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## **Review of Central Plains Irrigation Scheme: Social Impact Assessment**

Report submitted in response to a  
request pertaining to Section 42a  
Resource Management Act

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# 1. Introduction

## 1.1. Reviewer's background and qualifications

I have been engaged by Selwyn District Council to assist the Council in its task of assessing the social effects of the proposed irrigation scheme, referred to as Central Plains Water Enhancement Scheme. Notice of requirements and resource consent applications for the project have been lodged with Selwyn District Council and Environment Canterbury by Central Plains Water Limited (CPWL) and Central Plains Water Trust respectively.

I am a sociologist specialising in social impact assessment and have been working in that capacity as a private consultant since 1989. Prior to becoming a consultant, I was employed in the Planning Department of the Ministry of Works and in the Social Impact Unit of the State Services Commission. In those capacities I was involved in the impact assessment and management processes for the Marsden Point Oil Refinery Expansion project (1984-85) and the Clyde Dam Project (1987-89). As a consultant I was engaged by ECNZ between 1994-95 as a community consultant for the proposed Tuapeka Dam, working with the communities in the Clutha Valley to identify potential impacts and appropriate mitigation measures. I was also commissioned by Waitaki District Council, Waimate District Council, Environment Canterbury and Otago Regional Council to undertake a s42a review of the social impact assessment for Project Aqua (2004).

As a consultant I have undertaken a wide range of social impact studies in New Zealand and the Pacific. Some of these projects have included the presentation of social impact evidence to the Environment Court. Social Impact Assessments (SIAs) concerned with the construction of major projects have included examining the options for an alternative route for State Highway 1 between Wellington City and Kapiti District, the Moa Point Wastewater Treatment Plant in Wellington, the proposed hydro-development at Tuapeka and the Sylvia Park retail and business complex in Auckland. I have peer reviewed the social impact assessment prepared for Transpower on the proposed North Island Transmission Line.

I was a member of the Social Impact Working Group established in New Zealand in 1984 to develop methodologies for the assessment of social effects. This group, comprising academics and practitioners from throughout the country, was the forerunner of the New Zealand Association for Impact Assessment of which I am currently a member. I am also a member of the International Association for Impact Assessment and have served on that organisation's social impact subcommittee.

## 1.2. Information sources

This report builds on my review of the social impact assessment content in the applicant's notice of requirement. That review was undertaken to determine the adequacy of the social impact information in terms of providing the information necessary for the consent authority to understand the nature and severity of the social effects which the proposal could have on the environment, as well as ways in which any adverse effects could be mitigated. The review contributed to Selwyn District Council's Section 92 request for further information.

The social impact assessment content in the notice of requirement was based upon previous research, principally desk based, undertaken by Taylor Baines. As a result of the Section 92 request, Taylor Baines was commissioned to undertake a full social impact assessment for the applicant, which is the subject of this review. I agree with a comment in the introduction to the social impact assessment, that the process of undertaking an assessment after consent applications have been lodged “*is an inadequate approach for effective public input*” (pg 2).

A number of weaknesses were raised in my earlier review, all of which have been addressed in the full social impact assessment. This Section 42a report takes into account the full social impact assessment, submissions received on the notice of requirement and resource consent applications, and an amendment to the notice of requirement and resource consent applications (referred to as the ‘long tunnel option’), which were notified in May 2007. The principle sources of information for this Section 42a report are:

- Central Plains Irrigation Scheme Social Impact Assessment, Taylor Baines in association with Fitzgerald Applied Sociology and People & Places (June 2007)
- Central Plains Water Enhancement Scheme: Notice of Requirement and Resource Consent documentation
- submissions received on the original Notice of Requirement and Resource Consent documentation relevant to Selwyn District Council (form 13 and 21 submissions). (The process for reviewing these submissions is outlined in 1.2.1 below.)
- Central Plains Water Enhancement Scheme: Additional resource consent applications submitted to Environment Canterbury and Selwyn District Council.

Supplementary sources of information include the following:

- site visit with Council’s planning consultant (23/05/07)
- review of the applicant’s scope of works for social impact assessors
- meeting with the applicant’s social impact assessors from Taylor Baines and Fitzgerald Applied Sociology (23/05/07)

### **1.2.1 Analysis of submissions**

Submissions to the Selwyn District Council were analysed as part of this report. Only those received in the first round of submissions were included. Submissions to Environment Canterbury were not analysed. I considered that the first round of submissions to the Selwyn District Council would be the most comprehensive in terms of social impacts. Issues that no longer applied given the replacement of the 18 kilometre open canal and tunnel from the Waimakariri river with a 10km tunnel, were readily identifiable.

In total, there were 597 submitters to the District Council on the original proposal. Most of these submitted on both the designation and the resource consents applications. These submissions were analysed to identify the full range of issues raised, the strength of each concern (in terms of numbers of people raising each issue), and those aspects of the project which found favour with the community and the numbers supporting each point.

Some submitters raised the same points in their submission on the designation and in their submission on the resource consents. In these cases the point was only counted once. The numbers noted in this review of the SIA are therefore actual submitters not submissions. They are used to illustrate the relative depth of concern in the affected community about particular aspects of the proposed development. In

a few cases, we had to interpret the point being made based on their other comments and make a judgement on the appropriate issue category. For this reason, as well as normal human error, the figures might not be totally accurate but we state them to give an indication of their relative importance of each issue to the community as a whole and to assist in forming an opinion on the adequacy of the social impact assessment in addressing these matters.

## **2. The Applicant's Approach to the Assessment of Social Effects**

The authors note that the timeframe and budget for their report posed a constraint (1.1.3). Within those constraints, the applicant's approach to the collection of data and the analysis of effects has been rigorous and comprehensive, and addresses all the gaps noted in the s92 request and most of the social issues raised in submissions, to a greater or lesser extent.

### **2.1. Data collection**

The applicant has used a wide range of data collection methods to identify and quantify the potential social impacts of the proposed development. These have included an analysis of demographic statistics, a comprehensive literature review (including comparative studies of ex-post research on irrigation communities in Canterbury as well as recreation studies and surveys), site visits, and consultation with 31 individuals and representatives from particular interest groups in the affected communities. Interviews were also undertaken for the initial social impact work although there is no indication of who or how many people were involved in this process.

This data has provided a much better understanding of the characteristics of the affected communities than was contained in the AEE for the notice of requirement.

### **2.2. Analysis of effects**

Earlier criticism of the limited analysis of the social impacts has been largely addressed by the assessors. The assessment not only addresses the shortcomings identified in the applicant's AEE as first submitted, but it also provides a comprehensive analysis of most of the social impacts identified by submitters to the District Council.

In addition to time and budget constraints, the assessors note that some aspects of their analysis have been hindered by a lack of:

- reliable data on proposed compensation measures for the affected communities
- technical data such as baseline information on existing air and noise environments and likely effects of water quality on health.

This information is essential to quantifying some of the social effects of the proposed development and the mitigation measures that would best address these effects. It is assumed that this information will be available at the time of the hearing.

Inevitably, given the lateness with which this assessment was commissioned in the process, the social impact assessors have been constrained by time limits. One

potentially significant gap in the analysis which, if undertaken, may have influenced the conclusions reached, is the demographic composition of the existing farming community, including any differences between the dairy farmers and other farmers in age, family status, their contributions to their local communities. Also, while the report notes the possibility that a change to dairying could lead to more corporate farm management, there is no analysis of how this could affect local community structures, values and interactions. This point is discussed further in Section 3.3 below. The data on the local business community is also inadequate for reaching conclusions on how it might be affected by the project both during construction and as a result of the predicted land-use changes. However, as noted in Section 4.10 below, these effects can be expected to be covered in the applicant's economic impact report.

Despite these omissions however, I consider that overall, with a few exceptions as noted in this review, the social impact assessment provides a sound analysis of the social effects of this project and the mitigation measures needed to minimise the negative effects and enhance any benefits.

### **3. Sources of Social Effects**

Social impact assessment is usually undertaken as a predictive tool for identifying and developing solutions to mitigate adverse effects on individuals and communities as a proposal is developed. Effects are identified through analysis of the affected communities, the project components and comparisons with other similar projects. The applicant commissioned the social impact assessment after the consent applications were lodged. As a consequence, the assessors have been able to draw on the information contained in those submissions to supplement their own research on the range and nature of the impacts on local communities that can be expected to result from this project. As a reviewer, I have also been able to use the submissions for guidance on the range and nature of effects and the views of affected parties.

From the definitions of "environment", "effect" and "amenity" set out in the Resource Management Act, the following aspects of the proposal are considered relevant to an assessment of the social effects of CPWL's proposal:

- distribution of costs and benefits resulting from the use of a compulsory purchase process with benefits going to private individuals who are not those adversely affected by the proposal
- the adequacy of the information available for individuals to make an informed assessment of effects
- effects of land use changes on communities and the environment
- loss of productive farm land and homes
- loss of recreational opportunities, including access to recreation areas
- the effects on water quality and quantity
- risk (real and perceived) of dam collapse
- safety around water bodies (dams and canals)
- permanent visual changes to the landscape
- access to properties
- the effects on local business and employment
- effect on personal financial security resulting from changes in land values
- impacts of scheme operations such as atmospheric / climatic change, noise, increased traffic volumes and disruption to local traffic
- construction impacts (noise, dust, traffic, vibration and workforce-related issues).

The social impact assessment addresses almost all of these points. The following Section discusses how each of these aspects is likely to generate social effects and the extent to which the applicant's social impact assessment has identified and assessed the significance of these effects. The adequacy of the proposed mitigation measures is also reviewed.

## **4. Assessment of Social Effects**

### **4.1. Social inequity**

The concern raised most frequently in the submissions (253 or 42% of submitters) was the use of a compulsory purchase process for a project that will result in the benefits of a public resource (water) being allocated to private individuals, rather than the 'community' (local, regional or national) or to those who are directly and most adversely affected by the proposal.

The SIA sets out the issue of social inequity in a clear, forthright manner including the social and psychological consequences for local landowners of the applicant having the status of a Requiring Authority (Section 5.8). In conclusion the SIA states that those who will gain from the project are, for the most part, not the same people who stand to suffer the significant negative social effects.

#### **4.1.1 Mitigation**

The report recommends a fair and open process for property purchase as well as the involvement of the local communities in the development of the various impact management plans and other mitigation measures. This recommendation is strongly endorsed.

### **4.2. Adequacy of information**

A total of 213 submitters (36%) considered the information provided in the application was inadequate for them to make an informed decision on the effects. Eighty of these considered the information in general was inadequate. A further 133 submitters cited one or more specific aspects of the proposal for which they considered the information provided to be inadequate.

Fifty-two submissions said there had been inadequate community consultation. The consequences of feeling less than adequately informed noted by these submitters included: confusion, frustration and stress. Submitters noted that the process of grappling with differences in information and/or seeking further information had been costly in terms of time consumption. On the other hand 63 submitters, all of whom supported the proposal, considered the level of consultation to be adequate. These were almost all preformatted submissions.

In commenting on the impact of the planning phase the SIA notes concerns about the amount and quality of information available to the public (Section 3.2). Given the strength of the views expressed in the submissions this brief reference in the SIA may undersell the strength and widespread nature of view that the information available to the public on this proposal has not been adequate.

#### **4.2.1 Mitigation**

The SIA mitigation (Section 8.2) recommends a strategy to address this concern at least in part. This involves the establishment of a Community Liaison Committee. This should help with the information flow in the future, but will not help submitters, or people who may have submitted had they been better informed, to provide input to the planning process prior to the hearing.

### **4.3. Effects of land use change on communities and environment**

The submissions raise concerns about the effects of the anticipated changes in land use from two broad perspectives – the effects on the sustainability of the physical environment on which they rely and the effects on existing community structures (including the loss of traditional families). The SIA analyses both of these effects and also covers the effects on community and social services.

#### **4.3.1 The environmental effect of a shift to more intensive land uses**

The SIA cites research on the outcomes of irrigation schemes and concludes that inevitably there will be a change to more intensive and more lucrative land uses in order to realise investment costs. There were 143 submissions expressing concern about the effects of a change in land use to more intensive types of farming such as dairying. These submissions generally considered the Central Plains environment to be unsuited to water-intensive activities and/or commented that traditional farming activities were more appropriate because they were more environmentally sustainable with less reliance on irrigation (in a traditionally dry area) and fertilisers.

The SIA does not comment on the environmental implications of a change in land uses that are highly dependent on irrigation. Presumably this matter will be covered in another part of the AEE. The SIA notes the recent increase in dairying in the project area and concludes that the scheme is likely to ensure a continuation of this trend. Quoting research from similar experiences in other areas of New Zealand, the SIA predicts that the current trend of lifestyle subdivision will decrease as more intensive farming practices develop (Section 6.1 - 6.3). There is no assessment of what effects, if any, this will have on local communities and services.

#### **4.3.2 Social effects of land-use change**

Seventy-six submissions expressed concern at the changes to the community structures and lifestyle expected to result from land acquisitions and changes in land-use. Some referred to the loss of traditional farming families who would be directly displaced by losing land or would choose to leave as new farming production systems result from the availability of irrigation. These concerns were expressed in terms of a loss of community identity, history and commitment, to be replaced by a more transient dairying population and absentee (corporate) landowners that are unlikely to contribute to the community to the same extent.

Other submissions referred to the loss of community values and lifestyle. Although not always explicitly stated, these comments seem to be prompted by an expectation of land use change to dairying and/or amenity changes to the area.

The SIA assesses the social effects of land use change and concludes that a change to more intensive types of farming would benefit the area socially and economically by bringing more workers, and a younger and better educated population to the area. It also notes that there has been a reduction in available volunteers with the increase in lifestyle in the area, and that this may change with the increased population who will live and work in the area. These conclusions are based on other irrigation schemes in the Canterbury Region. Reference is made in places to the introduction of dairying to Hororata and changes that are already happening there, e.g. the Census data in the community profile illustrates their point in terms of school rolls going up.

There is no information in the SIA on the age structure, education levels and role that the existing farming community and in particular the dairy farmers, play in their local communities. The extent to which local businesses rely on the existing farming households for their income is not assessed. The implications of the nation-wide shortage of skilled and semi-skilled workers currently being experienced by dairy farmers has not been taken into account in the analysis.

The higher levels of transience among share-milkers and other workers employed on dairy farms could be expected to result in a lower level of community participation than for long-term residents. National research on the farming community in which I am currently involved, in part investigates farmers' participation in their communities. Preliminary conclusions indicate that the new breed of dairy farmers (as opposed to those involved in dairying for many years) are less likely to be involved in local community organisations and activities. This finding tends to validate the concerns of the submitters that changes in land use from traditional farming to dairying and other intensive forms of farming, are likely to weaken community identity, cohesion and participation rates.

#### **4.3.3 Effects on services as a result of land use change**

No submissions raised concerns about the effects of land-use change on the capacity or viability of local services such as schools and medical facilities. However, this issue is covered in the SIA which notes that the move to more intensive land uses is likely to result in an increase in local population<sup>1</sup> and discusses the potential implications of an increased population for school rolls and local social services (Section 6.4.4 and 6.4.5). The implications for both are predicted to be positive due to increased viability. The SIA does not include information on the capacity of existing schools to absorb increased numbers of pupils. Also, in what appears to be an oversight, Glentunnel school is missing from the discussion (it is referred to in the community profile, pg 10).

The SIA notes in Section 4.3 the loss of approximately 15 households in Waianiwaniwa Valley but doesn't assess the effect of this loss on local services in any detail. For example, I assume that any primary school age children from the 11 family households will attend Glentunnel, Sheffield or Springfield schools. If they mainly attend Springfield, the SIA should make comment about the declining role, currently at 30 (p. 61) as any further losses may make the school unviable.

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<sup>1</sup> Continued increase in life-style block development would also have this result.

#### **4.3.4 Mitigation**

To increase the capability of affected communities to respond to the changes in the social structures, the SIA recommends that a system of monitoring, information dissemination, consultation and support be established. This is to include monitoring of the changes taking place in the local farming sector; identifying business and employment opportunities; ensuring that local services have the information they need to plan for changes in demand; and helping new workers and families integrate into the area.

Given the uncertainty of the population changes resulting from the project, this is a sensible solution. To ensure the process is able to deliver timely advice, there will need to be a comprehensive approach to the population predictions that includes council officers responsible for processing subdivision and dairy conversion applications in this area.

#### **4.4. Loss of productive farm land and homes**

There were over 140 submissions objecting to the loss of land and homes, for both economic and social reasons. The SIA discusses the effect of loss of land and homes as a result of the dam and reservoir as part of the construction effects (Section 4.3).

The loss of productive land as a result of the head race and network canals does not seem to have been addressed in the SIA. The amendments to the application replacing a canal with a tunnel, will result in a significant reduction in the amount of land lost between Waimakariri River and the proposed dam.

The applicant has not provided detail around compensation for land and homes or how land remaining around the reservoir may be reconfigured. This has made the assessment of social effects difficult and incomplete.

##### **4.4.1 Mitigation**

The mitigation recommended in the SIA sets out considerations to be taken into account when decisions are made on compensation for those losing land in Waianiwaniwa Valley, including taking into account more than just the market value of the farm. This is strongly supported. Given that the acquisition of land and relocation may not be voluntary it seems appropriate that the mitigation process goes further by including assistance to those affected in finding a suitable alternative location and supporting them through the settling in period.

The mitigation does not refer to the need for an appropriate process for reconfiguring land in order to minimise stress and the potential for conflict between neighbours. An independent, skilled arbitrator may go some way to reducing the stress of this process.

#### **4.5. Loss of recreational opportunities**

Altogether, 130 submitters objected to the effect on existing recreation (e.g. kayaking, jet boating, fishing and picnicking). Nineteen noted that the suggested recreation benefits of the proposal, such as the lake and canals, were overstated and would create impacts of their own (e.g. jet boating and jet skis in the currently quiet

Waianiwaniwa Valley). Some submissions objected to the loss of public areas, particularly parks and other reserves.

The SIA (Section 7) pulls together existing data on recreation, albeit a lot is quite old (which is acknowledged), and is thorough in identifying different recreation effects. There is no reference to the loss of parks as such and I am not sure of the significance of this point (i.e. what and how much will be lost). The recreation Section of the SIA refers to a loss of areas for picnicking and walking which may be the same areas that submitters call parks.

#### **4.5.1 Mitigation**

The proposed mitigation is clear and comprehensive and seems appropriate. It includes the provision of facilities for picnicking and places to walk and cycle (Section 7.7).

### **4.6. Effects on water quality and quantity**

Ninety-six submissions raised concerns about the impact of the proposed development on the quality of water for drinking, recreational and environmental reasons. These comments were mainly related to concerns about increased nitrates from dairy farm runoff.

Fifty-four submissions expressed concern about the impact on water availability in the future. Some thought for example, that the irrigation scheme would affect their existing water source, others were concerned that the proposal would lead to an increase in water consumption.

Eighteen submissions supported the proposal on the grounds that it would provide a much more secure water supply and would reduce the current demand on groundwater and/or town supply.

Seven submitters were concerned about the possibility of increased flooding (e.g. the rivers will not be as effective at naturally scouring the riverbed because of reduced volumes of water in the river. Others thought the proposal could jeopardise the Waimakariri flood prevention scheme.

The social impact assessment notes that land-use intensification will degrade the quality of groundwater and surface water downstream of the scheme and expresses concern at the absence of specialist data on the effects of this degradation on human and animal health (Section 5.7).

#### **4.6.1 Mitigation**

The SIA recommends mitigation in the form of a Health and Safety Plan in consultation with the community to reduce resident's concerns about flooding. This recommendation is endorsed.

Measures to minimise the detrimental impacts on water quality have been proposed by the applicant. These include codes of farming practice for those participating in the scheme as well as specific measures to reduce by-wash.

Any codes of practice should include a mechanism for on-going water-quality monitoring and reporting to ensure the quality of community water supplies is maintained independent of any changes in land use and land ownership.

## **4.7. Risk of dam collapse**

About a quarter of the submitters (140) expressed concern about the risk (physical and psychological) of living under a dam and / or the likelihood of it failing. Frequent reference was made to the existence of earthquake fault lines nearby.

The SIA discusses this aspect in detail in Section 5.5.1 but doesn't relate this risk factor to the demographic data. The community profile notes on pg 11 that Coalgate-Glentunnel has a higher percentage of older people (65+) than the district average, and concludes that these settlements can be regarded as a minor retirement area. This community characteristic will have implications for emergency response planning in the Health and Safety Plan.

### **4.7.1 Mitigation**

As mitigation for the risk of dam collapse the SIA recommends the development of a Health and Safety Plan. As noted in 4.6, this recommendation is endorsed. The Plan will need to take into consideration the higher number of older residents in Coalgate and Glentunnel.

## **4.8. Safety around water bodies**

Fewer submissions were received on the risk of drowning than about the risk of a failure in the dam. Altogether 104 submitters raised this concern. Risk is perceived to arise from having open water bodies near their communities (mainly for children) and for people using the rivers near the intakes or during flushing events into the rivers.

The amended notice of requirement to replace 15 kilometres of head race canal with a tunnel will reduce the risk to a certain extent for properties around Sheffield and north to the Waimakariri River.

### **4.8.1 Mitigation**

The SIA discusses water safety in Section 5.5.2 and recommends the same mitigation as for the risk of a failure in the dam. Systems to ensure ongoing education and information on flushing regimes (especially for children and recreationalists) over the long term will be an important part of any Health and Safety Plan.

## **4.9 Permanent changes to the landscape**

Concerns about the visual impact of the dam and canals and the removal of trees, the loss of historical, geological and cultural landscape values as well as the loss of landscapes currently treasured for their beauty were raised in 242 submissions (40.5% of all submitters). This was the second most commonly raised issue after inequity of the distribution of costs and benefits.

The SIA discusses the effects of changes to landscape in Section 5.2 and concludes there will be little long term social effect as the structures will soften over time and become accepted. It is difficult to imagine the dam, as viewed from Coalgate, softening in appearance over time but it may become accepted. The submissions provide evidence of the high level of appreciation the residents of the Central Plains have for the quality of their physical environment. It will be difficult to mitigate the impact of the dam and canals on this landscape in a way that addresses these concerns.

To a limited extent, the visual impact of the project will be reduced by the revised proposal which replaces one open canal with a tunnel.

I anticipate that the importance of landscape on psychological wellbeing in the context of this proposal will be covered by the applicant's landscape expert.

### **4.9.1 Mitigation**

The SIA recommends there be an opportunity for the community to contribute to the design of landscape mitigation and enhancement plans. This may go some way to mollifying those who submitted on this issue.

## **4.10 Access to and across properties**

A total of 113 submitters raised concerns at the loss of access or reduced convenience of access to their farms or across their farms. About half of these submitters also raised concerns about the loss of access to rivers. Access was seen to be disrupted primarily by the canal structures but also in some cases, by the proposed road closures or road realignments. Seven submitters were concerned that canals would provide a conduit for public access onto their land.

The SIA briefly mentions the disruption of access to properties and rivers as a result of road construction but I could find no reference to the impacts of the canal structures on farm access. The SIA notes however that the applicant intends to restore all access to private property. Presumably this is not only entry to properties but also access across properties via bridges. The possibility of opening up public access to private land via the canal network and the implications of this for farmers is not discussed.

The number of properties adversely affected in this way has been significantly reduced by the revised project which replaces a canal with a long-tunnel. I expect that the impact of reduced access for those farmers still affected will be covered in the applicant's economic impact assessment.

## **4.11 Effects on local businesses and employment**

Fifty five submitters raised concerns about the effect on local businesses (e.g. salmon fishery and tourism-related businesses such as jet boat operators and visitor accommodation). Eight submitters thought the project would have positive benefits for the local economy.

Not many submissions provided details on how they thought local businesses would be adversely affected. Some mentioned increased cartage costs as a result of less direct routes. Businesses that rely on existing environmental qualities expected to be adversely affected by the project include those based on tourism, river-based recreation and the salmon fishery.

No submissions raised the issue of employment other than for farming. Some submitters raised concern about the transient nature of dairy farm employees and share-milkers. Some denied that there were benefits to be gained from increased employment opportunities because of the current low rates of unemployment in the district.

The SIA discusses positive impacts on business employment, particularly in Darfield, as a result of the increased population, new jobs, increased demand for farm supplies and contractor opportunities arising from the expansion of dairy and crop farming in the area (Section 6.4.6).

There is no analysis of the employment capacity of existing businesses to indicate if an expansion in their operations would require additional employees. Also the assessment does not assess the effect of the project on those businesses which rely on existing environmental qualities.

The report acknowledges that while jobs will be gained, others will be lost (as a result of farm acquisitions and changes in land-use). No information is provided on the number of jobs that will be lost in order to make some assessment of whether or not there will be a significant net-gain.

The report states that the degree to which current businesses are affected will depend on such factors as the relationship a firm currently has with farmers and how dependent the firm is on local farmers for its financial viability. No analysis of the local business communities is provided to inform an assessment of the potential severity of this effect.

## **4.12 Land values**

Sixty-two submitters objected to the likely decrease in land values, for properties adversely affected by the various structures. Some of these concerns were related to the effects of the construction period. I presume that any loss of value due to these effects would apply only to properties on the market prior to and during the period of construction. However, the majority of these submitters were concerned about the long-term effect on land values especially in Coalgate as a result of the dam, and for properties where access would be reduced or made less convenient by canal structures.

Homes are the major source of investment for most households and the value able to be realised from that investment affects people's financial security and their options for moving elsewhere. Reduced land values are therefore likely to have an adverse

effect on the owners of all properties affected in this way but will particularly affect the retired and the elderly, especially if they have no other source of income than superannuation.

This issue is not covered in the SIA but can be expected to be covered in the applicant's economic assessment.

### **4.13 Atmospheric / climatic change**

Increased amounts and incidences of fog and mist resulting from the creation of a large body of water in the valley was raised as a concern in thirty-one submissions.

Thirty five submitters raised concerns about on-going dust storms resulting from the removal of shelterbelts and the exposed earth when the reservoir is low in the summer months.

Two submissions raised concerns about the odour from rotting vegetation when the reservoir is low.

The SIA notes that Environment Canterbury has acknowledged the likelihood of dust storms when the reservoir is low and also notes that technical studies have confirmed the potential for hydrogen sulphide to be produced from rotting vegetation in the dam.

The SIA refers to a range of social impacts resulting from these effects including a reduction in the quality of living and working environments, reduced visibility and a possible increase in health problems for those with respiratory problems.

#### **4.13.1 Mitigation**

The mitigation seems appropriate – a requirement to undertake an assessment of the long term impact of the reservoir on the microclimate and the preparation of plans for the active management and monitoring of dust and odour.

### **4.14 Noise**

On-going noise from pump stations and running water was raised as an issue by 25 submitters.

The SIA notes the potential effects of ongoing noise on people in Section 5.4. No mitigation is proposed due to the design of buildings and enclosures.

I expect this issue will be covered in detail in the applicant's noise assessment.

### **4.15 On-going traffic effects**

Twenty-three submitters considered there was insufficient information provided by the applicant to be able to assess the traffic-related effects of the project. Twelve submitters were concerned about increased traffic volumes, disruption to roads, the

effect on road conditions and as a result, the increase in the cost of road maintenance.

The SIA discusses these issues (Section 5.6.2) and also that of road safety (Section 5.6.3). No specific mitigation is recommended, but the Section on construction effects covers mitigation for traffic impacts in terms of a traffic management plan.

## **4.16 Construction**

Construction effects noted in submissions were mostly concerned with noise (118), dust (90); traffic, including noise from increased levels of traffic and heavy vehicles, and public safety on the roads (54); vibration including specific concerns about the structural damage that buildings may encounter (particularly heritage buildings) (44); and general inconvenience (36). Nineteen submissions made comments on the disruption to businesses (including farms) and existing infrastructure. Others referred to general social effects (e.g. lack of sleep, stress), construction hazards, and glare from evening construction. The SIA covers all of these concerns and also assesses workforce effects.

### **4.16.1 Construction noise and vibration**

The SIA is comprehensive on this matter (Section 4.2.3). It discusses the effects and their significance and notes that there has been no baseline study of the existing noise environment.

### **4.16.2 Construction dust**

The SIA is comprehensive on this matter (Section 4.2.2). As noted for noise above, the SIA discusses the range of impacts, including health impacts that can result from dust pollution. Dust is likely to be of particular concern for this project given the climatic conditions (the frequency of dry norwest winds) in the area. This topic will no doubt be addressed in depth in other technical reports submitted by the applicant.

The SIA notes that there has been no baseline study on the existing air environment.

### **4.16.3 Construction traffic**

The SIA details the social issues around construction traffic and road disruption, and recommends particular social considerations that should feed into the applicant's proposed traffic management plan (Section 4.2.4). In addition, the SIA discusses the effect of the loss of roads in Waianiwi Valley, and recommends mitigation measures relating to road alignment, timing of road closures and management of the effects arising from roading activities (Section 4.3).

### **4.16.4 Construction workforce**

The CPWL proposal does not include provision for housing the construction workforce in the affected area and the SIA supports that position (Section 4.1.1) indicating that accommodation in the project area won't be needed as Christchurch and two other neighbouring districts are within the labour market area for the site. It goes further by specifically recommending (4.1.2) that specialist workers from outside the area should be housed in the Christchurch urban area.

The SIA suggests that to reduce worker-generated traffic, workers in the Christchurch labour market area be bussed to the sites and that courses be run to enable local workers to up-skill to increase their chances of gaining employment on the construction sites. (By “local” I assume the SIA means “within the project area”).

This is a matter which I believe requires more consideration. Any measures to decrease the number of people needing to travel to the construction site should be encouraged but I believe that the measures recommended will be largely ineffective in addressing this issue. The SIA estimates a potential 2,000 vehicle movements per week on the public road network if workers drive their own cars to the site. Bussing workers who are disbursed across Christchurch and in surrounding towns could prove logistically impractical.

Also, the employment-related data shows a low level of unemployment in the Central Plains area which indicates that the number of local people available for training and employment on the site will be minimal relative to the number required.

The potential benefits of locating the workforce on-site are not identified in the report but they should be taken into account in deciding the best approach. Locating at least some of the workforce close to the construction site is likely to generate benefits for a wider range of people in the communities affected by the project by:

- increasing demand for goods and services from local providers
- increasing demand for properties available for rent;
- providing a pool of relocatable accommodation that could be made available at the end of the construction period to community organisations, social services, tourist operators etc.

Avoiding the need for construction workers to travel long distances on a daily basis to the site will also contribute to (rather than undermine) the national objective of reducing greenhouse gases.

#### **4.16.5 Economic impact of construction**

Nineteen submissions expressed concern at the economic impact of the construction phase on local businesses. This included tourism and agriculture-related businesses. Eight submitters considered that the scheme would bring significant economic benefits to the district.

The SIA identifies a range of economic benefits resulting from up to 200 workers being employed on the project over the estimated three year period. The economic benefits cited however apply mainly to those areas that are within the commuting distance of the construction sites (Section 4.1.2) as defined by the assessors, although passing reference is made to the possibility that local businesses could also benefit.

It would seem more appropriate to assess the economic benefits for the communities of the Central Plains, rather than focussing on the wider labour market area (Christchurch etc).

Measures to maximise the economic benefits for local communities should be considered in the mitigation measures. This could include requirements to purchase from local retailers as much as possible as well as locating workers in the affected area as noted above.

Presumably this aspect will be covered in more detail in the applicant's economic assessment.

#### **4.16.6 Mitigation**

The SIA recommends:

- the inclusion of particular considerations for the proposed noise management plan (including baseline data collection and community input into the plan);
- the inclusion of specific considerations in the proposed dust management plan;
- that specific social considerations be included in the traffic management plan, including mitigation measures relating to road alignment, timing of road closures and management of the effects arising from roading activities.

All of these measures are strongly endorsed.

- The recommendation to locate the workforce in Christchurch and bus workers to the site should, in my view, be reconsidered taking into account the benefits for local communities and the environment of locating at least some of the workforce in the affected communities.

## **5. Conclusions**

The applicant's approach to the collection of data and the analysis of effects has been rigorous and comprehensive. A wide range of data collection methods have been used to identify, quantify and validate the assessors' conclusions on the potential social impacts of the proposed development.

The assessment addresses all the information gaps noted in the s92 request to a greater or lesser extent, as well as most of the concerns regarding social impacts that have been raised by the 597 submitters to the Selwyn District Council on the original proposal (i.e. prior to the adoption of the "long tunnel" proposal).

The issue most commonly raised in submissions is the perceived inequality of the distribution of costs and benefits and the psychological impact on the affected landowners of the applicant having the status of a Requiring Authority. The SIA covers this issue in a way that clearly encapsulates the nature of this concern and gives due weight to its significance.

The assessors note that some aspects of their analysis have been hindered by a lack of:

- reliable data on proposed compensation measures for the affected communities
- technical data such as baseline information on existing air and noise environments and the impacts of increased levels of nitrates and other pollutants in ground and surface water on human and animal health..

This information is essential to quantifying some of the social effects of the proposed development and the mitigation measures that would best address these effects. To that end, this information should be made available before the hearing.

There are a few social impact related matters raised in submissions which the report has not covered. These include:

- social effects of reduced land values
- effect on existing farm operations and farmers of the loss of productive land

Both of these effects are likely to be covered to some extent from a social perspective by the applicant's economic impact assessment.

There are some areas where, in my view, insufficient data has been provided to be able to make a reliable assessment of the effects and therefore I consider that the findings on these aspects should be treated with caution. The areas where data seems insufficient to support the conclusions reached include:

- the community benefits and costs of a significant increase in dairy farming and other more intensive land uses. The conclusions reached are not well supported by an analysis of the attributes of the current dairying community and its relationship to the wider community.
- the economic impacts on local businesses during construction and as a result of the changes in land-use.

Mitigation measures on the whole seem appropriate and if adopted, should help to reduce the negative social effects and in some cases help to spread the benefits of the scheme outside of the group of shareholding landowners.

## **6. Recommendations**

As noted in the body of this report, I recommend the following additions to the mitigation measures recommended in the SIA:

### **6.1 Managing effects of land-use change**

For the recommended system of monitoring, information dissemination, consultation and support, ensure the process is able to deliver timely advice, by incorporating a comprehensive approach to the population predictions that includes council officers responsible for processing subdivision and dairy conversion applications in this area.

### **6.2 Loss of farmland and homes**

In addition to the considerations listed in the SIA to be taken into account when decisions are made on compensation, include assistance in finding a suitable alternative location and support through the settling in period.

Implement an appropriate process for reconfiguring land to minimise stress and conflict. Consider employing an independent, skilled arbitrator for this task.

### **6.3 Effects on water quality**

Include in the code of farming practice for scheme participants, a mechanism for on-going water quality monitoring and reporting that is independent of changes in land use and ownership.

#### **6.4 Risk of dam collapse, floods and drowning**

Ensure that the Health and Safety Plan takes into consideration the higher number of older residents in Coalgate and Glentunnel and that the Plan includes systems for ensuring education and information distribution over the long term.

#### **6.5 Construction**

The recommendation to locate the workforce in Christchurch and bus workers to the site should, in my view, be reconsidered taking into account the benefits for local communities and the environment of locating at least some of the workforce in the affected communities.

#### **6.6 Need for further information**

Some of the potential social effects have not been covered in the Social Impact Assessment or have not been covered in a sufficiently comprehensive way. In order for the parties and the commissioners to be fully informed on the range and severity of the social impacts of this proposal, the following information should be made available before the hearing:

- details of the compensation measures proposed for the affected communities;
- baseline information on existing air and noise environments;
- information on human and animal health implications of an increase in nitrates and other pollutants in ground and surface water
- social effects of reduced land values especially on properties in Coalgate
- effect on existing farm operations and farmers of the loss of productive land

In addition, a more comprehensive analysis of the following effects is required:

- the community benefits and costs of a significant increase in dairy farming and other more intensive land uses. The conclusions reached are not well supported by an analysis of the attributes of the current dairying community and its relationship to the wider community.
- the economic impacts on local businesses both during construction and as a result of land-use changes.

Without this information it is impossible to assess the significance of the social effects of this proposal.