



The Quality of District Plans and their Implementation: Towards Environmental Quality

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by

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1. Introduction

Since inception of the *Resource Management Act 1991* (RMA) the issue of sustainable management has dominated planning practice in New Zealand. Over the past decade, councils have wrestled with converting the concept of sustainable management into policy and practice. Implicit to the requirement that district councils develop plans for managing the environmental effects of the use and development of natural and physical resources is the assumption that good quality plans will result in improved environmental quality.

The key question to be addressed in this paper is: Do good plans matter? Phase 1 of research on Planning Under a Cooperative Mandate (PUCM) found that the capacity and capability of councils to produce quality plans varied significantly (Berke, *et al.*, 1999). But does the quality of a plan necessarily affect how it is implemented? And does this affect the environmental outcome? Phase 2 of the PUCM research programme set out to examine how the quality of plans may affect the quality with which they are implemented.¹ If funded, Phase 3 will extend the research to include the quality of environmental outcomes. The main goal and aim of the programme is summarised in the boxed insert, followed by the overall PUCM research design in Figure 1 (next page).

Measuring the quality of plan implementation is a complex task, and little, if any, attempt has been made in councils to do it. To meet the requirements in section 35 of the RMA district councils must monitor the effectiveness of plans, including the exercise of resource consents. This implies the need to evaluate plan implementation. As yet, however, not much is known about the implementation of plans, even though without effective implementation, plans lose their ability to achieve the environmental goals they - and the community - set out to achieve.

The PUCM research is the first in New Zealand to attempt a quantitative analysis of the links between the quality of plans produced under the RMA and the quality of plan implementation. Little research on this type of linkage has been done overseas. Dalton and Burby (1994) did, however, try to quantify implementation quality and factors that affect implementation. Following their lead, we assumed that councils having more *plan policies* and *consent techniques* in place are better able to manage development successfully. We also tested the assumption that there is a linear relationship between the quality of district plans and implementation. That is, do district plans have a direct bearing on implementation outcomes?

The purpose of this paper is to describe the methodology that we adopted for the research and to present some preliminary results from studying the implementation of plans through the resource consent process (see Figure 1: elements 6 and 7). The paper considers four key questions:

- (1) what is the 'state of practice' of techniques used in resource consents to address the effects of land use developments on:
 - storm water runoff,
 - urban amenities and
 - iwi consultation;
- (2) how strong are the links between policies in district plans and the techniques utilised in resource consents to manage effects;
- (3) does district plan quality relate to resource consents; and
- (4) is our measure of implementation quality robust?

Overall, we are trying to determine: how best to measure the quality of plan implementation and the effect that district plan quality has on implementation quality; and what factors influence the relationship between plan quality and implementation quality.

This paper is structured into three main parts. The first is a description of the methodological approach taken to conduct the research. In the second part, the key preliminary results are presented. Finally the findings and the implications for achieving good environmental outcomes are discussed.

MAIN GOAL AND AIM OF THE PUCM RESEARCH PROGRAMME

The over-arching goal of the PUCM research programme is to determine whether a co-operative system of governance for planning under the RMA will significantly improve environmental outcomes. The main aim is to better understand the links between environmental policy and outcomes by studying the quality of the preparation and implementation of plans produced under the RMA. The design of the PUCM Programme is illustrated in Figure 1. It shows that there are three phases and 10 elements to the research.

What makes a good plan? Phase 1 (1995-1998) was about the preparation of plans and *plan quality (PQ)*. It focused on: the interpretation of the RMA mandate and the implementation actions of central government (see element 1, in Figure 1); the capability of councils to plan (element 2); and the influence of both these factors on plan quality (element 3). This phase has been completed.

Do good plans matter? Phase 2 (1999-2002) is about the implementation of plans and *implementation quality (IQ)*. It focuses on: council capabilities and implementation strategies (element 4); resource consent applicants' capabilities to comply with plans (element 5); plan compliance and implementation outcomes (element 6); and environmental outcomes in relation to those in plans. This phase is in progress.

Do good plans make a difference to environmental outcomes? Phase 3 (2003-06), if approved, will focus on implementation outcomes with respect to *environmental quality (EQ)*. It will do this in selected field areas by: investigating the cumulative environmental effects of consented and permitted activities on environmental quality in relation to objectives in plans (element 8); assessing the influence of non-statutory measures on plans and environmental outcomes (element 9); and matching expected environmental outcomes in plans with actual environmental outcomes in the selected areas (element 10). This phase is proposed.

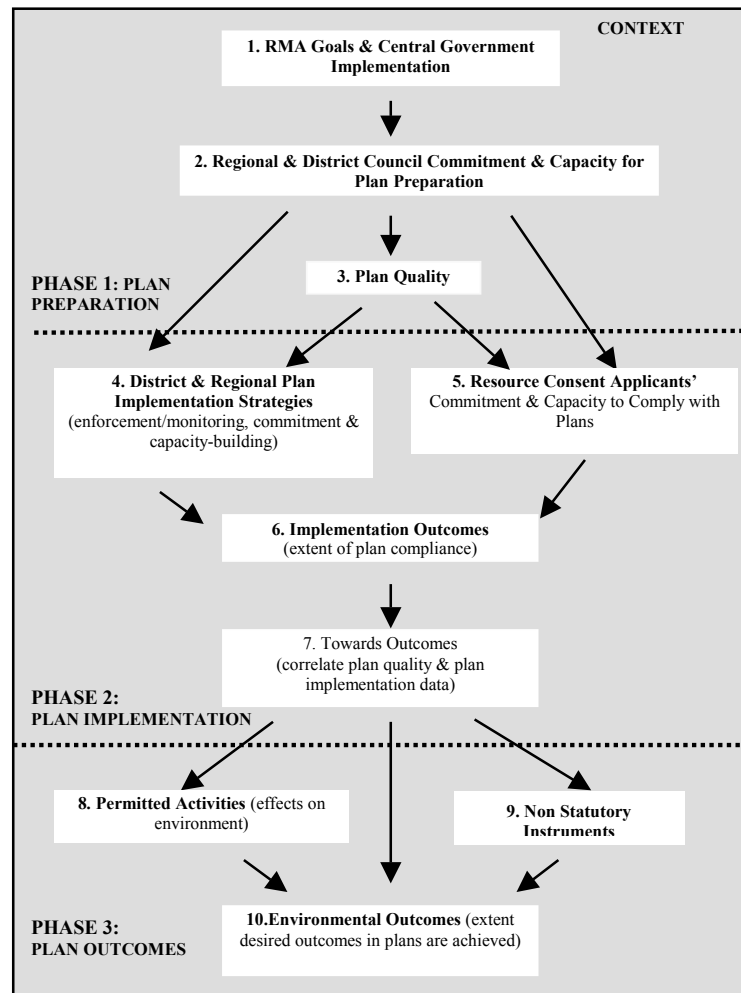


Figure 1. PUCM Research Design 1995 – 2004

2. Methodological Approach

Developing the methodology for measuring plan implementation was a significant component of our research. Extensive trials were undertaken in several councils to find a comparable method of analysing resource consents and district plans content and relationships. The final methodology consists of two parts: establishing the links between plans and implementation (quantitative); and determining what factors affect implementation (qualitative).

2.1 Quantitative Assessment: Measuring Plans and Implementation

The first part of the methodology used resource consents as indicators of implementation because they are: 1) the standard means of implementing plan objectives; 2) common to all councils; and 3) ought to be strongly linked to environmental outcomes. Consents were assessed by a council's use of techniques to manage the effects of storm water, effects on urban amenity, and extent of iwi consultation. The content of consents was then linked back to relevant policies in the district plans. Our methodology was based on the following premise: the more techniques used in resource consents that can be *linked* to policies in the plan, the higher the quality of implementation.

2.1.1 Selection of Councils (Figure 2)

Six district councils were selected to illustrate the variation in plan quality that we had found in Phase 1 of the research (Berke, *et al.*, 1999). Plan quality was evaluated using four main criteria: 1) quality of the fact base used in the plan; 2) clarity of issues discussed in the plan; 3) internal consistency of the plan; and 4) provisions for monitoring.

The following councils were chosen for study in Phase 2 based on their plan quality scores (Table 1):

- two councils with high quality plans: Waitakere City Council (WCC) and Tauranga District Council (TDC);
- two councils with medium quality plans: Hurunui District Council (HUR) and Horowhenua District Council (HDC); and
- two councils with low quality plans: Papakura District Council (PDC) and Kaipara District Council (KDC).

TABLE 1: Distribution of six selected councils along plan quality scores out of 40

	Papakura District Council	Kaipara District Council	Hurunui District Council	Horowhenua District Council	Waitakere City Council	Tauranga District Council
PLAN QUALITY*						
Plan Quality Score	8.5	12.9	16.8	17.8	24.0	27.8
Plan Quality Ranking	Low	Low	Medium	Medium	High	High

*Highest score of all 33 councils surveyed in 1997 was 27.8, lowest 3.0, maximum possible score 40.0, mean 15.7 (Berke, *et al.*, 1999).

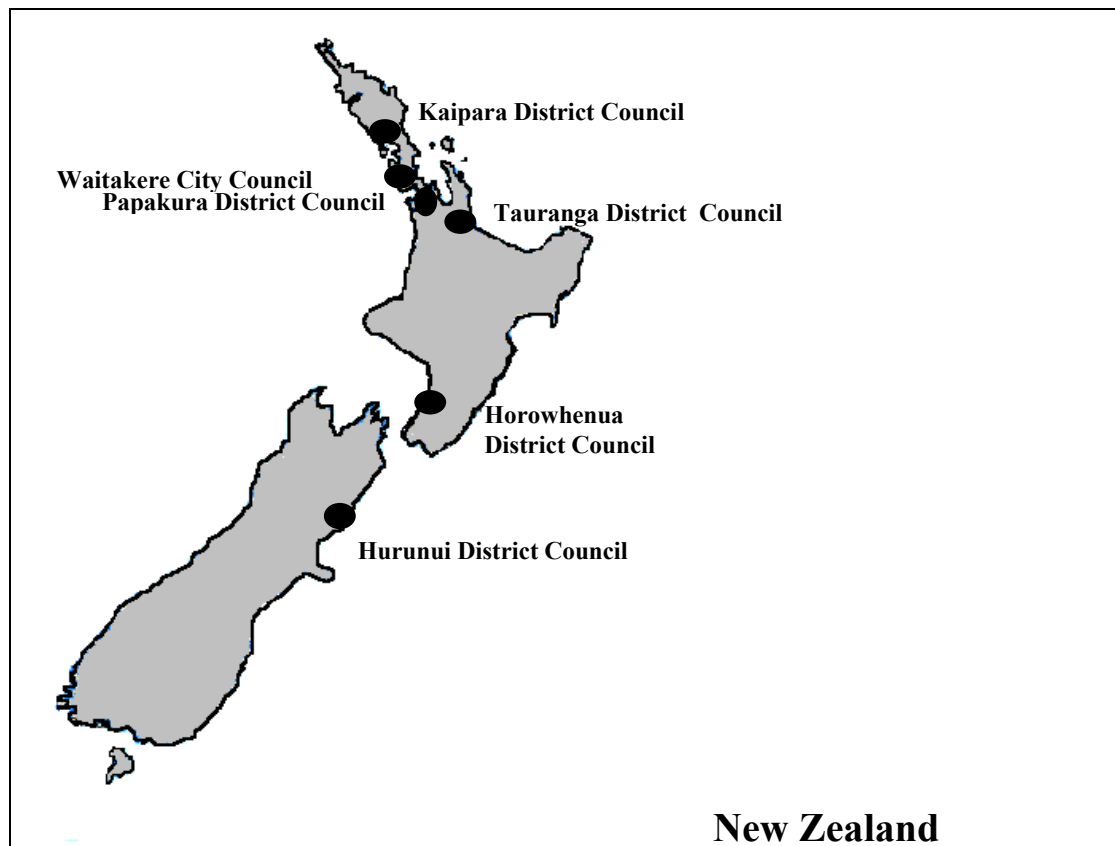


Figure 2: Approximate geographic location of councils surveyed

2.1.2 Selection of Topics

The implementation of plans was studied with regard to three topics, namely storm water, urban amenity and iwi consultation. The management of storm water runoff and the management and protection of urban amenities were chosen because they:

- are ubiquitous - every new project or subdivision needs to address the management of storm water runoff and every project in an urban area needs to address its effect on urban amenities;
- allow for the inclusion of both urban and rural areas;
- allow for the consideration of the management of both natural and anthropogenic resources;
- allow an examination of the relationship between regional and district councils; and
- provide a basis for Phase 3, when cumulative effects are to be considered.

More details on the specific measures considered for storm water runoff and urban amenity are provided in other sections below.

Iwi consultation was also chosen because it was studied in detail during Phase 1, and the role and responsibilities of Maori in plan implementation are generally not well understood.

2.1.3 Selection of Consents

At least 60 resource consents were randomly selected in each council. The consents were coded to determine which techniques were being used to manage storm water runoff and the effects of the project on urban amenities. For the storm water sample at least 30 subdivision consents² were randomly selected for each council, regardless of the size or location of the development. This was to ensure that the sample accurately reflected the entire subdivision population.

For the urban amenity sample, we also randomly selected at least 30 consents in each council. Development had to occur in an urban zone. We sampled both land use³ and subdivision consents. The ratio of land use to subdivision consents represented, where possible, the consent population in the urban zone/s. If we were unable

to calculate this ratio, we used the land use to subdivision ratio for consents across all zones. To be selected, subdivision consents had to involve development of at least three lots. This was to ensure we avoided small subdivisions, as in the pilot study these were found to have few urban amenity conditions. Land use consents were required to have a district plan rule infringement relating to urban amenity. These include, for example, rules on height to boundary (daylight, sunlight), height, density, yards and setbacks, garage, building coverage, parking, vehicle access, landscaping, tree protection, or vegetation clearance.

Randomisation occurred across both time and location, from when the district plan was deemed operative (i.e., was used by planners when evaluating consents) to the date of sampling. The sampling techniques varied somewhat between councils, depending on their filing and database systems. Overall, 390 resource consents across six councils were selected for evaluation.

If a resource consent required the use of a technique that fell into one of our categories, the technique was marked as 'present'. Thus, each consent was given a score, which measured how many techniques were used to mitigate either urban amenity or storm water. To establish implementation quality, the number and type of techniques provided for in district plan policies were measured and compared with the results from the analysis of consents.

The initial coding methodology contained a component for studying iwi involvement in the consent process. We were, however, unable to find a sufficient number of consents with reference to iwi consultation, and were hindered by an inability to access the files through the various data-bases, within the given timeframes. Consequently, the assessment of iwi consultation through the consent coding process was abandoned. The coding forms, however, did include an option for noting iwi consultation, and whether or not, concerns raised were addressed. Further research methods were then developed and are being applied (see section 2.2).

2.1.4 Analysing Links Between District Plan Quality, Plan Policies and Plan Implementation Quality

Assessing the six district plans had three high level aims: 1) to determine how policies were being implemented through the resource consent process; 2) to establish the extent to which techniques being used in consent processes were directly attributable to district plans; and 3) to assess the degree of correlation between the number of techniques used in plans and resource consents to plan quality.

We assumed that policies are the "how to" of district plan implementation and are, therefore, the best indicator of what techniques should or could be used in order to achieve objectives. Policies were chosen because they were the most practical means to link consents to the hierarchy of district plan objectives/policies/methods/rules. Plan objectives were too vague to link with specific techniques in resource consents, whereas methods and rules were often too prescriptive.

Plans were analysed in a similar way to consents and this enabled us to compare the effect of district plan policies on implementation quality. Policies relevant to each storm water or urban amenity category were counted and assessed on clarity.

To see what effect increasing plan quality has on implementation quality, the average (mean) number of storm water and urban amenity techniques utilised in each consent was calculated for each council. These results were then graphed according to each council's plan quality scores, from lowest to highest.

2.1.5 Measuring Plan Implementation: Indicators

Two sets of indicators were developed: storm water and urban amenity. The range of techniques used to evaluate consent and policy content were developed through extensive national and international literature reviews, assessments of local practice, and peer review processes.

The ***storm water*** evaluation protocol contained techniques categorised under seven broad themes listed in Table 2(a). For analysis, techniques were further grouped into two broad categories: Low Impact Techniques and Conventional Techniques (see Table 2(a)). We have assumed low impact techniques represent best practice in storm water management, and achieve sustainable environmental outcomes to a far greater degree than conventional techniques.

The ***urban amenities*** evaluation protocol contained techniques that address the effects of land use and subdivision development on urban amenities. Techniques were categorised into the five general themes listed in Table 2(b).

TABLE 2(a): Methods to manage storm water runoff - grouped by theme

Theme	Technique
LOW IMPACT TECHNIQUES	
1a. Retention / protection of natural features and low impact solutions	Wetland protection Riparian margins / esplanade reserves Natural landforms Native vegetation Specimen trees Use of wetlands Use of watercourses Drainage in open channels, grassed flowpaths
1b. General planning, development requirement, and zoning	Controlling development within the hazard zone Controlling development in a non hazard zone Delimitating poor soils Clustering
1c. Infiltration, detention, storage and release	Wet pond Trench Permeable pavement Controlling impermeable surfaces Ground soakage Swales Soak pit Dry pond Cistern, tank Other storage
1d. Quality / physical treatment of storm water runoff	Contaminant of contaminants Treatment of contaminants before release Sand filters Screens Water quality pond Silt fences, hay bales Other treatment
1e. Landscaping techniques	Terracing Flow routing Other landscaping
1f. Energy / velocity dissipation & flow retardation, erosion mitigation	Rock spall Baffles Concrete apron (rough) Weir Other energy dissipation device Fore bays Wing walls Other erosion mitigation
CONVENTIONAL TECHNIQUES	
2. Drainage systems	Road runoff: pavement drainage, curb inlet, gutter, pipes, drains Non-road run-off: drainage, gutter, pipes Secondary flow paths (overland flow) Connection to local collective system

TABLE 2(b): Methods to protect urban amenities - grouped by theme

Theme	Technique
1. Neighbours/on site amenity	Building design Building colour Building material Tree planting on site Landscaping on site Retaining trees and vegetation
2. Continuity with adjacent buildings and existing street frontages	Height of structures (keeping with existing street façade) Colour of structures (keeping with existing street façade) Material of structures (keeping with existing street façade) Height of fencing (keeping with existing street façade) Colour of fencing (keeping with existing street façade) Material of fencing (keeping with existing street façade) Creative use of open space to reduce visual monotony
3. Continuity with surrounding natural elements/landforms	Natural landforms of area retained Existing native vegetation (incl. large trees) retained Existing specimen trees retained Planting of street trees Landscaping of street areas Landscaping of public areas (other than streets) Acquisition of areas for public space/reserve Development of areas for public space/reserve (except landscaping)
4. Safety/Accessibility	Clear view of house from street Living area of homes/windows of living areas overlook streets Street lighting Design encourages walking Design encourages cycling Traffic calming measures Narrow streets Passing bays on street Parking bays & parking Inter-connection of streets and access - ways Building/upgrading of footpaths 'Permeable' fencing
5. Local area management	Community based development plan Ongoing community consultation Neighbourhood design plans or themes Traffic management strategy Strategy for future potential development

2.1.6 Analysis of the State of Practice

Across all six councils we calculated the percentage of consents utilising at least one technique for each composite storm water and urban amenity theme. (Refer to Tables 2(a) and 2(b) for descriptions of these themes.) This enabled us to analyse which techniques are commonly used thereby indicating the state of practice of plan implementation (measured via resource consents) for managing the adverse effects of resource use and development on storm water runoff and urban amenity.

2.2 Qualitative Assessment: Contextual factors

While coding consents and policies yielded significant quantitative data about *what* was happening regarding management of urban amenities and storm water, it provided limited information about *why*, and very limited information on iwi consultation processes. Thus, qualitative research methods were developed that aimed at

gaining information on the influence of institutional cultures, district and regional policy, geographical constraints, and the relevance of historic, economic and political factors.

The second part of the Phase 2 methodology thus sought to identify factors that influence the quality of plan implementation. It consisted of case studies in the six councils, including: in-depth analysis of council's key documents (e.g., strategic plans, annual plans, district and regional planning documents, management strategies, codes of practices, etc.), and surveys (via phone, face to face, or postal questionnaires and interviews) of council staff, resource consent applicants, consultants, and hapu and iwi representatives. The information is being analysed and final results expected to be peer reviewed and released over the coming year. Preliminary findings are, however, sufficient for providing some tentative explanations for results from the quantitative analyses (see Discussion section).

3. Results

The four research questions, as outlined in the introduction, sought to: 1) establish the 'state of practice'; 2) analyse the links between district plan policies and techniques used in resource consents; 3) determine how district plan quality relates to resource consents; and, 4) consider the robustness of our measure for implementation quality. These are dealt with in turn below.

3.1 What Is the 'State of Practice' for Plan Implementation?

Preliminary results suggest the following regarding the state of plan implementation practice in the six councils surveyed:

- ***Highly variable quality of information required for similar resource consents***
There is considerable variation in the quality and extent of information being gathered to assess resource consents throughout district councils. Information for similar controlled, restricted discretionary, and discretionary activities in different councils ranged from comprehensive reports through to simple checklist templates. The *Resource Management Act 1991* (RMA) enables each council to decide what environmental issues are important for each region and district, and sets out basic information requirements for the Assessment of Environmental Effects (Schedule 4). Hence, each council decides how much and what kind of information is necessary to accompany an application. While the information requested is reasonably consistent in many councils, the quality of the information being provided is highly variable. In effect, this means there is little consistency between councils in deciding what environmental information is used to make decisions on consent applications.
- ***Little evidence of consent monitoring detected***
Despite reports from the Ministry for the Environment's (MfE) *Annual Survey of Local Authorities* (2000) indicating 96% of consent conditions are monitored, we were unable to detect any significant monitoring efforts by the six councils in the areas we surveyed. Overall, our results found a distinct lack of monitoring, with only 4% of consent files containing evidence of monitoring (over and above that required for s.224 certificates to be issued). There is a disjuncture between our findings, and those from MfE. This raises concerns about the quality of self-reporting by councils, and whether compliance to consent conditions is occurring.
- ***Cost of consent process highly variable between councils***
Resource consent costs for undertaking activities of a similar nature ranged markedly across the six councils and depended on: the council's decision concerning the extent to which costs of the development should be borne by the public or private sector; the time taken to process the consent; and the level of information required by council.
- ***Minimal public involvement in consent process***
Our results indicate that public involvement in the resource consent process is very limited. This is consistent with MfE survey results, indicating only 3% of all consent applications are notified. Adverse media reports about the implementation of the RMA suggest that the extent of notification is far greater than this. The reasons for negative publicity may be due to: inconsistency between and within districts on what activities are notified, the council's policy on the ratio of public to private costs (e.g. some councils charge applicants on the basis of full cost recovery for staff time while others do not), and applicants may also feel aggrieved in that they perceive they are paying twice, initially for their consultants to prepare the application, and then for council staff to review it.

In many instances, we found planners were assisting developers to “get to yes” as quickly and cheaply as possible. We hypothesize this planning culture originates from political pressure for growth and expediency in consent processing.

We also found considerable differences in how councils use their councillors to deal with applications. These range from the regular participation of councillors in relatively minor applications to their infrequent involvement in extremely controversial cases. The level of involvement of councillors seems to be a political decision based on: faith in the competency of staff; community concern (i.e., political pressure) over previous decisions; political grandstanding; and perceptions of the robustness of the district plan.

- ***Issues of concern to Tangata Whenua not well addressed***

Issues of concern to tangata whenua appear to be poorly dealt with through the iwi consultation process, despite rhetorical commitment to the Treaty of Waitangi within district plans. In the vast majority of consents (94%)⁴, no evidence of iwi consultation could be found.

Disturbing results are also emerging from the council interviews and iwi surveys regarding the different perceptions iwi and councils have regarding participation in consultation. It seems that the two parties are talking past each other. A fuller picture, including explanations, will emerge when surveys of hapu and iwi representatives, council staff, and applicants are completed.

- ***Conservative techniques favoured over ‘best practice’***

Best practice techniques were rarely utilised in the six councils we studied. Our research suggests a number of factors may oblige planners to be more conservative when deciding on consent measures than their district plan directs. Many consent conditions are often decided upon by engineers, who were more likely to employ ‘engineered’, rather than low impact, solutions. There was a general reluctance by both council planners and engineers to use innovative solutions, instead using traditional technologies. Consent conditions ‘suggested’ by developers in their consent applications are often incorporated into the consent conditions recommended by planners with little modification. Consent conditions set by applicants also tended to be more conservative than council-initiated ones.

- ***Contextual factors highly influential in implementation processes***

Our preliminary results indicate implementation quality, like plan quality, is influenced by commitment and capacity. Implementation quality is most strongly influenced by:

- staff, councillor, and community understanding and buy-in of councils strategic goals/vision;
- availability of funds to undertake projects, surveys, infrastructure upgrades, assist applicants, conduct research, produce accurate maps and upgrade the district plan;
- effective communications systems and processes within and between departments of council, and also retention and distribution of institutional knowledge;
- the degree of political commitment to implement policies;
- use of, and access to, appropriate technological/scientific knowledge, e.g., information sharing with the relevant Regional Council;
- capacity (individual skill and expertise) of consent processing team;
- use and development of guidelines, practice notes, etc.; and
- district population and median house prices.

3.2 What is the ‘State of Practice’ for Techniques Used to Mitigate for the Effects of Land Use Developments on Storm Water Runoff?

As shown in Figure 3(a), conventional drainage is the most commonly used storm water mitigation technique, occurring in over 70% of consents that we surveyed. Other types of storm water management devices are used far less commonly, with low impact solutions, zoning/development restrictions and infiltration or storage devices being employed in around 1 in 3 consents. Other low impact techniques are rarely used. This indicates that councils are generally using conventional drainage techniques, rather than best practice or low impact solutions.

3.3 What is the ‘State of Practice’ of Techniques Used to Mitigate for the Effects of Land Use Developments on Urban Amenities?

As shown in Figure 3(b), two types of techniques for dealing with urban amenity predominate. Neighbours/on-site amenity, and safety/accessibility urban amenity techniques occur in over 70% of all resource consents that we surveyed. Other management techniques were not common, with local area management techniques not occurring in any of the consents we reviewed. This suggests that district councils more frequently address the

effects on the immediate neighbours and safety (predominately parking) and seldom consider the effects on the wider community.

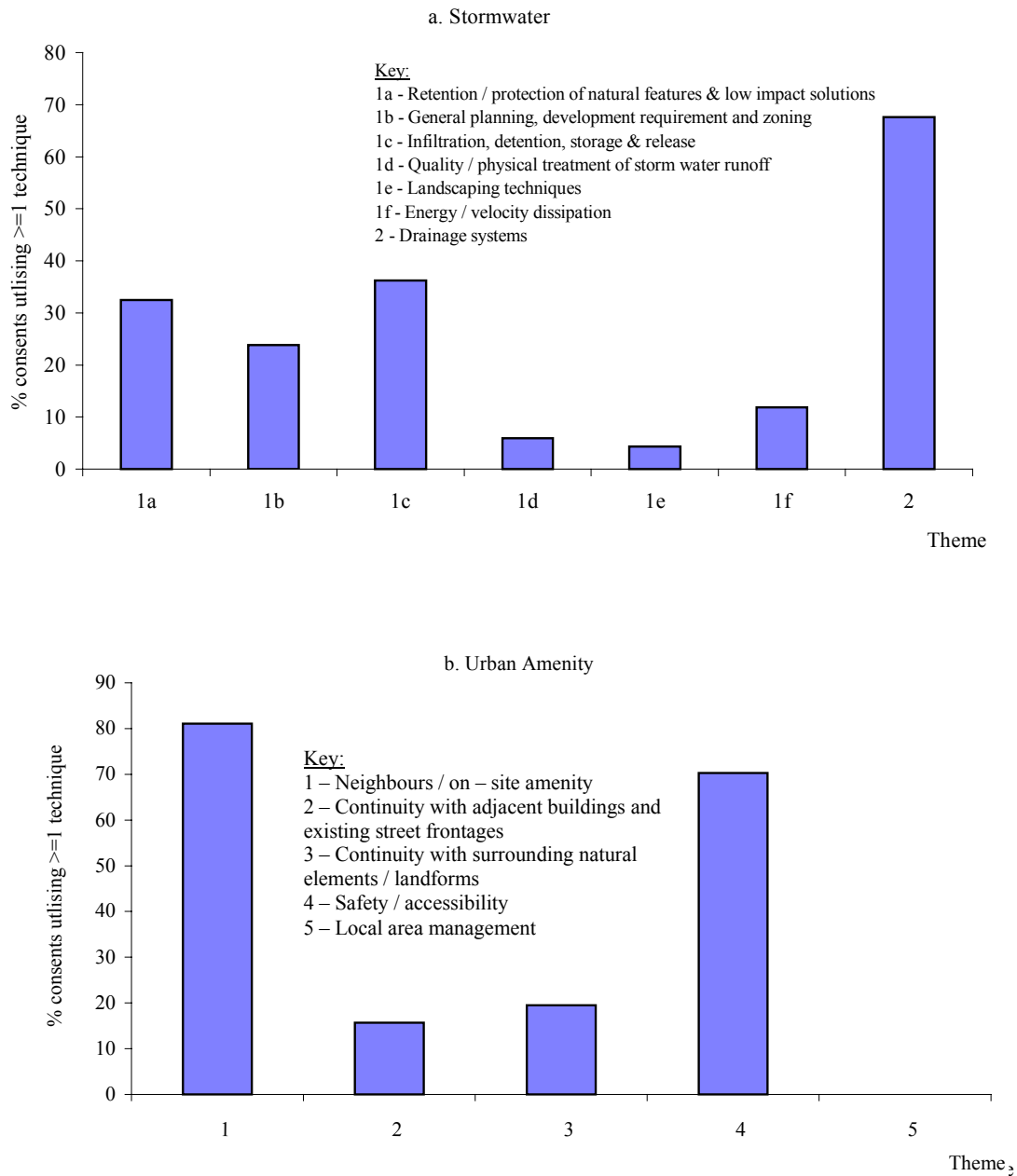


Figure 3(a)-(b): State of Practice – The use of storm water and urban amenity mitigation techniques in resource consents, for all councils

3.4 What is the ‘State of Practice’ of District Plan Policies?

The results in Table 3 indicate that there are few references to conventional storm water management in district plans. When compared with the results of the consent coding (showing that a high level of conventional techniques are used), it becomes apparent that storm water management is not being addressed by the district plan, but by other means, such as strategic plans, codes of practice, and administrative decision-making.

TABLE 3: Results from the District Plan Policy Data

Number of policies in District Plan per theme (NPT)	Papakura DC	Kaipara DC	Horowhenua DC	Hurunui DC	Waitakere CC	Tauranga DC
Storm water						
Conventional themes	0	3	2	0	2	2
Low impact themes	22	6	20	25	34	32
Total (all storm water themes)	22	9	22	25	36	34
Urban Amenity						
Total (all urban amenity themes)	22	14	35	33	79	33

A positive finding was that policy makers have not duplicated their efforts or increased bureaucracy by including unnecessary policies on storm water management in the district plan. There are, however, concerns that planners were left with no mandate (through district plan policies) to consider the effects of storm water that arise from conventional techniques. In practice, we have seen a tendency in some councils to leave storm water management until the building consent stage, at which point environmental effects⁵ cannot be considered.

In contrast, there were a significantly greater number of low impact storm water management policies found in district plans, though most of these were vague. Their prominence can be attributed to several factors. First, using low impact design techniques to manage storm water -and its adverse effects- is a relatively new concept, one that has been developing in tandem with the RMA’s notion of sustainable management. Consequently, the district plan has been seen as the most appropriate and perhaps most accessible place for its inclusion. Second, traditionally, codes of practice have been seen primarily as engineering documents, and have not been considered suitable vehicles for implementing low impact techniques.

The results show, however, that while there are a number of policies in district plans promoting low impact storm water management techniques, the majority of these are weak, with few clear or specific indications of how: water quality will be improved; vegetation retained in riparian areas; existing water course could be utilised; impermeable surfaces avoided; and so on. This suggests that: the district plan is not favoured for providing specific technical guidance on low impact techniques; there is not a significant amount of commitment to applying these techniques; or there is limited technical ability within the policy writing team to provide clear direction.

If we exclude the two high quality plans, storm water policies in the other four district plans were found to be vague, with little specific reference as to how the objectives were to be achieved. In three councils we found vague policies outweighed specific policies by 10 to 1. Those councils with high quality plans, while still having many vague policies, had a majority of clear and specific policies for managing storm water.

In contrast, the urban amenity results showed distinction between councils with high and low quality plans, but not such a variation between the ratio of clear to vague policies. That is, the two councils with high plan quality, had the most number of clear policies on urban amenity, but in the case of Waitakere City Council there was also a significant proportion of vague policies.

3.5 What are the Links Between District Plan Policies and Resource Consents?

The relationship between the number of district plan policies and the number of techniques utilised in resource consents is shown in Figures 4(a) to 4(c). The results suggest an increase in the number of plan policies does not directly correspond to the utilisation of more techniques for either storm water or urban amenity management.

The most paradoxical results occurred when there were clear directives in the district plan to manage storm water or urban amenities, yet there were no corresponding techniques in the consents. Several reasons may explain this result, including: the objectives are being met outside the resource consent process; the policy is difficult to implement because it is poorly written; and planners and/or politicians are ignoring policies. Conversely, we found a number of techniques being applied that did not have parallel policies in the district plan.

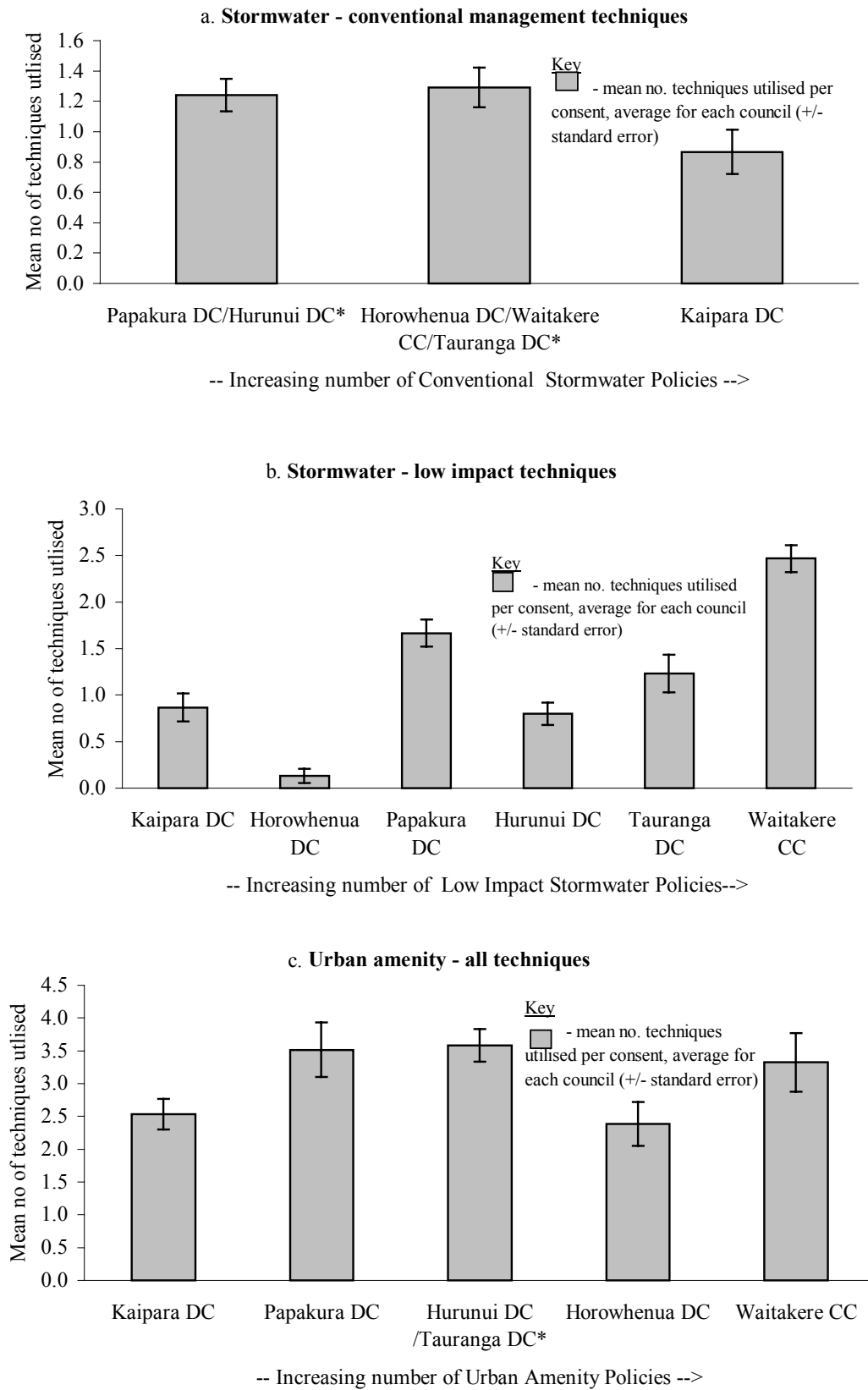


Figure 4(a)-(c): Effect of district plan policies on implementation quality

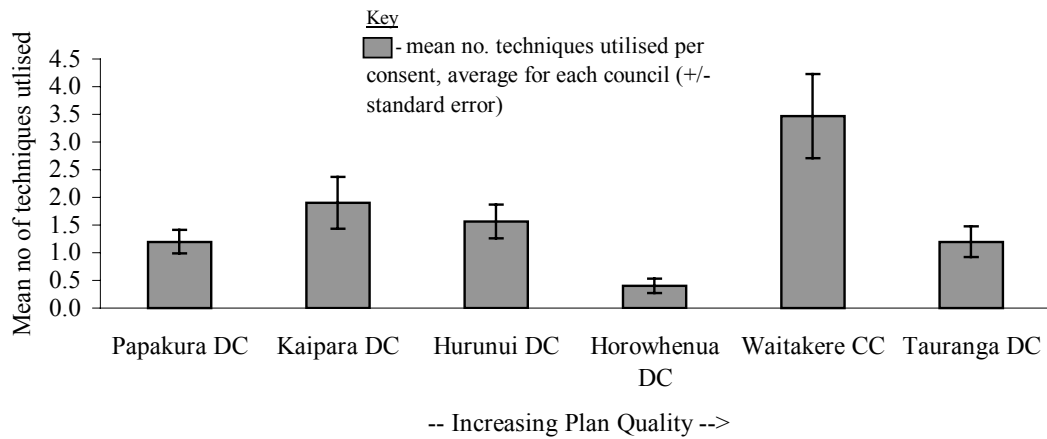
*Note: data from councils with the same number of district plan policies were aggregated

3.6 Does District Plan Quality Relate to Resource Consents?

The relationships between plan quality and the mean number of techniques used in resource consents to address the adverse effects of development on storm water runoff and urban amenities are illustrated in Figures 5(a) to 5(c). Our results suggest that increasing plan quality does not generally result in the utilisation of more techniques in consents. This indicates a poor link between plan quality and implementation quality.

This ‘implementation gap’ has been found elsewhere, and is a widely discussed and researched phenomenon in the planning literature (see e.g., Alexander & Faludi, 1989; Mastop & Faludi, 1997; Talen, 1997). The reasons for this gap are complex and varied, but are usually attributed to social–political and political–capital factors. Ongoing research by the PUCM project will shed more light on the importance of other factors in explaining the “gap”, besides the quality of the district plan and number of plan policies on implementation, such as council and community capacity and political commitment.

a. Stormwater - conventional management techniques



b. Stormwater - low impact techniques

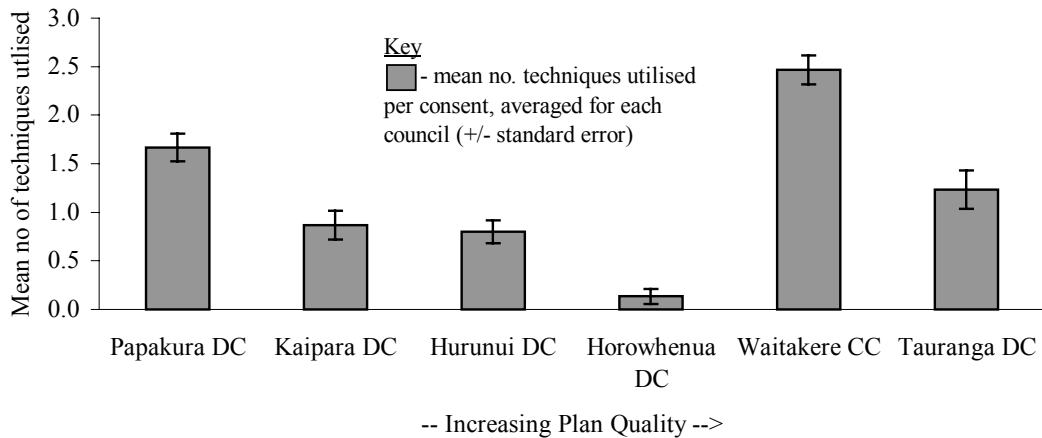


Figure 5(a)-(c) Effect of district plan quality on implementation quality

3.7 Is Our Measure of Implementation Quality Robust?

We found our methodology to be a reasonably reliable measure of implementation quality. Overall, the quantitative analyses produced results that corroborated with the results from the council and applicant studies, peer review sessions, and observations of the coding team.

There was, however, a problem in deciding what value should be given to different techniques because the specific environments of each council differed greatly thereby making a weighting method dubious. Thus, a best practice technique, for example, was given equal weighting to a more conventional management technique. Retention of a wetland as a measure to mitigate storm water runoff therefore scored the same as requiring drainage pipes. Consequently, a consent utilising a number of more conventional 'pipe-it' management techniques scored better than a consent employing fewer low impact technologies. Similarly, the use of on-site parking had equal weighting to the requirement for a community based development plan. It could, however, be argued that the latter is likely to lead to better urban amenity outcomes.

4. Discussion: Towards Environmental Quality

Finding out whether good plans matter was the main purpose of Phase 2 of the PUCM research programme. To answer this question, we assessed resource consents for evidence of environmental management techniques that could be linked directly to the policies in district plans. We found that increasing plan quality does not automatically result in a better relationship between policies and consents. That is, the techniques used in consents to manage environmental effects are not necessarily driven by the policies in the plan, indicating poor links between plan quality and implementation quality.

The resource management system is based in large measure on the rational model of planning. That is, a district plan, when implemented effectively, ought to achieve the community's desired environmental outcomes. Our findings, however, do not establish the kind of direct links between plan quality and quality of implementation to be expected from this model. What, then, is the explanation for these results, and what are their implications for district plans as a means for achieving good environmental outcomes?

Phase 1 of our PUCM research shed some light on this question when we established that councils with greater commitment and capacity produced higher quality plans. At this stage, our results from Phase 2 are preliminary, but it does appear that commitment and capacity are similarly important in explaining the quality of implementation. We found that smaller councils, especially rural ones, do not have the capacity to implement their plans effectively. Hence, storm water management usually involves 'pipe-it' drainage technologies. Urban amenity fares somewhat better, but techniques are dominated by mitigating for on-site and neighbours amenity, and safety/accessibility (mainly parking). In these councils, and some of the larger ones, the political commitment is more likely focused on promoting growth and development than improving environmental quality. Overcoming this implementation gap in district councils so that improved environmental outcomes are promoted requires capacity building initiatives by central government and regional councils.

We also found that population size, rate of population growth and median house price were reliable predictors of implementation quality. A similar finding came out of the first phase of our research, where these factors were found to be reliable predictors of plan quality. In other words, larger councils and those with wealthier constituents have higher quality plans and higher capacity to plan which, when combined with commitment, achieves better implementation. These findings suggest that good environmental outcomes are more likely to be achieved by increasing the size of local government units and promoting economic development than by concentrating on district plan quality alone.

So, do good plans matter? Yes, but not perhaps in the way that we like to think that they do. Our study indicates that the quality of plan implementation may be less influenced by the quality of plans than by socio-economic and organisational factors. It is, however, still important to continue improving plans and their implementation because, among other things, plans set out a consensus of community values about the environment. Further, the process of plan development helps to clarify goals and build commitment to those goals. Perhaps the most important observation is that, in the short term, building council capacity and commitment, rather than focusing on plan quality, may be more likely to lead to better environmental outcomes.

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The PUCM Research Team

The PUCM research began in late 1995 as a joint programme between Massey University and University of Waikato through co-leaders Jennifer Dixon (Assoc. Prof. Department of Resource and Environmental Planning) and Neil Ericksen (Director of the International Global Change Institute), respectively. In 1999, administration of PUCM was through the University of Waikato, reinforced by the move of Dr Dixon to the University of Auckland as Professor and Head of the Department of Planning in 2000. Janet Crawford (Director of Planning Consultants Ltd) is the PUCM project manager and principal practitioner and Philip Berke (Assoc. Prof., Dept. of City and Regional Planning, University of North Carolina) is the principal theoretician and methodologist.

Data for PUCM Phase 2 were gathered and analysed by research assistants and sub-contractors, including: Michael Backhurst, Maxine Day, Matthew Bennett, and Cushla Barfoot (IGCI); Lucie Laurian (University of Arizona, formerly University of North Carolina); Sarah Chapman (Lawrence, Cross and Chapman Associates, Thames); and Sherlie Gaynor (Palmerston North). The resource officer for the PUCM Research Programme is Claire Gibson (IGCI).

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² Subdivision consents are defined as consents involving developments that subdivide parcels of land, often for residential housing.

³ Land – use consents involve land use developments that require a resource consent. A land use development is defined as any development that occurs on land, for example the alteration or extension of a structure.

⁴ Note this figure includes controlled activities, which did not require consultation with iwi.

⁵ As described in the *Resource Management Act* 1991.