

# **WRITING CATCHMENT MANAGEMENT PLANS: THREADING PLANNING INPUTS THROUGH TO ACTION OUTPUTS AND MONITORING OF OUTCOMES – A PRACTICAL APPROACH**

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## **ABSTRACT**

This paper describes the results of applying best practice to the preparation of an ICMP. Among other things, it shows that maintaining a narrative linkage from plan recommendations and outcomes back to the contributing information and identification of issues and objectives can clarify and enhance the value of the technical work done and enable better monitoring of outputs and outcomes of the ICMP.

The findings described were established from a review that Papakura District Council (PDC) commissioned of its Central Papakura Integrated Catchment Management Plan (ICMP) in order to establish a robust format for completing Council's ICMP programme for the District. The brief was to review:

1. Objectives and Outcomes: how well the ICMP aims aligned with the requirements of PDC, Auckland Regional Council (ARC) and regional best practice;
2. Catchment Planning Inputs: material relevant to ICMP preparation, information used and how well it related to the required outcomes;
3. Catchment Planning Outputs: how the conclusions drawn informed stormwater management practices, responses to development pressures and infrastructure improvements.

Taking a collaborative approach, PDC staff worked with reviewers to apply learnings from over 12 years of research into best practice plan preparation by the Planning Under Co-operative Mandates (PUCM) research team.

## **KEY WORDS**

**Integrated catchment management plan, planning documents, issues, objectives, outcomes, monitoring, stormwater infrastructure**

## **PRESENTER PROFILE**

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# 1 INTRODUCTION

By mid-2008 the Papakura District Council (PDC) had prepared a 75% draft of an integrated catchment management plan (ICMP) for the Central Papakura catchment, and wanted an external review to inform the finalisation of the plan and the preparation of the District's remaining ICMPs.

The Council commissioned a review in three phases:

1. Objectives and Outcomes: how well the ICMP aims aligned with the requirements of PDC, Auckland Regional Council (ARC) and regional best practice
2. Catchment Planning Inputs: material relevant to ICMP preparation, information used and how well it related to the required outcomes
3. Catchment Planning Outputs: how the conclusions drawn informed stormwater management practices, responses to development pressures and infrastructure improvements.

The consultants worked with Council staff and advisors in a collaborative learning approach. This would enable the learnings from over 12 years of research into best practice plan preparation by the Planning Under Co-operative Mandates (PUCM) research team to be applied for the first time to the preparation of an ICMP, and would enable the findings to inform the finalisation of the other ICMPs.

The ICMP reviewed focused only on stormwater-related issues, as United Water International operates and maintains the wastewater network on the Council's behalf and has already lodged a consent application for wastewater discharges. The catchment hydrological and hydraulic stormwater modelling work underwent a separate review.

ICMPs have to synthesize an enormous amount of information – planning and engineering inputs and environmental, social, cultural and financial outcomes. This makes it very difficult to track the use of all the relevant information.

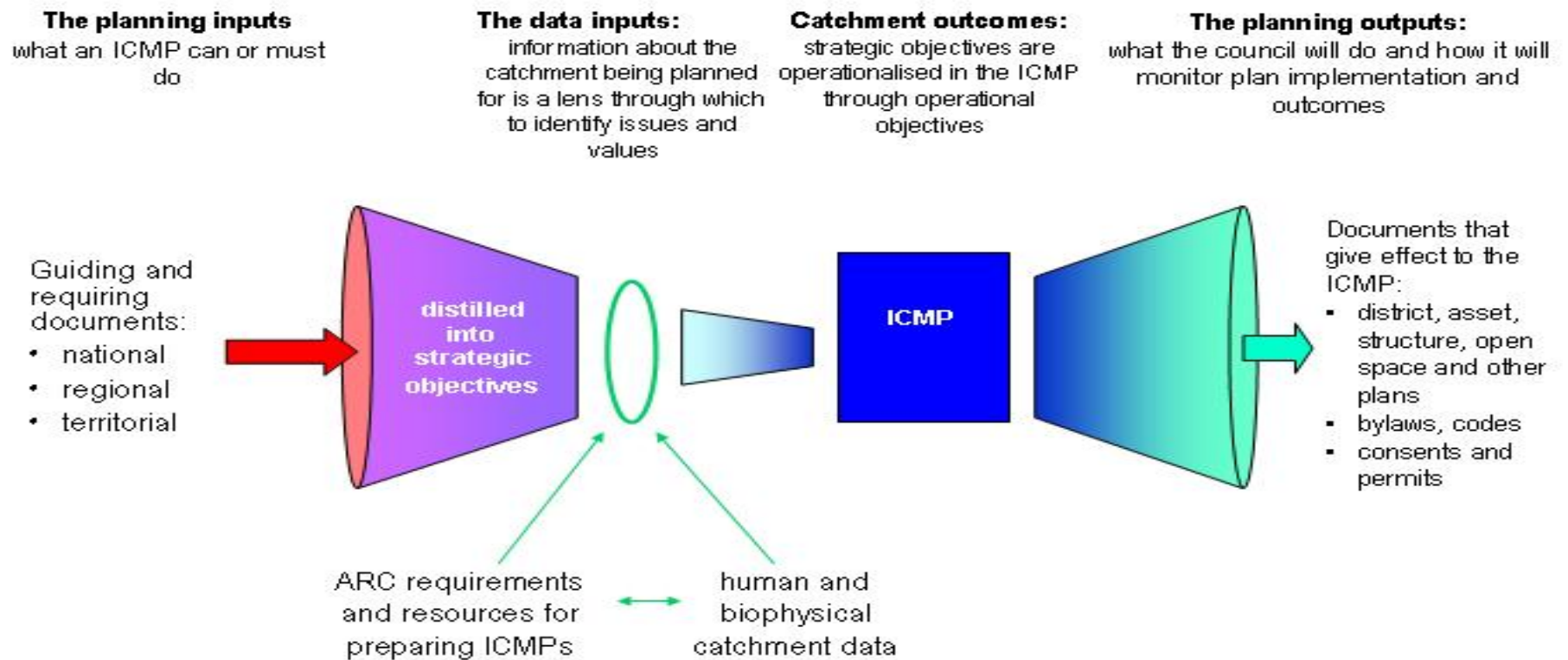
Figure 1 illustrates what ICMPs do and how they do it, showing how they operationalise planning inputs into planning outputs. A wide range of planning inputs are applied to the detailed human and biophysical characteristics of a specific catchment in order to produce an ICMP, and dictate its planning outputs which in turn then influence other documents in order to implement the recommendations.

This paper is structured around the key elements of the diagram:

- section 2 describes the planning inputs to the draft ICMP in terms of the high level strategic documents, the Auckland Regional Council's specific technical requirements of ICMPs and the even more specific requirements of the ARC and PDC for the outcomes and objectives of the draft ICMP. It also examines the plan logic in terms of best practice for New Zealand plan-making
- section 3 describes how the planning inputs are reflected in the catchment planning outputs and recommendations made for stormwater infrastructure

- section 4 summarises the overall findings and makes a small number of recommendations to improve the draft ICMP and inform the development of PDC's remaining ICMPs.

Figure 1 How an ICMP operationalises planning inputs into planning outputs



## **2 PAPAKURA DISTRICT COUNCIL: DECEMBER 2008 PLANNING INPUTS**

The planning inputs were reviewed to evaluate what information was used in the ICMP preparation process and how it was used. The planning inputs review examined the available planning and technical documents and:

- assessed the type of information used, the quality of information and the fit of the information to the required ICMP outcomes, by reviewing the requirements of the key guiding and requiring documents that set the context for an ICMP
- evaluated the methods and techniques used to analyse the information and to identify the material relevant to the ICMP process
- listed the appropriate information sources (described in the project brief as 'best practice' sources) and identified gaps and shortcomings in the information usage by comparing it with the information sources used in Papakura's ICMP process, and for each source used, indicating strengths, opportunities for improvement, information relevancy and gaps, the information extent or comprehensive ness, information quality and interpretive merit (how well the information was used).

### **2.1 PLANNING DOCUMENTS**

Planning inputs comprise the guiding and requiring documents that set out what an ICMP can and must do: many documents require certain outcomes and constrain how the ICMP must deliver these. A large number of documents comprise the policy framework (about 100 apply in the Central Papakura catchment) and many seek similar outcomes expressed in different ways.

A 'best practice' ICMP thus needs to show how it gives effect to the guiding and requiring documents comprising the policy framework for the catchment. Many of the requiring documents were developed under the Resource Management Act 1991 (RMA) and the Local Government Act 2002 (LGA), for example the Auckland Regional Policy Statement and Progress Papakura (the Long Term Council Community Plan, or LTCCP). In addition, there are many other guiding documents that augment, explain and/or support the intention of the requiring documents. One example is the Auckland Sustainability Framework, a non-statutory document which provides an over-arching set of goals and a matrix for evaluating progress towards sustainability.

Given this complexity, it is not practicable for the ICMP to contain detailed cross-referencing to every one of these documents. It is, however, necessary to ensure that the ICMP gives effect to the strategic direction sought in them and complies with their rules and other requirements. Therefore we recommended that strategic objectives be distilled from the suite of relevant guiding and requiring documents. Strategic objectives guide the purpose of the ICMP and can be used as a checklist that can be tracked back to the key documents analysed, as well as for evaluating outcomes and monitoring programmes.

Strategic objectives are general until they are applied to a particular catchment in line with the ARC's requirements for preparing ICMPs: they are then used to develop operational objectives. Operational objectives relate to the issues defined for a specific catchment, and are linked to measurable outcomes and indicators. They set out what the ICMP seeks to achieve given the catchment's

human and biophysical characteristics: in other words, they 'ground' the strategic objectives and thus ensure good environmental and community 'fit' with the ICMP.

The identification of operational objectives also gives effect to the ARC's more detailed requirements for ICMPs. They guide the selection of options, identification of desired outcomes and preparation of the monitoring plan.

The formulation of strategic and operational objectives is an area of weakness of many RMA plans, and the ARC had already identified a similar weakness in ICMPs (see, for example, Feeney et al, 2007).

The draft ICMP reviewed had identified catchment management objectives, and while relevant to the catchment and the strategic objectives of the guiding and requiring documents, they did not clearly link back to the key outcomes anticipated in the guiding and requiring documents. Because strategic objectives guide much of the content of the ICMP, they should be very explicit.

It is a big job to distil these out from the mass of detail in numerous documents, but we found that the direction sought could be distilled to ten strategic objectives. If included in a 'scene-setting' introductory chapter (much of the information was already in the draft ICMP and can readily be utilised), these ten strategic objectives would unambiguously demonstrate the role of the ICMP in implementing national, regional and local goals.

Our examination of these guiding and requiring documents asked:

1. Does this document influence the content of the ICMP?
2. If yes, how well has the ICMP given effect to the strategic intent or rules of this document?
3. Does the ICMP contain actions that influence this document and/or Council or community programmes?

We found that the draft ICMP did a good job of relating the intentions of the many guiding and requiring documents to the Central Papakura sub-catchment. For example, this ICMP is clearly implementing the Southern Sector agreement's provisions for urban expansion in Takanini, intensification in Papakura Town Centre and nodal growth at Glenora (Takanini). It thus gives effect to the goals of the Auckland Regional Policy Statement, Auckland Regional Growth Strategy, Papakura District Plan, Progress Papakura and two Structure Plans. It gives effect to the District Plan objectives and rules by, as an example, protecting the groundwater regime in areas of peat soil by making specific recommendations.

The strategic objectives suggested in Table 1 express, in our words, the direction set by the enabling and requiring documents. For each objective, examples of sources are provided to indicate how these proposed strategic objectives have been distilled by reference to numerous guiding and requiring documents. The Council is now in the process of reviewing these to ensure they reflect the Council's understanding of the relevant guiding and requiring documents.

The identification of operational objectives requires particular attention to ensure they give effect to the strategic objectives, take into account the human and biophysical characteristics of the catchment, satisfy the ARC's requirements and are informed by the issues identified and the values and opinions of

stakeholders. Involving key stakeholders in developing the operational objectives can be beneficial.

*Table 1 Suggested strategic objectives*

Strategic objectives	Examples of sources
1. GROWTH: enabling growth to occur as planned while achieving the other outcomes below.	Auckland Regional Policy Statement Ch2 Southern Sector Agreement Papakura District Plan: Section One, Part 5 Resource Management Strategy, Part 5B Takanini and Part 6 Infrastructure pp6-7 PDP Section Three, Part 16 Takanini Structure Plan area objectives
2. INFRASTRUCTURE: providing effective & efficient infrastructure: <ul style="list-style-type: none"> <li>• for urban expansion in greenfields areas</li> <li>• for intensification</li> <li>• in existing urban areas not currently serviced</li> <li>• to upgrade the existing stormwater system.</li> </ul>	Three Waters Draft Strategic Plan, pp68-72 Structure Plans for Takanini, Central Papakura & Glenora LTCCP Progress Papakura Annual Plans & Reports
3. COMMUNITY INVOLVEMENT: in setting outcomes and implementing options	LTCCP Progress Papakura e.g., Outcome measure 4.4 – number of Waicare projects
4. MAORI OUTCOMES are achieved including Maori involvement in decision-making and kaitiakitanga in accordance with Te Ao Maori.	Auckland Sustainability Framework strategic responses Auckland Regional Policy Statement Ch3 Whatatauki
5. AMENITY VALUES: promoting the use and appreciation of natural and physical components of the stormwater system.	Papakura District Plan 5B.2.2.5.3 Heritage values – attractive wetland areas for stormwater treatment and detention that also provide reserve and amenity opportunities Regional Open Space Strategy
6. FLOODING: <ul style="list-style-type: none"> <li>• avoiding or minimising the risk of flooding in new urban areas</li> <li>• remedying or minimising existing flooding problems.</li> </ul>	Takanini South Stormwater Catchment Management Plan – Expected Environmental Results include minimising (as far as practicable) flood risk in the Growth Areas and downstream developed areas Papakura District Plan rules 2.10.4 re filling and buildings in areas subject to flooding
7. OTHER NATURAL HAZARDS: managing risks from coastal erosion, stream bank erosion, climate change, and sea level rise.	Regional Plan: Sediment Control Objectives, policies and methods re development near streams and wetlands (p19-)
8. PEAT AREAS: managing the hydrological integrity of peat and infrastructure in peat areas.	Papakura District Plan Section Three, Part 16 – rules requiring soakage disposal or stormwater runoff. Linked to objective of Takanini South Stormwater Catchment Management Plan outcome – maintenance (as far as practicable) of the hydrological balance between groundwater recharge and surface runoff
9. WATER QUALITY AND CATCHMENT HYDROLOGY: maintaining or enhancing fresh and saline water quality and the hydraulic performance of soils, aquifers and streams.	Regional Policy Statement Ch8 Water Quality Regional Plan: Air, Land & Water Regional Plan: Coastal e.g., Pahurehure Inlet marine receiving environment provisions

<p>10. ECOLOGY: maintaining and enhancing stream, coastal and associated terrestrial ecology and promoting connectivity.</p>	<p>Auckland Sustainability Framework Goal 3 – improve ecosystems through restoration, reforestation and effective pest management; Strategic responses include – develop a regional natural network, which is multi-functional providing ecological corridors, open space, walking and cycling routes, and waterway protection</p>
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## 2.2 TECHNICAL DOCUMENTS

The Papakura District Council and the Auckland Regional Council had also prepared a number of technical documents and the review showed that the information in these had been well used in preparing the draft ICMP. This finding reflects the high level of engineering (rather than planning) expertise involved in writing the plan.

Documents reviewed were:

- Papakura District's (PDC's) own specifications for what its ICMPs should deliver
- the Auckland Regional Council's requirements and guidance for ICMPs, including:
  - the ARC Regional Stormwater Action Plan and the Stormwater Action team's (SWAT team) ICMP Workstream Strategy
  - the ARC ICMP Funding Eligibility Guideline and Heads of Consideration
  - the Proposed Regional Plan: Air, Land and Water
  - ARC TP 232 (Urban streams monitoring framework) as a sample of some of the technical publications relevant to preparation of ICMPs
  - the resource consent application requirements of the RMA and the ARC.

The methodology was to:

- scan each of the relevant specifying documents for the key requirements
- develop a series of summary tables for the individual requirements
- read the draft ICMP and populate the tables
- summarise the results.

A detailed analysis resulted in a series of tables noting where the draft ICMP:

- covered topics set out in both the PDC specifications and the other documents
- covered only topics in PDC's specifications – this is acceptable, as a council may use an ICMP for its own purposes, which may be wider than other specifications
- covered only the topics in the other requirements – this is also acceptable because the ARC's requirements have changed since PDC started preparing its ICMP and have only recently been settled at the Environment Court, while the results of the PUCM work have only recently been endorsed by the SWAT team
- covered a topic but could usefully provide more detail
- did not cover a specified topic – this may also be acceptable in some cases, e.g. wastewater is not dealt with in detail for the reasons set out in Section 1.

Some matters were also traversed in the draft ICMP that were not mentioned in any of the specifications, for example matters to do with the Building Act, Tangata whenua interests and the peculiarities of the peat soils not found elsewhere in the Auckland Region. In this respect, the specifications were exceeded.

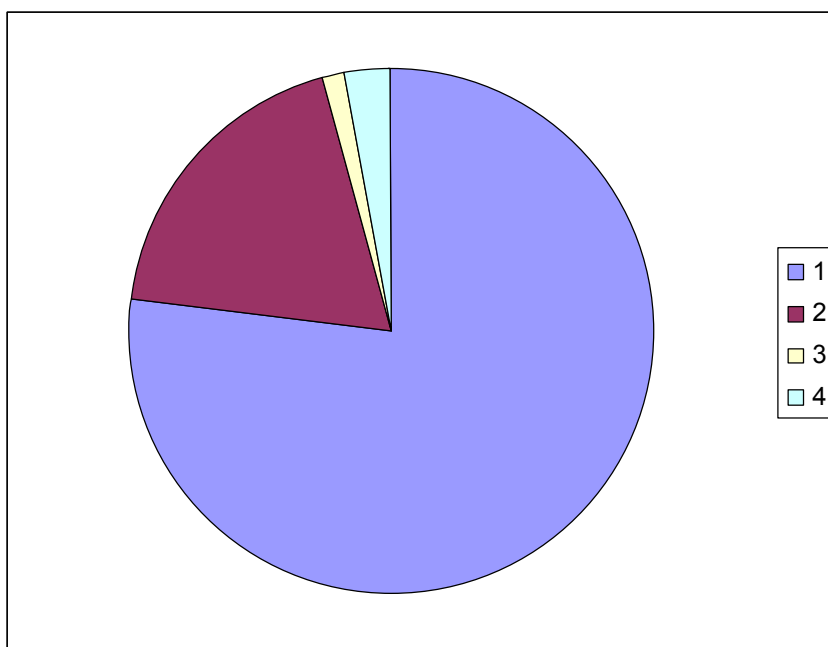
The summary tables in the review were populated collaboratively with PDC staff responsible for preparing the draft ICMP; as a learning process for both

consultants and staff, and also because some of the requirements relate to the plan preparation process and do not necessarily go into the plan itself.

The review found that the draft ICMP did an extremely good job of covering the technical requirements. Of the 143 technical items assessed:

- 77% were covered well (1 in the key to the Figure)
- 18.9% need to be addressed in more detail (2)
- 1.3% were topics not relevant to this plan (3)
- for 2.8% items (4), not enough time has elapsed for them to be addressed, for example the item refers to outcomes of actions not yet initiated.

*Figure 2 Summary of findings of objectives and outcomes review*



**Key to Figure 2 and Table 2:**

1. The draft ICMP addresses this topic well 😊
2. The ICMP needs to address this topic, or needs more detail 😐
3. Topic not relevant to the ICMP ∅
4. Not enough time has elapsed to make an assessment 🕒

*Table 2 Summary of findings of objectives and outcomes review*

Documents	😊	😐	∅	🕒	Total
PDC's ICMP specifications	22	4	0	0	<b>26</b>
ARC Stormwater Action Plan and ICMP strategy	7	0	0	3	<b>10</b>
ARC Funding Guideline & Heads of Consideration	16	4	0	0	<b>20</b>
ARC TP 232 (Urban streams monitoring framework)	23	9	1	0	<b>33</b>
ARC Proposed Regional Plan: Air, Land and Water	33	6	0	0	<b>39</b>
RMA Schedule 4 and the ARC's consent requirements	9	4	1	1	<b>15</b>

<b>TOTAL</b>	<b>110</b>	<b>27</b>	<b>2</b>	<b>4</b>	<b>143</b>
<b>Percentage</b>	<b>77</b>	<b>18.9</b>	<b>1.3</b>	<b>2.8</b>	<b>100</b>

It is essential to note that this simple numerical assessment did not take into account the relative importance of each item on the checklist for each document, or the relative importance of each of the relevant documents.

In general, it must be noted that the departures are under 20% and they were in almost all cases very minor and readily addressed.

### **2.3 SUMMARY OF PLANNING INPUTS REVIEW**

The project brief required a summary and documentation of departures, gaps and shortcomings. It is clear from the preceding sections that the draft ICMP was in fact extremely good, especially when it is considered that the requirements it had to meet are very detailed, somewhat overlapping and have evolved over time, and that the ICMP was reviewed while still a comparatively early draft.

Overall, the draft ICMP did a good job of relating the strategic intentions of the many guiding and requiring documents to the Central Papakura sub-catchment. In many cases, we found that improvements could be made simply by documenting more explicitly the good work that has already been done, for example by cross-referencing to the outcomes in the LTCCP and so on.

The two main suggestions made for more detail related to stakeholder engagement and identifying and assessing catchment management options.

It is useful to consider that key stakeholders may be able to help identify issues, objectives and management options, and also, carry out monitoring. The process of preparing a plan can promote the success of its outcomes, including the quality of the plan itself and its implementation. It is more likely to be endorsed by people who had input to it and who need to use and implement and monitor it. Consultation with different parties is thus beneficial throughout the preparation, implementation and monitoring of an ICMP. It does not need to be as extensive as the more formal consultation processes associated with the LTCCP or district plan, and may in fact make those subsequent processes smoother and more meaningful.

As is to be expected in a document still in draft, not all of the options considered suitable for implementation were carried over into the recommended works programme, and we found that a brief explanation of this in the ICMP would be helpful, together with a reference to the nature and location of more detailed material.

Appendix G to the ICMP contained the multi-criteria analyses carried out to select catchment management options and prioritize projects. It included weighted attributes assessment matrices that assess options against a number of technical, social, economic, ecological and cultural criteria, including annualized total life cycle cost to produce a benefit score per cost unit.

These criteria cover all four wellbeings under both the Resource Management Act and Local Government Act.

It is not necessary to carry out a multi-criteria analysis (MCA) on every catchment management measure: many issues will have a straightforward solution. However, using the assessment criteria and where desirable working with stakeholders can sometimes reveal opportunities for a selected measure to be slightly modified so as to produce other benefits as well as those intended.

Multi-stakeholder dialogue can help catchment managers to identify and prioritise catchment issues, management options and community outcomes in multiple bottom line terms that address all four wellbeings. Council asset managers and engineers have knowledge about many diverse issues but when they make decisions they have an understandable tendency to focus on their primary sphere of responsibility. Engagement with other internal and external stakeholders can thus encourage these other players to provide their experiences and knowledge of other desired community outcomes.

The decision when to engage with the community is not a straightforward one, and will vary from issue to issue and place to place. However, where community engagement on significant options may eventually need to be facilitated as part of the LTCCP process, earlier engagement during the ICMP process may be desirable.

Where there is a lot of public interest in an issue or locality, particularly where there are divided or heated opinions on management options, involving stakeholders in the MCA process is highly beneficial. This enables all parties to take part in formulating outcomes and developing and weighting assessment criteria. Where there is lack of agreement, a sensitivity analysis can be run, by changing critical values to see what effect this has on the overall outcomes in the matrix.

Catchment managers do routinely consider multiple bottom lines across the wellbeings when assessing various management options in terms of their environmental and economic performance as well as their social and cultural acceptability. However their balancing of these considerations is not always documented, so the decisions and any trade-offs made in arriving at them are not always transparent or contestable, and with turnover of staff and service providers, much valuable information is lost.

The results of such analyses and engagement should therefore be summarised in an ICMP, and a full reference given to the file names and location in the Council's hard and soft copy document management systems of additional more detailed information such as the working tables, minutes of meetings, separate options analysis reports and any other relevant information, for future use.

Such summaries can also be used for resource consenting, by showing that alternative options were considered before selecting a best practical option or options. The ongoing availability of the MCA matrices also allows for decisions to be revisited in the future.

The next section shows how the benefits of each structural or non-structural measure can be assessed across the strategic outcome areas of the ICMP, whether or not it was necessary to carry out an MCA.

### 3 PLANNING OUTPUTS

The planning outputs review evaluated the conclusions drawn from the information analyses and the manner in which those conclusions are used to inform stormwater infrastructure programmes. In particular, we checked off each of the recommended structural and non-structural measures against our suggested strategic objectives in order to identify the extent to which the draft ICMP addresses the intention of the guiding and requiring documents.

Figure 1 shows how the planning outputs are derived from a process of applying the strategic objectives to the particular human and biophysical characteristics of the catchment, by way of implementing the detailed requirements of the ARC.

The planning outputs set out what the council will do (the preferred options and actions) and how it will monitor implementation and outcome achievement. The planning outputs are designed to give effect to both the strategic and operational objectives. In turn, the ICMP outputs may influence the guiding and requiring documents (the planning inputs) and thus should contain recommendations for changes to these documents where necessary to achieve integrated management.

Our finding was that including the ten suggested strategic objectives and developing operational objectives for the ICMP will enable the wide array of structural and non-structural measures to be related back to each of the strategic and operational objectives, and that this would help with the development of a monitoring plan.

To assess alignment between intent and action (planning inputs and outputs), we evaluated the tables of recommended measures in terms of their contribution to achieving the strategic objectives. Table 3 shows a sample result of this assessment. A similar assessment can then be done in due course by PDC and its stakeholders for the operational objectives.

Table 3 illustrates how catchment management measures can contribute to multiple outcomes. It also shows that linking objectives with measures can be used to show that some measures are supporting outcomes that might not otherwise have been identified. It can also help identify modifications to some of the proposed measures in order to enable the widest practicable number of outcomes to be supported.

In the ideal world, integration results in one measure contributing to the achievement of several strategic objectives. For example, STM 1.02 (in Table 3) provides for removal of weeds and riparian planting. This measure helps to achieve strategic objectives for Maori outcomes, Amenity Values, Water Quality and Ecology. However, it also offers an opportunity to involve the community by initiating planting groups and, because planting stabilises the stream bank, to address natural hazards. Making these opportunities explicit reinforces the key role played by the ICMP in implementation.

A further means of showing how this ICMP gives effect to the strategic and operational objectives would be to include measures that will be carried out under other policies, plans and programmes. These could be identified, the responsible agency identified and where applicable, cross-referenced to the relevant part of the ICMP or other policy document or programme. For example, Waicare groups are already looking after several streams in Papakura but are

not listed as an implementation measure. These groups could be promoted as 'stream management non-structural measures' with cross-referencing to the relevant outcomes of the Papakura LTCCP and the Waicare website.

Table 3 Example table assessing recommended catchment management measures against suggested strategic objectives

ITEM ID	MEASURE DESCRIPTIONS	GROWTH	INFRA-STRUCTURE	COMMUNITY INVOLVEMENT	MAORI OUT-COMES	AMENITY VALUES	FLOODING	OTHER NATURAL HAZARDS	PEAT AREAS	WATER QUALITY	ECOLOGY
<i>Stream management non-structural measures</i>											
STM 1.01	Designate riparian management zone along all Category 1 streams: the riparian margins shall be 10m from the edges of the stream bed on either side of the bank at the Old Wairoa Stream and Clevedon Stream. The width of the streambed is taken as the mean annual flood extent at the stream.			✓	✓	✓				✓	✓
STM 1.02	Remove weeds and plant native planting at riparian margins.				✓	✓				✓	✓
STM 1.03	Install bio-engineering measures, such as green gabion, bio-logs, to protect the toes of streambank at risks of erosion by affected property owners.							✓		✓	✓
STM 1.04	Add meandering to engineered low flow channels to mimic sinuous natural stream channels.					✓				✓	✓
STM 1.05	Add logs, tree stumps and artificial eel holes etc to increase habitat varieties at engineered channels.				✓						✓

## **4 MONITORING PLAN OUTCOMES AND EFFECTIVENESS**

A comprehensive approach to monitoring is required in order to achieve integrated management and show how a given ICMP is promoting the operational and strategic objectives.

Many agencies carry out monitoring but the data and information provided may not be useful or timely for the purpose of evaluating the effectiveness of an ICMP. Therefore the first task should be to undertake a strategic review of all existing monitoring programmes that may be relevant to the catchment, to assess the extent to which the existing programmes help to measure achievement of the ICMP's strategic and operational objectives. It is important to understand the monitoring responsibilities of each of the relevant agencies, to identify gaps or overlaps in coverage and shortcomings in funding so that the Council can ensure a comprehensive approach to monitoring is put in place. It would be useful to include a spreadsheet setting out the results of this overview and a list of recommendations for action. A map based on existing monitoring programmes showing existing monitoring locations and significant receiving environments would be invaluable.

The next task is to prepare a monitoring plan for the ICMP, taking into account what is already being done by the Council and other agencies. It is likely that much of the monitoring related to the strategic objectives will already be carried out by the Council and the ARC under the auspices of both the RMA and LGA. Thus it may be sufficient for the monitoring plan only to show who is responsible for measuring achievement of the strategic objectives and how this is being done (i.e., provide a 'road map'). The monitoring plan would therefore focus primarily on measuring achievement of the operational objectives. It should also anticipate the monitoring likely to be required as part of a network discharge consent. Measurable outcomes related to the operational objectives should be specified, indicators selected and timelines stated. Again, a map of the monitoring locations should be provided and significant receiving environments identified.

Given the need for a comprehensive monitoring plan, we recommended a collaborative approach to defining outcomes and indicators, because the monitoring responsibilities of regional and territorial authorities overlap considerably. The various agencies need to agree about who does what, where and when. A memorandum of understanding may be needed to record an agreement of this kind. It is essential to involve staff from various Council departments, the ARC and other agencies and to draw on their knowledge of the policy framework and expertise in reaching agreement monitoring. Peer review ensures greater rigour and builds support for monitoring. A more streamlined monitoring plan means better use can be made of the resources available for monitoring in each agency.

A good model for outcome definition is shown in Figure 2. This shows four levels of outcomes:

- 1st order – enabling conditions (goals, constituency, commitment and capacity)
- 2nd order – changes in practice (evidence of implementation & monitoring)



- 3rd order – the harvest (achievement of identified goals)
- 4th order – sustainable development/management.

Some of these outcomes are already specified in the guiding and requiring documents whereas others will have to be written for the draft ICMP reviewed.

Indicators are needed for each of the first three levels of outcome. There should be a limited number of indicators chosen for their relevance, that is, their ability to show that ICMP outcomes are being achieved. The results should be capable of summarised into outcome areas that clearly relate to all four wellbeings defined in the Resource Management and Local Government Acts.

## **5 PLAN LOGIC**

We also analysed the draft ICMP in terms of its own internal consistency by looking at how well the required topics are linked with each other. This part of the review was informed by national best practice as identified by the PUCM (Planning Under Co-operative Mandates) research team from the University of Waikato's International Global Change Institute (IGCI).

The PUCM team has identified the following eight criteria for a good plan (Ericksen et al, 2003):

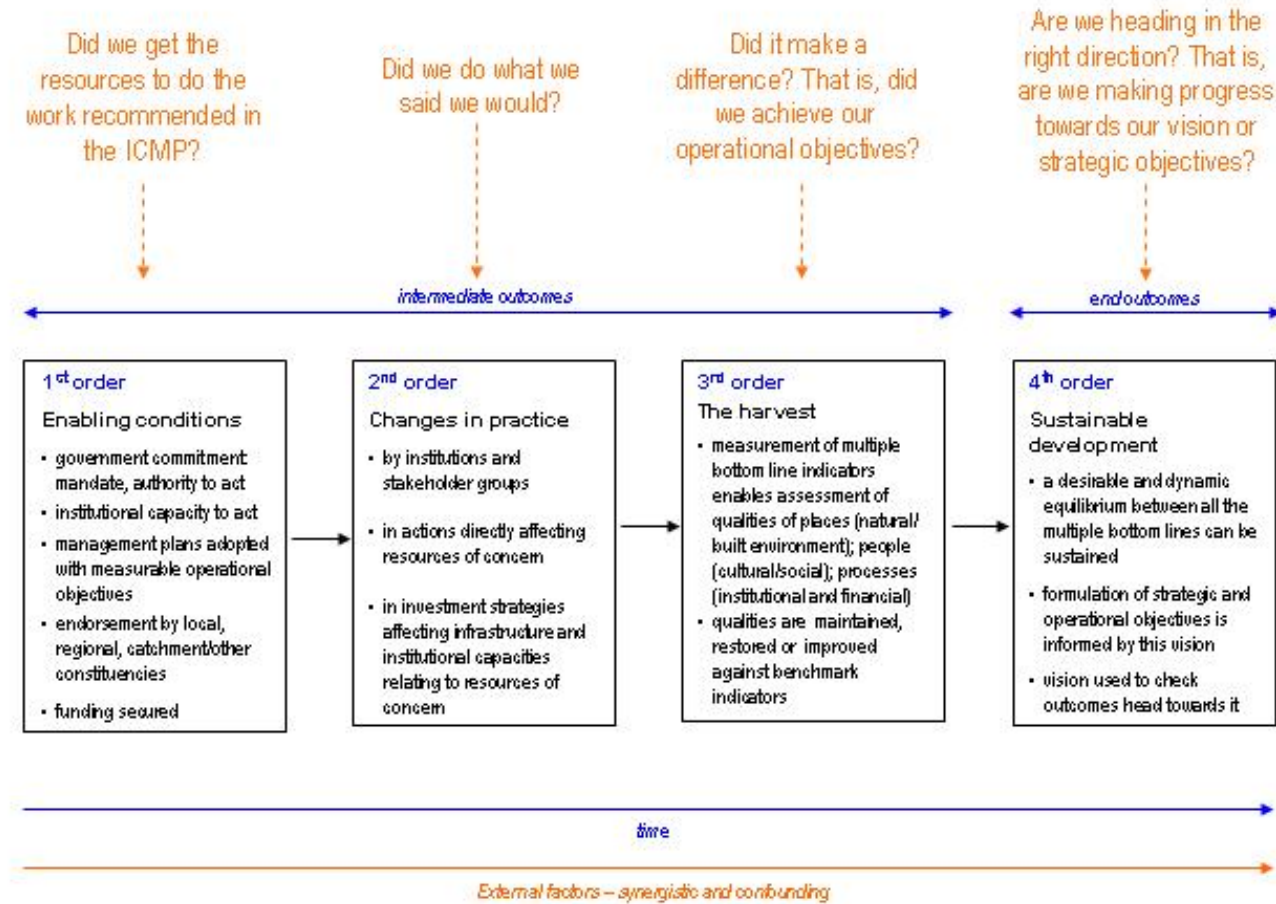
1. appropriate interpretation of the legal mandate for the local area
2. clearly stated purpose and outcomes
3. clear identification of issues
4. well-developed fact base
5. internal logic and consistency (objectives clearly linked to issues; policies to objectives; methods to policies; anticipated results and indicators to all the above)
6. integration with other plans and policy instruments
7. monitoring
8. well-organised and presented for ease of use by lay and professional alike.

The ARC has assessed a sample of Auckland's ICMPs against these criteria as well as two additional criteria specific to ICMPs:

9. scope as set out in the relevant documents of the ARC: for the purposes of this report, this criterion is covered in sections 2.1-2.4, and reflects criteria 1 and 6 above
10. depth of coverage of key contents of the plan: for the purposes of this report, this criterion is partly covered by this report and partly by the separate and accompanying review of the modelling done for the draft ICMP.

Compared with the other ICMPs analysed, the draft Central Papakura ICMP scores best for adherence to robust plan logic. The main improvements we recommended are summarised below.

Figure 2 Using orders of outcomes to develop an ICMP monitoring programme



## **5.1 BETTER DEFINITION OF TEMPORAL ASPECTS OF ISSUES**

Some issues are locality-specific, but issues also have a temporal component, and we recommended that this be spelled out in the ICMP:

- an issue might have always been present, or it might have developed (slowly, rapidly) over time (either because of changes in the external environment, or because local developments took place)
- it may occur with low (once every few years) or high (every month) frequency
- it may need to be resolved urgently (or not)
- it might get worse over time – slowly or quickly.

## **5.2 BETTER LINKAGES OF STAKEHOLDERS WITH ISSUES**

The ICMP discussed stakeholders in general terms, but for a proper understanding of an issue it is important to know for whom it is an issue, and why it is an issue for them. This means engaging with stakeholders in an early stage of the planning, which as indicated above, is beneficial for acceptance of the plan's recommendations.

## **5.3 BETTER LINKAGES OF OBJECTIVES WITH ISSUES, CRITERIA WITH OBJECTIVES, AND OPTIONS WITH OBJECTIVES**

Clearly identifying strategic issues would enable formulation of measurable operational objectives and criteria that inform the development of indicators for monitoring.

## **5.4 BETTER LINKAGES OF MONITORING WITH CRITERIA**

Criteria describe what should be measured in order to establish if an objective has been met. They are at the core of a monitoring programme, and define what indicators should be measured at the minimum to find out if a plan is working. We found that the draft ICMP could be improved in this respect.

# **6 SUMMARY AND CONCLUSIONS**

We deemed the draft Central Papakura ICMP to be a very good one. It included much of the required information and compares well with other ICMPs in the Auckland Region. Particular strengths included the development of the catchment management toolsets and the management options assessment. The section on monitoring was basically sound and can readily be taken to a greater level of detail, with inclusion of a monitoring plan.

Implementation of this ICMP would achieve the strategic and technical intentions of the Regional and District Council. With the addition of an introductory scene-setting chapter, this would be made clear. Restructuring some of the existing information and presenting it in tables, maps and figures would tell this story in a sustained way throughout.

Maintaining a narrative linkage from plan recommendations and outcomes back to the contributing information and identification of issues and objectives can clarify and enhance the value of the technical work done and enable better monitoring of outputs and outcomes of the ICMP.

With respect to the overarching framework in Figure 1, we found that:

- the analysis of the planning inputs was good, and would be clarified by a summary of the key outcomes sought by the many strategic objectives

- the data inputs were very good, with excellent coverage of the human and biophysical information about the catchment required by the ARC
- the catchment methods and planning outputs were very good, and when linked back to the summary strategic objectives, would be very robust and defensible.

However, while the outcomes and actions are all included in the reviewed ICMP, the logical connecting links were not explicit, and we therefore recommended some simple improvements to the structure and content. In many cases, improvements could be made simply by documenting more explicitly the good work that has already been done, for example by cross-referencing to the outcomes in the LTCCP and other key documents as summarised with respect to Figure 1.

Our main recommendations were to distil some strategic objectives from the guiding and requiring documents, undertake some targeted engagement with key stakeholders, clarify the linkages between issues, objectives, outcomes and monitoring, slightly restructure the information in the plan under these headings, develop some measurable operational objectives and strengthen the monitoring of plan outcomes.

This approach has the potential to be applied to the development and review of other ICMPs in the Auckland Region and elsewhere to produce ICMPs which, in our opinion, will achieve 'best practice' status. More importantly, the readability and understanding of the ICMP's would be enhanced, thus increasing the likelihood of the plans achieving their desired outcomes.

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