sample size is 300. It is estimated that 10 interviews will be achieved each day (giving consideration to the times of the day that visitors are at the site, the number of visitors, and the length of the questionnaire). The pilot survey will indicate what number of interviews per day is reasonable.

300 sample size/10 interviews per day = 30 survey days required.

Interviewers should be in the field for 30 days to ensure that a sample of 300 is achieved. Do not worry if you exceed your required sample size, but remember that costs will increase with increasing sample size.

Self-completion questionnaires:

A certain proportion of non-response must be accommodated in the estimation of how many questionnaires to distribute. As a guide, allow for 60% non-response. With a required sample size of 300, this suggests that 750 questionnaires should be distributed.

Follow the same approach as for interviews, by calculating how many questionnaires can be distributed per day, and dividing this number into the sample size. As distribution will be substantially quicker than interviewing, the number of survey distribution days will be considerably fewer.

The method(s) of collecting self-completion questionnaires should be designed to maximise the response rate. For example boxes, self-addressed envelopes (perhaps as a back-up). Note that postal questionnaires have a relatively low response rate compared with other approaches.

2. Distribution of the survey days over time:

The survey days are now proportionally divided across the subgroups identified by the use periods. Using the example for interviewer-administered questionnaires, the following example explains this step.

EXAMPLE: Division of survey days use periods

Use Period	Amount of Use	Survey days
26 to 15 Jan	40% x 30	12
16 Jan to 28 Feb	15%	4.5
1 Mar to 2 April	10%	3
3-6 April (Easter)	10%	3
7 April to 26 Oct	5%	1.5
27-29 Oct (Lab. Weekend)	10%	3
30 Oct to 25 Dec	10%	3
	100%	30

3. Distribution of survey days across survey locations:

Recall that the use of the four survey locations is distributed as follows:

Location		% Use
Marahau	30	
Totaranui		15
Wainui		5
Boat		50
		100

The survey days within each use period now need to be divided across the locations in the proportions shown above. Use commonsense to round up or down to maximise efficiency of field workers.

EXAMPLE: Division of survey days across locations

26 Dec to 15 Jan = 12 survey days

		Adjusted for logistical reasons to:
Marahau	30% x 12 =3.6	3.5
Totaranui	15% x 12 = 1.8	2
Wainui	5% x 12 = 0.6	0.5
Boat	50% x 12 = 6.0	6

If the cost of transporting interviewers to sites makes half-days too costly, round up to full days in all cases. Over-representation of visits to some locations may occur, however this can be corrected by weighting later.

6.5 Choice of Survey Days and Locations

The next step is to apply the sampling format described in the previous section to actual days and survey locations. The choice for survey days should take into account week days and weekends, days within and outside school holiday periods, and special events.

Using a calendar and your commonsense, distribute the allocated days for each use period to actual days. Allocate half of the days to week days and half to weekend days. Use a systematic or random method. For example, if you have 6 survey days to distribute across 18 weekend days, choose every third weekend day. Ensure that you have a mix of Saturdays and Sundays for weekends and Mondays through Fridays for week days.

Persist with surveying in bad weather unless this is impractical. If so, select an alternative day of the same type (e.g. week day). If weather affects numbers, bad weather responses can be weighted during analysis (see Section 9.7).

If you cannot survey all day, then split the day into morning and afternoon (and evening if visits occur then). Randomly allocate survey times between mornings and afternoons.

The length of time spent in the field should coincide with the period during which the majority of use takes place. Very low levels of use do not justify the cost of keeping surveyors on-site.

Ideally respondents should be interviewed at the end of their visit where information is required on visit characteristics. However, it is often necessary to survey during the respondents visit. In this case, remember during analysis that the information relates to visitors part-way through their visit.

6.6 Selecting Respondents

The surveyor should choose the individual to be surveyed, called the respondent, on a **next-to-pass** basis. That is, once you have finished interviewing or giving someone a questionnaire, you select the next person to pass you or walk up to the next person near you. This method maximises the utilisation of surveyors and minimises interviewer bias in the choice of individuals for survey, as the surveyor does not have to choose whom to survey.

Often people move about in groups, however. It is important to choose one individual from within the group to be surveyed. Members of a group may have similar opinions or influence each other, which could result in over-representation of certain responses, or bias if all group members were surveyed.

Depending on the information sought, it may be preferable to weight responses by group size. The size of the respondent's group should therefore be recorded. See Section 9.7 for an explanation of weighting.

Rather than allowing the group to select its own respondent (which may lead to bias as the more dominant members would be sampled), choose the person who is to have the next birthday. This is the conventional way to choose an individual randomly from a group. Finding the person with the next birthday can be made into a light-hearted introduction to the survey.

The survey should only include people who are eligible, given the objectives of the survey. If the survey population has been defined as people visiting the site for recreation, then anyone working at the site, visiting it for business purposes, or living there should be excluded. It is very important to identify clearly the survey population for

this reason, as described in Section 6.1. Use the form given in Appendix 6 to record occurrences of contacts with ineligible people. This is so that account can be taken of their amount of total use of the area and considered within calculations of the total number of recreational users.

The eligible **age** of respondents must be decided. Unless survey objectives dictate otherwise, 15 years and over is recommended because it is an age of relative independence.

Only individuals who wish to participate in the survey should be interviewed or given a questionnaire. People who refuse to take part in the survey are called **non-respondents.** Keep a record of refusals on the form in Appendix 6. Non-response biases the sample data, but experience has shown that in recreation site surveys non-response rarely exceeds 10 percent, so any bias is insignificant.

Anyone who has been surveyed on a previous survey day is eligible for survey again. If someone who has been previous surveyed is selected again, a request should be made for a second survey explaining that information is also required about that day. If the sampling unit is the visitor rather than the visit, then each visitor should only be surveyed once.

Visitors who visit the survey area frequently have a greater chance of being sampled. This may introduce some bias into the sample if the visitor is the sampling unit. Note this in the survey report.

From discussion in this section, it should be clear that leaving questionnaires in a pile for visitors to pick up will result in a biased sample. This approach is not a satisfactory method of questionnaire distribution.

6.7 Sample Size

Probably the most often asked question about surveys concerns the size of the sample bow many people should be surveyed. There is no one correct number, but rather, sample size is a trade-off between what is statistically desirable and cost.

The statistical aspect is concerned with the **sampling error**, which is the difference between the values recorded in the sample and what the actual values would have been if the whole survey population had been surveyed. The larger the sample size the smaller will be the sampling error, as the closer the sample approximates the total survey population. This is true, however, only if the sample is unbiased. Bias is often more important than the sample size for statistical accuracy. Hence all measures should be taken to guard against bias.

6.7.1 Standard Error. The size of the sample is dependent on the degree of precision required of the survey, or, in other words, what margin of error you are prepared to accept. This is estimated by the **standard error.** For example, if 60 in a sample of 100 said they would visit the conservation area again, while the other 40 would not or did not know, the margin of error would be 9.6. This tells you that in fact the true proportion

who would visit the area again is within the range of $60\% \pm 9.6\%$ or 50.4% - 69.6%.

The margin error (also known as the confidence margin or error bound) is calculated by:

Error Margin = $1.96 \ge \sqrt{((P \ge Q)/n)}$

where P = percentage giving that response, Q = 1-P, and n = sample size.

This calculation takes into account a confidence level of 95%. It does not include a finite population correction factor which should be used in cases where the sample is less than 0.05% of the size of survey population and where the survey population is known. Consult a DOC social scientist. See Section 6.1 for a discussion on defining the survey population.

The sample size is therefore influenced by what margin of error is acceptable for the purposes you intend to use the data. To obtain a smaller margin, or interval, the sample size must increase.

Using the 95% confidence interval (that is, if sampling is repeated indefinitely, 95% of the sample values will occur within the confidence interval) the following table gives a range of error margins for the standard error applying to percentage values obtained in a survey. Different sample sizes are given, as well as a selection of percentage values. They have been calculated using the formula above.

			SAN	MPLE SIZE				
Response (%)	n=20	n=50	n=100	n=200	n=300	n=500	n=1000	n=2000
50	21.9	113.9	9.8	6.9	5.7	4.4	3.1	2.2
40 or 60	21.5	13.6	9.6	6.8	5.5	4.3	3.0	2.2
30 or 70	20.1	12.7	9.0	6.4	5.2	4.0	2.8	2.0
20 or 80	17.5	11.1	7.8	5.5	4.5	3.5	2.5	1.8
15 or 85	15.7	9.9	7.0	5.0	4.0	3.1	2.2	1.6
10 or 90	13.2	8.3	5.9	4.2	3.4	2.6	1.9	1.3
5 or 95	9.6	6.0	4.3	3.0	2.5	1.9	1.4	1.0
2 or 98	6.1	3.9	2.7	1.9	1.6	1.2	0.9	0.6

State the margin of error associated with results in the survey report. The formula used above applies to proportions from simple random samples. While it is not strictly correct, use this formula for stratified samples also. Where sample statistics other than proportions are desirable (such as averages), different sample sizes and errors apply. Refer to a social scientist in these cases.

6.7.2 Variability. The standard error will depend not only on the sample size, but also the **variability** of the population. A larger sample size is required from a variable population (where responses are well spread) to obtain the same accuracy of results as from a smaller population where responses are less diverse.

6.7.3 Analysis. Consideration needs to be given to the type of analyses required of the data also. If subgroups are to be separately analysed, ensure that the sample is large enough to produce subgroups of at least 50 responses. An example of a subgroup may be female trampers which you want to analyse separately from male trampers.

6.7.4 Non-response. If you expect high non-response, then enlarge your sample size to accommodate this in consultation with a social scientist.

As this discussion has probably indicated to you, some statistical knowledge is required to decide on an appropriate sample size and the DOC social scientist should be contacted. Statistical or survey texts may be helpful, especially if you have some statistical knowledge. Try Dixon and Massey (1983); Gardner (1978).

6.8 Interviewers

For interviewer-administered questionnaire surveys, the appropriate source of interviewers needs to be decided. DOC staff may be asked to conduct the survey. (This represents an extra burden on staff which may have a detrimental affect on the survey). This, however may be the most cost-effective, particularly for remote locations which staff already visit. Do not use DOC personnel if their presence is likely to influence responses.

An alternative is to employ people to undertake the survey. In this instance consider employing the interviewers for the coding process also (see Section 9.3). University students are a good source of summer survey interviewers, and may have previous survey experience. Volunteers are another potential source of interviewers.

It is important to train interviewers for their task. Consistency between interviewers should be maintained and care taken to minimise interviewers influencing responses (termed interviewer bias). Be particularly aware of interviewers deviating from question wording; they should read the explanations and questions exactly as written on the questionnaire. Periodic checks on interviewers should be undertaken.

From their work, interviewers will gain an intimate knowledge of visitors and visitor behaviour. Give interviewers a notebook and ask them to keep notes on anything they think may be relevant to the survey or additional information.

7 QUESTIONNAIRE DESIGN

7.1 Introduction

This section presents information on question formulation and questionnaire design.

The type of questionnaire discussed here is used for on-site visitor questionnaire surveys (self completion or interviewer administered). Postal and telephone-administered

questionnaires require specific types of design, which are described elsewhere (see Dillman 1978).

Information can be collected in different ways dependent on whether an interviewer is involved. Questionnaire design therefore differs between interviewer-administered questionnaires and self-administered questionnaires. A DOC social scientist will assist with the demands of each type of questionnaire. The following sections describe the principles of question formulation and questionnaire design which are common to both.

7.2 Question Formulation

Questions are formulated to collect all the items of information listed in the written statement of objectives (Section 3). Each question must be justified in terms of your information needs. Do not add a few extra questions at this stage because it would be "nice to know" the information. Return to your statement of objectives and assess whether the information is necessary.

Two steps are required:

- (i) choice of question strategy
- open-ended or closed question
- single question or a sequence within a filter system;
- (ii) formulation of the question wording.

These steps are discussed in the following sections.

7.3 Choice of Question Strategy

Open-ended and closed question strategies have different purposes, and each can be designed in different ways. The following summary should assist you with the correct choice of question strategy and question design.

7.3.1 Open-ended Question - Purpose.

- exploratory technique
- to discover what ideas people have on particular matters to provide insight into an issue to determine factors for later quantitative survey
- not appropriate for quantitative assessment of factors.

EXAMPLE: Open-ended questions What do you like about the visitor centre?

Why did you visit the park?

EXAMPLE: Open-ended questions for interviewer-administered questionnaires Open-ended questions with clarification: What do you like about the visitor centre? What do you mean by 'the colour'? Open-ended question with probing: What do you like about the visitor centre? Is there anything else you like about it?

7.3.2 Closed Question Purpose

- quantitative 'head counting'
- use as a filter to clear the way for asking an open-ended question (e.g. "Are you staying here overnight?" prior to asking questions about the type of accommodation to be used in the park).
- use when all possible responses are known.

The following examples outline different types of closed question designs.

EXAMPLE: Closed question design

Did you travel to Mount Cook villa	ige by car?
YES	
NO	

How did you travel to Mount Cook Village?

CAR	
BUS	
MOTORBIKE	
BICYCLE	
OTHER (please describe)	

What is your opinion about the following statement:

- More huts should be provided along the track STRONGLY AGREE □ AGREE □ NEITHER AGREE NOR DISAGREE □ DISAGREE □ STRONGLY DISAGREE □

Please mark on the line below your opinion of the condition of the road to Mount Cook Village:

1	2	3	4	5
VERY				VERY
BAD				GOOD

Notes about closed question designs:

- 1 Include a **don't know** category whenever it is relevant.
- 2 Provide an **other** category at the foot of a list and provide space for a description.
- 3 Ensure that the options provided are mutually exclusive. For example, response options of:
 - 1-2 nights
 - 3-4 nights
 - 4 or more nights

for length of overnight stay are not mutually exclusive. Respondents staying 4 nights could choose either 3-4 nights or 4 or more nights.

4. For interviewer-administered questionnaires use showcards with the options written/drawn on them or orientate the questionnaire, so the respondent can see all options.

7.3.3 Filter Systems. As the name suggests, questions should be designed wherever applicable to **filter out** respondents who are not meant to answer the following questions:

EXAMPLE: Filter System

Did you go to the visitor centre? If no: go to Q4. If yes: why did you go there?

Care needs to be taken with filter systems to minimise confusion to respondents. Use the same style throughout the questionnaire.

7.3.4 Analysis. Choice of question strategy should take account of analysis demands. The chief problem with open-ended questions is the difficulty of coding the large number of responses, both in terms of choice of categories and sheer size of the task. The process is outlined in Section 9.3. Closed question analysis is comparison. For this reason, consideration could be given to initial use of an open-ended question in the pilot survey (discussed in Section 8) from which a closed question design may be able to be designed. This approach must be undertaken with the supervision of a social scientist. For example, the size of the pilot survey needs to be suitable for this task.

7.4 Formulation of the Question Wording

The principles of good question formulation are to keep questions **short**, **simple** and **concrete**.

Avoid the following:

- unfamiliar or difficult language and technical jargon
- negative words and double negatives
- qualifying clauses at the end of questions
- question that respondent can start to answer before the question has been fully read
- two questions in one e.g. Should swimming and fishing be allowed in the lake?
 Respondents may have a different view about swimming compared with fishing.
- questions that invite replies in terms of what respondents 'usually do' e.g. When do you usually visit the park?
- leading questions e.g. I think this picnic site is very nice -what do you think?
- uestions that call for a lot of effort by the respondent
- mory dependent questions, questions involving calculations
- broad concepts e.g. 'the government', 'children'
- questions that give long alternatives as a choice of answer.

Be careful not to slant questions so that bias occurs. Keep words neutral.

7.5 Standardisation

A glossary of standard terms for activities and facilities that should be used in question design is given at the end of this report.

Appendices 2-5 present standard questionnaire designs for frequently occurring types of surveys, namely:

- track survey
- visitor centre survey
- visitor programme survey
- regional survey

The intention is to provide standard question designs so that some comparability will exist between surveys undertaken in different places.

Select questions from the standard questionnaires that you feel correspond with your information needs. The questions have been designed with consideration to information needs often expressed by DOC managers. Some questions will not meet your needs, so disregard them, while questions may need to be designed to address other information requirements.

The standard questionnaire for a track survey has been designed as an intervieweradministered questionnaire (Appendix 2). The other standard questionnaires have been designed as self-administered questionnaires (Appendices 3-5).

7.6 Questionnaire Design

Once the individual questions have been formulated, the question order and design of the questionnaire must be considered. The correct question order relies on commonsense and a few general principles:

- start with straightforward questions, put difficult questions towards the end
- place demographic information last
- keep filter systems simple
- avoid lengthy questionnaires

Use explanatory sentences or paragraphs to link question sequences.

EXAMPLE: Explanatory Segment

The following questions are about yourself and your group. This information will help us understand what sort of people use the park.

It is useful to provide space on the questionnaire for coding. This doesn't need to look officious and can save time at the coding stage. See Sections 9.3 and 9.4.

Information about the survey site, date, interviewer, weather (and so on) should be recorded at the top of the questionnaire. See Appendices 2-5 for examples.

Use space wisely to avoid clutter, which could result in confusion and missed questions. Take care not to split questions between pages.

All questionnaires should have a covering letter or explanatory statement. This should explain:

- why the questionnaire survey is being conducted
- who is conducting it and for whom
- who should fill in a questionnaire
- where the questionnaire should be filled in
- how to return the questionnaire
- contact person for comments/enquiries
- confidentiality of information

The use of coloured paper, maps, pictures and other interest-catching presentations may encourage response. Prizes may also be offered.

The questionnaires themselves may be produced in booklet form or as photocopied sheets stapled in one corner. An A5 booklet on coloured paper looks attractive, is easy to find, and cheap to produce. Avoid double-sided photocopying if you choose sheets stapled in one corner - back pages are often missed.

7.7 Consultation

By considering the design options and following the principles presented in this section, you can prepare a first draft of the questionnaire. Because a well-designed questionnaire is imperative, you should then contact the department's social scientist for expert appraisal and advice.

The Department of Statistics survey procedures handbook (1986) has a very readable section on questionnaire design. It is suggested reading, and will be useful for other aspects of survey design also.

8 PRE-TESTS

To ensure that the survey procedures work well, questionnaire design and sample design must be **pre-tested**. Pre-testing the survey involves initial **checks of the questionnaire** off-site and a **pilot survey**, which is a thorough test of the questionnaire and sample design on a small number of people on-site.

8.1 Off-site Questionnaire Tests

Test the questionnaire on friends and colleagues, providing them with background information about the survey. Question faults and linkage problems may be highlighted by these initial tests. In particular, look for:

- question comprehensibility
- length of questionnaire/interview

- order of questions
- clarity of instructions
- missed questions

Modify your questionnaire in light of results. Since your friends and colleagues may be like you, it is then productive to test the questions on people similar to the intended survey population via the pilot survey.

8.2 Pilot Survey

The pilot survey tests the sampling procedures as well as provide a more rigorous check on questionnaire design. In essence, the pilot survey is a trial run of the survey, so respondents should be selected as intended for the main survey and distribution or interview procedures for the main survey followed. Look for:

- aspects of question design listed above
- workability of your sample selection plan
- oversurveyed respondents
- response rate
- costs

Consult with a departmental social scientist about the sample size of the pilot survey.

Where no changes are made to the questionnaire or sample design (or only minor sampling adjustments) following the pilot survey, the data from the pilot survey can be used in later analysis. Otherwise the data should not be included with final results.

9 DATA PREPARATION

9.1 Introduction

Most visitor questionnaire surveys justify computer analysis and this method of data analysis is discussed in the following sections. Only the most simple questionnaires lend themselves to manual analysis.

Various types of computers and statistical packages are available for data manipulation. The sections on data preparation and data analysis present principles and leave the details about computing facilities to be used for discussion with DOC's social scientist. Data input and data analysis should be discussed with the social scientist during the initial survey planning stage and NOT left until after the data are collected. Some surveys have failed because of a lack of forward planning about computing facilities.

The following steps should be taken to prepare the questionnaire data for computer analysis.

9.2 Questionnaire Check

As soon as possible following questionnaire completion, preferably while the respondent is still present, questionnaires should be checked for completeness, legibility and correct understanding of instructions. With interviewer-administered questionnaires, immediate follow-up with the interviewer can be fruitful.

Do not discard questionnaires because a few questions have been missed. The rest of the responses are still valid. Only discard the questionnaire if you have serious doubts about the respondent's truthfulness or sanity (or similar).

9.3 Coding

Coding is the process which converts the written answers on questionnaires into computer codes (numeric or alpha-numeric).

Appropriate codes for each question should be chosen, preferably descriptive codes which are easy to remember and meaningful.

Standard codes should be used for **ineligible** and **non-response** answers. Non-response is recorded when an answer is not given but should be. Ineligible codes apply to questions which the respondent should not answer (e.g. day-trippers are ineligible for questions that apply only to people who have stayed overnight). An ineligible code should be recorded in these cases irrespective of whether the respondent answered the question or not (some people have an amazing capacity to provide an answer to a question that was obviously nonsense to their circumstances). Questions which all respondents are to answer will not require an ineligible code. For ineligibility and response it is preferable if you use the following codes:

INELIGIBLE 8 or 88 or 888NON-RESPONSE 9 or 99 or 999(The number of digits will depend on the length of the code needed.)

Information about the questionnaire/interview should also be coded, such as questionnaire number and survey site.

9.3.1 Coding Closed Questions. Coding closed questions is straightforward. Assign a unique code to each variable (or response option), choosing an appropriate number of digits for the codes.

EXAMPLE: Coding a question on form of transport

Variable	Code
private car	pc
hired car	hc
tour bus	tb
public transport bus	pb
motorbike	mb
other	ot
ineligible	88
non-response	99

Check through responses in the **other** category prior to coding, as it may be useful to break this variable down into separate codes for frequently mentioned variables. In the example above, if bicycle frequently occurs within the other category, then assign bicycle a separate code, perhaps bi.

Some closed questions will be self-coding.

EXAMPLE: Number in	group
Variable	Code
1 person	01
2 people	02
9 people	09
10 people	10
 nonresponse	99

NB: Everyone should answer this question, so an ineligible code (88) is not needed. Note the difference between 09 and 99. All digits must be 9 for the non-response

EXAMPLE: Gender	
Variable	Code
Male	m
Female	f
Non-response	9

NB: No code for ineligibility is required.

Some questions allow the respondent to reply with more than one response option activities undertaken during the visit. These questions are called multiple-response questions. You need to allow space for multiple responses during coding.

9.3.2 Coding Open-ended Questions. Open-ended questions require some categorisation of responses. The coder should read through responses to get a 'feel' for categories and then design an initial list of categories.

Categories will be self-generating as coding proceeds; any new factor that does not fit an existing category should be made into a new category.

Codes can then be assigned to categories as for closed questions.

EXAMPLE: Question - What do you like about this site?

Responses	Possible Categories	Codes
It's nice and quiet	Peace and quiet	PQ
It's peaceful	Peace and quiet	PQ
It's in the middle of nowhere	Remoteness	RE
Its remoteness	Remoteness	RE

The **degree of categorisation** depends on the intended use of the data. In the first instance, avoid gross reduction to a small number of categories. Once lost, detail cannot

be regained without complete recoding, whereas categories can be amalgamated later as necessary.

Respondents may give more than one response, for example, "I like the peace and quiet here and the feeling I'm in the middle of nowhere." Each response should be separately coded. Be consistent in your approach.

Note any ambiguities or challengeable decisions so they can be discussed in the report.

Be aware that coding by this method results in categories of different sizes. Some categories may be narrowly defined, while others are wide and general. Interpretation of open-ended questions should take this into account.

If more than one person is coding the questionnaire, initially they should both code the same questionnaires so discrepancies between them can be checked and overcome. This is particularly important when coding open-ended questions.

9.4 Computer Entry

Several approaches may be used to enter the codes onto the computer. Discussion with a departmental social scientist will clarify which alternative is preferable for you.

9.4.1 Data Entry Screen. Codes written on the questionnaires can be directly entered onto the computer using a data entry screen which prompts you for each question's codes. To do this, a small programme must be written to set up the computer screen for data input.

9.4.2 Wordprocessing. Codes can be entered directly on to the computer using any commercially available word processing package that can write to an ASCII (DOS text) file. Care must be taken that questionnaire responses are placed in a column format, and that the data is entered into the correct columns.

9.4.3. Coding Sheets. Coding sheets are like graph paper and are used to collate codes from all the questionnaires. This step is necessary if a data entry screen or suitable wordprocessing package is unavailable. The codes are written onto a sheet which has been designed for the questionnaire. See Appendix 7 for an example of a coding sheet layout.

Errors can be easily seen and should be corrected prior to passing the completed sheets on for computer entry.

9.5 Data Definition

This step is undertaken by the computer programmer. In order to understand the computer printout, the codes are assigned names, reverting them to a meaningful category name.

EXAMPLE: Transport CodesCodeVariable namepcprivate carhchire cartbtour bus etc.

If meaningful codes are used at the coding stage, this step is less necessary, however, it is recommended so that computer printouts are meaningful to all readers.

9.6 Computer Data Check

A second check of the data once it is entered on the computer ensures data accuracy. This includes checks on:

valid codes i.e. check that codes do not fall outside the range set up for that variable
 EXAMPLE: 7 would be invalid for a variable with codes 1-6. This can be done by running a preliminary frequency distribution analysis (see Section 10.2).

eligibility checks i.e. check that codes are allowable.
 EXAMPLE: If Q1 was coded 'N' for NO which meant the respondent was to skip Q2, check that Q2 was coded ineligible. A small programme can be written by the computer programmer to do this.

Correct any errors. It may be necessary to refer back to the original questionnaire. For this reason, it is helpful if questionnaires are numbered and stored in sequence.

9.7 Weighting the Data

DOC's social scientists should be consulted about this aspect of data manipulation. The following section describes what is involved.

The principle of weighting the data is to ensure that the data are representative of all those making visits during the survey period. As an example, imagine a survey which interviews visitors at park exits. At exits used by very few visitors, most of the visitors would probably be interviewed on a survey day, while at a very busy exit a much smaller proportion of visitors would be interviewed. This would result in an over-representation of responses from people using quiet exits and an under-representation of visitors through busy exits. Weighting corrects for these differences and ensures that analysis is undertaken to accurately represent the correct number of visits over time.

To facilitate weighting, counts of visitors should be undertaken on survey days at each survey site and throughout the survey period. The actual number of visits can then be compared with the number surveyed at each site. The data can also be used to identify distinctive periods of use. Information on the size of the respondent's group should also be recorded, if the sampling unit is a person-visit or individual visitor.

10 DATA ANALYSIS

10.1 Types of Analysis

Only those analyses which are required to achieve the objectives of the survey should be carried out. Even if extra data has been collected, do not be tempted to waste time and money by analysing unnecessary data.

Basic descriptive analyses are discussed in this section, as they will handle the majority of analytical needs of visitor surveys. For those interested in more complex analyses see a statistical text such as Dixon and Massey (1983) or Sokal and Rohlf (1981) and discuss your needs with the social scientist.

10.2 Frequency Distribution

Analysis of the frequency distribution, or number of responses for each variable, is the most common form of analysis for visitor surveys. It is also a useful way to check the data for errors (see Section 9.6). The examples below explain how to read a frequency distribution table.

EXAMPLE: Simple frequency table

Age	Frequency
0-14	1
15-19	90
20-29	575
30-39	333
40-49	169
50-59	79
60+	59
No response	11

NB: 1 person was interviewed who was ineligible (respondents were meant to be >14 years old). 575 people were aged 20-29 years, this being the age category with the largest number of respondents. 11 people did not answer the question.

EXAMPLE: Counts and percentages frequency table

Age	Frequency	%	Cumulative %
0-14	1	-	-
15-19	90	6.8	6.8
20-29	575	43.7	50.5
30-39	333	35.3	75.8
40-49	169	12.9	88.7
50-59	79	6.0	94.7
60+	59	4.5	99.2
No response	11	0.8	100.0
Totals	1317	100.0	100.0

Notes: 333 respondents out of a total number of 1317 were aged 30-39 years. They represented 25.3% of the total sample.

75.8% of respondents were aged 39 years or under.

Some questions are designed so that the respondent can give more than one answer; a **multiple response question.** For example, a question which asks respondents to indicate what activities they have undertaken on their visit. Multiple response questions can be analysed two ways, both of which provide useful information. The examples below explain the methods of analysis for multiple-response questions.

EXAMPLE: Multiple Response Question Analysed by Responses

Age	Frequency	%	Cumulative %
Walking (<4hrs)	120	31.7	31.7
Tramping (>4hrs)	87	23.0	54.7
Picnicking	100	26.5	81.2
Swimming	40	10.6	91.8
Climbing	17	4.5	96.3
Other	14	3.7	100.0
Total	378	100.0	100.0

Notes: 100 people had been picnicking during their visit. This represented 26.5% of all activities mentioned by respondents.

The total number of respondents was 200 (not shown in table).

Age	Frequency	%	Cumulative %
Walking (<4hrs)	120	60.0	60.0
Tramping (>4hrs)	87	43.5	103.5
Picnicking	100	50.0	153.5
Swimming	40	20.0	173.5
Climbing	17	8.5	182.0
Other	14	7.0	189.0
Total	378	189.0	189.0

Notes: 100 people out of the 200 people surveyed had been picnicking during their visit. This means that 50% of all visitors had been picnicking.

The total number of responses was 378 (not shown in table).

200 people mentioned 378 activities (from the previous table). This means that an average of 1.89 activities were undertaken per person (see % column total).

A cumulative percentage of 153.5% for picnicking is not meaningful. Some printouts automatically include this column.

Frequency distributions can be produced graphically by a bar or line graph. This may be the most helpful way to present the data in the survey report.

10.3 Cross-Tabulation

Cross-tabulation analysis is used to investigate the relationship between two different variables. The examples explain cross-tabulations of the following two questions.

QUESTION A: How many times have you visited Abel Tasman National Park before this visit?

Response options: never, once, twice or more

QUESTION B: Would you support a policy of users being responsible for removing their own rubbish from the park?

Response option: Yes, no

Frequency distributions for these two questions provide the following information:

QUESTION A:

Times Visited	Frequency
Never	400
Once	250
Twice or more	350

TOTAL 1,000

QUESTION B:

Support Rubbish Policy	Frequency
Yes	700
No	300
TOTAL	1,000

Cross-tabulating Question A with Question B gives additional information, as evident from the tables.

EXAMPLE: Simple cross-tabulation table

Times	Visited by S	upport Rubbish	1 Policy	
	Never	Once	Twice or more	Total
Yes	230	150	320	700
No	170	100	30	300
Total	400	250	350	1000

Notes: 230 respondents had never been to Abel Tasman National Park (ATNP) before and supported a policy of personal rubbish removal.

Support Rubbish		Times Visited		
Policy	Never	Once	Twice or more	Row total
Yes	230.0	150.0	320.0	700.0
	32.9	21.4	45.7	100.0
	57.5	60.0	91.4	70.0
	23.0	15.0	32.0	70.0
No	170.0	100.0	30.0	300.0
	56.7	33.3	10.0	100.0
	42.5	40.0	8.6	30.0
	17.0	10.0	3.0	30.0
Column Total	400.0	250.0	350.0	1000
	40.0	25.0	35.0	100.0
	100.0	100.0	100.0	100.0
	40.0	25.0	35.0	100.0

EXAMPLE: Cross-tabulation table including counts and percentages

Notes: the figures represent: Frequency, Row %, Column %, Total

230 respondents of the 400 who had never been to ATNP before supported a policy of personal rubbish removal. This represented 57.5% of the people who had never visited ATNP before and 32.9% of all those people who supported personal rubbish disposal. The 230 respondents were 23.0% of the total sample.

10.4 Three-Way Cross-Tabulation

Extending a cross-tabulation to analyse three variables, gives a 3-way relationship. The result is a series of cross-tabulation tables for each category of the third variable.

EXAMPLE: Three-Way Cross-Tabulation

Times Visited by Support Rubbish Policy by Gender

MALE				
	Never	Once	Twice or More	Total
Yes	130	95	280	505
+No	90	40	28	158
TOTAL	220	135	308	663
FEMALE	N .			
	Never	Once	Twice or More	Total
Yes	100	55	40	195
No	80	60	2	142
TOTAL	180	115	42	337

10.5 Selecting Analyses

During the initial planning stages of your survey, the types of analyses required should be discussed with the social scientist. This ensures that questions are designed appropriately.

To do this, look at the list of information items required from the survey (see Section 3 Statement of Objectives). In most cases, a frequency distribution will be required for each item of information. Then consider cross-tabulations by noting relationships of interest. Specify the desired analyses on paper.

EXAMPLE: Analysis Specification

Frequency distribution: all items (multi-response questions analysed by responses and respondents)

Cross-Tabulations:

use of tracks by age use of tracks by presence of children in group use of tracks by size of group use of visitor centre by age use of visitor centre by gender use of visitor centre by use of tracks etc.

3-way Cross-Tabulations

main activity by country of residence by gender main activity by use of tracks by gender

Analyses may be carried out on the basis of:

- visits (NB: one person may visit more than once)
- visitors, or
- groups of visitors.

Consider which base is the most appropriate for each item of information and discuss with the social scientist, so that the questions are designed appropriately.

Check that the list of analyses will satisfy your survey objectives. Avoid analyses that will not address one of your objectives -they will unnecessarily waste money.

10.6 Statistical Tests

Relationships between variables can be tested for statistical significance. The most

common type of test for data from visitor surveys is χ^2 . Discuss statistical tests with the department's social scientists unless you are familiar with the statistical rationale and techniques yourself.

10.7 Response Rate

During the analysis stage, the calculation of the response and non-response rates should be undertaken.

In reporting the survey, the following details of the sample should be recorded: a target sample size (includes ineligibles and excludes refusals) b total number contacted c total number of actual respondents d total number of usable respondents (if different to actual respondents).

The **response rate** is $c/a \ge 100$. This indicates how successful the survey was in contacting and questioning the sample. This is different to the non-response rate which is calculated by $(b-c)/b \ge 100$. This figure indicates to what extent people were unwilling to answer although contacted.

Comment should be made about how representative the sample is of the survey population. Any bias in the sample composition should be noted, for example, over-representation of one sex or certain age groups.

11 REPORT

The final stage of the survey process is to present a report of the results. The report should include:

- the statement of objectives
- description of the site
- survey methodology: sampling procedures, questionnaire distribution and response rate, weighting of data, data analysis
- copy of the questionnaire and other forms used
- description of the results (including identification of the error margin)
- discussion of the results in relation to the objectives, highlighting management implications and recommendations from the research
- critique of the survey methodology and suggestions for future survey improvements.

It would also be useful to document costs of the survey and staffing requirements, as well as note improvements that could be made to future survey methods.

Use maps, diagrams, figures and tables wherever applicable. Use a uniform table format throughout.

Place copies of the report in relevant libraries so that the results may be accessible to others and send a copy to DOC's social scientists.

12 GLOSSARY

The following terms should be used in questions in preference to other terms (some of which are listed):

Activities:

Walking, walker Tramping, tramper (not hiking, hiker, bushwalking, bushwalker) Hunting, hunter Fishing, fisher, angler (not fisherman) Swimming, swimmer Photography, photographer Climbing, climber Cycling, cyclist Picnicking, picnicker, picnic

Specialist activities:

Canoeing for open canoe e.g. Canadian canoe Kayaking for closed-in kayak Mountain bike, mountain biker

Facilities:

Campsite (not campground) Fireplace Barbecues (not BBQ) Hut Shelter Outdoor education centre Track: path, walking track, tramping track, route Track markers Visitor centre (not information centres) Picnic sites (not picnic grounds) Car park DOC office (not Field Centre)

Other:

Summer nature programme Visitor programme Visitor (not user) DOC staff (not park ranger or conservation officer)

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APPENDIX 1: EXAMPLE OF DEPARTMENT OF STATISTICS NOTIFICATION

21 May 1990

Paul Satherley Statistics Co-ordination and Standards Section Department of Statistics P.O. Box 2922 WELINGTON

Dear Paul

NOTIFICATION OF SOUTH WESTLAND HUNTERS' SURVEY

This letter is to notify you that the Department of Conservation intends to conduct a visitor survey under the waiver obtained from the Department of Statistics on 12 December 1989.

This department intends to conduct a survey of hunters to southern South Westland during this year. The information being sought is about the hunters' visits and their opinions of a trial system of allocating hunters to specific hunting blocks. The information will have direct input into management by guiding the decision on whether to continue the trial system, as well as providing basic information on the hunters themselves and their visit (accommodation used, reason for hunting in South Westland and so forth). The survey does not have policy implications beyond the management of hunting in southern South Westland.

If you require any further information, please contact me.

Yours sincerely

Kay Booth for Director of Science

APPENDIX 2 : STANDARD QUESTIONNAIRE FOR A TRACK SURVEY (INTERVIEWER-ADMINISTERED EXAMPLE)

ROUTEBURN TRACK VISITOR SURVEY

Interviewer: Date: Weather: Questionnaire No: Survey Point:

[Note to reader: introductory statement]

First of all, I would like to ask you about your visit to the Routeburn Track.

1. How many times have you walked the Routeburn Track before this visit?

2. Who are you walking the track with? (choose 1 option which best describes your group)

- □ By yourself
- \Box With family
- \Box With friends
- \Box With both family and friends
- \Box With a club group
- □ With a commercial group (e.g. bus tour)
- Other (please describe) ______

[Note to reader: SHOW CARD is written an instruction in this question to tell the interviewer to show the respondent a written list of the response options. The most practical means of doing this is to orientate the clipboard so that the respondent can read the response options. The interviewer should read the options aloud].

3. How many nights are you spending on the track?______nights.

[Note to reader: 0 nights would be a day trip].

4. Please tell me where you are staying each night on the Routeburn Track.

SHOW CARD

On the first night?

On the second night?

OBTAIN RESPONSE FOR ALL NIGHTS RESPONDENT IS ON THE TRACK. WRITE NUMBER BESIDE HUT/CAMPSITE ($1=1^{ST}$ NIGHT, $2=2^{ND}$ NIGHT, ETC.)

Lake Howden hut
Lake Howden campsite
Lake Mackenzie campsite
Routeburn Falls hut
Routeburn Flats hut
Routeburn Flats campsite
Other (please describe)

5. What activities have you done while on the Routeburn track?

[Note to reader: list relevant activities].

6. (a) Where did you stay the night before walking the Routeburn Track? Please tell me the town or nearest town. This may be where you live.

BEFORE _____

6. (b) Where dwill you stay the night after walking the Routeburn Track? Please tell me the town or nearest town. This may be where you live.

AFTER _____

- 7. (a) How did you travel to the track from where you stayed the previous night?
- □ private car
- \Box rental car
- \Box bus
- □ hitchhiked
- \Box walked from another track
- \Box other (please describe)
- (b) How will you travel from the track to the next overnight stop?
- □ private car
- \Box rental car
- \Box bus
- □ hitchhiked
- \Box walked from another track

 \Box other (please describe)

[Note to reader: Add/delete to list as appropriate].

8. Excluding this trip, have you tramped on any other tracks in the past 2 months which included an overnight stay?

If YES: On which track was that?

 \square No

Yes – list tracks:

Now I would like your thoughts on track formation, facilities and services.

9. How did you find out information about the Routeburn Track?

- □ Newspaper; books; magazine
- □ Pamphlets; posters
- □ Radio
- \Box Films; television
- \Box Visitor centres
- $\ \ \, \square \quad Someone \ told \ me$
- $\Box \quad \text{Other (please describe)}$
- □ Have not seen any information

[Note to reader: Add/delete where appropriate]

10. Were you satisfied with the information available?

If NO: Why was that?

□ No - reasons: ______ □ Yes

[Note to reader: Q11 focuses on quality of the facilites while Q12 focuses on the quantity or number provided].

11. How satisfied or dissatisfied are you with the quality of the following on the Routeburn Track?

	very satisfied	satisfied	neither	dissatisfied	very dissatisfied	not used
cooking facilities in huts						
at Howden at Mackenzie at Routeburn Falls at Routeburn Flats						
sleeping facilities in huts						
at Howden at Mackenzie at Routeburn Falls at Routeburn Flats						
[Note to reader: the first latter facility examples a generally]	t two facilitio are seeking a	es have beer n overall sat	n designed to isfaction lev	o elicit a respo rel with that fa	onse for each h cility on the tr	ut. The ack
heating in huts						
camping sites						
toilets						
[Note to reader: Ad	d/delete v	where app	propriate]			

12. Do you think that there should be more huts on the track than there are now, less than there are now, or the same number as now?

[Note to reader: repeat this question wording for each facility. When the respondent is familiar with the question approach, the wording could be shortened to 'and what about track marking?'].

	MORE	SAME	LESS
Huts			
Shelters			
Campsites			
Fireplaces			
Bridges			
Signposting			
Track Marking			
Tracks			
Short side tracks/nature trails			
car park at start of track			
Picnic tables			
Toilets			
Information displays/leaflets			

[Note to reader: Add/delete where appropriate]

13. (a) Apart from those facilities are there any other facilities that currently aren't provided which you feel should be?

If YES: What facilities?

 \square NO

YES – list facilities

(b) Are there any facilities that should not be provided?

 \square NO

YES – list facilities

14. Are you carrying a portable cooker?

 \square NO

 \Box YES

15. Have you found there were too many people at any point on the walk?

If YES: Where was this?

□ NO □ YES - where _____

[Note to reader: Q16 and 17 are examples of questions which use surveys to obtain input from visitors into management decision-making].

16. On the Routeburn Track people are only allowed to camp at marked campsites at Routeburn Flats, Lake Mackenzie and Lake Howden. This rule made to protect the environment. What do you think of this rule?

□ Strongly agree

□ Agree

- □ Neither agree nor disagree
- □ Disagree
- □ Strongly disagree

Comments:

17. Only a certain number of people are allowed on the Track at any one time. This is to ensure that people will enjoy their walk. What do you think about this limit on numbers?

- □ Strongly agree
- □ Agree
- □ Neither agree nor disagree
- □ Disagree
- □ Strongly disagree

Comments:

The next questions ask you about your reasons for walking the track and satisfaction with your visit.

18. What are your main reasons for walking the Routeburn Track?

What things are you most dissatisfied with about your walk? If you were not dissatisfied with anything please say so

(a) What were you most dissatisfied with?

(b) Why was that?

(c) What were next most dissatisfied with?

(d) Why was that?

- 20. What things have given you most enjoyment on your walk?
- (a) What gave you the most enjoyment?

(b) What gave you the next most enjoyment?

To help understand who is walking the Routeburn Track, could you please tell a little bit about yourself.

[Note to reader: as with earlier questions, only choose questions relevant to your objectives].

21. In which age group are you?

- □ 0-14
- □ 15-19 □ 20-29
- □ <u>30-39</u>
- □ 40-49
- □ 50-59
- □ 60+
- 22. Are you:
 - □ Male
 - □ Female

23. What activity normally takes up the greatest amount of your week? Please tick one box only.

- □ Paid employment or self-employment (please specify occupation) _
- \Box Home duties
- □ Volunteer work
- □ Unemployed
- □ Study
- □ Retired
- Other (please describe)

[Note to reader: the Department of Statistics have complied an occupational classification system for the first part of this question. Refer to Social Scientist].

- 24. What is your highest educational qualification?
 - □ No qualification
 - □ School Certificate or equivalent
 - University Entrance or equivalent
 - \Box Higher school certificate of higher leaving certificate (7th form)
 - □ Vocational or trade qualification
 - □ University degree/diploma
 - Other (please describe)

25. Where do you currently live?

TOWN OR CITY

COUNTRY

IF LIVE IN NZ ASK Q26 IF LIVE OVERSEAS, GO TO Q27

26. Which ethnic group do you belong to?

- □ NZ European/Pakeha
- D NZ Maori
- Other (please describe) _____

27. Do you belong to an outdoor recreation club (e.g. tramping club, skiing club)?

- □ No
- □ Yes
- 28. Do you belong to a conservation organisation (e.g NZ Forest & Bird)?
 - □ No
 - □ Yes
- 29. Including this trip, how many times have you gone tramping overnight in the past 12 months? ______ times.

[Note to reader: thank you statement].

APPENDIX 3: STANDARD OUESTIONNAIRE FOR A VISITOR SURVEY (SELF-ADMINISTERED EXAMPLE)

FRANZ JOSEF VISITOR CENTRE SURVEY

[Note to reader: fill in questionnaire number and date prior to distribution of questionnaire].

Ouestionnaire no. Date:

[Note to reader: Introductory Statement about the survey. Then write: 'For each question, please tick or write in the space provided'].

First of all, we would like to ask you a few questions about your travels around Franz Josef.

- 1. How did you travel to Franz Josef from where you stayed the night before?
 - \square private car
 - \Box rental car
 - camper van
 - tour bus
 - public transport
 - hitchhiked
 - bicycled
 - \Box other (please describe)

[Note to reader: Add/delete as appropriate]

2. Where did you stay the night before you came to Franz Josef? Please name the town or nearest town. Location:

3. What activities have you done during your visit to Westland National Park? (tick as many boxes as you wich). The map on the facing page shows the boundaries of the national park.

[Note to reader: list all relevant activities. This question assumes the survey is undertaken at the end of visit. Otherwise, see social scientist].

- 4. Have you been to this visitor centre before this visit?
 - No П
 - Yes
 - Don't know

Now we would like to know your thoughts on the visitor centre.

5. How have you heard about the visitor centre (tick as many as apply)

- □ newspapers, books, magazine
- pamphlets, posters П
- radio
- films, television П
- someone told me about it
- saw the visitor centre myself П
- other (please describe)

6. What are your main reasons for coming to the visitor centre?

What information are you seeking from the visitor centre? (tick as many as apply).

- □ None I'm just having a look around
- None I came for another purpose (e.g. to buy hut tickets)
- things to do
- weather
- track information
- accomadation
- nature and natural processes
- history
- other (please describe)

- 8. Did the visitor centre provide you with all the information you wanted?
 - □ I wasn't seeking information
 - No- suggestions please: ______
 - \Box Yes

9. What did you think of the displays in the visitor centre?

- □ Very good
- □ Good
- \Box Neither good nor poor
- □ Poor
- □ Very poor

Comments, especially on improvements that could be made to the displays:

- 10. Did you see the audio-visual presentation?
 - □ Yes
 - \square No

If YES,

Did you think it was

- \Box Very good
- □ Good
- \Box Neither good nor poor
- □ Poor
- □ Very poor

Comments: _____

If NO, why didn't you watch it? _____

- 11. What did you think of the helpfulness of the staff in the visitor centre?
 - □ Very good
 - □ Good
 - □ Neither good nor poor
 - □ Poor
 - □ Very poor

Comments, especially on improvements:

12. If they were available, which of these items would you be likely to buy at the visitors centre? (tick as many boxes as you wish)

- \Box Fresh milk
- □ Fresh bread
- □ Daily newspapers
- □ Insect repellent
- \Box Suntan lotion
- □ Camera films
- □ Drinks
- \Box Snack foods
- \Box Post cards
- □ T-shirts
- □ Posters
- \square Books
- □ None
- Other (please describe): ______

[Note to reader: Add/delete as appropriate].

To help us understand who is coming to the visitor centre, could you please tell us a little bit about yourself.

SEE QUESTION 21 ONWARDS IN APPENDIX 2

[Note to reader: thank you statement]

APPENDIX 4: STANDARD QUESTIONNAIRE FOR A PROGRAMME SURVEY (SELF-ADMINISTERED EXAMPLE)

UREWERA NATIONAL PARK VISITOR PROGRAMME SURVEY

[Note to reader: choose appropriate header catergories. To be filled in prior to distribution of questionnaires].

Activity: Date:

Questionnaire No: Place:

[Note to reader: Introductory Statement about the survey. Then write: For each question, please tick a box or write in the space provided]

Have you taken part in a Department of Conservation visitor programme activity before today?

- \Box no
- □ yes (here in Urewera National Park)
- \Box yes (elsewhere in NZ)
- \Box don't know
- 2. How have you heardabout this programme? (tick as many boxes as
 - □ newspaper; magazines
 - □ pamphlets, posters
 - 🗆 radio
 - \Box visitor centre
 - \Box someone told me about it
 - \Box other (please describe):

3. What did you enjoy the most about the visitor programme activity today?

4. Did anything spoil your enjoyment of the day?

- □ No
- Yes what was the problem? ______

5. Do you think the activity can be improved

- □ No
- □ Yes how?_____

6. Why did you come on the visitor programme today?_____

7. Overall, how satisfied are you with theis visitor programme activity?

- \Box Very satisfied
- □ Satisfied
- □ Neither satisfied nor dissatisfied
- $\ \ \, \square \quad Dissatisfied$
- □ Very dissatisfied

Comments:

To help us understand who comes along to our visito programme activities, could you please tell us a little bit about yourself.

SEE QUESTION 21 ONWARDS IN APPENDIX 2.

[Note to reader: thank you statement]

APPENDIX 5: STANDARD OUESTIONNAIRE FOR A REGIONAL SURVEY (SELF-ADMINISTERED EXAMPLE)

TONGARIRO REGION VISITOR SURVEY

[Note to reader: choose appropriate header categories. To be filled in prior to distribution of questionnaires].

Ouestionnaire No.: Distribution point: Date:

[Note to reader: Introductory statement about the survey. Then write: For each question, please tick a box or write in the space provided].

First of all, we would like to ask you a few questions about your travels in the Tongariro region. The map on the facing page shows the boundaries of the Tongariro region.

1. Do you live in the Tongariro region?

- □ No
- □ Yes

If YES, please go to QX

[Note to reader: include this question if you have questions relevant to residents. Otherwise questionnaires should not be distributed to residents].

2. How many times have you visited the Tongariro region before this visit?

3. How did you travel to into the region from where you staved the night before? (tick as many as apply)

- \square private car
- \Box rental car
- \Box camper van
- tour bus
- public transport
- hitchhiked
- П bicvcled
- \Box other (please describe)

[Note to reader: Add/delete as appropriate]

4. Who are you travelling with? (choose the option which best describes your group)

- By yourself
- With family
- With friends
- With both family and friends П
- With a club group
- With a commercial group (e.g. bus tour)
- Other (please describe)

5. Where did you stay the night before you come to the Tongariro region and where will you stay the night after you leave the region? Please name the town or nearest town (even if it is where you live).

> BEFORE: AFTER: _____

6. What activities have you done during your visit to the Tongariro region? (tick as many boxes as you wish)\

[Note to reader: list all relevant activities. This question assumes the survey is undertaken at the end of the visit. Otherwise, see social scientist].

7. Are you staying overnight in the Tongariro region?

- □ No
- □ Yes how many nights? Nights

If you ticked NO please go to Q10.

8. Where are you staying in the region? Please name the town or nearest town. TOWN(S):_____

9. What accommodation are you yourself using during your visit to the Tongariro region? (tick as many as apply)

- □ Private home
- □ Hotel/motel
- □ Club lodge/hut
- □ Park hut
- □ Camping ground
- □ Freedom camping (outside camping ground)
- Other (please describe)

10. Are you visiting Tongariro National Park on this trip?

- \square No
- □ Yes
- □ Don't know

11. What is your main reason for visiting the Tongariro region?

To help us understand who is coming to the Tongariro region, could you please tell us a little bit about yourself.

SEE QUESTION 21 ONWARDS IN APPENDIX 2

[Note to reader: thank you statement]

APPENDIX 6 : EXAMPLES OF NON-RESPONSE RECORD SHEETS

	ABEL TASHAN COASTAL TRACK USER SURVEY 1989/90 NON-RESPONSE RECORD SHEET									
SITE: INTERV Please interv	SITE: <u>MARAHAM</u> DATE: <u>$11-1-90$</u> INTERVIEWER: <u>KLB</u> INTERVIEWING LOCATION: <u>TRACK EXIT</u> Please keep a record through the day of those you approach who refuse, through one reason or other, to be interviewed. Record their approximate age, sex and, where possible, reason for refusal.									
TIME	AGE GROUP (TICK) 0-14 15-19 20-29 30-39 40-49 50-59 60+						MALE	FEHALE	REASON	
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ABEL TASHWA NATIONAL PARK BOAT USER SURVEY 1989/90											
NON-RESPONSE RECORD SHEET											
INTERVIEWER:											
Please keep a record of those you approach who refuse, through one reason or other, to be interviewed. Record the time, date and location and then the boat type and reason for refusal.											
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APPENDIX 7 : EXAMPLE OF A CODING SHEET

APPENDIX 8. Feedback form

Feedback from people using these guideline guideline content and the standard question people using the report if they copied this t	es will identify improvements to the s. The department would be grateful to form, completed it and returned it to:
Social Scientist Science and Research Directorate Department of Conservation P O Box 10-420 WELLINGTON	
DOC staff should fill in and return this for	m as part of their survey project.
1. Survey name	
2. Contact person	
3. Conservancy / Field Centre	
4. Did you have any difficulties using the survey guidelines?	yes/no
If yes, please describe the difficulties.	
2 C	
5. Did you have any difficulties using any of the standard questions?	yes/no
If yes, please attach a copy of the questionnaire, mark the questions and describe the difficulties (such as respondents didn't understand	
the question, poor response rate, analysis was too difficult).	
6. What is the title of your report?	