

# **An Evaluation of the Health Impact Assessment for the Central Plains Water Enhancement Scheme**

A report prepared in 2010 by:

Professor Richard K. Morgan

for the Ministry of Health

Disclaimer:

The views presented in this report are those of the authors and do not necessarily represent the views of the Ministry of Health.

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# Contents

Acknowledgements.....	iii
Abbreviations.....	vi
Executive Summary.....	vii
1. Introduction.....	1
Overview.....	1
Methodology.....	1
2. Background to the CPWS HIA.....	3
Background to the irrigation scheme.....	3
Context for the HIA.....	4
How the HIA was conducted.....	6
Overview of references to the HIA in the hearing commissioners' reports.....	7
3. Review of the HIA.....	10
The UK HIA review package.....	10
The reviewers.....	10
The ratings.....	10
Specific issues.....	11
4. Key Outcomes of the E-survey.....	13
5. Analysis and Discussion.....	15
Health and the resource consents process.....	15
The CPWS HIA approach.....	20
6. Conclusion and Recommendations.....	26
Conclusion.....	26
Recommendations.....	27
Appendix.....	29
1 Documents consulted.....	29
2 Websites consulted.....	29
3 List of interviewees, and survey respondents.....	29
References.....	31

## **Abbreviations**

AEE	assessment of environmental effects
CPWS	Central Plains Water (enhancement) Scheme
DHB	District Health Board
HIA	health impact assessment
MAV	maximum acceptable value
RMA	Resource Management Act 1991

# Executive Summary

## Background

The Central Plains Water Enhancement Scheme (CPWS) is a proposal to irrigate the central plains of Canterbury using water diverted from the Waimakariri and Rakaia rivers stored in a dam in the Waianiwaniwa valley. The two councils responsible for the initiative, Christchurch City Council and Waimakariri District Council, set up a trust to raise funds and guide the proposal, and a company (Central Plains Water Ltd) to manage the design of the scheme, the resource consent process and subsequent implementation of the programme. Resource consent applications were lodged in 2005 to Selwyn District Council and Environment Canterbury, and joint hearings eventually started in 2008.

However, before the hearings began, there were concerns that the health implications of the CPWS had not been clearly identified or evaluated in the assessment of environmental effects (AEE) or associated documents in a way that would allow members of the public to consider the health consequences for themselves, their family or their community. The case for a separate, integrated and coherent treatment of health issues was strong, so the decision was made by Canterbury District Health Board to proceed with a separate health impact assessment (HIA).

The assessment was carried out by Community and Public Health (the Public health Unit of Canterbury DHB). In view of the limited time available to submit a report prior to the hearings, a rapid appraisal approach was used. Although Central Plains Water Ltd and its consultants were not convinced a separate HIA was necessary, they co-operated with the HIA team, contributed to the various workshops and supplied any necessary information.

This HIA generated a great deal of interest and comment, both in the media and among the various groups and individuals involved with the scheme and its progress through the resource consent process. In the end, the decisions on the resource consents were unsympathetic towards some of the key messages of the HIA, and the hearing commissioners regarded the HIA as less than objective.

Given that the HIA carried out for the CPWS was one of the first stand-alone project-level HIA<sup>1</sup> reports to be completed in New Zealand and in light of the critical reception it received, the Health Impact Assessment Support Unit of the Ministry of Health saw this HIA as suitable for a detailed evaluation. In brief, the terms of reference for the evaluation were to:

- review the HIA, using an internationally recognised framework for reviewing HIA reports
- evaluate the HIA process within the context of the Resource Management Act 1991 (RMA)
- provide an overarching review of the HIA in the context of good impact assessment practice and the roles the environment and health sectors should ideally be taking in this type of HIA.

<sup>1</sup> A project-level HIA is an HIA conducted on a specific project in the RMA context.

The methods used to carry out the evaluation included:

- an analysis of the HIA report itself and other relevant documents (listed in the Appendix)
- a review of the HIA report using a review package from the UK (Fredsgaard et al 2009)
- a series of semi-structured interviews with key informants
- a survey via email of 12 participants in the HIA stakeholder workshops.

This review has resulted in recommendations to the Ministry of Health, District Health Boards (DHBs) and public health units on the future commissioning and implementation of HIAs in the RMA context.

### **Results of the review of the HIA**

The formal review of the HIA by three independent reviewers identified particular strengths of the HIA report, including:

- it is well researched and thorough
- there is a good explanation of methods, clear scope and good referencing
- a wide range of potential impacts and populations were considered in scoping
- it is strong on stakeholder involvement and engagement in scoping.

The weaker aspects included:

- there was a lack of public health data, community profile information, etc, as a basis for predicting effects and monitoring future outcomes
- the report has the feel of being produced by a committee, or at least of being rushed
- technical information was not always explained properly
- little evidence was provided to support the conclusion that methaemoglobinaemia would result from the project
- background nitrate levels in bore water were not given
- the scoping process was inadequate, especially the initial focus on a limited set of issues and the lack of systematic impact identification approaches
- the links to other forms of impact assessment (social, cultural, environmental) were weak
- the socioeconomic treatment was unconvincing.

The HIA achieved a great deal but fell short in some critical areas. The strengths are consistent with good performance on the broader mechanical tasks, while the weaknesses indicate that the key components of identifying and characterising specific impacts needed improvement. All of these considerations should be tempered by the fact that the HIA was carried out very late in the consent process, using a rapid appraisal approach, by a group new to the HIA process.



The overall impression from the survey of 12 participants in the stakeholder workshops is that the workshops helped raise awareness of public health issues in the context of a major resource development project, which would not have been achieved otherwise. They also acted as a useful way to open up debate and recognise other views, and perhaps helped to develop broader support for particular health issues. However, some felt that the workshops, which comprised many people from different backgrounds, seemed to give all opinions equal weight, with no chance to allow discussion that would test the opinions being voiced. To that extent the workshops appeared to devalue the technical knowledge of experienced participants in an effort to achieve some form of consensus on health issues.

The role of the workshops was generally described in certain ways: to collaborate, to reach broader views, to set community priorities. No-one described them as a way to identify specific health effects, to fill gaps in knowledge or to attach values to potential effects.

## **Discussion**

### ***Health and the resource consents process under the RMA***

In establishing a need for an HIA, Community and Public Health and Canterbury DHB staff based their judgement on models of health that are less familiar to many in the resource consent arena. Central Plains Water Ltd had commissioned studies for their AEE based on narrower perspectives of human health, using established environmental assessment practice. The survey responses and interviews suggest the environmental health view still dominates thinking among non-health practitioners. Work overseas has demonstrated deficiencies in the consideration of human health in impact assessments, and there is increasing attention being given to similar issues in New Zealand practices. However, New Zealand practitioners are not picking up on these messages, which would suggest the need for the Ministry of Health, in consultation with DHBs and public health units, to develop RMA-specific guidance on health issues that developers and consultants may need to consider in their AEEs.

The CPWS HIA was seen as fulfilling a specific need: to ensure health concerns were placed before the hearing commissioners in the absence of relevant health information from other reports. However, it does not have to be the model for future use of HIA under the RMA. Under the RMA, health will invariably be one of several forms of evidence considered by decision-makers, and the AEE is the document that draws those threads together.

In this regard, health impact assessment can be viewed in a similar way to social and cultural impact assessment. Neither of these are specifically called for under the RMA, but increasingly it makes good sense for major projects to carry out these studies to meet the purpose of the RMA. The findings can then be incorporated into an overarching AEE report.

This suggests that a separate HIA would be a useful way to develop a coherent picture of the combined effects on health of a project. The HIA could ensure that any potential cumulative health impacts of, for example, declining water quality, increasing noise and rising rents on a particular community, can be recognised and tackled. However, producing a separate report should not mean that health investigations are conducted in isolation from other impact assessment activities. For example, it clearly makes sense for social scientists to work on predicting change in local communities as a basis for health specialists to consider the health implications of that change.

A major theme in the interviews and the survey feedback was the nature of the information generated by the CPWS HIA and its use in the hearings. Although there was broad sympathy for the attempt to identify the health impacts that would be caused by socioeconomic changes brought about by the project, many felt that some of the analyses lacked the necessary level of rigour required for the hearing commissioners. A specific comment was that the HIA attempted to represent the views of the stakeholders and non-experts (who may have been submitters as well) who attended the workshops, rather than presenting grounded, expert information about possible health impacts. As a result, the commissioners considered the HIA to be lacking in credibility and objectivity, as reflected in the commissioners' comment in Minute 11: 'We put little weight on the "Health Impact Assessment" carried out by the DHB since that was not objectively based'.

Strategies for presenting HIA evidence at resource consent hearings need to recognise that commissioners expect relevant experts to provide and present the different aspects of the HIA, perhaps following a broad overview by the lead preparer of the HIA (or AEE).

### ***The CPWS HIA approach***

Stakeholder workshops are widely used in HIA processes in New Zealand and take time and money to run. It may be useful to have guidance available for HIA practitioners involved in resource consent processes on the effective use of such workshops: what they can reasonably be expected to achieve, how to set them up and how to run them. In particular, such guidance should focus on ensuring workshops contribute to the generation of credible, objective, well-grounded impact information.

Compared to experiences with Māori involvement in the HIA for the Greater Christchurch Growth Strategy, which was apparently highly successful, Māori involvement with the CPWS HIA was seen as rather disappointing, and this was acknowledged by the Community and Public Health staff. There are a number of possible reasons for this, including the timing of the workshops, and the speed with which preliminary discussions with individual Māori were set up and the workshop itself was organised. An alternative model, suggested by Paul Horgan, Environmental Advisor, Ngā Rawa Taiao, would be to fund someone to study the cultural health impacts on Māori, alongside the main HIA, and feed that information into the HIA process and the final HIA report. This would focus on potential health impacts on Māori families and communities engaged in culturally related activities, such as traditional food gathering, and so would have a link to the cultural impact assessment, albeit with a definite health focus.

The decision was made early to limit the scope of the HIA to three key determinants of health (water quality, employment/wealth and social connectedness) and three vulnerable groups (infants and toddlers, low-income people and Māori). The reason for focusing the HIA in this way was essentially a resource one: funding and time constraints limited what could be achieved, so the decision was made to concentrate on the 'priority' issues. However, decisions on the scope of an HIA need to be informed by a broad initial assessment of the project and its likely impacts, and it is not clear from the CPWS HIA documentation that such an assessment was carried out. An HIA should report the basis of its decisions on the scope so that users can make a judgement about the coverage of the HIA and decide how much trust to place in the work.

A number of research questions were identified in the HIA. Those relating to the socioeconomic determinants of health seemed inappropriately high level, because they did not address the type of project nor the specific environment that might be affected by the project. As such, the questions were perhaps better suited to a national, policy-level HIA rather than a local/regional, project-level assessment. Research questions of this kind will lead to answers that are not immediately relevant to the specific issues of the proposal being assessed. This may be one reason why the socioeconomic analysis in the CPWS HIA was poorly received.

One of the main problems identified by the review was the lack of relevant public health data and community profiles in the HIA. Information about the current status of public health in the potentially affected area is vital to provide a baseline against which future health effects can be measured.

## **Conclusions**

Overall, it was reasonable for an HIA to be conducted on the irrigation project, given the lack of a coherent and integrated assessment of health impacts in other reports produced by its proponents. A rapid appraisal approach was used in view of time constraints, and this may have been one reason why there were concerns about some of the information put forward in the HIA, especially the arguments advanced on certain socioeconomic aspects. However, a good deal of useful information was generated despite the limited time available, and the process raised awareness of the HIA process among a wide group of practitioners and stakeholders.

Conducting an HIA makes good sense for those major projects that have the potential, in different ways and to differing extents, to affect the health of individuals or groups in the community. An HIA should be viewed as a specialist report in the same mould as a social impact assessment or ecological or cultural impact assessments. It should be conducted as a stand-alone study alongside, and in collaboration with, other related studies, and the findings should be part of the overall AEE for the proposed project. In other situations a stand-alone HIA may not be required, but the health issues should still be given due recognition throughout the AEE process.

To achieve a greater consideration of health within the AEE process, it may be necessary to:

- provide courses on the health impacts of projects for environmental and social consultants and council consent staff
- encourage the growth of a group of health impact specialists able to work within the RMA context
- modify current HIA methods and approaches for use in the RMA context.

## **Recommendations**

1. The Ministry of Health, DHBs and/or public health units should not normally commission HIAs for projects going through the resource consent process. Rather, they should work with regional, district and city councils to encourage proponents to conduct HIAs when appropriate, and provide advice and guidance to proponents, councils, stakeholders and communities to facilitate the HIA process.
2. The Ministry of Health should consider providing training courses to encourage existing social and environmental consultants to learn about the environmental and social determinants of health, in order to promote collaborative approaches to assessments that include full consideration of health issues.
3. Guidance for HIA in the RMA context should be developed by the Ministry of Health for HIA practitioners. The 1995 Public Health Commission guide could provide a starting point, but it should not be a risk-based approach.
4. Training in impact assessment/AEE practices should be developed for potential HIA practitioners (including public health unit and DHB staff involved in guiding or reviewing HIAs). The training should include an explanation of resource consent hearing procedures and guidance on the presentation of evidence to hearings.
5. To enhance Māori involvement in HIA processes, consideration might be given to appointing a cultural health impact assessor (from within the Māori community if possible) to prepare a report that informs the main HIA.
6. Information on typical health issues associated with major project types should be disseminated by the Ministry of Health. The audience could include decision-makers, council staff, stakeholder groups, community groups, developers and consultants.
7. For major projects, DHBs and/or public health units should consider approaching the relevant territorial and/or regional councils to request involvement in preparing section 42a reports<sup>2</sup> on health impacts for the resource consent hearings.

<sup>2</sup> Section 42A of the Resource Management Act 1991 allows a Council officer to provide a report to the decision-maker on a resource consent made to the Council, and allows the decision-maker to consider the report at the hearing.

# 1. Introduction

## Overview

The Central Plains Water Enhancement Scheme (CPWS) health impact assessment (HIA), produced by Canterbury DHB and funded in large part by the Ministry of Health's Health Impact Assessment Support Unit, is one of the first project-level HIA reports to be completed in New Zealand. Although health has often been addressed in assessments of environmental effects for other major projects, this is probably the first time health issues have been identified and reported in one coherent report for a project of this kind. As such, there was a great deal of interest in how the HIA was received by the practitioners in the resource consent process, who are less used to a high profile on health issues in resource development decision-making.

Unfortunately, the CPWS HIA was poorly regarded by the independent commissioners who conducted the public hearings and reached decisions on the consent applications. It is useful, then, to look at the HIA process followed in this case in order to understand the context within which the decision to conduct the HIA was made and to understand the reasons for the poor reception by the commissioners. This will help to inform future use of HIA in the RMA context.

The terms of reference for this evaluation are to:

- appraise the CPWS HIA using an international HIA review package
- evaluate the CPWS HIA processes within the context of the RMA
- provide an overarching review of the HIA in the context of good impact assessment practice and the roles the environment and health sectors should ideally be taking in project-level HIA.

This information has been used to provide a set of recommendations to the Ministry of Health, DHBs and public health units on the future commissioning and implementation of similar HIAs within the RMA context.

## Methodology

The evaluation is primarily a process evaluation, with some outcome evaluation covered in Section 2. Four methods were used to generate the information presented in this report.

- Relevant documents were examined (see the Appendix). These provided the material for understanding the background to the CPWS proposal and the context for the subsequent HIA, which is described in Section 2. These documents also informed the main analysis and discussion in Section 5.
- The HIA review package developed in the UK by Fredsgaard et al (2009) was used to review the CPWS HIA report. The outcomes of the review are reported in Section 3.
- In-depth interviews were conducted with a number of people involved with the CPWS HIA process. The interviews lasted between 40 and 90 minutes and were carried out with seven of the key participants in the CPWS proposal, and the HIA process in particular. Specific themes raised in the interviews were identified, and compared across the interviews and in relation to the role of the interviewee in the HIA process.

This material is not reported in a separate section, to respect the identity of the interviewees, but it is a major component of Section 5.

- An email-based survey was sent to 18 people (ie, about a third of those who attended one or more of the three stakeholder workshops, not including Canterbury DHB staff and the HIA consultants). They were asked to respond to seven questions, which gauged their perceptions of the HIA process and of HIA itself. Three replied that they had not actually attended any of the workshops, and one was overseas when the survey was conducted. Twelve people provided responses to the survey, and their views were collated and compared, and broad conclusions were reached. This information is reported in Section 4 of this report.

## 2. Background to the CPWS HIA

### Background to the irrigation scheme

Investigations into irrigation options in the central plains area of Canterbury had been under way since the early 1990s, but they really took shape during 1999 to 2001, when feasibility studies were conducted and consultation with stakeholders was undertaken. As a result, the two councils responsible for the initiative, Christchurch City Council and the Waimakariri District Council, agreed to set up a trust to raise funds and guide the proposal, along with a company to manage the design of the scheme, the resource consent process and the subsequent implementation of the programme.

Resource consent applications were lodged in 2005 to Selwyn District Council and Environment Canterbury, and joint hearings eventually started in 2008. The basic proposal, as it stood in 2005/06, is as follows (extract from the 2008 CPWS HIA, pp. 13–14):

The CPWS is a proposal to irrigate the central plains of Canterbury using water diverted from the Waimakariri and Rakaia rivers stored in a dam in the Waianiwaniwa valley. The CPWS has been developed from earlier feasibility studies funded by the Selwyn District and Christchurch City Councils. Following those studies, the councils set up the Central Plains Water Trust. The Trust, in turn, set up Central Plains Water Ltd, a private company with some 330 shareholders consisting mostly of local farm owners.

The key elements of the CPW scheme include:

- an intake on the Waimakariri River above the confluence with the Kowai River, a 3 km canal and an approximately 10 km long tunnel feeding water to the Waianiwaniwa Reservoir
- an intake on the Waimakariri River at the Gorge Bridge to bring water into the main headrace across the plains
- an intake on the Rakaia River approximately 8 km downstream of the Gorge Bridge to bring water into the main headrace across the plains
- a main headrace across the plains generally following the 235 m amsl (above mean sea level) contour between the Waimakariri and Rakaia Rivers
- an earth dam (with a maximum height of 55 metres) and consequent reservoir in the Waianiwaniwa Valley to provide stored water that will discharge into the main headrace
- a distribution network of smaller canals down the plains providing water to all shareholder properties in the command area
- pump stations to lift water from the canals to land that is too high to be supplied by gravity in the Windwhistle and Springfield areas
- by-wash and turnout canals at the bottom of the scheme area to discharge surplus water back into surface water ways.

The Central Plains area is located between the Rakaia and Waimakariri Rivers from the base of the Malvern Hills to State Highway One in the east and then a line running approximately north of Burnham.

The total area encompassed by the Central Plains scheme is 101,800 hectares (ha). The total effective area within the boundary of the scheme is assumed to be 85,000 ha, of which 60,000 ha will be irrigated by scheme water. This represents an increase of 33% of the area currently irrigated from rivers and drains by community owned schemes.

During the combined consent hearings, the commissioners indicated they would not grant consents for the dam and reservoir, so the proposal was modified in 2008 and the modified version completed the consent hearings in 2009. Final decisions were released in May 2010.

## **Context for the HIA**

Before a decision was made to commit to conducting an HIA, the consultants Quigley & Watts were asked by Community and Public Health (the Public Health Unit of Canterbury DHB) to examine the treatment of health issues in the various reports prepared up to 2007, and especially in the AEE contained in the resource consent application and in the separate social impact assessment. The consultants concluded that health was not adequately addressed in the existing reports and there would be value in carrying out an HIA.

At this point it is worth briefly looking at the treatment of health in the AEE (June 2006), the 2007 social impact assessment and the cultural impact assessment to appreciate the case for conducting a separate HIA.

### ***Assessment of environmental effects***

Health did not feature strongly in the CPWS AEE. In fact, in the treatment of the operational effects of the project (section 8) there are just two main references to health: in the context of health service provision and in the likely positive impact of the project on these services. Water quality is addressed in section 8, but with no direct link to community health. There is just one text reference to maximum acceptable value (MAV)<sup>3</sup> in relation to nitrate-N concentrations in ground water, but no explanation of its meaning in public health terms. Drinking-water is mentioned three times in this part of the AEE, but again there is no link to health. In the section on construction effects, possible noise and dust impacts on health are briefly acknowledged but are not developed in any way.

### ***Social impact assessment***

Social impacts had been reviewed broadly in 2000/01 and formed the basis for the social impact content of the AEE prepared for the consent applications in 2005/06. However, following advice from Diane Buchan, a social impact assessment specialist from Corydon Consultants, Wellington, Selwyn District Council made a section 92 request to Central Plains Water Ltd for further information on social impacts, which led to a fuller social

<sup>3</sup> The concentration of a determinand below which the presence of the determinand does not result in any significant risk to a consumer over a lifetime of consumption. For carcinogenic chemicals, the MAVs set in the *Drinking-water Standards for New Zealand* generally represent a risk of one additional incidence of cancer per 100,000 people ingesting the water at the concentration of the MAV for 70 years.



impact assessment report by the consultants Taylor Baines in 2007.<sup>4</sup> However, as the report notes, 'As a result the information is available to submitters to respond to in evidence to the forthcoming joint council (commissioner) hearings and *not* the general public' (p. 2, emphasis added).

Health issues were addressed in the 2007 social impact assessment, in terms of both environmental health terms (dust, noise, etc) and the health implications for people being required to move from their homes and farms, perhaps after several generations of occupancy. However, the social impact assessment did not provide a systematic assessment of health impacts. In general, the issues were noted rather than investigated further.

### ***Cultural impact assessment***

The cultural impact assessment was commissioned by the project's proponents and undertaken by consultants on behalf of Te Taumutu Rūnanga, Te Ngāi Tūāhuriri Rūnanga and Te Rūnanga o Ngāi Tahu. The report<sup>5</sup> was completed in 2005, in time to be used during the preparation of the AEE for the scheme.

The cultural impact assessment identifies five main areas of concern with respect to Māori cultural values:

- 1 Effects related to water abstractions
- 2 Effects related to mixing of waters
- 3 Effects related to the Waianiwaniwa Storage Reservoir
- 4 Effects related to the construction and use of canals
- 5 Effects related to the use of water on the Central Plains (p. 1).

The report does not address human health, apart from two indirect references. One reference is to a policy statement in the Te Waihora [Lake Ellesmere] Joint Management Plan, which refers to improving the 'health of the community by improving the quality of Te Waihora environment'. The second is to a broad statement about the Ngāi Tahu view of the scheme:

For Ngāi Tahu, the recommendations are about ensuring the health and sustainability of our natural capital: our soil and water resources of the Central Plains, which in turn ensures the health and sustainability of our communities. (pp. 41–2).

Apart from these references, the focus of health is firmly on the rivers, riparian areas and Te Waihora, and the natural capital of the area.

Overall, then, the health implications of the CPWS were not clearly identified or evaluated in a way that would allow members of the public to consider the health consequences for themselves, their family or their community. The case for a separate, integrated and coherent treatment of health issues was strong, and this was the advice given to Community and Public Health by Quigley & Watts.

<sup>4</sup> *Central Plains Water Enhancement Scheme Social Impact Assessment, 2007.*

<sup>5</sup> *Central Plains Water Enhancement Scheme: An assessment of impacts on Ngāi Tahu values, 2005.*

The decision was made by the Canterbury DHB to proceed with an HIA, using a rapid appraisal approach in view of the limited amount of time available to submit a report prior to the hearings. The HIA was funded in part by the DHB and in part by the Ministry of Health's Learning by Doing fund of the Health Impact Assessment Support Unit. Although Central Plains Water Ltd and its consultants were not convinced that a separate HIA was necessary, they co-operated with the HIA team, contributed to the various workshops and supplied information.

## **How the HIA was conducted**

The main components of the HIA were:

- a scoping process
- literature reviews on some key issues
- phone discussions with a number of experts on the various socioeconomic determinants of health
- three stakeholder workshops.

The scoping meeting was held in November 2007. The meeting was attended by more than 20 people from different stakeholder groups including Ministry of Health, local authorities, local rūnanga, Crown research institutes, environmental groups, amenity interest groups. There does not appear to have been any involvement of Environment Canterbury resource consents staff in the scoping meeting, judging by the list of participants. The meeting identified the aims and objectives of the HIA, and suggested key issues to be considered in the HIA. The scoping meeting resulted in some critical decisions about what to include in, and what to exclude from, the HIA. Why and how these decisions were made will be discussed later in the report.

The scoping work selected the following populations as the focus of the HIA(CPWS HIA, p. 19):

- infants and toddlers (as markers of specific health problems)
- low-income people (as a group more sensitive to the wider determinants of health)
- Māori.

Each population was considered to be affected by three key determinants of health: water quality, employment/wealth and social connectedness. The last two were merged into a socioeconomic theme, and three working groups were set up: Māori, water quality and socioeconomic effects.

Literature reviews were carried out on water quality and socioeconomic issues, and experts were consulted about the proposal and its likely health implications in light of current research. Specific research questions were identified to guide this process.

The CPWS HIA (p. 22) describes the Māori consultation process at this stage as follows:

Māori were consulted at a workshop meeting on 21st December 2007, in a single further interview and at an appraisal workshop in January 2008. The final Māori workshop was not well attended for a number of reasons, including that many local Māori had already been involved in consultation for the cultural impact assessment. Input from the Māori working group has been inserted directly into the discussion section, as evidence and significance were discussed concurrently. This input was relatively brief compared with the other two working groups and the views expressed cannot be said to be representative of all local Māori.

The three stakeholder workshops were held in February 2008 (water quality, socioeconomic effects and Māori) with the aims of 'gather[ing] stakeholders' views on the question of how the CPWS may affect health and wellbeing; to build relationships amongst key stakeholders; and to inform the evidence base of the health impact assessment'. (CPWS HIA, p. 21).

The participants were briefed on the information generated through the literature searches and expert consultation, and then asked:

- for their views and further evidence on the direct or indirect potential health impacts predicted
- whether there were any gaps in the analysis that needed to be covered
- for a description of key factors that may encourage, prevent or mitigate the health impact. (CPWS HIA, p. 21)

The outcomes of the workshops, together with the literature-based research and expert opinion, were then used to prepare the HIA report.

## **Overview of references to the HIA in the hearing commissioners' reports**

In Minute 11, released in October 2009, the commissioners presented their primary conclusions from the hearings and their intended decisions, which were finalised in more detail in May 2010. Minute 11 contains specific references to the health issues raised by the HIA and makes some very strong comments about the HIA. The commissioners deal first with the water quality issues before turning to the socioeconomic issues. It is useful, for the purpose of this evaluation, to consider the full section relating to public health issues.

### **PUBLIC HEALTH**

**21.1** As recorded above, we have concluded that the scheme with the conditions we intend to include will not pose any significant risk to public health or safety and will not have any adverse effect on health outcomes.

**21.2** We do not accept the views of the Canterbury District Health Board (as expressed by the Medical Officer of Health Dr Humphrey) that the scheme will increase health risk to bottle fed infants in the rural areas. We find the existing level of risk to be very low and are satisfied that conditions can be imposed which will ensure that the risk does not increase. The evidence suggests that the increased intensity of farming as a result of the scheme will increase the number of drinking water bores with nitrate-nitrogen levels over the Maximum Acceptable Value (MAV) of 11.3 g/m<sup>3</sup> at which there is deemed to be some risk to bottle fed babies, although we suspect that the risk at MAV is relatively low. However, the risk to infants can be avoided by requiring [Central Plains Water Ltd] to replace drinking water supplies to any downstream bores which do not approach or exceed MAV immediately prior to the scheme, but do so in the future. The evidence (which now appears to be accepted by the DHB) is that there is little if any risk of contamination of urban Christchurch City drinking water bores.

**21.3** We also note that the DHB supports the Canterbury Strategic Water Study, which encourages further intensification of farming by way of irrigation. The evidence we heard was that any intensification of farming is likely to result in an increase in total nitrate loadings and resulting effects on groundwater.

**21.4** We do not accept the surprising submission from the DHB, that the scheme will have adverse health outcomes for those in the community who would not benefit directly or indirectly from the proposal. The argument was that health outcomes are associated with relative socio-economic status and because the scheme will make some people better off, others will be relatively worse off in socio-economic terms. Firstly, we note that the same can be said of most development and we find it strange that the DHB sees it as part of its role to in effect oppose development unless benefits are evenly distributed to the community. Secondly, it is not our role to determine land use patterns. (Farming and irrigation are both permitted activities). Thirdly and most importantly, we had no expert evidence to support this proposition. Indeed we think that the converse might be true. The scheme will bring economic benefits to the region and the nation which will to some degree flow down to the wider community, so it seems to us that if anything, the scheme will improve the socio-economic status of Canterbury residents and potentially their health outcomes.

**21.5** We have not heard any expert evidence which would support the DHB submission. Although Dr Humphrey cited work by Dr Peter Crampton as establishing the link between socio-economic status and health outcomes (a relationship which we accept) we rather doubt that this work supports Dr Humphrey's wider assertion on this matter. In any event, the study in question was not put before us and Dr Crampton was not called by the DHB. We put little weight on the 'Health Impact Assessment' carried out by the DHB since that was not objectively based. (*Minute 11 of Commissioners: Intended decision and primary conclusions in relation to the revised Central Plains Water Trust Irrigation Scheme, 30 October 2009*, pp. 16–17, underlining added).

Essentially the same points were made in the final decision, issued in May 2010:

As indicated in Minute 11, we held considerable reservations about the nature of this evidence. The "Social Impact Assessment"<sup>6</sup> he cited appeared to be a statement of advocacy opposing [Central Plains Water] rather than an objective assessment of social impacts and had little expert input.

<sup>6</sup> Assumed to be referring to the socio-economic analysis within the HIA.

*Joint Decision and Recommendation of Independent Commissioners, 28 May 2010, Part 3: Beneficial effects of the scheme, economic impacts, social impacts, effects of the scheme on the relationship of Māori to water and other taonga (paragraph 2.16)*

Overall, the HIA was not well received by the commissioners, and a number of reasons can be suggested to explain their reaction to the report and the arguments put forward (these will be addressed in Section 5). It would be easy to take the commissioners' response at face value and see this particular HIA exercise as a failure. However, it is important to note that health effects were accorded a specific reference within Part 1 of the commissioners' Joint Decision:

4.6 In terms of health effects, we have concluded that with the conditions which we intend to impose, the proposal will not result in any more than a very minor increase in health risks for people or communities. The evidence was that there are unlikely to be any adverse effects on the water quality of Christchurch City bores, but there will be an increase in the amount of nitrate-nitrogen reaching shallow ground water particularly in the area to the south of Christchurch and east of SH1. We are satisfied that the question of health risk to bottle fed babies from an increase in overall nitrate loading can be largely avoided. The risk of increased pathogen levels in groundwater and lowland streams will be low.

4.7 To the extent that it might be relevant, we are satisfied that the scheme will not lead to social or economic inequalities which would be such as to lead to adverse health outcomes. (This responds to a submission from the District Health Board which we regarded as somewhat misguided.)

*Source: Joint Decision and Recommendation of Independent Commissioners, 28 May 2010, Part 1: Introduction, RMA Part II Assessment and Key Conclusions, Section 171 Assessment, Conclusions regarding objectives and policies, decisions in relation to resource consents and recommendations in relation to the notice of requirement.*

Health issues were recognised, and even if the conclusions of the HIA were not accepted by the commissioners, they were clearly part of the deliberation that comprised the decision-making process. Without the HIA and subsequent appearance of Dr Humphrey at the hearings, it is very likely that public health issues would not have received such a high profile. That said, there is clearly much to learn from this process if future hearings are to be more influenced by HIA evidence.

### 3. Review of the HIA

#### The UK HIA review package

The HIA review package developed by Fredsgaard et al (2009) is based on a well-established and well-regarded environmental impact assessment review package from the EIA Centre at the University of Manchester. The HIA adaptation retains the same approach and philosophy, but is more concise and reflects some of the established thinking about HIA methods and practice. Previous experience with the package in New Zealand has been partly coloured by the fact that the package is designed for development projects, while most HIA activity in this country has been at the policy (ie, district/regional plan) level. Therefore the CPWS HIA is probably the first true test of the HIA review package in New Zealand in the context for which it was intended.

#### The reviewers

Three reviews of the CPWS HIA have been carried out, independently and for different purposes, but all using the same review package. The following discussion draws on all three reviews, but the main emphasis will be on the review conducted for the purpose of this report by Reviewer 1 (R1).

R1 has extensive experience with the development and use of review packages for environmental impact assessments and AEEs, within the context of good practice impact assessment. In reviewing the CPWS HIA this has almost certainly influenced how the questions have been interpreted, and overall this reviewer is more critical of the HIA than the other two reviewers.

Reviewers 2 and 3 (R2 and R3) both work in the health sector and have experience with HIA methods and approaches, but less so with wider impact assessment practices and principles. R2 is New Zealand-based and has some understanding of the RMA context and the institutional context of the HIA process. R3 is a US practitioner with considerable public health experience but no particular background in New Zealand application of HIA, nor the legislative context of project decision-making.

#### The ratings

The following table summarises the ratings each reviewer gave the HIA in terms of the four main sections of the review package.

**Table 1: Summary of reviewers' ratings of the HIA**

Review section	Reviewer rating		
	R1	R2	R3
Context	C	C	C
Management	B	A	B
Assessment	C	B	C
Reporting	C	A	B

Overall rating	C	B	C
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The ratings are defined in the review package as follows.

- A: Relevant tasks well performed, no important tasks left incomplete, only minor omissions and inadequacies.
- B: Can be considered satisfactory despite omissions and/or inadequacies.
- C: Parts are well attempted but must, as a whole, be considered just unsatisfactory because of omissions or inadequacies.
- D: Not satisfactory, significant omissions or inadequacies, some important tasks(s) poorly done or not attempted.

The reviews indicate a similar assessment of the relative strengths and weaknesses at this broad level, in that the management and reporting activities tend to be more highly rated than the context and assessment activities. The former are more focused on the description of mechanical activities, and it is typical for impact assessors to do the mechanical tasks well. Context involves more substantive actions, including the site and project descriptions and establishing a public health profile for the affected area. Assessment similarly involves substantive actions focused on identifying and characterising actual health effects. Again, it is quite typical for such substantive components in all forms of impact assessment to be weaker than the more mechanical components. The pattern suggests the HIA does not conform in several respects to the model of HIA, based on wider impact assessment principles, that underpins the review package.

The HIA report is rated more highly by reviewer R2 than by R1 and R3, and this may well reflect previous experience with the use of HIA, mainly at the strategic level, where the emphasis tends to be more on engagement, consensus and issue identification. R2 will also be very familiar with the New Zealand model of HIA and was perhaps rating the CPWS HIA in relation to that model.

Reviewers R1 and R3 tend to be more critical of the HIA, perhaps reflecting a greater familiarity with project-level assessments (both health and non-health) and the use of criteria that draw on international practice in HIA and wider impact assessment.

## Specific issues

Strengths of the HIA report identified by the reviewers include:

- well researched and thorough (R2)
- good explanation of methods (R2)
- clear scope and good referencing (R2)
- well laid out (R3)
- a wide range of potential impacts and populations considered in scoping (R3)
- strong on stakeholder involvement and engagement in scoping (R1).

Weaker aspects include:

- the lack of public health data, community profile information, etc. as the basis for predicting effects and monitoring future outcomes (R2)
- writing is a weak point: the report has the feel of being produced by a committee, or at least of being rushed (R2)
- technical information not always explained properly (R2)
- 'one of the key health impacts (methaemoglobinaemia) had little evidence to support that it would follow the project'; background nitrate levels in bore water not given (R3)
- the nature of the scoping process: initial focus on a limited set of issues (R1)
- lack of systematic impact in approaches (R1)
- links to other impact assessments weak (R1)
- socioeconomic treatment is unconvincing (R1).

These comments suggest an HIA that has achieved a great deal but falls short in some critical areas. The strengths are consistent with good performance on the broader mechanical tasks, noted earlier, while the weaknesses reinforce the point that the key components of identifying and characterising specific impacts were less well developed in this HIA.



## 4. Key Outcomes of the E-survey

As was already mentioned, an email survey was carried out of those participating in the HIA stakeholder workshops, and there were 12 responses. Eleven of the twelve respondents had not been involved with an HIA process before, and seven considered it to be a positive experience. All felt that health issues should influence resource consent decisions. This is already the case, of course, but most of the respondents would extend the boundary of health issues to include those resulting from social, cultural and economic processes, not just direct environmental health issues. For example, one respondent argued:

The determinants of health as in the [2005] HIA guidance will be relevant, with varying weighting depending on the application.

However, some felt the indirect health issues could divert attention from the direct issues and suggested HIA processes should focus – at least while getting established, one respondent suggested – on direct effects on health:

I am more concerned about issues that can have a direct impact on human health (eg, the release of a toxic pollutant to a drinking-water source) than an indirect effect (eg, a reduction in community income resulting from some development, or lack of, that impacts on health indirectly via the inverse relationship between income and health). I feel the latter, while important, is often able to be managed by mechanisms other than the RMA. Also, it is more difficult to convince the public of an indirect health effect than a direct one and trying to do so without an overwhelming case tends to invoke the 'anti-development' label, which erodes the acceptability of the RMA in the eyes of the public.

Experiences of the workshops were generally positive. Hearing diverse opinions was valued, as was learning about specific issues (such as nitrates in drinking-water) and generally flying the flag for public health. Involvement in the HIA workshops was also valued as a way of learning about HIA itself: the collaborative process used, establishing community priorities, etc. For example:

Learnt about a methodology that helps to sort out community priorities in a manner that would probably have not otherwise occurred.

Good to see HIA as a collaborative attempt to identify the different issues and perspectives that different parties have.

Several respondents had tried to follow the hearings and had opinions about the way the HIA was treated by the hearing commissioners:

I was disappointed at the response to the HIA by the CPW Commissioners. I think this was something they had not considered before and most Hearing Commissioners are persuaded by expert evidence. In future when a HIA is presented to a Hearing it should be backed up by scientific and social evidence. The CPW Hearing Panel was comprised of a lawyer, a planner, an engineer and a hydrologist, they weren't interested in public health issues. The CPW Commissioners called the HIA 'alarmist'. At one stage during the Hearing they joked about Blue Baby syndrome! I don't think the HIA raised awareness of health issues during the Hearing process. The HIA will prove to be valid in future as more community drinking water supplies become polluted.

I felt that the inclusion of the more socially oriented health assessment in the end detracted from the direct potential health impacts of the scheme in the eyes of the Commissioners.

However, most respondents were unaware of the subsequent use of the HIA in the hearings. In some cases it probably reflected a lack of deep interest, but at least one respondent felt some follow up would have helped:

Was a little hard to keep track of how things went – better communication of information to participants would be helpful.

The overall impression is that the workshops helped raise awareness of public health issues in the context of a major resource development project, which would not have been achieved otherwise. They also acted as useful mechanisms for opening up debate and recognising other views, and perhaps helping to develop broader support for particular health issues. The role of the workshops was generally described in certain ways: to collaborate, to reach broader views, to set community priorities, etc. No-one described them as ways to identify specific health effects, to fill gaps or to attach values to potential effects.

## 5. Analysis and Discussion

The CPWS HIA was unusual in a number of respects, and it may in time prove to be a singular occurrence, reflecting a particular accident of circumstances. Nevertheless, the whole episode raises questions about the way health issues are, and should be, handled in the resource consent process and what role HIA has in that process. The other major area to learn from is the approach used in the CPWS HIA in relation to the information needs of the resource consent decision-makers. The hearing commissioners did not react positively to the information from the HIA, and there are lessons to be learnt from that, on a number of levels.

This section presents an analysis, with discussion, of the main themes that have arisen from the:

- key informant interviews,
- survey feedback,
- review of the HIA
- inspection of associated documents, including the CPWS assessment of environmental effects, decisions from the hearing commissioners, and section 42 reports from Environment Canterbury and Selwyn District Council.

Two major topics are addressed:

- health and the resource consent process
- the approach used in this particular HIA exercise.

### Health and the resource consents process

#### ***Legislative mandate: the Resource Management Act (RMA)***

Section 5 of the RMA refers to health, but in a rather understated manner:

In this Act, 'sustainable management' means managing the use, development, and protection of natural and physical resources in a way, or at a rate, that provides for their social, economic, and cultural wellbeing, and for their health and safety, while

- a) sustaining the potential for natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations
- b) safeguarding the life-supporting capacity of air, water, soil and ecosystems
- c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Schedule 4(2) of the RMA is even less explicit about health when describing matters that should be considered when preparing an AEE:

- a) any effect on those in the neighbourhood and, where relevant, the wider community including any socio-economic and cultural effects:
- b) any physical effect on the locality, including any landscape and visual effects:
- c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:

- d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural, or other special value for present or future generations:
- e) any discharge of contaminants into the environment, including any unreasonable emission of noise and options for the treatment and disposal of contaminants:
- f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or the use of hazardous substances or hazardous installations.

Where people are directly referenced, such as ‘those in the neighbourhood and ... the wider community’ in a), health is not listed explicitly as an effect that should be considered, although two broad classes of health determinants – socioeconomic and cultural effects – are identified for possible consideration. In d), the consequent impacts on health of the possible effects on the values listed are important, but not signalled. In f) the nature of the risk is not clarified but would clearly include health risks.

In c) and e) people and communities are not directly referred to (though they are included under ‘environment’ in e). Impacts on public health would again be an important consideration, although this is not signalled explicitly.

No-one in the interviews or the survey thought that health issues should *not* be considered in the resource consent process, where relevant. It is generally well-established practice throughout the country for regional and local territorial authorities to refer notified resource consent applications to public health units for comment on health matters. There is less consistent practice for non-notified applications. In these cases it depends largely on what arrangement a public health unit has reached with the respective council in terms of when they would see themselves being involved.

However, the emphasis of many resource consent applications has usually been on the more traditional (from the planning and resource management viewpoints) direct issues of environmental health and/or health protection concerns. The impacts on water and air quality, for example, are well recognised as having health implications, and will routinely be addressed, where relevant, to a particular proposed activity. What is much less common is recognition of the indirect implications associated with the wider social, economic and cultural determinants of health (Morgan 2002).

This kind of variation in perspective was found in the interviews and survey responses in this evaluation. Some people equated health considerations of the proposal with issues such as water quality, while others welcomed the wider perspective adopted in the CPWS HIA process. This has important implications for the question of the need for health impact assessment in the resource consent process.

The traditional view of health is well entrenched among environmental/resource management practitioners, developers, consultants, council staff, etc., and comes through in several of the interviews and survey replies in this study. It is also allied with a standards-driven approach to dealing with the issues. Most of the environmental standards developed in New Zealand, or adopted from elsewhere (such as World Health Organization standards) for use in New Zealand, are based on human health concerns. For example, draft national environmental standards for soil contamination are based explicitly on a toxicological assessment of risks to human health from different

contaminants (Ministry for the Environment, 2010). If it can be demonstrated that a project will not breach, say, a water quality or air standard, then there is no need to consider the specific health concerns that underpin those standards. It is quite typical for consent applications for resource-based projects to address relevant environmental standards and not discuss health in any substantive way. The danger of this approach is that it treats health impacts incrementally, and there is no sense of the overall health picture for an individual, especially if health is not actually mentioned in the AEE. The Marsden B coal-fired power station AEE, produced in 2005, is a good example of a report that adopts this 'arms length' approach, despite the fact that the background technical papers explored health considerations more explicitly (Morgan 2011).

As noted earlier, the CPWS AEE addressed water quality issues, but with no direct link to public health, and there was no health interpretation or explanation of the MAV for nitrate-N concentrations in ground water. Drinking-water quality was mentioned three times, but again there is no link to health. Given this is not an uncommon approach in resource consent AEEs, it is not surprising that the proponents felt that health effects had been covered in their studies and were therefore less convinced of the need for a stand-alone HIA.

Interestingly, even some of the survey respondents who strongly supported the HIA concept were firmly in the environmental health camp; for example:

In my view the most serious health impacts are those that arise from polluted air (people cannot avoid breathing polluted air and this can kill) or polluted drinking water. The next most serious are those that arise from polluted public spaces (eg, rivers, beaches etc). Health impacts of contaminated soil should also be considered.

In establishing a need for an HIA, Community and Public Health and Canterbury DHB staff were basing that judgement on models of health that are less familiar to many in the resource consent arena. Central Plains Water Ltd had commissioned studies for their AEE based on narrower perspectives of human health, using established environmental assessment practice. While some of these views may have changed since the original studies were initiated around 2001, comments in the survey responses and during interviews do suggest the environmental health / environmental standards view dominates thinking among non-health-based practitioners. Work overseas has demonstrated deficiencies in the consideration of human health in impact assessments (eg, Davies and Sadler 1997; Hilding-Rydevik et al 2006), and there is increasing attention to similar issues in New Zealand practices (Morgan 2002, Morgan 2011). New Zealand practitioners are not picking up on these messages, which would suggest the need for the Ministry of Health, in consultation with DHBs and public health units, to develop RMA-specific guidance on health issues that developers and consultants need to consider in their AEEs.

### ***Timing, responsibility for and form of HIA***

The CPWS HIA was conducted because it was judged that the AEE and the associated cultural impact assessment and social impact assessment had not addressed all the relevant health issues, or if they had been addressed, not to a level that was thought appropriate. Because Central Plains Water Ltd felt that health had been adequately addressed, there was understandable reluctance to commission a fresh HIA, so they sought joint funding (from Canterbury DHB and the Health Impact Assessment Support

Unit) to carry out an HIA. Central Plains Water Ltd co-operated with this process, but it was of course clearly driven by Community and Public Health.

This put Community and Public Health in a difficult position, because it now had to prepare an objective assessment of health impacts while also being the principal advocate for public health in the region. It also meant the consenting authorities did not have their main public health advisor to provide a detached view on the consent application.

This reinforces the difference between HIAs carried out for higher-level, strategic proposals such as urban growth strategies, and those carried out for specific projects. The former are well suited to the advocacy role of public health units, and the emphasis can be placed on reaching consensus on better ways to meet planning goals while maximising health benefits. HIAs within the resource consent process need to focus on the core task – assessing the likely health impacts of the proposed activity – and they take place within a structured decision-making process, which imposes certain requirements and disciplines on the participants in the process. Given the integrated approach inherent in the AEE process, it makes sense that health impacts/effects be part of the information that feeds into the AEE produced for a project. To that end, it is logical that the proponent commission relevant health studies, in the same way as studies are commissioned for social, cultural, ecological and other matters. This ensures the appropriate studies are undertaken early enough to be part of the full AEE, and can be linked to other relevant parts of the AEE.

This, of course, is what should happen at present, and in many cases does happen in some form or other. Many public health units already play a role in advising consent proponents about the health issues they should address in the AEE. Dr Humphrey commented in his interview that he saw this as the preferred model for addressing health issues within the consent process. The main problem with current practice, as noted above, is the lack of a wider social determinants approach to health. This can be tackled with targeted advice and guidance from public health units.

The other issue that arises is the concept of stand-alone HIA reports. The CPWS HIA was seen as a specific need, to ensure health concerns were placed before the hearing commissioners, in the absence of relevant health information from other reports. However, it does not need to be the model for future RMA uses of the process. The model of HIA which forms the basis of most current training in New Zealand reflects a strong policy-level focus, and it often makes sense to promote a stand-alone HIA process for specific application at the policy level. At the project level, under the RMA, health will invariably be one of several forms of evidence considered by decision-makers, and the AEE is the document that draws these threads together. It can be argued that health should be integrated with other information and not separated out as something different.

This issue was raised in a number of the interviews, and the notion of a separate report on health considerations was favoured by most. In fact, HIA can be viewed in a similar way to social and cultural impact assessment: neither of the latter are specifically called for under the RMA, but increasingly it makes good sense for major projects for these studies to be carried out, to meet the purpose of the Act. The findings are then incorporated into an overarching AEE report.

This suggests a separate HIA would be a useful way to develop a coherent picture of the combined effects on health of a project, to ensure any potential cumulative health impacts of, say, declining water quality, increasing noise and rising rents on a particular community, can be recognised and tackled. However, producing a separate report should not mean the health investigations are conducted in isolation from other impact assessment activities. It clearly makes sense for social scientists to work on predicting change in local communities, say, as a basis for health specialists to consider the implications of that change. Equally, environmental health specialists can investigate water quality decline, which can then inform social scientists and cultural impact specialists in their investigations into community responses to the problems.

The CPWS HIA came after the cultural and social impact assessments had been carried out, so there was no chance to develop those synergies. If HIA can be given the same profile as social, cultural and other forms of impact assessment at the project level, the collaborative integrated approach would be the most efficient and effective way to achieve the substantive aims of HIA as a process. That would, as one interviewee suggested, require enlightened project management, which again suggests a role for the Health Impact Assessment Support Unit in developing guidance materials aimed at the consultants and administrators on ways to manage health issues in the resource consent process.

### ***Evidence and hearings***

A major theme in the interviews and the survey feedback was the nature of the information generated by the CPWS HIA and its use in the hearings. Although there was broad sympathy for the attempt to identify the health impacts that would be caused by socioeconomic changes brought about by the project, many also felt that some of the analyses lacked the necessary level of rigour required for the hearing commissioners. The comments made in the decisions (eg, Minute 11, and the final decision document) indicate the commissioners had similar concerns. This is a crucial point: the resource consent process requires well-grounded information, and at the public hearings that information is examined and, if necessary, questioned. As one survey respondent (new to HIA, but very supportive of it) commented:

I was disappointed at the response to the HIA by the ... Commissioners. I think this was something they had not considered before and most Hearing Commissioners are persuaded by expert evidence. In future when a HIA is presented to a Hearing it should be backed up by scientific and social evidence.

Another respondent had similar views:

I felt that the commissioners did not take the HIA seriously enough. Perhaps more expert evidence could have been provided by the CDHB about the health/economic impact of polluted drinking water from other parts of the world such as the US.

This contrasts with the style of HIA conducted for the Greater Christchurch Growth Strategy, for example, in which several of the Community and Public Health staff had some involvement. Strategic-level HIA is more about identifying issues and possible responses that can be used to inform policy and plan development. Participative, workshop-based processes suit that purpose. But resource consent decision-making under the RMA requires a much more clinical approach to the identification, analysis, evaluation and presentation of impact information about specific proposed activities.

In particular, reports produced to inform the decision-making process are treated as 'reference documents' and their content has the status, essentially, of hearsay evidence. Hearings require the specialists involved with the production of that evidence to appear and speak to their findings: their status as someone qualified to have an authoritative opinion on the matters in hand is established first, then they present their evidence. If necessary, the commissioners will ask questions to clarify points.

One of the comments made about the CPWS HIA was that it attempted to represent the views of the stakeholders who attended the workshops rather than presenting grounded information about possible health impacts. As a result, the commissioners will have seen the report as containing the views of non-experts, several of whom were also submitters themselves: this would undermine the credibility of the report. Hence the commissioners' comment in Minute 11: 'We put little weight on the "Health Impact Assessment" carried out by the DHB since that was not objectively based'.

Strategies for presenting HIA evidence at resource consent hearings do need to recognise this fact: different aspects of the HIA evidence need to be presented by relevant specialists, perhaps following a broad overview by the lead HIA (or AEE) preparer.

## **The CPWS HIA approach**

As noted in the previous section, the information produced by the HIA needs to be of a particular character to meet the needs of the RMA processes, and the overall approach will be important to achieving this. In this section, issues related to the specific approach adopted in the CPWS are discussed with the aim of informing future HIA exercises in the RMA context. As one of the reviewers, R3, noted, the CPWS HIA adopted a rapid HIA approach, and as a consequence it would be unreasonable to expect the process to meet all the expectations of a full-blown HIA. On the other hand, even allowing for the rapid approach, some people identified concerns with the way the HIA was conducted that may be useful to reflect on.

### ***The rapid HIA and stakeholder workshops***

The rapid HIA approach is widely promoted in the HIA literature and represents a fusion of basic impact assessment approaches with the strongly participatory, inclusive methodologies of the health promotion/community health practitioners, which in turn draw on the rapid appraisal methods of the wider fields of social science and development studies. As a result, there is a great deal of emphasis on stakeholder workshops as a central feature of the approach, to the extent that these workshops seem to be viewed as mandatory components of the process. In fact the workshops need to have a very well-defined purpose, and in the context of project-level application of HIA this is particularly important.



The HIA report describes the aims of the workshops in the following way:

The workshops aimed to gather stakeholders' views on the question of how the CPWS may affect health and wellbeing; to build relationships amongst key stakeholders; and to inform the evidence base of the health impact assessment. (CPWS HIA, p. 21).

The first and last of these aims represent sound scoping practice in impact assessment. The middle one – building relationships – raises an interesting question: should building relationships in the resource consent process be a role specifically associated with HIA? Such an aim suggests the HIA is being viewed as more than a process to ensure health impact information is placed in front of decision-makers.

The survey showed that most respondents enjoyed the workshops as a chance to hear about and discuss the CPWS; for example:

[The workshop] [w]as excellent and I learned a lot. I felt reassured that public health issues would be addressed.

Drew my attention to the nitrate problem, and judging from articles in the press, highlighted this as a major health issue. I also learnt a little about the wider issues, which I regarded as indirect health effects.

The workshops involved people from quite a wide range of backgrounds – which for me added value to the process. They also targeted separate issues so the discussion could be reasonably focused at each one.

So, from a learning perspective, the sessions were successful. However, there were some qualifications:

I thought they were useful. However I was surprised at the relatively low level of understanding of likely health impacts of intensive irrigation schemes / polluted water from many participants.

It would have been beneficial for the workshop to have been more strongly facilitated and focused. I seem to remember some participants talking at length about unrelated subjects. Maybe health should be very clearly defined in relation to the scope of the assessment?

One of the interviewees felt that the workshops, comprising many people from different backgrounds, seemed to give all opinions equal weight, with no chance to allow discussion that would test the opinions being voiced. To that extent, the workshops appeared to devalue the technical knowledge of experienced participants in an effort to achieve some form of consensus on health issues. Another workshop participant, with experience in assessing the implications of irrigation proposals, commented:

As far as the workshop itself was concerned, I seem to recall that there were quite a lot of not very well informed opinions being aired ... [I] would like to have seen some facts rather than a largely opinions driven approach.

The difference in opinion about the value of the workshops reflects differences in what was expected as outcomes and how the participants were prepared for their involvement in the workshop proceedings. The workshop participants were being asked to absorb information about the proposed project and about certain potential impacts (each of the three broad themes having been identified at a scoping workshop and fleshed out with

literature searches), then to identify any gaps in that understanding and comment on what the possible impacts might mean for the groups they represented.

The interviews and the survey feedback, plus the reviews of the HIA, suggest this is probably much too ambitious: certainly many people learnt more about the project and the issues, but the value of the workshops in terms of their contribution to the identification, characterisation, prioritisation and valuation of the impacts is less obvious. HIA is the only form of impact assessment in which its practitioners frequently adopt this form of stakeholder involvement: one that conflates so many aspects of the scoping and prediction/evaluation phases of impact assessment into single multi-stakeholder meetings. The social impact assessment for the CPWS is more typical of the studies carried out for proposed projects: there was a similar degree of involvement of stakeholders, but in a more structured and managed way.

Given the resources that are presumably devoted to such workshops, it may be useful to have guidance available to future HIA practitioners involved in resource consent processes on their most effective use: what they can reasonably be expected to achieve, how to set them up, and how to run them. In particular, in the RMA context, the guidance should focus on the more immediate purposes of stakeholder involvement to ensure workshops do contribute to the generation of well-grounded impact information.

### ***Māori workshop***

Significant effort was made to address Māori issues in the CPWS HIA, and one of the three stakeholder workshops was devoted to Māori issues. As the HIA report notes:

The final Māori workshop was not well attended for a number of reasons, including that many local Māori had already been involved in consultation for the cultural impact assessment. Input from the Māori working group has been inserted directly into the discussion section, as evidence and significance were discussed concurrently. This input was relatively brief compared with the other two working groups and the views expressed cannot be said to be representative of all local Māori.

Compared with experiences with Māori involvement in the HIA for the Greater Christchurch Growth Strategy, which was apparently highly successful, Māori involvement with the CPWS HIA was seen, as the quote above suggests, as rather disappointing. There seems to have been a number of reasons for this, including the timing of the workshops and the speed with which preliminary discussions with individual Māori were set up and the workshop itself was organised.

More fundamental is the whole approach to Māori involvement in HIA studies, which is to hold a hui/workshop to discuss possible impacts and feed that into a report written by others. An alternative model, suggested by Paul Horgan, Environmental Advisor, Ngā Rawa Taiao, would be to fund someone to study the cultural health impacts on Māori alongside the main HIA, feeding into the process and the final report. This would focus on potential health impacts on Māori families and communities engaged in culturally related activities, such as traditional food gathering, and thus would have a link into the cultural impact assessment but with a definite health focus.

### **Scope and impact prediction**

The CPWS HIA followed a well-defined scoping process:

- Initial work was carried out on the potential health impacts and linked to wider health determinants potentially affected by the proposal.
- This was considered in a scoping workshop.
- A scoping report was produced, which guided subsequent research literature searches and the programme followed in the stakeholder workshops.

This is a good framework to follow, but much depends on implementation, and in that regard a number of observations can be made.

### **Scope of the HIA**

The decision was made early in the study to limit the scope of the HIA in a number of ways. For example:

At the scoping meeting it was agreed that the most useful components for assessment would be the subsequent land use implications of the scheme, with some consideration of effects of the river flow regimes. Participants emphasised a need to focus on the ongoing and longer term effects of the scheme, rather than the short-term construction phase. (CPWS HIA, p. 15).

In addition, the study was further focused on three key determinants of health (water quality, employment/wealth and social connectedness) with respect to three particular, and vulnerable, groups (infants and toddlers, low-income people and Māori). The reason for focusing the HIA in this way was essentially a resource one: funding and time constraints limited what could be achieved in the HIA, so the decision was made to concentrate on the priority issues.

While it makes a great deal of sense to establish boundaries for an impact assessment, the decisions need to be made within the context of a broad initial assessment of the project and its likely impacts. Although a number of determinants were listed in the HIA, it is unclear how the three determinants were selected as the focus of the assessment. Were they judged to be the three most important determinants, or were they simply the easier ones to deal with in the time available? What is required at this early stage is a systematic treatment of potential project/environment interactions, a consideration of indirect effects using causal pathways, an initial assessment of the potential health implications, and consideration of the significance of such implications. In some cases it may be better to use scarce resources to provide a broad assessment, in less detail, of the possible health impacts of a project, rather than study a few in greater depth while leaving question marks over the areas not addressed.

As a minimum, an HIA should report the basis of the decisions on the focus of the study so that stakeholders can make a judgement about the coverage of the assessment and decide how much trust to place in the work. For instance, the social impact assessment noted some concern among local people about the long-term health implications, of a respiratory nature, of increased fog or mist in the irrigated area. It is not possible from the HIA to tell whether the health implications of changes in local climate were considered and discounted, or not considered at all.

## **Research questions**

As with stakeholder workshops, many models of HIA feature 'research questions' as an essential methodological step. These are specific questions derived from the early scoping activities and typically ask what is currently known about the impacts of a specific activity on some aspect of health. All impact assessments draw on relevant research literature to develop an understanding of the causal pathways that link action and impact, but only HIA practitioners identify research questions as a specific step in the impact assessment process. The danger is that questions may be generated as ends in themselves rather than as the logical means for providing information about specific processes to inform the specific prediction of health impacts.

In the CPWS HIA a number of research questions were identified, and it is interesting to see what were considered to be useful questions to ask about socioeconomic issues:

- What is the evidence that increased economic output improves health?
- What is the evidence that inequity independently reduces health status?
- Under what circumstances does the evidence show that job creation improves health?
- Are there institutions which improve social connectedness in a rural environment? Under what circumstances does this improve health? (CPWS HIA, p. 23).

Although these are interesting questions in themselves, they are high-level questions, especially the first two. They do not address the type of project, nor the specific environment that might be affected by the project. They are more suited to a national, policy-level HIA than a local/regional, project-level assessment. Research questions of this kind will lead to answers that are not immediately relevant to the specific issues of the proposal being assessed, and this may be one reason why the socioeconomic analysis in the CPWS HIA was poorly received.

Again, the approach used in the social impact assessment is a useful comparison: it addressed the same socioeconomic issues but adopted a structured social science approach to focus on specific social impacts of the project on the rural communities of the affected area. As such, it was more grounded in approach and was accorded more respect by the hearing commissioners. If the health implications had been based on those impacts, a great deal more might have been achieved in that part of the HIA.

## **Baselines**

One of the main problems with the HIA identified by the reviews was the lack of relevant public health data and community profiles. Information about the current status of public health in the potentially affected area is vital to provide a baseline against which 'future health effects could be measured' (R2). In addition, it is important to have some feel for the nature of local communities if the implications of health impacts are to be understood. Although a good deal of community information was available in the social impact assessment, a certain amount is still required within the HIA to allow readers to establish a context for the project and its possible impacts.

## 6. Conclusion and Recommendations

### Conclusion

The CPWS HIA process generated a great deal of interest and comment in the media and among the various groups and individuals involved in the CPWS in some way. In the end, the decisions on the resource consents were rather unsympathetic to some of the key messages of the HIA, such as the inequality arguments, and the commissioners regarded the HIA as less than objective.

On the other hand, many of the people replying to the survey conducted for this evaluation, and virtually all the interviewees, felt the exercise had achieved something positive. Health issues were given a higher profile and the wider perspective provided by the social determinants model was appreciated by several respondents. Because of the HIA, the decisions on the consents had to deal with public health specifically, even if only to play down or dismiss many of the concerns raised by the HIA. It is tempting to conclude that the profile given to a number of health issues did in fact influence the conditions the commissioners attached to their various decisions.

Overall, it was reasonable for an HIA to be conducted on the project, given the lack of a coherent and integrated assessment of health impacts in other reports produced by the proponents. A rapid appraisal approach was used, in view of time constraints, and this may have been one reason why there were some concerns about some of the information put forward in the HIA, and especially the arguments advanced on certain socioeconomic aspects. However, a good deal of useful information was generated, despite the limited time available, and the process raised awareness of HIA among a wide group of practitioners and stakeholders.

The HIA was undertaken by Community and Public Health for Canterbury DHB to ensure public health issues would be considered by the commissioners. However, this raises two particular problems. First, it compromises the role of the public health units as advisors to other groups and individuals, and especially to the proponents and their consultants, and council decision-makers. Second, the proponent ought to take responsibility for understanding and responding to potential health impacts in the same way they do for ecological, cultural, physical and social impacts. That would mean health impacts could then be studied alongside the other forms of impact, and the HIA study could benefit from, but also inform, the other impact studies. These considerations would suggest that HIAs in the RMA context should not be conducted by DHBs on a routine basis, although there will always be situations, such as the CPWS proposal, where the DHB may judge it appropriate to take the lead in conducting an HIA.

HIA approaches developed for policy appraisal cannot be applied to resource consent processes without modification. The tools developed for policy-level HIA tend to focus on broader issues, which provide the basis for negotiated change to proposed policies. In contrast, HIA in the RMA context has to focus much more specifically on cause–effect pathways that link particular project actions to direct and indirect environmental changes, which in turn lead to potential impacts on the health of individuals and communities. Consequently, HIA in the RMA context has to be focused more directly on generating specific impact information that can be defended in public hearings if necessary.

In the RMA context there are two basic choices for how to address health issues in resource consent applications. One is to let the health issues emerge from other studies and to write them up for the AEE as they emerge. This tends to be the current approach, and usually favours a narrower environmental health perspective. The second approach is to study health impacts in their own right, which allows for an assessment of the total burden of health impacts that may affect a family or community. This is what the CPWS HIA attempted to do. Such project-level HIAs make good sense for major projects with the potential for health effects of different kinds, affecting different groups in the community.

However, although the HIA would be a stand-alone study, it should still be viewed as a specialist report in the same mould as a social impact assessment or ecological or cultural impact assessments. It would be conducted alongside, and in collaboration with, other related studies, and the findings would be part of the overall AEE for the proposed project. In other situations, a stand-alone HIA may not be required, but the health issues should still be given due recognition throughout the AEE process. Achieving this may require proactive health impact awareness-raising among environmental and social consultants, and the growth of a body of health impact specialists able to work in the consent process.

Overall, it will be important to ensure the HIA methods and approaches taught in training courses are appropriate for use in the RMA context.

## **Recommendations**

1. The Ministry of Health, DHBs and/or public health units should not normally commission HIAs for projects going through the resource consent process. Rather, they should work with regional, district and city councils to encourage proponents to conduct HIAs when appropriate, and provide advice and guidance to proponents, councils, stakeholders and communities to facilitate the HIA process.
2. The Ministry of Health should consider providing training courses to encourage existing social and environmental consultants to learn about the environmental and social determinants of health, in order to promote collaborative approaches to assessments that include full consideration of health issues.
3. Guidance for HIA in the RMA context should be developed by the Ministry of Health for HIA practitioners. The 1995 Public Health Commission guide could provide a starting point, but it should not be a risk-based approach.
4. Training in impact assessment/AEE practices should be developed for potential HIA practitioners (including public health unit and DHB staff involved in guiding or reviewing HIAs). The training should include an explanation of resource consent hearing procedures and guidance on the presentation of evidence to hearings.
5. To enhance Māori involvement in HIA processes, consideration might be given to appointing a cultural health impact assessor (from within the Māori community if possible) to prepare a report that informs the main HIA.

6. Information on typical health issues associated with major project types should be disseminated by the Ministry of Health. The audience could include decision-makers, council staff, stakeholder groups, community groups, developers and consultants.
7. For major projects, DHBs and/or public health units should consider approaching the relevant territorial and/or regional councils to request involvement in preparing section 42a reports on health impacts for the resource consent hearings.



# Appendix

## 1 Documents consulted

Buchan D (Corydon Consultants). 2007. *Review of Central Plains Irrigation Scheme: Social impact assessment*. Report produced for Selwyn District Council section 42 report.

*Central Plains Water Enhancement Scheme: An assessment of impacts on Ngāi Tahu values*. 2005.

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Community and Public Health, Canterbury District Health Board. 2008. *Health Impact Assessment of Central Plains Water Scheme*.

*Joint Decision and Recommendation of Independent Commissioners*. 2010. URL: <http://ecan.govt.nz/publications/Pages/cpw-decision.aspx>

*Minute 11 of Commissioners: Intended decision and primary conclusions in relation to the revised Central Plains Water Trust Irrigation Scheme*. 2009.

Quigley & Watts. 2007. *Health Impact Assessment of the Central Plains Water Scheme: Scoping report*.

*Selwyn District Council. 2008. Section 42a Officers Report*. Notices of requirement by Central Plains Water Limited; and applications for resource consent by the Central Plains Water Trust.

## 2 Websites consulted

CPW Ltd.: <http://www.cpw.co.nz>

CPW Trust: <http://www.cpw.org.nz/>

Environment Canterbury: Central Plains Water Scheme: <http://ecan.govt.nz/get-involved/consent-projects/central-plains-water/pages/default.aspx>

## 3 List of interviewees, and survey respondents

### ***Interviewees (alphabetical order; listed with consent)***

Leo Fietje (Environment Canterbury)

Paul Horgan (Environmental Advisor, Ngā Rawa Taiao, Te Rūnanga o Ngāi Tahu)

Alistair Humphrey (Medical Officer of Health, Community and Public Health / Canterbury DHB)

Bob Penter (Group Manager of Environmental Services, GHD Ltd)

Rob Quigley (Public Health Consultant, Quigley & Watts)

Nick Taylor (Social Impact Consultant, Taylor Baines Ltd)

Martin Ward (Environmental Consultant)

Maree Willetts (Manager, Toitū Te Whenua, Te Rūnanga o Ngāi Tahu)

***Survey respondents (alphabetical order; listed with consent)***

Andrew Ball  
Paul Cottam  
Richard English  
Janet Fraser  
Margaret Leonard  
Brian Lester  
Mojo Mathers  
Rosalie Snoyink  
Mary Sparrow  
Cliff Tipler  
Louis Tremblay  
Chrissie Williams

Eighteen people were originally approached. Twelve completed the survey; three others replied and said they had not attended any workshops so did not complete the survey; three did not reply.

***Others***

In addition to the author, there were two other independent reviewers of the HIA report. All three reviewers used the UK HIA Review package independently of each other.

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- Hilding-Rydevik T, Vohra S, Ruotsalainen A, Pettersson A, Pearce N, Breeze C, et al., 2006. Health Aspects in EIA. *D 2.2 Report WP 2. Improving the implementation of Environmental impact assessment (IMP) 3*, Sixth Framework Programme, European Commission.
- Ministry for the Environment. 2010. *Draft Toxicological Intake Values for Priority Contaminants in Soil*. Wellington: Ministry for the Environment.
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- Morgan, T. 2002. *Health impact assessment at the project level: an evaluation of the approach to, and assessment of, health issues in the resource consent process under the Resource Management Act 1991*. Unpublished MSc Thesis, Department of Geography, University of Otago, Dunedin, New Zealand.
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