Appendix 1: Methodology

1 Background

The intention to conduct research on public attitudes to justice, especially criminal justice, was expressed in the Ministry's 1997/98 business plan. The general goal of this research was to assess public attitudes and knowledge about the criminal justice system and to explore what shapes these attitudes.

1.1 Research objectives

The primary objectives of this study were as follows:

- 1 Assess public knowledge about crime trends and some aspects of the criminal justice system.
- 2 Assess public perceptions of:
 - i. the relative seriousness of some crimes;
 - ii. the preferred sentence imposed for some crimes;
 - iii. the aims of sentencing;
 - iv. the severity of the sentence likely to have been imposed for some crimes;
 - v. the substitution of a fine for the sentence likely to have been imposed;
 - vi. the performance of some occupational groups working within the criminal justice system.
- 3 Assess whether the addition of a limited description of the circumstances surrounding the commission of some crimes led to a moderation of the choice of sentence imposed.

2 Sample methodology

2.1 ACNielsen's sample frame

ACNielsen, the organisation which managed the fieldwork and data collection for the survey, imposes random or quasi-random guidelines for:

- selecting area units within stratification grid cells (strata);
- selecting streets and dwellings within area units;
- selecting participants within dwellings.

It has developed its own sample frame for 'area units' based on the smallest geographical units defined by Statistics NZ (Meshblocks). Statistics NZ has split the country into approximately 36,000 Meshblocks, which contain, on average, around 100 residents

living in around 35 dwellings. This is too small a unit for survey research purposes, given that random selection procedures can mean that a particular Meshblock might be selected a number of times. The next smallest Statistics NZ geographical construct is called the 'Area Unit'. There are approximately 1,700 of these and they are, on average, an amalgamation of around 20 Meshblocks. This means they contain, on average, around 2,000 residents living in around 700 dwellings. This total of around 1,700 Area Units is insufficient to fulfil ACNielsen's practical requirement to be able to have a large number of areas in use at any one time. Accordingly, ACNielsen created a 'Nielsen Area Unit' (NAU) intermediate in size between the two Statistics NZ units. The Nielsen version combines, on average, around seven Meshblocks, with an average population of around 700 living in around 230 dwellings.

2.2 Sample design

The sample design used by ACNielsen in the Ministry's project is best described as a fully national multi-stage stratified probability sample with clustering.

Cluster sampling involves a process whereby a number of dwellings are selected to be sampled in a patterned way around a single 'start point'. The purpose of this is to reduce cost by gaining efficiency in interviewers' travel times and mileage. ACNielsen generally defines clusters in terms of the number of interviews to be obtained around each start point. This, technically, is a quota, because it requires interviewers to keep calling on and replacing dwellings until they have obtained their quota of five interviews, and this means an indeterminate (and possibly large) number of addresses are called upon. This can have the effect of reducing the overall response rate and, thereby, of increasing the possibility of a non-response bias.

2.3 Sample selection

The sample comprised 1,000 interviews amongst the general population aged 18 years and over (the main sample), and 250 interviews amongst each of the Māori and Pacific Persons 18+ population (the booster samples).

Main Sample

For the purpose of sample selection, the country was divided into 14 locations or strata. These locations were defined in terms of region and area type and were designed to ensure a fully representative cross-section of the New Zealand population was included in the sample.

The next step was to obtain estimates of the number of households with at least one person aged 18+ and over (the sub-group of the population under study) from Statistics New Zealand. The sample size required for each of the 14 regions was then calculated in direct proportion to the distribution of households (see Table 1).

Location	Number of	%	Sample Size	No. of Areas
	Households		_	
Auckland	327,165	25.8%	270	54
Hamilton	44,616	3.5%	40	8
Wellington	118,881	9.4%	90	18
Christchurch	121,905	9.6%.	90	18
Dunedin	40,254	3.2%	30	6
Provincial North	85,743	6.8%	70	14
Provincial Central	99,705	7.9%	80	16
Provincial South	37,320	2.9%	30	6
Towns North	78,861	6.2%	60	12
Towns Central	62,862	5.0%	50	10
Towns South	73,212	5.8%	50	10
Rural North	85,119	6.7%	70	14
Rural Central	32,529	2.6%	20	4
Rural South	60,480	4.8%	50	10
TOTAL	1,268,652	100.0%	1000	200

Table 1Sample frame for main sample

Source: Census 1996.

As part of the sample design, it was decided that the total of 1,000 interviews would be obtained from 200 clusters, each cluster containing five interviews, with one interview per household.

The number of clusters required was calculated by dividing the sample size for each location by five. This determined the number of ACNielsen Area Units (or maps) that needed to be selected for each location. It should be noted that, in some cases, the sample size has been adjusted so the number of area units required in each location is a whole number and so that the sum across all locations adds back to 200.

ACNielsen has an in-house computer system for randomly selecting area units in proportion to population size. For practical purposes, the sample for each location is drawn separately, by specifying the number of maps required from the range of area units that define the location.

Once the sample was selected, the maps were distributed to the field force, and interviewers selected households from which they attempted to obtain an interview, following a pre-determined route.

Māori and Pacific Peoples booster samples

The sampling procedures for the Māori and Pacific Peoples boosters were much the same in principle as for the main sample. However, due to the much smaller total population size of each of these sub-groups, the number of location definitions used for sample selection was reduced from 14 to 5 (see Tables 2 and 3) for each booster.

Attitudes to crime and punishment: A New Zealand study

Number of	%	Sample	No. of
Households		Size	Areas
73,632	37.1	95	19
44,124	22.2	55	11
33,213	16.7	40	8
17,748	8.9	25	5
29,640	14.9	35	7
198,357	100.0	250	50
	Number of Households 73,632 44,124 33,213 17,748 29,640 198,357	Number of Households % 73,632 37.1 44,124 22.2 33,213 16.7 17,748 8.9 29,640 14.9 198,357 100.0	Number of Households%Sample Size73,63237.19544,12422.25533,21316.74017,7488.92529,64014.935198,357100.0250

Table 2	Sample	frame	for	Māori	booster
---------	--------	-------	-----	-------	---------

Source: Census 1996.

Table 5 Sample fram	Table 5 Sample frame for Pacific Peoples booster						
Location	Number of	%	Sample	No. of	Adjusted	Adjusted	
	Households		Size	Areas	No. of	Sample	
					Areas	Size	
Upper North Island – Urban	33,012	73.3	185	37	38	190	
Upper North Island – Rural	2,214	4.9	10	2	2	10	
Lower North Island – Urban	7,905	17.6	45	9	10	50	
Lower North Island – Rural	321	0.7	0	0	0	0	
South Island	1,584	3.5	10	2	0	0	
TOTAL	45,036	100.0	250	50	50	250	

 Table 3
 Sample frame for Pacific Peoples booster

Source: Census 1996

The two booster samples were defined and selected quite independently of each other. Sample sizes for each of the locations were calculated in direct proportion to the number of households with at least one person aged 18 and over who is a Māori or a Pacific Person, in each location.

In order to reduce fieldwork costs, it was decided to eliminate from the sample any areas whose Māori or Pacific Peoples population was less than 5% of the area's total population.

In the case of the Pacific Peoples booster, the decision was made not to interview anyone in the South Island. The Pacific Peoples population is very small and sparse in this part of the country, and the cost of collecting the 10 interviews required (see Table 3) would have outweighed the benefit of representing such a small proportion of the population in the sample. To compensate for this deletion, an additional area was selected from each of the upper and lower North Island urban areas.

In terms of selection, it was decided to allow the maps for the two booster samples to overlap, but the booster group maps were not allowed to overlap with areas selected for the main sample.

3 Fieldwork Procedure

3.1 Questionnaire preparation

The Ministry of Justice, (with input from ACNielsen), prepared the content of the Attitudes and Knowledge questionnaire. ACNielsen was responsible for the questionnaire formatting, and for the pre-testing and piloting of the questionnaire throughout the various stages of its design and development.

Copies of the final questionnaire, screeners, showcards and other field materials used have been included in Appendix 2.

A pre-test of the first draft of the questionnaire was carried out in June 1998. Changes to the questionnaire were made and re-tested in a pilot survey comprising 50 interviews conducted 4–14 February 1999.

Following the pilot survey, the questionnaire was once again fine-tuned, the main objective being to reduce the overall survey length to closer to 35 minutes from the average of 46 minutes which was obtained in the pilot.

The final questionnaire was put out to field for the main fieldwork period 6 March - 2 May 1999.

A total of 1,506 interviews were obtained over this period, split out as follows:

a) 1,006 (Main survey) interviews with respondents 18+ years;

b) 250 (Māori booster) interviews with Māori respondents aged 18+ years;

c) 250 (Pacific booster) interviews with Pacific Peoples respondents aged 18+ years.

Questionnaires and screener sheets were colour-coded to ensure that the results could be traced back to the sample type (i.e. Main, Māori booster or Pacific Peoples booster).

3.2 Interviewer selection, training and briefing

All interviewing was conducted by fully trained and briefed interviewers. Interviewers were given a detailed verbal briefing by their immediate supervisors. This was accompanied by comprehensive documented explanations and instruction in the survey methodology.

The instructions described in detail the call routine to be adhered to and the interviewing procedure to be followed on the Attitudes and Knowledge survey.

3.3 Increasing the response rate – Letterbox drop

Each interviewer's first trip into their map areas was solely to hand-deliver an explanatory letter to all dwellings likely to be approached in the main survey areas (i.e. the first 15–20 consecutive homes from the interviewer's start point in each map area). No attempts were made to contact or interview potential respondents at this stage. This trip was additional to the three trips into the area permitted for actual interviewing.

The aim of the letterbox drop was to reduce the number of 'household refusals' (which typically comprise 15%-20% of all contacts), and, in so doing, increase the overall response rate. While we cannot accurately measure its actual effect, we do believe that the letterbox drop will have played some part in the pleasing response rates achieved (refer to Section 6).

Letters were delivered in those areas involved in the main survey only. No letters were dropped in booster areas for the following reasons:

- a) potential time and resource wastage in leaving letters at large numbers of nonqualifying households.
- b) potential negative PR when respondents expect to be interviewed, only to find they do not qualify as they are not a Māori or Pacific Person.

The letterbox drop was restricted to metropolitan and provincial urban areas only, a decision largely based on the facts that the cost of doing a letterbox drop in rural areas would be high and that the response rate in such areas is invariably higher than in urban areas.

In all, letters were dropped to approximately 70% of the interviewing clusters in the main sample areas.

The Ministry of Justice was responsible for developing and printing the letter, a copy of which has been included in this report (refer to Appendix 2). In each case, this letter was posted in an envelope with the Ministry logo on it. Interviewers wrote the home address on each envelope before dropping it in the letterbox - a tactic used to entice the household to open and read the letter rather than just discard it.

The letterbox drop was carried out 3–4 days prior to the interviewer commencing interviews in that area, to maximise its impact.

During the conduct of fieldwork itself, ACNielsen imposes a number of quality control procedures that have very important implications for ensuring the representativeness of the sample. These are described below.

3.4 Walk pattern

Interviewers were allocated a starting point in each map area (i.e. a numbered house on a named street). The walk pattern involved turning right as they walked out into the street

from the house just called at (or starting point), thus walking in a clockwise direction. Interviewers called on consecutive dwellings until their cluster of five interviews for the map area was completed.

3.5 Call routine

A total of five interviews per map area was obtained in both the main and booster areas.

In order to maximise the chances of obtaining interviews at initially-selected dwellings and to minimise replacement of dwellings, a maximum of three trips into any urban area and two trips into rural areas were permitted.

Up to six call-backs were made to a household before it was replaced, and at any time there could only be as many 'live' households as there were number of interviews left to complete in the map area.

3.6 Household replacement

Some households had to be replaced, either because no contact was made even after the call-back routine was completed because the person who answered the door declined participation or because the selected respondent themselves declined.

All permanent private dwellings approached were included in the response-rate calculation (refer to Section 6), regardless of whether or not the house approached resulted in a completed interview. The outcomes of each household approached (refusals, completed interviews etc.) were detailed on call sheets filled in by interviewers on the spot.

3.7 Respondent selection

A screener sheet was closely followed in each case to ensure that the respondent was eligible for survey. A separate screener sheet was used for the main survey and for Māori and Pacific Peoples boosters.

Interviewers were instructed to first show an official introductory letter to the dooropener. This letter covered issues of confidentiality and informed consent. It was developed by the Ministry of Justice and the required number of copies were printed by ACNielsen. The Ministry also provided translations of the letter into both Māori and Sāmoan, which were made available to the interviewers. Copies of this letter (all versions) have been included for reference in Appendix 2.

Because of the strong possibility of intra-household correlation on many behaviours and attitudes, a decision was made to interview only one person per household. The essential requirement is that the method used to select the one person should randomise the process of selection and remove any interviewer discretion from it. The 'next birthday' technique was selected.

To avoid self-selection bias, the selection procedure involved asking the door opener for the first names and month of birth of all people eligible for interview, whether for the main survey (all 18+ years), Māori booster (identified themselves as Māori and aged 18+ years) or Pacific Peoples booster (identified themselves as a Pacific person and aged 18+ years). Interviewers listed the names and birth months of all eligible occupants on the inside cover of the questionnaire. The interviewer then carefully selected from this list the person with the 'next birthday' as the required respondent.

In a flatting situation or where the door-opener didn't know the other occupants' birthdays, the occupant whose name started with the letter closest to 'a' in the alphabet was selected as the respondent.

The interviewer then asked to speak to the selected respondent, checked again that they qualified, and asked them to participate in the survey. The official introductory letter was then shown to the selected respondent (if different from the door-opener). No one other than the selected respondent was approached for interview.

4 Post-fieldwork audit and processing

4.1 Post-fieldwork checking and auditing

A number of post-fieldwork checks and audits were in place to ensure that survey results were accurate and consistent.

Regional supervisors were responsible for checking each interviewer's work including:

- a check of call sheets to ensure interviewers followed the correct calling and selection procedures for respondents;
- a 10% audit of each interviewer's work by telephoning the respondent to check that the interview took place and the checking of a selection of questions to ensure that responses have been recorded correctly.

The final level of checking and auditing took place after the completed questionnaires had been received at ACNielsen's Auckland office. Any questionnaires with incomplete or inconsistent data were returned to the regional supervisor or interviewer to re-contact the respondent.

4.2 Questionnaire editing and coding

Computer-based checks and audits eliminated the need for any substantial editing, but to the extent that there was item non-response in the questionnaires, an appropriate edit code was assigned to the item.

Code 888888 (in the data file), for the uncoded question 4c 'amount of fine', refers to an 'unspecified' response, and 999999 pertains to a 'don't know' response.

In addition to editing, coding of any 'other (specify)' responses was the other main undertaking at this stage of the process. All questions already had comprehensive code frames attached. All existing code frames were developed by ACNielsen and the Ministry of Justice, from listings of open-ended responses acquired in the pilot survey, in particular, the code frames for Q 14b 'when most recently a victim of crime' and Q14c 'crime types involved'.

Quality control on the editing and coding process was enhanced by using a small team of coders.

4.3 Data entry quality control

Each questionnaire verified was re-entered by a different operator from the one who did the initial data entry. The other major quality control procedure for data entry was to use a very small and dedicated team of operators for the complete process.

4.4 Data cleaning

Data cleaning involved checking a set of sample data cross-tabulations against the frequency counts derived from the data entry process, to ensure that base numbers were consistent and correct, and that questionnaire skips were correctly followed. At this stage, the meaning and sense of the data were also checked to ensure they contained no unexpected findings or fluctuations. Where there were inconsistencies or unexpected findings, the questionnaires were re-examined for a 'sense' check.

5 Weighting methodology

The weighting process for this survey consisted of two main steps. First, respondents were weighted to compensate for their different selection probabilities. Then rim weighting was applied to align the survey results with known population figures for age, sex and ethnicity.

5.1 Selection probabilities

Part of the sample design for this survey was the over-sampling of Māori and Pacific Peoples respondents. This was done to provide sufficiently large samples for reliable analyses of these groups.

Because only one person was selected for interview from each selected household, the respondents' probability of selection was also inversely proportional to the number of people eligible to be selected in that household.

To compensate for these factors, each person was weighted by the number of people eligible to be selected in that household. This was either the number of people aged 18 or over (for households approached as part of the main sample) or the number of Māori

or Pacific Peoples aged 18 or more (for households interviewed as part of the Māori or Pacific Peoples booster samples). The over-sampling of Māori and Pacific Peoples was also compensated for by the ethnicity rim-weighting control described in 5.2. This gives similar results to the household weighting method described by J. Elisabeth Wells in *The Australian and New Zealand Journal of Statistics, vol. 40, no. 3,* September 1998. While this method is known to be inefficient when the over-sampled group makes up a small proportion of each household, Wells showed it was efficient in situations like this where the oversampled group is clustered in certain households.

5.2 Rim weighting

Rim weighting is a well established technique that helps to correct for non-response, while slightly increasing efficiency. It aligns the survey results with known population figures on each of a number of population classifications or rims.

The rim process works as follows: the sample is aligned with population figures for the first rim, by adjusting the initial weight described above (the eligible household size). This is a simple process known as post-stratification. This is done for each rim in turn, using the weights from the previous stage as input to the next. Because aligning later rims will have pulled the earlier rims slightly out of alignment, this whole process is repeated to bring the rims into even closer alignment and repeated again many times until all the rims are aligned within close tolerances.

Two rims were used:

- 1 ethnicity (as mentioned above);
- 2 sex interlaced with age groups.

Prioritised ethnicity was used, following the Statistics New Zealand definition.

Details of the classifications used are shown in the tables facing, with the corresponding population figures.

Sex and Age	Population	0⁄0
Males 18–19 Years	52,716	2.0
Females 18–19 Years	51,729	2.0
Males 20–29 Years	267,285	10.2
Females 20–29 Years	277,776	10.6
Males 30–39 Years	281,745	10.7
Females 30–39 Years	296,952	11.3
Males 40–49 Years	245,688	9.3
Females 40–49 Years	250,539	9.5
Males 50–59 Years	172,137	6.6
Females 50–59 Years	173,187	6.6
Males 60–69 Years	132,606	5.0
Females 60–69 Years	135,633	5.2
Males 70+ Years	116,928	4.4
Females 70+ Years	172,767	6.6
Total	2,627,688	100.0

Table 4 Interlaced sex and age population figures

Source: Statistics New Zealand.

Table 5	Ethnicity population figure	s
	, i i o	

Ethnic Group	Population	%	Adjusted Population	%
NZ European/Pakeha	1,997,187	76.0	2,088,820	79.5
Māori	294,756	11.2	308,280	11.7
Pacific Peoples	101,985	3.9	106,664	4.1
Other	118,491	4.5	123,927	4.7
Not specified	115,272	4.4		
Total	2,627,691	100.0	2,627,691	100.0

Notes: a) Ethnicity based on prioritised membership.b) Not specified ethnic group has been re-distributed on a pro-rata basis among known groups. Source: Statistics New Zealand.

6 Response rate analysis

Main Survey

(A)	Total households approached		1500
	Holiday homes / empty homes	75	
(B)	Total occupied households approached		1425
	No one home / unapproachable household	64	
(C)	Total households where contact made		1361
	No one aged 18+ years in household	1	
(D)	Total eligible households		1360
	Household refusals	138	
	Respondent not interviewable (language etc.)	37	
	Respondent refusal	130	
	Not available during survey period	46	
	Interview not completed	2	
	Appointment arranged but not kept	1	
(E)	Total completed interviews		1006

Response rate	(E/B)	71%
Conversion rate	(E/D)	74%

Māori Booster

(A)	Households approached		1543
	Holiday homes / empty homes	50	
(B)	Total occupied households approached		1493
	No one home / unapproachable household	70	
(C)	Total households where contact made		1423
	No Māori person aged 18+ years in household	2	
	No Māori people in household	1072	
(D)	Total eligible households		349
	Household refusals	35	
	Respondents not interviewable (language etc.)	4	
	Respondent refusal	37	
	Not available during survey period	18	
	Interview not completed	2	
	Appointment arranged but not kept	3	
(E)	Total completed interviews		250

Conversion rate	(E/D)	72%	

Note: It is not valid to create a response rate using the same definition as is used for the main sample, because all households contacted where there are no Māori residents are ineligible by definition.

Pacific Peoples Booster

(A)	Households approached		1011
	Holiday homes / empty homes	11	
(B)	Total occupied households approached		1000
	No one home / unapproachable household	41	
(C)	Total households where contact made		959
	No Pacific person in household	582	
(D)	Total eligible households		377
	Household refusals	29	
	Respondents not interviewable (language etc)	7	
	Respondent refusal	45	
	Not available during survey period	45	
	Appointment arranged but not kept	1	
(E)	Total completed interviews		250

Note: It is not valid to create a response rate using the same definition as is used for the main sample, because all households contacted where there are no Pacific Peoples residents are ineligible by definition.

7 Sample characteristics

Full sample n=1506

Sex and Age

	Unweighted No.	Weighted	Weighted
	-	No.	0/0
Males	651	727	48
Females	855	779	52
18–19 years	57	60	4
20-29 years	282	312	21
30–39 years	362	331	22
40-49 years	321	285	19
50–59 years	196	198	13
60–69 years	150	154	10
70+ years	137	166	11
Refused	1	-	-
TOTAL	1506	1506	100

Ethnic Origin

	Unweighted	Weighted	Weighted
	No.	No.	%
NZ European/Pakeha	769	1059	70
English	150	177	12
Dutch	20	23	2
Australian	19	23	2
Scottish	88	90	6
Irish	51	46	3
German	4	4	-
Other European	47	54	4
NZ Māori	393	178	12
Sāmoan	153	33	2
Cook Island Māori	72	16	1
Tongan	46	10	1
Niuean	21	5	-
Tokelaun	10	2	-
Fijian	16	3	-
Other Pacific Island	1	-	-
Chinese	28	41	3
Indian	12	12	1
Other	20	27	2
Base	1506	1506	100

Note: Multiple ethnicities were given in some cases. In such cases, the method of classification used by Statistics NZ was used, i.e. persons who specified more than one ethnic group were placed in the category that is highest on the prioritised list. The order used is: NZ Māori, Pacific Peoples, Asian, Other, European only.

8 New Zealand Socio-Economic Index Categories (NZSEI) defined

8.1 Background

The NZSEI is a 'continuous scale of socio-economic status which provides a robust, standardised and internationally comparable measure of occupational class'.

Although this method of classification was originally tested in the health sector, this product has been developed by Statistics New Zealand with a view to being widely applicable to both social research and official statistics.

Statistics New Zealand has modelled the NZSEI on the International Socio-Economic Index (ISEI) developed by Ganzeboom et al. (1992; 1996), to which results have been shown to have a reasonably close fit.

The overall premise of the model is that:

"there exists a fundamental relationship between cultural capital or resources (education) and access to material rewards (income), and that this relationship is mediated through the occupational structure".

Put quite simply, the index assumes that a person's occupation provides a reasonable basis on which to assign them a position on the socio-economic hierarchy.

In the past, the Elley-Irving scale has been the most widely used method of measuring socio-economic status in the New Zealand research community. However, changes in occupational structures, combined with demographic and social changes, have rendered this method outdated. In response, the NZSEI has been developed in line with current occupational structures in New Zealand, using data from the 1991 Census and the New Zealand Standard Classification of Occupations 1990.²¹ Furthermore, it takes advantage of more advanced techniques in statistical modelling.

²¹ The NZSCO groups together occupations with similar skills requirements.

8.2 Deriving socio-economic level

The New Zealand Standard Classification of Occupations (1995) was used to code each respondent's described occupation.

The second spreadsheet contains a summary of the four digit codes assigned above. It comprises a list of all occupations, grouped according to the first three digits in the four digit codes assigned. The descriptions that accompany these codes are therefore broader classifications of occupational groupings.

A two digit NISEI code is allocated to each of these broader three digit occupational groupings. This code is then directly translated into one of seven socio-economic groups, according to where the NISEI code falls within the following ranges.

It should be noted that the scaling used in the NISEI has no conceptual basis. Statistics New Zealand adopted the 10–90 scale that was used in the original ISEI model. The six principal ranges used have been split in such a way as to ensure each class consists of a reasonable proportion of the population.

Class 1 is the highest socio-economic group and class 6 is the lowest.

NZSEI Range		Socio-economic	
		Class	
75–90	=	1	
60-74	=	2	
50-59	=	3	
40-49	=	4	
30-39	=	5	
10-29	=	6	
Other	=	7	

Source: Statistics New Zealand, 1997. The New Zealand Socio-economic Index of Occupational Status (NZSEI), Research report #2.

Appendix 2: Field Materials

This section comprises a copy of the following materials used in the field:

• Letterbox drop letter

• Official introductory letter

- English version
- Māori version
- Sāmoan version

• Screener sheets

- Main survey Māori booster Pacific Peoples booster
- Main questionnaire
- Showcards
- Concept cards