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Practitioners, professional cultures, and perceptions of impact assessment

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ABSTRACT

The very nature of impact assessment (IA) means that it often involves practitioners from a very wide range of disciplinary and professional backgrounds, which open the possibility that how IA is perceived and practised may vary according to the professional background of the practitioner. The purpose of this study is to investigate the extent to which a practitioner's professional background influences their perceptions of the adequacy of impact assessment in New Zealand under the Resource Management Act (RMA). Information gathered concerned professional affiliations, training, understanding of impact assessment practise, and perceptions of adequacy in relation to impact assessment.

The results showed a dominance of a legalistic, operational perspective of impact assessment under the Resource Management Act, across all the main professions represented in the study. However, among preparers of impact assessments there was clear evidence of differences between the four main professional groups – surveyors, planners, engineers and natural scientists – in the way they see the nature and purpose of impact assessment, the practical steps involved, and what constitutes adequacy. Similarly, impact assessment reviewers – predominantly planners and lawyers – showed variations in their expectations of impact assessment depending on their respective professional affiliation.

Although in many cases the differences seem to be more of a matter of emphasis, rather than major disputes on what constitutes a good process, even those differences can add up to rather distinct professional cultures of impact assessment. The following factors are seen as leading to the emergence of such professional cultures: different professions often contribute in different ways to an impact assessment, affecting their perception of the nature and purpose of the process; impact assessment training will usually be a secondary concern, compared with the core professional training, which will be reflected in the depth and length of such training; and any impact assessment training provided within a profession will often have the "cultural" imprint of that profession.

1. Introduction

Recent years have seen renewed interest in the effectiveness of impact assessment (IA) processes, from project level to policy level (Cashmore et al., 2009). This has been matched by a shift in thinking towards a more reflective approach to the idea of effectiveness, with greater attention to issues such as the role of the various actors in the process, the contested views as to the nature, aims and methods of IA processes, and the wider social and transformative learning implications of impact assessment (Cashmore et al., 2009; Morrison-Saunders and Bailey, 2009; Wallington et al., 2007; Jha-Thakur et al., 2009).

Despite the broader and more reflective perspectives of the new wave of effectiveness research, one aspect that has not been considered in any depth is the concept of interprofessionalism, and its implications for the practise and effectiveness of impact assessment. Interprofessionalism refers to people with different professional backgrounds collaborating to carry out an activity which requires the specialist input of each of them. The concept is widely used in the medical, community health and social work arenas, and obvious examples include complex medical procedures through case conferences for families with problems. Impact assessment can also be viewed as an interprofessional process: by its very nature, and especially for major project or policy proposals, it will often involve practitioners from a wide range of disciplinary and professional backgrounds working towards a common end. Organising collaborative, interprofessional groups to address complex IA activities, whether at the policy or project level, depends for its success on a shared understanding of the process, and particularly its aims and how it should be conducted. Crucially, there needs to be a shared view of what constitutes an adequate IA, as this sets the basic standard to which any practitioner should aspire. But is it reasonable to assume that there is such a shared understanding across the professions involved in IA?

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Surprisingly, there has been little substantive research on the influence of professional allegiances on practitioner perceptions of impact assessment, although several studies touch on the issues. For example, Emmelin (1998) describes the results of a survey of practitioners in the four Nordic countries – Denmark, Finland, Norway and Sweden – which was part of a major evaluation of EIA implementation in that region. The main group of respondents was what Emmelin (1998)calls the "environmental core administrators", that is professionals working in "… Ministries of Environment, central agencies of pollution control and nature conservation and their regional branches or counterparts" (idem, p. 191). However, a small number of people in sector agencies and physical planning units were also interviewed, which permitted a degree of analysis of the difference between the views of "environmental core" respondents (mainly natural scientists and engineers) and those of the planners. There were differences between the two groups in all four countries, in relation to questions about the purpose of impact assessment and its implementation. For example, the planners tended to see EIA as part of a broader decision-making process, as one of a number of tools, whereas the environmental administrators tended to see it as a more stand alone process. As Emmelin (1998) notes, the results need to be used with care because of the structural and contextual differences across the four EIA systems. However, the results do lend some weight to the idea that practitioners can be influenced by their professional background in terms of their understanding of the impact assessment process, and presumably how they participate in the process.

Practitioner perceptions have been the subject of a number of studies in Western Australia since 2000. Morrison-Saunders and Bailey (2003) investigated practitioner perceptions of the scientific basis of impact assessment in Western Australia, and to a certain extent contrasted the perceptions of the four main groups: proponents, consultants, EIA regulators, and other government agencies. An earlier study (Morrison-Saunders et al., 2001) concerned practitioner perspectives on what influences the quality of impact assessment; again the members of the same four groups of practitioners were interviewed. However, there was no further breakdown with respect to professional or disciplinary background in either study. The most recent study in this series examines the relationship between regulators and consultants (Morrison-Saunders and Bailey, 2009) and its implications for impact assessment effectiveness. Again there is no systematic consideration of professional backgrounds, but they do note the emergence of apparent differences in "values, expectations and motivations for participating in EIA" (p. 290) between the two groups, which erodes the relationship between regulators and consultants and compromises effective IA practise. The difference in perceptions is ascribed mainly to the way the regulator role is shaped by the institutional arrangements for impact assessment rather than the professional or disciplinary background of the practitioners themselves.

In a similar vein, and also in W. Australia, is the study by Wegner et al. (2005) which examined practitioner perceptions of biodiversity in EIA. The groupings used were slightly different – proponents and consultants; providers of technical information; environmental NGOs; and assessing officers – but the authors note that 85% of all the respondents had tertiary qualifications in science. The findings were broken down to some extent by the four groups, but there was no professional or disciplinary basis to those categories. Similarly, in a recent Finnish study, a survey was conducted among EIA professionals, covering consultants and competent authorities, as to their opinions about the quality of EIS in that country (Jalava, et al., 2010). The respondents had tertiary level qualifications, often in the natural sciences, but the study does not explore variations in opinion between respondents on the basis of their disciplinary or professional orientation. Therefore, it is not possible to assess the extent to which problems with EIS quality might result, in part, from different perceptions within the community of IA consultants and competent authority reviewers.

Given the lack of research into this topic, we use the New Zealand impact assessment process as a case study to investigate the interprofessional nature of impact assessment and the extent to which practitioners' professional backgrounds influence their perceptions of the nature and purpose of impact assessment.

In New Zealand, impact assessment is required under the Resource Management Act 1991, in the form of an "assessment of environmental effects" (AEE) to be included in all applications for resource consents (approval from local and/or regional councils to develop land, take water, develop in coastal areas, or discharge potential contaminants to air, water or land). There no centrally defined or nationally agreed model of the IA process; Schedule 4 of the RMA – *Assessment of effects on the environment* – (see Appendix 1) does set out the broad expectations for assessments in terms of what should be included and what should be considered, and this is often provided to applicants as a guiding framework although it was not intended to be that. The administration of the resource consent process is devolved to regional and district authorities (more than 70 in total), and many produce their own guidance documents, of varying detail and quality. The Ministry for the Environment (MfE) has also produced a guide in preparing an AEE, which some councils have based their own guidance material on (Ministry for the Environment, 2006).

As AEEs are an integral part of resource consent applications, there are many thousand such assessments produced each year: the numbers of consent applications vary between about 50,000 and 80,000 per year. The vast majority are for small, local activities, for which limited environmental effects information is required (e.g. councils may indicate they only need to know about parking implications and noise issues for a proposed backpackers hostel in a city centre). However, at the other end of the scale are major resource development projects, such as hydroelectric projects, wind farms, mining projects, and large scale irrigation proposals. All such projects are subject to full impact assessments. (More information on the resource consent process, is available on the Ministry for the Environment website: www.mfe.govt.nz. The Environmental Defence Society also has a very good citizen guide to the RMA: www.rmaguide.org.nz).

Two key characteristics – the volume of assessment work carried out, and the enormous breadth in the scale of projects covered by the process – pose particular challenges to impact assessment practise in New Zealand. One result is that a very large number of practitioners have been drawn into impact assessment work from various professions, including planners, surveyors, lawyers, engineers, social scientists, and environmental scientists of various kinds. Administrators in district and city councils tend to be planners by training, while those in regional councils tend to be environmental scientists. However, many smaller district councils contract out resource consent processing to legal or planning professionals. And all councils make use of independent specialists of all types to provide advice on particular aspects of the environmental effects information. Overall, then, there is ample potential for professional perspectives to have an influence on the preparation and evaluation of the IA information contained in the resource consent applications.

Recent years have seen various amendments to the RMA, some of which have been designed to speed up consent processing. In particular, changes introduced in October 2009 have limited the ability of councils to pause the processing of resource consents in order to seek further information from an applicant. In response it now appears that councils will make more use of the provisions under the RMA to send back as incomplete any application that does not have an adequate assessment of environmental effects, at the time the application is first submitted to the council. [1]

[1] Section 88(3) states: "If an application does not include an adequate assessment of environmental effects or the information required by regulations, a consent authority may, within 5 working days after the application was first lodged, determine that the application is incomplete and return the application, with written reasons for the determination, to the applicant."

However, there is no definition under the RMA of the term "adequate" in relation to an AEE, and this will require a judgement by council staff. It will also place more pressure on applicants and their consultants to consider what constitutes an adequate AEE if they wish to avoid delays at that stage.

Some of the IA practitioners and administrators belong to professions which are accredited by a national body and have well defined educational programmes, usually through Universities, with a high level of prescription: law degrees, surveying degrees, and planning degrees being the best examples. Practitioners trained through other programmes (in environmental or social sciences, for example) tend to be much more diverse in their disciplinary backgrounds, and lack the well-developed infrastructure of the established professions. This is starting to change with the emergence in recent years of the Environmental Institute of Australia and New Zealand (EIANZ), but such bodies still only account for a small percentage of practitioners.

The extent to which impact assessment is covered (and how it is treated) varies between those professional programmes, and between institutions offering qualifications for the same profession.[2] Once qualified to practise within a profession, a practitioner is usually provided with information on standards, methods and approaches generated by the professional body for its own members, and may be required to undertake regular professional development involving courses organised by the professional body. Through practise, especially under the tutelage of established members, new members learn the culture of their profession. Unless there is strong central guidance on impact assessment practise, and in New Zealand there is not, there is a distinct possibility that practises will start to reflect the professional culture of the practitioners involved. This would have direct implications for establishing a shared understanding of what constitutes an "adequate" impact assessment under the RMA. Furthermore, conflicting views on appropriate methods and approaches would pose difficulties with managing larger assessments, which will normally involve a range of professions, and compromise the development of consistent standards across the impact assessment community.

With this background in mind, the key research questions addressed in this project were:

a) To what extent does the professional background of the practitioner influence their perceptions of the aims, character and practise of impact assessment?
b) What effect might this have on the way the practitioner community interprets the notion of effective IA?

Although we use New Zealand as our case study, the essential questions we ask are relevant to any country in which impact assessment is practised within a multi-professional environment.

2. Methods

A national survey was conducted of existing impact assessment practitioners, with the purpose of eliciting differences in perspectives about the impact assessment process, and relating it to the professional allegiance, education and training of the respondents. The core of the survey was a series of attitudinal statements about the impact assessment process in New Zealand. This was supplemented by focus groups in four main centres through New Zealand, but in this paper we concentrate on the survey results. The main data collection was carried out using an online survey (using the QuestionPro software), which ran from Nov 2004 – Mar 2005.

Potential respondents had to be alerted to, and invited to complete, the survey, which presents major challenges with such a dispersed, diffuse target population. As much as possible we used the existing professional groups to distribute information about the survey to their members; the main bodies approached were the New Zealand Planning Institute, the New Zealand Institute of Surveyors, the Resource Management Law Association, and Local Government New Zealand. This was supplemented by asking people to forward the information through their own email networks, and searching out other email lists not linked to professional groups per se (e.g. specialist groups, interest groups). With a sampling strategy of this kind, the resulting sample cannot be considered statistically representative; however, we feel the number and professional range of the respondents (described below) provide a useful indicative picture of the wider population.

The target population was all environmental professionals who have some level of involvement with impact assessment in New Zealand, either conducting or contributing to the assessments ("preparers"), or administering/reviewing the assessments ("reviewers"). Hence the survey covered council staff as well as staff in consultancies, industry, research institutes, and NGOs. Therefore, two versions of the survey were prepared, one for those practitioners predominantly concerned with the preparation of, or contributing to, AEEs (survey A), and one for those who mainly reviewed AEEs (survey B). The main questions asked in each of the surveys are listed at the end of the paper (Appendix 2).

In summary, the questions asked of the preparers (survey A) addressed:

Type and amount of IA work they do
Their relative experience with IA
Their training/background in IA
The extent to which they use guidance materials
Their broad approach to IA preparation
Their broad understanding of the IA process
Their response to attitudinal questions about adequacy

Survey A was completed by 131 people. Respondents were asked their main area of specialisation, their tertiary level qualifications, and their membership of professional bodies. Where more than one professional body was listed, we classed the respondent according to their self-identified area of specialisation. From this information five broad categories were identified — the number of respondents in each category were: 45 planners, 35 natural scientists, 26 surveyors, 21 engineers and 4 lawyers.[3]

The questions asked of the reviewers (survey B) addressed:

Their relative experience with IA
Their training/background in IA
The extent to which they use guidance materials
Their approach to IA reviewing
Their response to attitudinal questions about adequacy

Survey B was completed by 58 people: 22 planners, 19 lawyers, 8 natural scientists, 2 surveyors, and 3 engineers.

As the surveys were conducted online, the software generated frequency data for many of the questions. Open ended questions were post-coded and analysed by the researchers. The full set of data was then broken down according to the professional groups indicated above, first for preparers and then separately for reviewers. Inferential statistical analysis was not appropriate (we had no basis for assuming a representative sample from the overall population of environmental professionals). Therefore the analysis was largely interpretive, using

[2] Three of the authors (Coutts, Surveying; Freeman, Planning; Morgan, Environmental management and impact assessment) have intimate knowledge of the main professional qualifications through their personal involvement with the national (and international) bodies involved in certification or setting standards, and many years of contact with other Universities in New Zealand regarding courses and course content. The comments in this paragraph reflect that knowledge.

[3] We use the term lawyer to refer to someone with a law degree who is primarily working in a legal capacity. This is to differentiate them from people with a law qualification who work in another area such as planning.

Table 1
Membership of professional institutes and associations. (% of respondents in each main professional group; column totals can be greater than 100% due to multiple memberships).

%	Surveyors	Planners	Engineers	Natural scientists
New Zealand Planning Institute (NZPI)	15	89	0	11
Resource Management Law Association (RMLA)	19	60	52	51
New Zealand Institute of Surveyors (NZIS)	92	7	0	6
Institute of Professional Engineers New Zealand (IPENZ)	4	2	62	6
New Zealand Institutes of Landscape Architects (NZILA)	0	0	0	0
Environment Institute of Australia and New Zealand (EIANZ)	0	0	5	9
Other	8	13	38	49

tables and graphs. However, we did use chi-square analysis to examine specific tables, to lend support for the presence of particular patterns or trends.

3. Results

The survey generated a great deal of information, so here we are presenting the main findings with respect to the research questions. We also focus mainly (though not exclusively) on the AEE preparers, being a more diverse and larger group of respondents, and also directly responsible to the nature and content of the impact assessment documents.

4. Preparers of impact assessment information

4.1. Background of respondents

Of the five professional categories distinguished in the analyses – planners, surveyors, natural scientists, engineers, lawyers – only four respondents to survey A (preparers) were categorised as lawyers, so they were not considered in the subsequent analyses.

Table 1 shows the professional institutes or associations to which the respondents belong, broken down by professional group. Surveyors and planners are strongly associated with their respective institutes, engineers rather less so with theirs. Natural scientists, being a diverse group, show the widest range of memberships, with almost half of them belonging to one or more of 21 other organisations. Over 80% of all respondents have five or more years experience working with the AEE process; surveyors were the most experienced in this sense, while the less experienced tended to be in the planner and natural scientist cohorts.

In terms of AEE/EIA training (Table 2), almost two thirds of all respondents had some form of training; this ratio broadly held for all groups except the surveyors, half of whom had no specific training. University courses were made up approximately of half of training received, but was less important than in-house training courses for engineers (Table 3). And surveyors made greater use of industry-provided training (i.e. Institute courses) than the other groups.

Table 2
Percentage of respondents in each professional group who have or had not received specific training in impact assessment.

	Surveyors	Planners	Engineers	Natural scientists	All respondents
Training	50	78	62	60	63
No training	50	22	38	40	37

4.2. Use of guidance (process)

Generally, use of in-house (i.e. organisation specific) guidelines is comparatively low key, with only about 31% of all the respondents using such guidelines often or always (Table 4). However, this probably reflects the experience of the group completing the survey, with established practitioners more likely to fall back on their accumulated experience. There is no apparent difference between the professional groups. Use of council or Ministry for the Environment guidance is also low, but there is a tendency for the surveyors, engineers and natural scientists to use this guidance more than the planners, perhaps to understand the planning context under the RMA, issues with which the planners would be more familiar (Table 5).

Respondents were asked about their use of specific sources of guidance when preparing (or contributing to) an impact assessment (Fig. 1). For all respondents, the most frequently used forms of guidance were: professional judgement, regional/district plans and policies, previous experience, and to a lesser extent the Fourth Schedule of the RMA. Case law was used to a certain extent, but council/practitioner forums, and EIA texts were not used to any great extent, especially the latter.

The engineers tend to be less enthusiastic about any of the sources of guidance, but were the most likely to use in-house guidelines. They refer to plans and policies, and use previous experience, but are not as likely to refer to the Fourth Schedule, or to rely on professional judgement as other groups. The surveyors rely a lot on previous experience, policies and plans, professional judgement and the Fourth Schedule. Planners have a similar profile, but tend to be more inclined to use Environment Court case law, and place more reliance on professional judgement, less on previous experience. The natural scientists were the only group to give some prominence to EIA texts, and were firm supporters of using the Fourth Schedule for guidance, along with plans and policies. Professional judgement and previous experience were less important.

4.3. Use of methods/tools

The broad pattern described above is reflected in the responses to the questions about specific methods or tools used in the impact assessments: checklists are used to a certain extent, as are project specific guidelines, but matrices are not widely used, and expert EIA systems rarely so. Computer simulations and models are used

Table 3
For those receiving training, percentage breakdown of type of course taken.

	Surveyors	Planners	Engineers	Natural scientists	All respondents
Tertiary/University course	32	50	33	52	45
In-house training	23	27	44	26	29
Professional course	9	2	17	10	8
MfE course	5	2	6	0	3
Professional association	32	19	0	13	17

selectively, but the most consistently cited aid was the Fourth Schedule of the RMA. In effect, for many respondents the Fourth Schedule seems to provide a framework and/or an issues checklist for their assessment (Fig. 2).

Across the professional groups, certain differences are evident. Surveyors make most use of checklists and the Fourth Schedule, and tend not to use the more technical methods. Project specific guidelines are used frequently by a small group of surveyors, but tend not to be used by the majority of them. Engineers also follow a rather simple pattern: checklists, project-specific guidelines, and computer simulations/models are popular tools. Matrices and expert systems are not widely used by engineers, and they show less enthusiasm for the Fourth Schedule. Planners and natural scientists are similar in using a wider range of methods and tools. The planners emphasise checklists and the Fourth Schedule as aids, but will also use most of the other methods. The natural scientists seem to be less committed to particular methods, compared to the other groups, probably reflecting the more diverse nature of this group.

4.4. Practical approach to AEE preparation

The questions in this section were concerned with the general approach used by the respondents in practise: for example, do they put more emphasis on providing accurate, technical information for decision-makers, or on producing an informative and understandable document for wider use? Overall, respondents from all four groups think it is important to produce impact assessments in which the technical details are correct, which provide relevant information for decision-makers, are illustrated by photos and diagrams, and provide a summary of the main conclusions (Fig. 3). There is less emphasis on reducing the technical jargon, and on referring to the limitations of assessment methods or the assumptions that underpin their use. All this is consistent with the fact that much impact assessment in New Zealand involves routine assessments for small-scale development proposals which have limited environmental impact. These are approached with scoping-style methods rather than large, technically sophisticated impact assessments.

Despite the broad level of agreement, there are some subtle differences between the professional groups. For example, the natural scientists, and to a lesser extent the engineers, place more emphasis on the use of illustrative materials, and addressing limitations and assumptions than the surveyors and planners.

Continuing the questions about their broad approach to impact assessments, respondents were asked how often they included monitoring and mitigation considerations in their assessments, and addressed alternative sites or technologies. Across all respondents there is strong support for identifying those aspects of the environment which would need to be monitored, and making recommendations for specific mitigation measures. Alternative sites and technological improvements in project proposals are given less emphasis. Natural scientists are the stronger supporters of identifying monitoring needs, followed by planners and engineers. Surveyors as a group are more ambivalent about the need for monitoring. A similar pattern is seen with respect to considering alternative sites, which probably reflects the importance of site-specific projects handled by the surveyors (e.g. residential subdivisions), for which alternative locations are not relevant. Finally in this section, substantial proportions of planners, natural scientists and engineers regularly use peer reviewing, whereas surveyors tend not to have assessments peer reviewed.

4.5. Understanding of IA/AEE

This theme was addressed in two ways. First respondents were asked to identify the principal functions of an AEE (EIA) by ticking one or more of six statements, with the option of adding others if they wished. Second they were asked to identify the five most important elements in conducting any impact assessment, from a list of sixteen, compiled to cover a range of views from strongly practical, RMA-oriented, to views reflecting more awareness of impact assessment theory and principles.[4]

In terms of functions, all the groups selected the same statements as the three most important functions, although the order changed between the groups: “Provision of technical information to council”, “Meeting the requirements of the RMA s88”, and “Improve environmental outcomes of resource consent proposals” (Table 6). Surveyors and planners tended to be more similar to each other, while the natural scientists and engineers voted identically for the top three. Perhaps more interesting is the position of the statement “Enable affected parties to get involved in decision-making”: this was consistently one of the lowest rating statements across all groups, reinforcing the conclusion that New Zealand practitioners tend to see AEE/IA as a technical tool for decision-makers, rather than a process which is there to inform and empower affected parties (Morgan and maria, 1999).

Results for the most important elements of an AEE are shown in Table 7, ranked for each professional group. Again the four groups tend to show similar selections, but there is variation in detail. In the top three places across all groups “Identification of likely effects” and “Evaluating the social significance of effects” are present in all four groups, although the engineers put social significance ahead of identifying the effects, perhaps a little at odds with the popular image of that profession. Surveyors put “Meeting the requirements of the Fourth Schedule” in second place, which reinforces some of the earlier results (the other groups place it fourth or fifth). Mitigation measures ranked between two (Engineers) and four (Surveyors), while the prediction of the magnitude of specific effects is ranked fourth or fifth for all groups.

It is interesting that “Public consultation” is in fourteenth equal place of importance for surveyors, but ninth for engineers, and sixth and seventh for natural scientists and planners respectively. “Scoping the assessment”, something which lays at the heart of principles of good impact assessment practise (Morgan, 1998) is in eighth place for surveyors and planners, but eleventh for engineers and natural scientists.

4.6. Attitudes to AEE adequacy

The respondents as a whole were largely in agreement with all of the statements about AEE/EIA adequacy, but there are differences between the professional groups in the comparative strength of support for the various characteristics (Fig. 4). For most surveyors in the survey, an adequate assessment would involve some or all of: the assessment being prepared by specialists, who assess all the possible impacts, conforming to the requirements of the Fourth Schedule of the RMA, focusing on the information needs of decision-makers, and with no subsequent requests for further information (under s92 of the RMA). Support tends to be lower for the notion that adequate assessments are technical, contain precise scientific information, reflect community concerns, attempt to make scientific predictions, and suggest mitigation/monitoring responses to specific issues.

For most planners, adequate assessments would involve some or all of: assessments as technical documents, prepared by specialists, addressing all possible impacts, responding to community concerns, including monitoring and mitigation responses, and with firm links to regional and local policies and plans. There is less emphasis on adequacy requiring scientific information on impacts, making scientific predictions about impacts, addressing key issues and concerns,

[4] The sixteen statements were similar to a set used in a previous survey of environmental consultants, which examined the effect of impact assessment training on practitioner practises (Morgan and Maria, 1999).

closely following the Fourth Schedule, focusing on decision-maker information needs, and not triggering requests for more information.

Adequate assessments for most engineers would be technical documents, with precise scientific information about impacts, following the Fourth Schedule, and attempt to predict impacts scientifically. Of lower importance is having assessments prepared by specialists, addressing community concerns, including suggestions for mitigation and monitoring, addressing and planning requirements. Perhaps least important is assessing all possible impacts, not needing requests for further information, and focusing on the information needs of decision-makers. Finally, the natural scientists: they are very similar to the engineers, but with greater emphasis on addressing community concerns, following the Fourth Schedule and including mitigation and monitoring suggestions.

5. Reviewers of impact assessments

In this section we briefly overview the responses of those participants (58) who were mainly involved with reviewing the information supplied in assessments of environmental effects (AEE) in applications for resource consents. The majority belonged to two professional groups: planners (22) and lawyers (19), with the remainder made up of natural scientists (8), engineers (3) and surveyors (2), and others (4). Given that the study is concerned with differences between professional groups, we felt there were too few respondents in the smaller groups to justify comparisons. Hence, for this paper we confine the analysis and discussion to the planners and lawyers, and provide a textual description of key findings to avoid too many tables and figures.

The reviewers were asked about their disciplinary background, training in impact assessment, and length of involvement with reviewing. Of the lawyers, 26% had some training in impact assessment, 74% had not. Planners were almost the opposite: 73% had some training, and 27% had no specific training. Most of the respondents had more than 5 years experience with reviewing, but a larger proportion of lawyers has less than 5 years experience (31%) compared with planners (14%). In addition, just under half the lawyers had reviewed 5 or fewer AEEs in the 12 months preceding the survey, whereas 55% of planners has dealt with more than 20 AEEs in the same period. None of the lawyers had reviewed that many AEEs in the previous year.

Respondents were asked if they used any form of guidelines when reviewing AEEs: their own, formal in-house guideline, or Ministry for the Environment guidelines. While there is variation within each group, the main impression is of a lack of use of any guidelines: either they do not exist, or they exist but they are not used or respondents are unaware of them.

Approaches to determining AEE adequacy are dominated by professional judgement or intuition, for both groups, reinforced by reference to regional or district council policies and plans, the Fourth Schedule of the RMA, and previous experience with similar assessments. Lawyers tend to place more emphasis on policies and plans, the planners perhaps rely a little more on previous experience with similar assessments.

The respondents were asked to identify the characteristics of an adequate AEE, in the same way as the preparers (cf Fig. 4). The lawyers generally show agreement with all of the characterising statements, but compared with the planners place more emphasis on: assessments as technical documents, prepared by specialists, not resulting in requests for further information, addressing community concerns, following the Fourth Schedule, predicting impacts, and responding to the information needs of decision-makers. Two of the statements produced noticeably polarised responses: whether all possible impacts should be assessed, and the converse, focusing on key issues. In both cases, the lawyers tended to split into distinct subgroups, supporting or not supporting the respective statements. Planners were also generally positive on most statements, but placed stronger emphasis on linking to regional and district council plans, and including suggestions for mitigation and monitoring. In addition, the planners were more lukewarm about assessments being completed by specialists, and responding to decision-maker information needs. As with the lawyers, planners were also split over the issue of assessing all possible impacts, or focusing on key issues.

The reviewers were asked questions about the outcomes of their reviewing activities, including requests made for further information, and the proportion of resource consent applications returned due to inadequate AEEs. Requests for further information were common, with over 71% of the lawyers, and 87% of the planners making such requests in the preceding 12 months; a surprisingly high number of both groups – 42% of the lawyers, and 66% of the planners – reported making requests for further information on more than 20% of the AEEs they dealt with in the preceding year. However, very few consent applications were returned to the applicants by the lawyers, on the basis of an inadequate AEE: only 10% returned any applications for that reason. In contrast, over half of the planners reported returning some applications, although the rate was low with fewer than 10% of received applications being returned. Lawyers tended to ask for more information for activities of moderate size, but not for smaller ones, whereas planners requested further information for applications of all sizes; they also returned applications for activities regardless of scale.

6. Discussion

6.1. Preparers

The results for the AEE preparers suggest a complex situation: there is a broad level of agreement in how the AEE process is perceived across all the preparer respondents, but within that there is some degree of separation that can be attributed to professional background. Moreover, there is little evidence that the key concepts of impact assessment theory and practise are influencing many of the respondents in the survey. This is perhaps best seen in the responses to the question concerning the most important elements of an AEE: the statements provided were designed to mix all the components of good practise impact assessment (e.g. screening, scoping, public consultation, prediction, monitoring, etc.) with more procedural, RMA-oriented material. As noted earlier the four groups tended to rank the same set of four or five statements in the top half dozen places, although with some differences in particular position, and one of these – meeting the requirements of the Fourth Schedule – is ranked between 2 and 5 across the four groups. In contrast, accepted IA activities such as scoping monitoring, are consistently ranked much lower by all four groups. A picture emerges of a pragmatic, procedural approach to the impact assessment process, meeting the requirements of the RMA, rather than a substantive focus which would be more concerned with ensuring the impact assessment meets accepted international standards.

6.1.1. Professional background and perceptions of IA

There do seem to be a number of differences between the professional groups, as we have distinguished them in this study, although, as noted, all four groups show a wide range of views. Broadly, the surveyors seem to be the most distinctive group, in terms of responses to this survey, while the natural scientists are more diverse in their responses. Planners and engineers fall between these two.

Compared with the other groups, the survey shows that the surveyors in the survey tend to have less impact assessment education or training, and rely more on previous experience in carrying out AEEs. They tend not to use peer reviewing, and see less need to consider monitoring issues or alternative sites. The Fourth Schedule of the RMA figures quite highly in their approach to impact assessment, as a guide on how to carry out the assessment and as an issues checklist for what to assess. Planners place more emphasis on using policies and plans to guide assessments; they are more inclined to use Environment Court

case law, and a variety of methods and techniques, although, as with all groups, checklists are the most likely choice. Planners also seem more aware of monitoring and the need to consider alternative sites where necessary. Overall they seem to have a strong sense of the AEE process as framed by the Fourth Schedule of the RMA.

The scientific background of the natural scientists, and their diversity, comes through the results in a numbers of ways, including greater inclination to use more technical methods of assessment such as computer simulations, an emphasis on monitoring considerations, the need to communicate information more effectively using illustrative materials, and the importance of addressing the limitations and assumptions of methods used in the assessment. Of all groups, they were more inclined to consult EIA texts, but still looked for overall guidance from the Fourth Schedule. Finally the engineers shared many of the same science-oriented features of the natural scientists, but seem to place less emphasis on the Fourth Schedule as a guide to conducting the assessment or as an issue checklist.

6.1.2. Professional background and perceptions of IA adequacy

Despite the differences described above, the four groups were quite similar in their views of what constitutes an adequate AEE, differences mainly coming in terms of the relative emphasis placed on the various characteristics. Surveyors and planners place less emphasis on the scientific aspects of IA, more on generation of information by specialists that address decision-makers' needs. Planners think more in terms of community concerns, and policies and plans, while the surveyors see adequate AEEs as satisfying the Fourth Schedule and not requiring formal requests for further information (under Section 92 of the RMA). Engineers and natural scientists place more emphasis on the scientific aspects, but with the natural scientists expecting greater emphasis on the planning and community context of the process. These perspectives are consistent with those discussed in the preceding section.

6.2. Reviewers

We can conclude from the results described earlier that the two professional groups which dominate reviewing (lawyers and planners) do differ in their perspectives of impact assessment and the AEE process in particular. With a comparatively low frequency of training in impact assessment, the lawyers naturally fall back on a model of AEE that strongly reflects the RMA requirements and the Fourth Schedule. From an impact assessment perspective this is problematic: we noted earlier that there is a lack of a widely accepted model for good practise impact assessment under the RMA, so there is an inevitable move towards a procedural, compliance approach to impact assessment. The planners showed more awareness of a wider value of the impact assessment process, but perhaps see it more as a tool for checking compliance with existing policies and plans, rather than focusing on effects of the proposed activities.

The reviewers are responsible for setting and maintaining standards of impact assessment, so it is encouraging that about 60% of the respondents had returned at least one assessment in the preceding 12 months as being inadequate. However, one must question the standards being set when many of the reviewers have not been exposed to substantive training on impact assessment, do not have or do not use reviewing guidelines, and mainly rely on professional judgement or intuition. Meeting the requirements of the Fourth Schedule of the RMA, and complying with regional and district plans does not equate with good impact assessment. There is also the issue of consistency of standards; our survey would suggest that planners tend to be more rigorous in their expectations of impact assessment, regardless of scale, while lawyers involved in reviewing are perhaps more forgiving of weaker assessments for small scale proposals. This survey has only scratched the surface of a much bigger issue: managing quality control in a devolved impact assessment system, and further work is urgently needed on this topic.

6.3. Explaining the differences, and similarities

There appear to be differences in practitioner perceptions of the AEE process due to professional background, for both preparers and reviewers, and although in many cases they seem to be more a matter of different emphases than major disputes on what constitutes a good process, those differences can add up to rather distinct professional cultures of impact assessment. It is not difficult to suggest likely reasons for this state of affairs; here we consider three main factors, with particular emphasis on practitioners preparing or contributing to impact assessments.

First, the institutional context of project level impact assessment in New Zealand is important. As explained earlier, being a devolved system, fully integrated with the development control mechanisms of the Resource Management Act, impact assessment in New Zealand involves large numbers of practitioners. Many of them will be handling resource consent applications which require different kinds of technical information, as well as an AEE of some kind. The responsibility for producing an impact assessment may well fall to a practitioner hired for their skills in dealing with another part of the process, rather than as a specialist impact assessor. In fact very few practitioners would consider themselves to be impact assessment specialists ahead of any other specialism (membership of the New Zealand Association for Impact Assessment is about 200, with perhaps only 15–20 of those self-identifying as impact assessment specialists). Consequently the quality of impact assessment will be determined by how well the different professional groups educate or train their members in impact assessment theory and practise in the course of their professional training.

Second, there is the issue of education and training. In New Zealand there is one professional surveying school, but several planning schools, with a mixture of undergraduate and postgraduate programmes. Engineering training is more diverse in terms of possible routes to follow in the profession, although professional courses are limited to a small number of tertiary institutions. Natural scientists are the most diverse in educational background, especially when undergraduate degrees such as ecology, zoology or geography are then combined with postgraduate qualifications in environmental management, environmental science, and so forth. As a consequence, it would not be unusual to expect surveyors to display more uniformity in their approach to professional tasks, compared to other groups; at the other end of the spectrum we can expect natural scientists to display a much greater diversity of outlook and approach. The results of the survey are certainly consistent with this view.

In terms of impact assessment training specifically, this broadly takes place in two contexts in New Zealand. First, within tertiary programmes. However, across the eight Universities in New Zealand, there are just two papers on environmental impact assessment and one on social impact assessment, all at the graduate level. Another EIA course is offered at one of the polytechnics, within a postgraduate diploma on environmental technology. Paper such as these will generally be taken by students from a variety of environmental and social science degrees, but not usually by students enrolled in professional programmes. The majority of the latter students will rely on more limited treatments of impact assessment within prescribed papers. Our impression is that this is unlikely to be more than a few lectures, perhaps with an assignment, within a 3–4 year undergraduate programme or a 1–2 year postgraduate programme. Second, some training is available through professional development activities organised by individual professional bodies (e.g. the New Zealand Planning Institute periodically conducts one-day workshops on the AEE process). They may also provide resource materials for their members.

Both contexts will tend to ensure a professional "imprint" on the IA training provided for future or existing practitioners. For example, law students learn about the AEE process within planning or environmental law programmes: they are not usually exposed to the wider impact assessment literature. Similarly, surveying students will usually learn about the impact assessment in the context of subdivision development and the associated resource consent process. The situation is almost certainly exacerbated by the type of courses many practitioners take to meet the professional development requirements during their professional career.

A third important factor is the type of work the various professional groups undertake, which in part dictates the nature of their involvement with impact assessment. For example, a significant part of many surveyors' work will involve processing resource consents for subdivisions (preparing land for residential or industrial development). The AEEs for such applications will often involve the same issues, and practitioners will develop standard ways of producing the assessments. Hence previous experience with similar applications will be a dominant feature of their approach to impact assessment work, and it will tend to be couched in terms of meeting the technical information needs of the council staff with which the surveyors routinely deal. Planners would normally work with a much more diverse range of projects, and contribute to impact assessment activities in a number of ways. However, the results of the survey indicate a definite tendency to emphasise the policy and plan context of the applications; this would involve detailed analysis of the planning issues raised by a proposal, and especially whether it meets the requirements of the local district plan. Natural scientists will be involved in the scientific aspects of impact assessments, carrying out assessments of likely impacts on water, air, ecosystems, etc. The involvement of engineers is often associated with AEEs for projects with significant construction components; project managers with engineering backgrounds may then coordinate the AEE study for the resource consent application.

Overall, then, the broad picture is surprisingly similar across all the survey respondents: practise within the AEE process is very much dominated by its enabling legislation, and the Fourth Schedule of the RMA. Moreover, the survey showed there are wide variations *within* professional groups; they are not homogenous, so the differences are not absolute. In part this will reflect how we allocated people to the four main groups on the basis of their main disciplinary training and professional memberships: there will always be a degree of error in such an approach, especially when individuals have trained in more than one speciality, or hold multiple memberships. It may also reflect the demographic make up of the survey respondents. The current, widely used impact assessment system dates from 1991, with the introduction of the RMA. As a consequence, older respondents are less likely to have had opportunities for tertiary level courses on impact assessment. However, the results of the survey suggest there are indeed distinct, albeit subtle, differences in professional perspectives of impact assessment in New Zealand, and we feel these can be attributed to the major factors we have discussed above.

6.4. Effectiveness and interprofessionalism

The purpose of the research was to consider the potential role of professional background on the way practitioners engage with impact assessment in New Zealand, within the context of effectiveness thinking in current IA literature. Ironically, perhaps, the survey lends support to the conclusions of previous research (Morgan and Maria, 1999) that practise generally is strongly influenced by the legal framework of the system, with very little influence from the impact assessment community inside and outside New Zealand. The theory and principles of impact assessment, so well recognised elsewhere, seem to have a limited hold in New Zealand. In terms of improving the effectiveness of IA in New Zealand, there is certainly a need to overcome its rather insular character and raise the level of awareness of IA principles across the whole practitioner community.

This situation is then further complicated by the influence of the professional groups: the evidence of this study suggests that distinct approaches to IA are beginning to emerge in New Zealand, based on the professional background of the practitioners. There is no strong central model of the impact assessment process to provide the fixed reference point for practitioners, so the nature of professional training at tertiary institutions and subsequent professional development programmes may be leading to a slow but steady divergence in perception of what constitutes adequate impact assessment. Although it is important to recognise that different professions will tend to work in rather different areas, and clearly need to be equipped to do so, practitioners need to understand that impact assessment is a broader process than their own profession. The concept of interprofessionalism is useful in this respect: it can refer to teams made up of practitioners from different professions working collaboratively on a specific task, such as the impact assessment of a major project proposal. But it can also be used to refer to broad communities of practitioners working as individuals within an institutionalised process, in this case impact assessment. Different professions can work within the process, but if the whole process is to be effective, their needs to be the shared understanding of its aims and agreement on what constitutes good practise. This interprofessional approach is required to counter the tendencies that will otherwise lead to diverging views on the aims and practise of IA.

There is, then, a need, with respect to impact assessment in New Zealand, for what Fothegill (2000, cited in Marincioni, 2007, p. 470) refers to as a common language. That is best achieved by agreeing a broad model of impact assessment to which all professions can ascribe, supported by improved central guidance for IA, and especially a revised Fourth Schedule that more clearly defines a specific model of impact assessment.

An interesting development in the last few years has been the establishment of the Quality Planning website, hosted by the Ministry for the Environment. The website is intended "…to promote best practise by sharing knowledge about all aspects of practise under the Resource Management Act (RMA)." (QP website, http://www.qp.org.nz/about.php). The site is actively supported by the main professional groups: the New Zealand Planning Institute, the Resource Management Law Association, the NZ Institute of Surveyors, together with Local Government New Zealand. An editorial group from the main professions works with the Ministry to ensure the guidance materials is relevant to practitioners. This represents a serious attempt to provide all practitioners with a central repository of guidance materials, practise advice, and links to other useful sites. There is a strong emphasis on learning from others, be they practitioners or councils. To that extent, this initiative has the potential to combat the problem of professional "drift", assuming practitioners outside the main professions also use the site. However, the basic philosophy of the site seems to reinforce the essentially legalistic emphasis that now dominates the whole RMA environment.

These findings strongly reflect the specific context for impact assessment in New Zealand, as would be expected. However, as we noted earlier, there is some degree of evidence from other countries to suggest that a practitioner's professional background can affect their views of impact assessment. For example, Emmelin's (1998) survey of practitioners in the four Nordic countries (Denmark, Finland, Sweden, Norway) found differences in views of impact assessment between the planners and the "environmental core administrators" (mainly natural scientists and engineers), in all four countries. It would not be unreasonable to expect similar results in any system in which practitioners from different professional backgrounds carry out or contribute to impact assessments. The reasons will be similar to those discussed above: for example, different professions often contribute in different ways to an impact assessment, affecting their perception of the nature and purpose of the process; impact assessment training will usually be a secondary concern, compared with the core professional training, which will be reflected in the depth and length

of such training; and any impact assessment training provided within a profession will often have the "cultural" imprint of that profession. Those countries that have impact assessment systems with a strong underlying practise model, and/or strong central direction, may be able to overcome the possible centripetal effects of different professions holding varying perceptions of the nature of impact assessment. Certainly, those countries without such a central model, or the administrative infrastructure to ensure compliance with the model, may need to be alert to the potential impact of differing professional perceptions and cultures on the effective practise of impact assessment.

If, as we suggest, a major source of the problem is rooted in the nature of IA education – with different professions and disciplines providing what they see as appropriate to the needs of their graduates – then one solution is to ensure discipline-based IA education shares a common foundation of theory and practise principles. This is not a problem confined to New Zealand. A recent survey of tertiary level IA education in 18 countries found marked variation in course content and styles, and in the disciplinary homes of the courses, although the broad framework of the courses tended to be similar (Sanchez and Morrison-Saunders, 2010). A useful line of development of that research would be to explore the feasibility of developing international guidelines on the form and content for IA courses, as de facto international standards which could be adopted by professional training institutions at a national level. Not only would this help reduce interprofessional differences in the way IA is viewed and practised; it would also promote the professionalisation of impact assessment as a field of practise, and represent an important practical contribution towards improving IA effectiveness.

7. Conclusions

Earlier in the paper we said that organising collaborative, interprofessional groups to address complex IA activities, whether at the policy or project level, depends for its success on a shared understanding of the process, and particularly its aims and how it should be conducted. But, we asked, is it reasonable to assume that there is such a shared understanding across the professions involved in IA? Our exploration of the New Zealand impact assessment process indicates that professional background can influence perspectives on IA aims and practise to some degree: we cannot assume that the community of IA practitioners is homogenous in its understanding of IA and what constitutes good practise and effective outcomes. Consequently, it may be important in some settings to reflect on the professional make-up of the community of IA practitioners, and question whether interprofessional differences in perceptions of IA might be a factor limiting the effectiveness of the process. In the longer term, the problem can be largely avoided by developing and promoting the use of standards for IA education: the international community of IA educators is well placed to take on this task, which would also be a valuable contribution towards the improvement of impact assessment effectiveness.

Appendix 1. Content of an AEE: simplified version of guidance provided in Schedule 4 of the New Zealand Resource Management Act 1991

Matters to include in an assessment of effects on the environment

- a description of the proposal;
- if significant adverse effects are likely,any possible alternative locations or methods for undertaking the activity;
- an assessment of the actual or potential effect on the environment of the proposed activity:
- if hazardous substances and installations are to be used, an assessment of any associated risks to the environment
- if discharge of any contaminant is likely, a description of the nature of the discharge, the sensitivity of the receiving environment, and any possible alternative discharge methods or locations
- a description of any proposed mitigation measures
- identification of affected parties, any consultation undertaken, and any responses to the consultation if carried out;
- a description of post-implementation monitoring, if scale and significance of effects indicate it is needed.

Matters to consider when preparing an assessment of effects on the environment

- any effect on those in the neighbourhood and the wider community including any socio-economic and cultural effects;
- any physical effect on the locality, including any landscape and visual effects;
- any effect on ecosystems, including effects on plants or animals, and any habitat disturbance;
- any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural, or other special value for present or future generations;
- any discharge of contaminants into the environment, including noise;
- any risk from natural hazards, the use of hazardous substances or hazardous installations, to the neighbourhood, the wider community, or the environment.

Appendix 2. Details of survey questions

(A) Questions asked of AEE preparers

(Tables and figures referenced below are for this paper)

About the respondent

- What type of organisation/consultancy do you work in? *[list provided]*
- How many staff at your organisation (your location/branch only) participate in the preparation of AEEs?
- Which (if any) of the following professional institutes/associations are you a member of? *[list provided]* [Table 1]
- What do you consider to be your main area of specialisation? (e.g. surveyor, resource management lawyer, soil scientist, ecologist etc.)
- How many years experience do you have with preparing (or contributing to) AEEs?
- If relevant, please specify what tertiary level qualification(s) you have.
- Have you had any specific training in AEE or EIA ? [Table 2]
- (If had training) Please specify what this training was and its extent
- (If had training) With regards to the training you stated you had in the previous question, please state to what extent you agree or disagree with the following statement: *"This training adequately equipped me for my current involvement with AEEs"* [semantic differential scale]
- How many AEEs have you prepared (or contributed to) during the last twelve months (individually or as a team member)?
- Briefly describe the type and scale of assessment activities with which you personally are predominantly involved. e.g. subdivisions —individual property owners, discharges into waterways, and large industry.

AEE process guidance

- When preparing (or contributing to) an AEE do you use any formal in-house guidelines (e.g. a manual written by someone within the organisation)? [Table 4]

Table 4
Extent of use of in-house guidance materials, by professional group (percentages).

	Surveyors	Planners	Engineers	Natural scientists	All respondents
Always	15	18	33	20	20
Often	12	16	14	0	11
Sometimes	23	18	5	17	17
Seldom	8	4	10	11	8
Never	12	20	5	17	15
Do not have any	31	24	33	34	31

Table 5
Extent of use of external guidance materials (e.g. those produced by Ministry for the Environment, or local councils) (percentages).

	Surveyors	Planners	Engineers	Natural scientists	All respondents
Always	15	9	0	20	11
Often	19	4	33	17	16
Sometimes	27	31	33	29	31
Seldom	27	31	14	23	25
Never	4	22	10	9	12
Not aware of any	8	2	10	3	5

- When preparing (or contributing to) an AEE do you use any guidelines published by a district/regional council or Ministry for the Environment? [Table 5]
- When preparing (or contributing to) an AEE which of the following (if any) do you use for guidance? [*Always, Often, Sometimes, Seldom, Never*] [Fig. 1]
  EIA texts, Professional intuition/judgement, Fourth Schedule (RMA), Regional/District plans and policies, Previous experience with similar assessments, Council/Practitioner forums, Environment Court case law, other.
- Do you use any of the following in your AEE work? [*Always, Often, Sometimes, Seldom, Never*] [Fig. 2]
  Checklists, Matrices, Expert EIA system, Project specific guidelines, Computer simulations/models, Fourth Schedule (RMA), other.

Practical approach to AEE preparation

- Before conducting an AEE, do you discuss the scope and content of the assessment with the relevant regional/district council?
- When preparing an AEE how much emphasis do you place on each of the following? [scale: *very important* to *not at all important*] [Fig. 3]
  Getting technical details correct, Ensuring the information is relevant to council staff, Making the text jargon free, Providing a summary of the main conclusions, Use of illustrative diagrams, photos and graphs, Reference to any limitations or assumptions made in the assessment method.
- How often do you include the following in an AEE? [scale: Always to Never]
  Identification of those aspects of the environment that need to be monitored, The development of a detailed monitoring programme, Recommendations for specific mitigation measures, Assessment of alternative locations, Recommendations for technological improvements.
- Are the AEEs that you prepare (or contribute to) peer-reviewed before being submitted to a consent authority? [scale: *Always, Often, Sometimes, Seldom, Never*]

AEE nature/understanding

- What do you see as being the principal functions of an AEE? (tick as applicable) [Table 6]
  Provision of technical information to council, Save council staff time and effort, Improve environmental outcomes of resource consent proposals, Enable affected parties to get involved in decision making, Meet requirements of s.88 of the RMA1991, Save client time and money in the future, other.
- Choose the five most important elements in conducting any AEE. [Table 7]
  Economic considerations, Developing a monitoring programme, Accommodating clients, Screening proposal, Using environmental standards, Public consultation, Examination of alternatives, Identification of likely effects, Predicting the magnitude of specific effects, Meeting the requirements of the Fourth Schedule, Maintaining

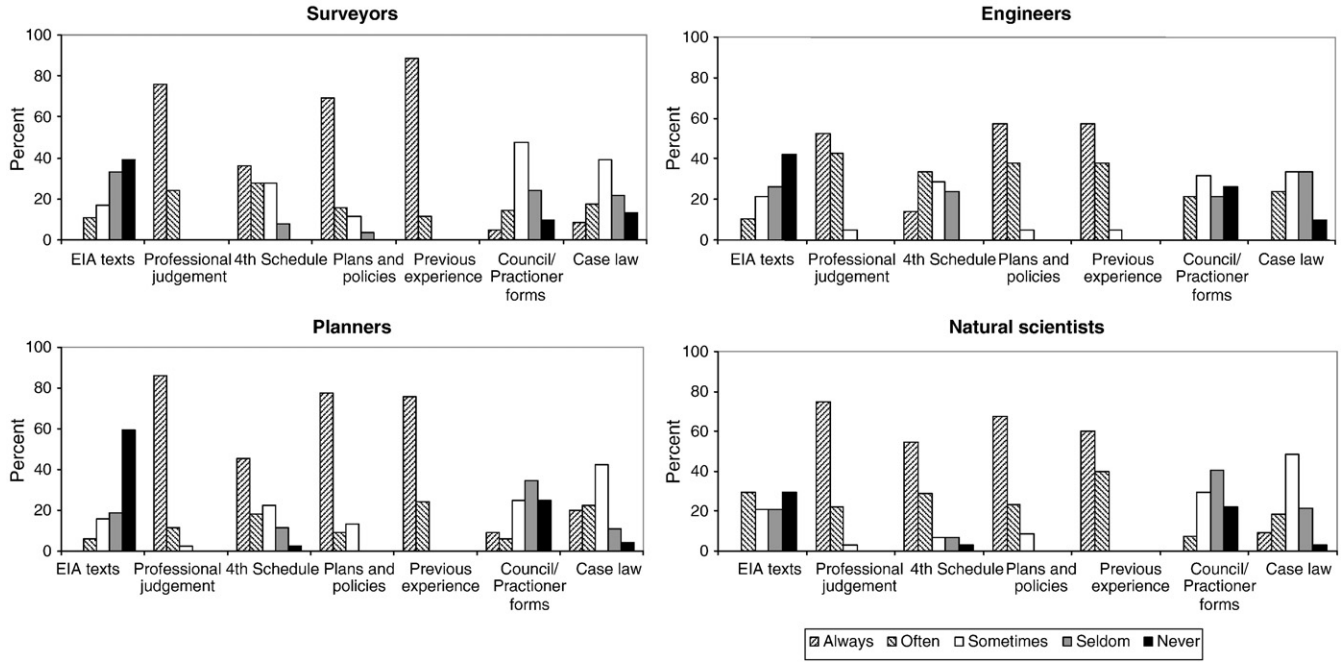

Fig. 1. Forms of guidance used when preparing (or contributing to) Assessments of Environmental Effects, by professional groups (percentages).

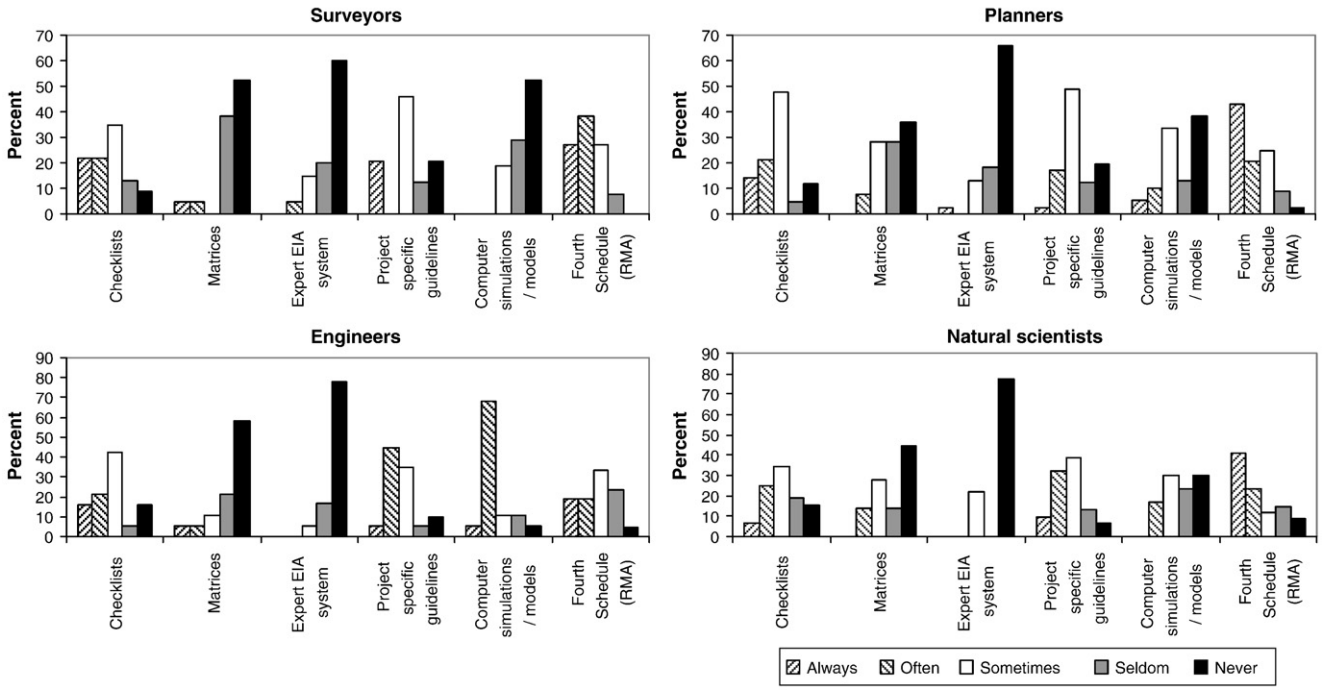

Fig. 2. Methods, techniques and other aids used in AEE work, by professional group (percentages).

consultancy integrity, Scoping the assessment, Undertaking baseline measurement, Reviewing the adequacy of the AEE, Identifying mitigation measures, Evaluating the social significance of effects, other.

Role of consent authorities

- When approached, regional/district council staff are helpful in providing information regarding what an AEE should include. [scale: *Strongly agree* to *Strongly disagree*]
- I find that when I deal with the same council they are usually consistent in the way they review AEEs for similar types of activities. [same scale]
- I find that there is usually consistency in the way different councils review AEEs for similar types of activities. [same scale]

Adequacy of AEEs

- The following statements reflect different perspectives as to what an adequate AEE might be. Please indicate the extent to which you

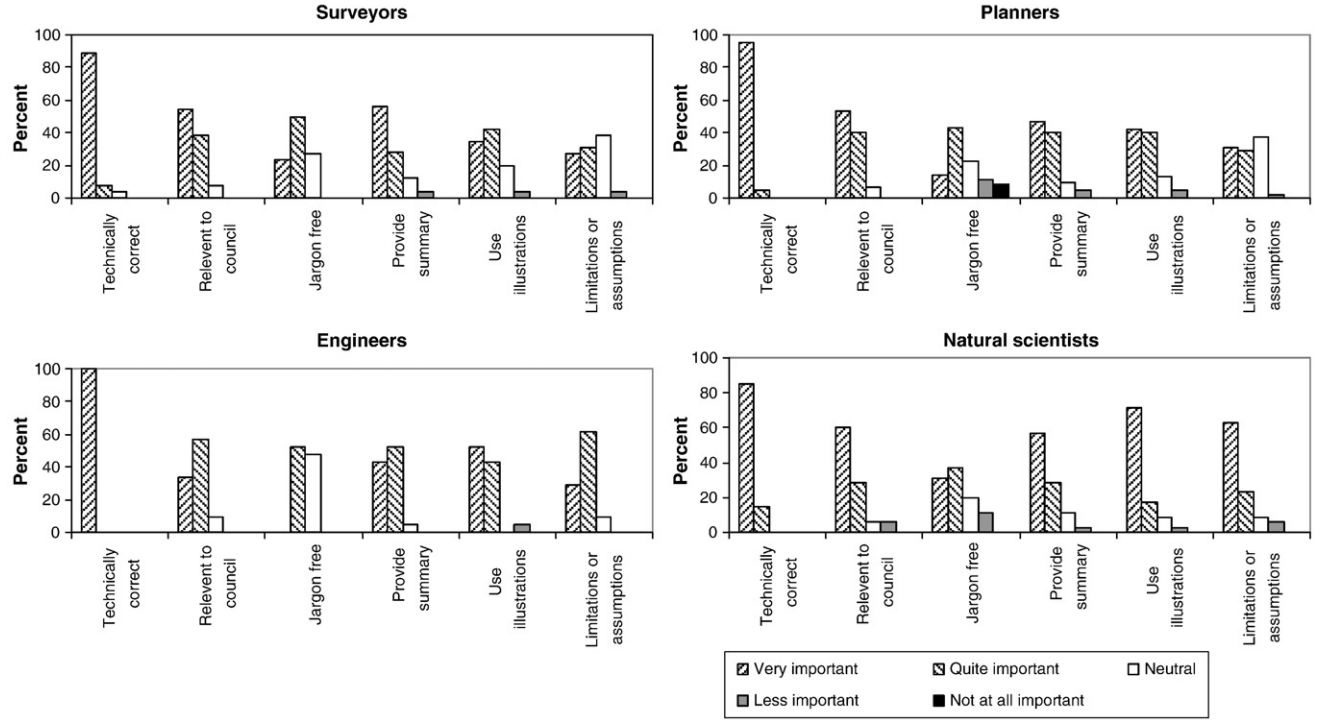

Fig. 3. Aspects emphasised by practitioners when preparing an AEE, by professional group (percentages).

Table 6
Principal functions of an Assessment of Environmental Effects, by professional groups (counts, and rank order based on counts; respondents were asked to select one or more functions from the list of six provided, and could suggest other functions).

	Surveyors		Planners		Engineers		Natural scientists	
	Count	Rank	Count	Rank	Count	Rank	Count	Rank
Provision of technical information to council	18	2	38	1	17	1	27	1
Save council staff time and effort	12	4	17	5=	4	7	3	7
Improve environmental outcomes of resource consent proposals	16	3	31	3	16	2	24	2
Enable affected parties to get involved in decision making	7	5=	15	7	5	6	12	5
Meet requirements of s.88 of the RMA	19	1	35	2	14	3	22	3
Save client time and money	7	5=	18	4	6	4=	11	4
Other	2	7	17	5=	6	4=	8	6

Table 7
Most important elements in conducting an Assessment of Environmental Effects, by professional group, ranked. (Respondents were asked to nominate five from a list of sixteen, so ranks denote relative frequency of selection of each element).

Surveyors	Rank	Planners	Rank	Engineers	Rank	Natural scientists	Rank
Identification of likely effects	1	Identification of likely effects	1	Evaluating the social significance of effects	1	Identification of likely effects	1=
Meeting the requirements of the Fourth Schedule (RMA)	2	Evaluating the social significance of effects	2	Identifying mitigation measures	2=	Evaluating the social significance of effects	1=
Evaluating the social significance of effects	3	Identifying mitigation measures	3	Identification of likely effects	2=	Identifying mitigation measures	3
Identifying mitigation measures	4	Meeting the requirements of the Fourth Schedule (RMA)	4	Predicting the magnitude of specific effects	4	Meeting the requirements of the Fourth Schedule (RMA)	4
Predicting the magnitude of specific effects	5=	Predicting the magnitude of specific effects	5	Using environmental standards	5=	Predicting the magnitude of specific effects	5
Maintaining consultancy integrity	5=	Maintaining consultancy integrity	6	Meeting the requirements of the Fourth Schedule (RMA)	5=	Public consultation	6
Economic considerations	7	Public consultation	7	Examination of alternatives	7=	Maintaining consultancy integrity	7
Undertaking baseline measurement	8=	Scoping the assessment	8	Maintaining consultancy integrity	7=	Using environmental standards	8
Scoping the assessment	8=	Examination of alternatives	9=	Undertaking baseline measurement	7=	Economic considerations	9=
Accommodating clients	10=	Undertaking baseline measurement	9=	Public consultation	7=	Examination of alternatives	9=
Examination of alternatives	10=	Using environmental standards	11=	Accommodating clients	11=	Undertaking baseline measurement	11=
Using environmental standards	12=	Reviewing the adequacy of the AEE	11=	Developing a monitoring programme	11=	Developing a monitoring programme	11=
Reviewing the adequacy of the AEE	12=	Accommodating clients	13	Scoping the assessment	11=	Scoping the assessment	11=
Screening proposal	14=	Screening proposal	14	Reviewing the adequacy of the AEE	11=	Accommodating clients	14
Public consultation	14=	Economic considerations	15=	Economic considerations	15=	Screening proposal	15=
Developing a monitoring programme	16	Developing a monitoring programme	15=	Screening proposal	15=	Reviewing the adequacy of the AEE	15=

agree or disagree with each statement. [Fig. 4]
An adequate AEE is:

- is a technical document,
- covers all possible effects or impacts,
- is prepared by professional and specialists
- should not need s.92 request for further information
- focuses only on key concerns and issues
- contains precise scientific information on possible effects
- responds to community concerns
- should closely follow the 4th schedule of the RMA
- attempts to predict scientific effects or impacts
- focuses mainly on what council decision-makers need to know
- should identify issues then suggest mitigation and management responses
- addresses planning requirements of the relevant district/regional plans
- other

(B) Questions asked of AEE reviewers

(Tables and figures referenced below are for this paper.)

About the reviewer

- Which of the following do you work in?
  City/district council, Regional council, Unitary authority, other.
- Which (if any) of the following professional institutes/associations are you a member of? *[List provided]*
- What is your job title? (e.g. planner, policy analyst etc.)
- If relevant, please specify what tertiary level qualification(s) you have?
- Have you had any specific training in AEE or EIA?
- (If had training) Please specify what this training was and its extent
- (If had training) With regards to the training you stated you had in the previous question, please state to what extent you agree or disagree with the following statement:
  "This training adequately equipped me for my current involvement with AEEs."
- How many years experience do you have with either reviewing and/or preparing AEEs?
- How many AEEs have you reviewed during the last twelve months?

AEE review guidance

- Please indicate how often (if ever) you use the following when reviewing AEEs.
  Written guidelines prepared by yourself, Formal council guidelines (e.g. manual written by someone within the organisation), Ministry for the Environment (MfE) guidelines.
- To what extent do you agree or disagree with the following statement?

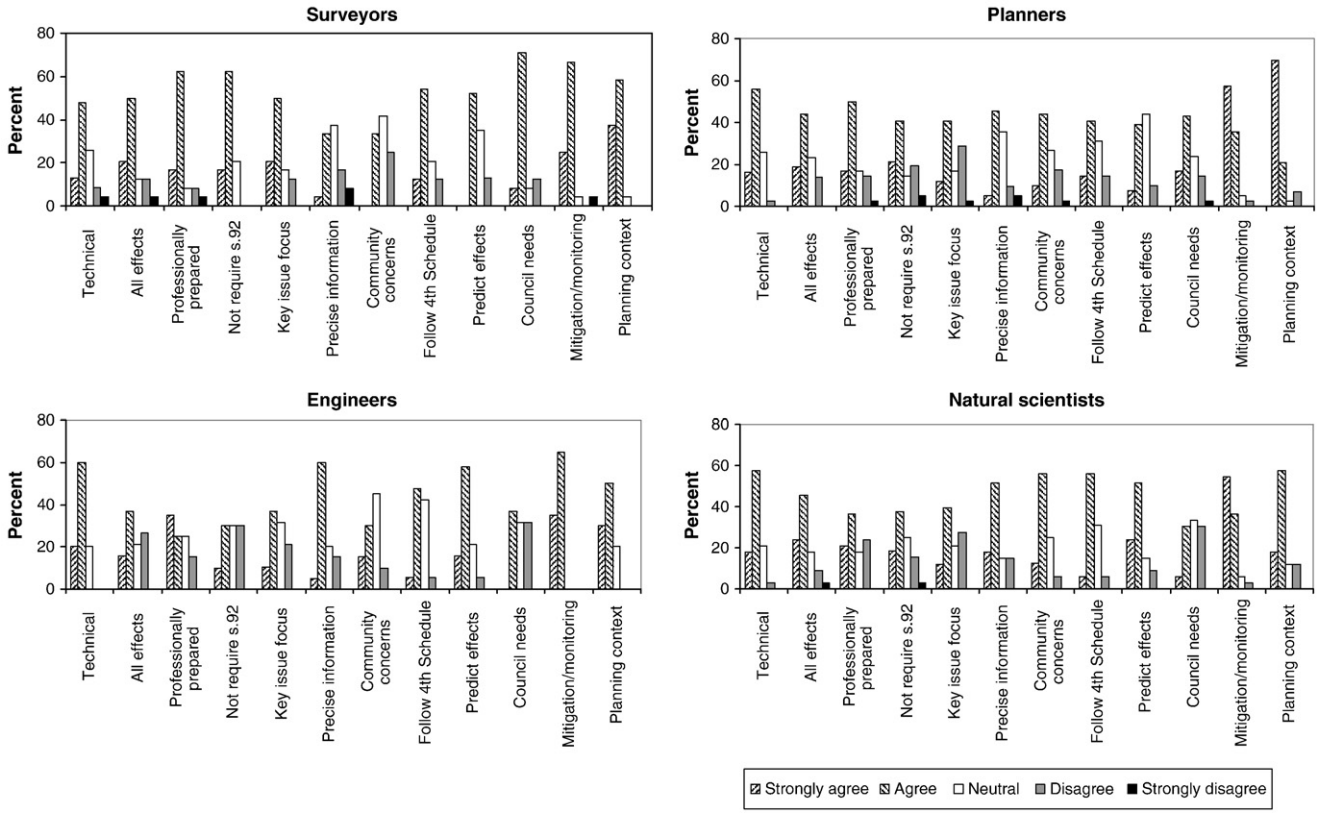

Fig. 4. Qualities considered to define an adequate AEE, by professional group.

"Official guidelines (those published by councils or MfE) on how to review AEEs are satisfactory."

- In determining the adequacy of an AEE, which (if any) of the following do you use?
  Professional intuition/judgement, Fourth Schedule (RMA), Regional/District plans and policies, Previous experience with similar assessments, Council/Practitioner forums.

Adequacy of AEEs

- The following statements reflect different perspectives as to what an adequate AEE might be. Please indicate the extent to which you agree or disagree with each statement. [Fig. 4]
  An adequate AEE:

  - is a technical document,
  - covers all possible effects or impacts,
  - is prepared by professional and specialists
  - should not need s.92 request for further information
  - focuses only on key concerns and issues
  - contains precise scientific information on possible effects
  - responds to community concerns
  - should closely follow the 4th schedule of the RMA
  - attempts to predict scientific effects or impacts
  - focuses mainly on what council decision-makers need to know
  - should identify issues then suggest mitigation and management responses
  - addresses planning requirements of the relevant district/regional plans
  - other (open ended)

Views on AEE quality

- Of the resource consents that you have reviewed in the last twelve months approximately what proportion did you request further information for?
- Of the resource consent applications that you requested further information for in the last twelve months, what, generally, was the scale of the proposed activities? [*Small, Moderate, Large, or Variable*]
- Of the resource consents that you have processed in the last twelve months what proportion did you return to the applicant on the basis of an inadequate AEE?
- Of the resource consent applications that you returned to the applicants, on the basis of an inadequate AEE, what was the scale of the proposed activities? [*Small, Moderate, Large, or Variable*]
- Generally, the quality of the AEEs that are prepared by professional resource management consultants is: [*Very good, Good, Fair, Poor, or Very poor*].
- Generally, the quality of the AEEs that are prepared by non-professional laypeople is: [*Very good, Good, Fair, Poor, or Very poor*].

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