

Policy Framework for the Development of Large Scale Water Enhancement Projects in NZ

Overview and Commentary

MAF Technical Paper No: 2002/14

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ISBN No: 0-478-07694-0

ISSN No: 1171-4662

December 2002

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Preface

This Paper is the final commentary on a series of reports commissioned by Government to assist with the development of a policy position in respect to the facilitation of large-scale water enhancement projects in New Zealand, with a primary focus of providing water for extensive community irrigation purposes. The reports cover the areas of: international models and experiences, equity investment options, the role of central government, the role of local government, and economic and social assessment parameters.

These reports are confined to the use of water for irrigation and arose in response to issues raised in investigations by a number of farmer groups into large community-wide irrigation projects. These investigations highlighted the need for information to assist co-operative action for the financing, building and running of the new irrigation schemes.

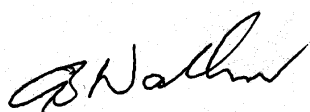
The dominant view from these reports is that the development process for large-scale water enhancement projects is complex and time consuming and cost-prohibitive. It involves a large number of stakeholders and encompasses important considerations in resource management including economic, social and environmental outcomes.

These reports highlight deficiencies in a number of areas including: an inadequate framework to encourage either regional or national water allocations; weak mechanisms to encourage water to move to uses which give the greatest returns; and limited incentives for efficient water use.

The reports confirm that policy deficiencies and institutional inefficiencies are impeding the potential economic, social, and environmental use of some water resource. This is frustrating the development of new large scale community irrigation schemes; particularly those dependent upon water storage. Such developments require investigation to determine and secure favourable storage sights for future irrigation development.

Unlike many other business opportunities that can evolve and expand with time as markets develop, comprehensive staged development of the supply systems for community irrigation schemes is rarely possible (except within sections of the system). Irrigation investments require funding many years ahead of the supply of water. It is difficult for landowners, and difficult to arrange for collective action, to fund this from their present business, as revenue to fund development is largely dependent on new productivity. The writer of this commentary observes that the benefits from well-formulated, sustainable developments can be considerable, but these will only be achieved with good understanding of the roles and functions of each of the parties involved.

I would like to acknowledge the experts who wrote these reports, the reviewers who made their contribution, and the many people in the farming community and local government who have made their views known. This report reflects their views and will be a useful contribution to government policy analysis.



Alan Walker
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Acknowledgements

The Ministry of Agriculture and Forestry would like to acknowledge the assistance of:

Dr Terry Heiler for helping to shape the original concept of this project and for his comments throughout the project;

The principal authors of the reports: Dr Terry Heiler; Brett Gamble, Bruce Irvine, Geoff Butcher, Stuart Ford and Wayne McClintock;

Dr Nick Brown for peer review of the draft reports for the studies and preparation of this overview report;

Eddie Thomas, Central Plains Water, for his administrative support.

The following organisations for grants for the research of the study briefs and the preparation of the reports and the final commentary:

Agricultural and Marketing Research and Development Trust (AGMARDT)*
Ashburton Water Trust
Central Plains Water Enhancement Committee
Clutha Development Board
Farmers Irrigation Group, South Canterbury
Hawkes Bay Regional Council
Marlborough District Council
Masterton Business Enterprise Board
Tasman District Council
Waimate District Council
Ministry of Economic Development
Ministry of Agriculture and Forestry

* The Agricultural and Marketing Research and Development Trust (AGMARDT), earns income from funds invested from a share of the monies arising from the winding up of the Phosphate Commission in 1987. This income is used for promoting and encouraging excellence in New Zealand's land-based industries. Grants are made for farmer projects involving grass-roots problem solving and opportunity development, industry support, conference sponsorship, doctoral scholarships and postdoctoral fellowships. Farmer groups are encouraged to seek details on AGMARDT's applications process by accessing the website on www.agmardt.org.nz or contacting the Secretary Manager, P.O. Box 399, Shortland St, Auckland, Tel. (09) 373 3370, Fax (09) 373 3488.

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Introduction

1. In 2001, the Ministry of Agriculture and Forestry (MAF) undertook preliminary work to respond to the information needs of a number of groups who were investigating and promoting communal irrigation schemes in New Zealand¹. Since that time, interest has further expanded and with it the demand for more detailed information on a number of key issues surrounding the development of large-scale water enhancement projects. In response to this interest, MAF commissioned further studies during 2002 in the areas of: international experience in the use of public-private sector partnerships; equity investment options; the role of central government; the role of local government; and economic and social assessment of community irrigation schemes. This paper provides a brief overview and commentary on the conclusions reached by these reports.

Scope and Objectives

2. Historically, the government played a pivotal role in the development of large-scale water enhancement projects in New Zealand. However, since the 1980s, there have been significant shifts in the policy and legislative environment, with the onus now being on the private sector to initiate and drive the development process under a new planning environment framed by the Resource Management Act 1991 (RMA).
3. This structural change virtually halted the development of large scale community irrigation schemes, with the exception of the 16,000 ha Opuha Scheme in South Canterbury and the 11,000 ha Waimakariri Irrigation Scheme, both commissioned in 1999. The success of these two developments has resulted in revitalised interest in large-scale water enhancement projects throughout New Zealand, with investigations being supported by the Contestable Water Studies fund established by Government in 1998.
4. Studies have revealed a number of common information needs relating to such issues as relevant international experience with public-private partnerships (PPP) arrangements to achieve the desired ends; more details on possible equity financing arrangements which could be applicable to these type of projects; a better definition of what role central and local governments could play to support the process; and the impacts that large scale water enhancement projects might have on the economic and social fabric of the areas in which these developments were planned. The objective of this overview and commentary was to shed further light on the common information needs and draw out key points for further consideration.

¹ See Agriculture NZ Ltd. Irrigation Scheme Development Technical Paper No: 2001/8. MAF, Wellington

Water Enhancement Projects

CURRENT DEVELOPMENTS

5. There is currently some 500,000 hectares of land under irrigation in New Zealand of which some 165,000 ha is under communal irrigation schemes that range in size from 500 – 30,000 hectares. A further 300-400,000 hectares of land is currently under consideration for communal schemes by some 10 interest groups located from Otago in the south to the Wairarapa in the north, and additional schemes are being formulated. This indicates the very high level of interest in communal irrigation development, an interest that is likely to escalate because of the commercial pressures on farming businesses.
6. All of these potential schemes have wide-ranging ramifications – for the farming communities which are promoting them; for the communities within and adjacent to the areas where these developments are proposed; for the resource use mix and environment in the local areas; and for the institutions which are involved in planning and regulating the development process. Once approved and implemented, the concomitant changes are largely irreversible, and have the potential to generate significant social and environmental impacts. The major challenge faced is to be able to make informed decisions with adequate knowledge of options and likely outcomes at each stage of the development process.
7. Large-scale water enhancement projects have certain characteristics that differentiate them from other investment projects. They are generally initiated by a community of interest, require heavy up-front capital expenditure, have minimal salvage value, have a long-term economic life, commonly supply a single commodity (or, at best, 3-4 commodities²) to a restricted market, and require access to private land in multiple ownership for water transfer and storage. A recent study of water resources in Canterbury argued that storage will be an essential element in meeting future water demands³. There are often significant cultural and environmental issues associated with the proposals, with a large number of stakeholder groups ranging from the local protagonists to central government. If developed, the projects act as a catalyst for significant land use change as well as changes in land ownership. The complex nature of the projects and the large number of stakeholder groups with associated economic, social, cultural and environmental agendas makes the development process relatively complex and time consuming. Typically, the development phase takes 5 to 10 years before water is available, and the intensification of land use that then becomes possible with the availability of the irrigation water may take a further 10 years or more before the full potential of the project is realised.

THE DEVELOPMENT PROCESS

8. The development pathway for a typical water enhancement project can be subdivided into six clusters of activities: Stage 1 - proposal genesis and initial planning; Stage 2 - pre-feasibility and feasibility investigations; Stage 3 - resource consent; Stage 4 - marketing, pre-sale and implementation funding; Stage 5 - final design and construction; and Stage 6

² Irrigation water, stock/domestic water, electricity, and/or flood mitigation

³ See Lincoln Environmental 2002 *Canterbury Strategic Water Study*, prepared for Environment Canterbury, MAF and MfE. MAF Technical Paper 2002/06.

- operation and maintenance. Each stage provides for a different role and function for the various stakeholder groups, and the funding requirements and associated risk profiles vary depending on the stage of the process – for example, although the funding requirements for the initial stages are low relative to the capital requirements during the implementation phase, the risks associated with that funding are high because of the uncertainty as to whether the development will proceed or not.
9. Historically, the method of procuring large scale water enhancement projects through the public sector was the Design and Construct (D&C) model, with the government being closely involved with all stages of the process including providing the finance. However, new variants in implementation modality now include Public Private Partnerships (PPP), and an array of funding arrangements⁴ including business finance, project finance, or Build, Own Operate (BOO) variants⁵. While there are no examples of PPP in the New Zealand irrigation sector⁶, it is likely that once this modality has been tried and tested in other large-scale infrastructure projects (such as roading), and the appropriate policy and legislative background put in place, that water enhancement projects could also follow this path⁷.
 10. The stakeholder groups involved in the various stages of the process will vary – initially, in the first stage it will involve mostly local farmers and sector interest groups, with local government becoming involved in Stage 2. Central government may become indirectly involved – for example, funding support was available from 1999 via the Contestable Water Studies Fund established by Agmardt and central government, but this has been replaced by the Sustainable Farming Fund, administered by MAF. Stage 3, the resource consent process, will inevitably involve participation from a large number of stakeholders, reflective of all the interest groups potentially affected by the proposal. Once the appropriate consents are obtained, then the significant funding requirements mean that both equity and debt capital providers become heavily involved, together with those enterprises involved with finalising scheme designs and subsequent construction/commissioning (Stage 5).
 11. The resource consent process presents formidable hurdles for large-scale water enhancement projects because of the scale of the development, the diversity of interest groups potentially affected, and the high transaction costs involved with the Resource Management Act. These costs can be considerable (involving experts in a number of areas, legal counsel etc.), and there is considerable difficulty in attracting external finance to support this stage since the perceived risks from the outside investor's point of view are high. This means that the costs up to and including the resource consent stage need to be largely borne by the proponents of the water enhancement project (with possible assistance from local government and special purpose funds such as the SFF⁸) with alternative outside funding sources supporting the development once the resource consent is approved (since the overall project risks are then perceived to be significantly reduced).
 12. In addition, the fact that Regional Councils have little experience in dealing with complex water management and allocation issues compounds the complexity of the problem, in

⁴ See Deloitte Touche Tohmatsu 2001 [Financial Structures for Community Owned Irrigation Schemes](#). A report prepared for several irrigation groups, funded by the Ministry of Economic Development and managed by the Central Plains Water (Canterbury).

⁵ Including Build Own Operate Transfer (BOOT), and Build Operate Transfer (BOT).

⁶ Kaipara District Council is in the process of undertaking one of the first BOOT projects in New Zealand to fund a wastewater treatment station – see Deloitte Touche Tohmatsu 2002a [Review of Equity Investment Options](#) p. 25. Interest in PPP is growing, particularly with respect to development of roading infrastructure in Auckland.

⁷ For further background on PPP, refer to the proceedings of a conference held in Auckland in August 2002 – a copy of these papers is available from MAF Policy.

⁸ The Contestable Water Studies Fund and SFF have been used for initial surveys to identify key environmental and social issues, but have not been available to provide financial support to the RMA consent process itself.

that commonly there is an inadequate information base on the water resource – its characteristics, yield, variability, interdependence between surface and groundwater resources etc. – and often scheme proponents have to bear the costs of generating this information. Since this information often has public good benefits, contributions to funding by both local and central government can be justified, but it is likely that scheme proponents will still bear significant costs.

13. In general, where large-scale water enhancement projects can be designed for multiple uses, benefiting a number of various stakeholders – then the costs of the development process can be more widely spread and the project itself is likely to have wider support. They may also generate considerable opposition from disaffected parties - for a characteristic of the large-scale water enhancement projects currently under investigation, is that they require access to significant proportions of the water resources on a regional basis. They therefore are of national importance, and need to be considered within a long-term strategic planning framework.

SOCIAL AND ECONOMIC IMPACTS

14. Large-scale water enhancement projects have the potential to generate significant social and economic impacts. From irrigator and financier perspectives, it is the financial return on the investment and the associated risk that are the key issues. From the viewpoint of the local community, and of local government, issues of impacts on output, employment, value-added and the spatial dispersion of these impacts are important in an economic sense. From a social perspective, it is issues such as the probable impacts on population, occupation/employment, income levels, and community services that assume importance. For the debate that will emerge during the development process to be well-informed and factual, information is needed about the probable affect of the proposal on this raft of socio-economic indicators.
15. The study into economic and social assessment of community irrigation schemes attempts to address these issues, by firstly identifying a range of assessment parameters that could be applicable and of interest to each group of stakeholders, and then reviewing the method of quantifying probable impacts on each of these relevant parameters. It concludes that the most significant assessment issues are related to: (i) the expected land use change; (ii) the timing of land use and land ownership changes; (iii) the location of “flow-on” impacts⁹; (iv) the necessity to carefully evaluate changes that will occur directly as a result of irrigation; (v) the need to understand the on-going process of social change in the community as a benchmark for what is likely to happen with the advent of irrigation; (vi) the need for representative farm models to be selected when assessing probable land use changes; and (vii) the need to be forward looking in determining future scenarios of costs and returns.
16. This economic and social research then studied land use and social patterns in the area encompassed by the Lower Waitaki Irrigation Scheme and compared what had happened with a comparable “dryland” area in the Rangitata. As for direct economic impacts, the analysis concluded that the overall investment in irrigation had achieved a return of around 14 percent per annum on total capital, increased output in the district by \$3.4 million per annum per 1000 ha, and generated a net increase in full-time employment (FTE) of just under 13 persons per 1000 ha. Population in the area has increased by about 16 percent due to irrigation, household incomes have risen, and the scale of enterprise in

⁹ The localities that will experience the majority of the “off-farm” impacts.

the area has also increased (compared to Rangitata). While these results cannot be extrapolated to other areas, they indicate the likely social indicators that will be affected by irrigation development. However, it should be emphasised that whether social impacts such as these are viewed as beneficial or not depends on the various stakeholder groups in the community, and often there are widely divergent opinions from different sector groups on this issue.

The Role of the Private Sector

17. The primary responsibility for initiating, promoting, and developing communal irrigation schemes lies with the private sector, and in particular with the proponents who are normally the direct beneficiaries, directed by a lead agent and/or “champion(s)”. For example, with the Opuha proposal there were nine subgroups within the region, each with a “champion” leading support for their area of the scheme.
18. While the scheme proponents will initially be a relatively informal group of interested parties (commonly through a committee), the need for greater formality and structure increases once the development process proceeds past the first stage. This is particularly true at the stage when contracts for investigations need to be let and monies raised (often from the community of interest, and from special purpose funds), and a range of possible legal/business structures need to be considered including (i) partnerships; (ii) co-operative companies; (iii) limited companies; (iv) trusts; and (v) unincorporated associations. Different structures may be appropriate in different circumstances – for example, the Opuha development involves a partnership structure owning the assets, with limited liability companies separating each investor from the partnership. Conversely, Waimakariri is a co-operative company. In addition, the structure selected as most appropriate for the initial stages may not be the same as the structure that is ultimately seen as the most appropriate ownership vehicle for the scheme. Key factors to be considered in any structure include issues of continuity of existence, shareholder/member protection, access to funding, flexibility of capital contributions and transferability of interest, control, restrictive provisions, and taxation implications. A recent report¹⁰ canvassing these issues, concluded that while each scheme will need to assess its own situation before deciding on an appropriate structure, company structures (limited and co-operative) generally provide the best match of requirements¹¹. Limited company structures offer shareholder protection, transferability of interest, and access to public and private capital, with co-operative companies maximising asset control. Early taxation losses, however, are best captured through a partnership structure.
19. Another major issue that is faced by scheme proponents is how to finance the capital requirements involved in the development process, since these are typically beyond the financial resources of the direct beneficiaries (particularly when farmers need to meet on-farm capital development requirements). This raises the issues of equity and debt options, including private equity through BOOT type implementation arrangements, as well as PPP.
20. Funding alternatives are closely tied to considerations of risk, and different funding arrangements are suited to different stages of the development process since each stage has a different perceived risk profile. As noted above, access to private sector funding beyond direct beneficiaries is unlikely before resource consents are granted, largely because of the perceived high risk associated with the consent process. However, after the resource consents are confirmed, a range of options emerges including business finance, project finance, as well as BOOT variants. Business finance, which was adopted in the Opuha and Waimakariri cases, involves high equity requirements (typically over 50 percent), with security and medium-term lending. Project finance involves lower equity (in the range of 20-50 percent), lower security and longer lending terms, but relies

¹⁰ Deloitte Touche Tohmatsu 2001 referred to in footnote 4.

¹¹ Multiple ownership structure should also be considered in some circumstances – for example, where resource consents are “owned” by a community trust, and the infrastructure assets are owned and operated by a company or companies.

on secure long-term customer supply contracts¹². BOOT type options require no equity, but involve external ownership of the project for a specified period, coupled with secure, long-term customer supply contracts. The difficulty in securing long-term supply contracts through the initial take-up period has, to date, been one major reason why project finance and BOOT options have not been utilised in the irrigation sector, and is one of the reasons why irrigation groups have approached Government to underwrite large scale water supply projects¹³. For this reason, a scheme may need to access business finance over the take-up period (with the assistance of guarantees), and look to refinance using project finance after the take-up risks have been mitigated¹⁴. Generally, project finance will be the funding option most closely aligned with scheme needs, but this does involve a relatively high level of certainty of cash flows. Over time, it is likely that BOOT/PPP funding models, once applied more frequently in New Zealand infrastructure, may become more common in irrigation projects although the applicability of PPP models to large-scale water enhancement projects is yet to be assessed in detail¹⁵.

21. Critical to accessing suitable finance is a clear and well-presented analysis of project risk, since debt/equity providers will wish to carefully evaluate risk profiles as part of their evaluation process. Risks will vary in type and incidence at all stages of the development process, and early identification and appropriate mitigation measures will ensure appropriate management procedures are in place – for example, there are inherent risks involved for debt providers which vary with the ownership structure involved with the scheme, so it is important to formulate the ownership structure to minimise direct risk exposure for potential debt and equity providers. Similarly, consideration of the extent to which shares can be traded, including amongst non-users, and the manner in which water entitlements are transferred/traded are all important considerations when the risk profile of the project is being assessed.
22. There are a number of potential providers of debt funding for water enhancement schemes, including standard bank debt, institutional debt¹⁶, public debt¹⁷, Government debt and off-shore/foreign debt. In assessing the merits of debt funding, these institutions will consider a wide range of issues including supply risk, construction risk, sales/revenue risk, insurance, ownership structure and security. However, the study on equity investment options concluded that an established water enhancement scheme is an attractive investment for those looking for stable, longer term, low risk investments, but this relies on the resource consent to be in place and a high level uptake commitment from potential scheme users. On balance, the debt providers that most match the requirements of water enhancement schemes are banks, government (central and local), and institutional investors, and experience with the Opuha and Waimakariri schemes indicates that with sufficient equity and security levels, business finance through banks will not be a constraint.
23. Possible equity providers include private equity and government equity. Private equity (farmers, electricity generation companies, other water users) are the most common sources since they directly benefit from the scheme, although the issue of whether

¹² Generally, providers of business finance have a lower reliance on the certainty of business cashflows and a higher reliance on the ability to recover funds through the salvage value of the asset and/or access to monies from guarantors should the business fail. Project finance, on the other hand, relies heavily on the certainty of cashflows, and is less focused on security/recovery.

¹³ The involvement of local government in underwriting has been the most common response to the issue of increasing the security attached to project financing – for example, bank debt for the Waimakariri Scheme was guaranteed by the local council for the first five years of the project.

¹⁴ This would allow the guarantee risk to be minimized.

¹⁵ Overseas experience indicates that PPP can be a cost effective modality, ensure on-time delivery, provide access to innovation and effective/efficient project management skills, and be cost-effective. However, NZ experience with PPP is very limited to date.

¹⁶ Such as superannuation funds, insurance companies, other managed funds

¹⁷ Such as bonds or debentures issued to the public market

another potential source of private equity finance, “outside” investors¹⁸, should be permitted can be contentious. These investors may be somewhat philanthropic and keen to support the local community, but if they see their investment in purely commercial terms, access to this pool of finance will depend on the returns being available commensurate with the risk exposure¹⁹.

24. The form of equity structure is therefore of critical importance, and requires detailed consideration. Issues include eligibility criteria, tradability of shares, third party access, and voting rights. Generally, structures will opt for issuing different classes of shares - e.g. Class A may have water rights attached, and Class B has no water rights – but the number of shares classes, the proportions of shares in each, and pricing differential will be specific to each scheme.
25. Other methods of funding support that need to be considered include the provision of guarantees, with underwriting often critical to ensuring a scheme is able to access the most efficient funding structure²⁰. In such cases, however, there should be a specific time limit to the guarantee (say 3-5 years)²¹, and an appropriate return built-in to compensate for the risks involved. There is no doubt, however, that the presence of a key institution such as local government as part of the funding structure is helpful in accessing other avenues of debt and equity capital.

¹⁸ “Outside” investors are those who do not directly purchase the products of the scheme (such as water or electricity).

¹⁹ Returns generated will be a combination of operating profits and capital gains, and it is therefore important to structure the scheme in such a way as to maximise capital growth opportunities available to shareholders. The issue of whether water rights are tradeable may therefore have a bearing on how the private sector views the potential returns from its investment.

²⁰ Underwriting by Local Government occurred with the Waimakariri scheme – see para 20.

²¹ To enable the scheme to build up operating credibility and maximize take-up.

The Role of Local Government

26. In most circumstances, there is a critical role for local government in supporting and facilitating the investigation and subsequent development of large-scale water enhancement projects in their area, and in providing partial funding support through the investigation and feasibility phases of the scheme. In particular, this involvement should occur where it can be demonstrated that such schemes will contribute positively to local government objectives (such as expanding the economic and employment base, increasing regional population, improving environmental outcomes, improving the viability of publicly-provided infrastructure etc.), and where it is unlikely that such a scheme will proceed through the planning and development stages without local government involvement, and where the form of local government involvement can be shown to meet council expenditure and/or investment criteria, and where local government has the funds available for distribution given competing budgetary demands.
27. The nature of any local government involvement will vary with the stage of the planning process, but will commonly start with assistance in part-funding of the investigation and feasibility studies including an assessment of the community benefits which are likely to arise from the development. Should the scheme proceed, then any local government expenses involved with this initial support²² could be recovered through equity in the new entity, or registered debt.
28. In the case where these initial feasibility reports are positive, then local government has an important role to initiate, facilitate and promote the necessary levels of community and stakeholder consultation, and facilitate the “Project” through the subsequent stages in the investigation process. Local government should also support seed funding of initial investigations where these are of public interest. The scope of such investigations might also be to ensure that all options are thoroughly investigated to avoid, if possible, the shutting out of long-term projects that could be in the wider public good. It would seem important, however, that local government does not assume the role of project “champion”, which more correctly lies with the actual promoters of the scheme. Rather, while local government can support the proposal (as it would any proposal which generated similar net benefits to the area), it should remain objective and balanced in responding to the stakeholder concerns. Local government may also need to mediate between the promoter and other local stakeholders to facilitate the widest community participation and consultation, and to ensure investigations and assessments of effects encompass the wider public interest. It is only at the latter stages of this process that local government needs to consider whether some further financial support may be necessary – in the form of equity²³, debt and/or financial guarantees – but this should only be contemplated where all other sources have been approached. In addition, the expected financial return on any investment made by local government is an important factor in its role as custodian of public monies²⁴.
29. There is no doubt that some level of local government equity support to the project entity does provide a level of comfort to other equity and debt investors, and such a commitment does make the raising of the necessary capital that much easier. However, whatever form local government involvement may take, it is very important that this

²² Including a return on the funds expended commensurate with the risks involved.

²³ There are no significant legislative constraints preventing local government from investing in large-scale water enhancement developments.

²⁴ This was evident in the findings of the Audit Office report into Opuha. However, it should be noted that expected financial returns need to be balanced against expected non-financial returns including wider community, economic and social benefits.

involvement is seen as short-medium term, and that there is a clear exit strategy in place (for example, the option to trade shares, take-out clauses, sunset clauses on debt/guarantees, and or conversion clauses).

30. In the case of the Waimakariri scheme, the local government opted to guarantee the Bank debt for the initial five years so as to reduce the lender's risk, an action which has minimal cost to the local government provided the guarantee is not called. Revenue underwriting is also an option²⁵, and will be an important consideration where Project financing or BOOT development scenarios are concerned, but is relatively high risk. In terms of equity involvement by local government, hybrid equity options (such as subordinated loans, redeemable preference shares, or convertible notes), seem to offer particular advantages in that they rank behind senior creditors and debt, and so strengthen the financial position of the entity.

²⁵ Debt underwriting is also theoretically possible, but of limited value.

The Role of Central Government

31. Central Government plays a pivotal role in the framework under which large-scale water enhancement projects are initiated and implemented – specifically relating to the legislative and regulatory umbrella which puts bounds on individual and corporate activity, as well as the policy framework which guides central government action. It could also have a direct interventionist role in cases where there are instances of “market failure”.
32. In the water enhancement area, there are two main legislative areas that impinge on developmental activities. The Resource Management Act 1991 (RMA) controls resource consents for the take and use of water for periods of up to 35 years, but the legislation includes wide-ranging powers to Regional Councils to review consents at any time, and alter or revise consent conditions. These powers clearly introduce a large element of uncertainty to the projected financial viability of schemes that rely on water access and, in particular, adversely impinge on proposals that are subject to Project finance, or BOOT/ PPP structured investments. In the light of this, central government may need to consider additional legislative protection for investors in a scheme where existing consent conditions have been met, but where Regional Council reviews within the original consent term adversely impact on water access.
33. The Electricity Industry Reform Act 1998 (EIRA) prevents electricity lines companies from significant investment in water enhancement schemes with hydro-generation capacity, and this may restrict investment in those schemes which have multiple-use capability. Government could therefore consider providing dispensations for investment from those entities that do not have power generation as their primary income source. Similarly, tax depreciation rates for water enhancement investments are relatively conservative when compared with other developed economies, and accelerated depreciation write-offs may encourage multi-nationals to more actively consider investment in New Zealand.
34. A recent study concluded that there is no strong evidence of market failure that justifies significant central government involvement in the development process. Where there are information gaps, there is a role for central government to undertake/fund appropriate studies to develop the information base, and/or disseminate information so that informed decisions can be made. Examples of this include the application of take or pay supply agreements and the application of the BOOT funding and PPP models to water enhancement projects²⁶.
35. In some individual cases, there may be justification for a greater role for central government in providing financial assistance to the feasibility studies that are necessary background, as well as the resource consent process itself. This consent process, including the assessment and possible modelling of effects and stakeholder consultation, is a high-risk activity that proponent groups have had difficulty funding, but they do generate public good information. This work, previously carried out by catchment boards, now falls on scheme promoters if they want to progress their proposal. Current central government grant programmes²⁷ have excluded supporting this activity but there may be justification for central government to part-fund this activity if the relevant local

²⁶ For example, there has been little research on the development and application of take or pay supply agreements in the context of large-scale irrigation developments. Investigation of how best these agreements would be formulated, and the advantages and disadvantages of differing formulations, would be useful.

²⁷ For example, the Sustainable Farming Fund.

authorities are unable to do so due to financial constraints. However, it can be argued that this should only occur where these funds can be converted to debt or equity once the scheme proceeds, and with an appropriate conversion ratio that recognises the investment risks involved with such seed financing. Central government underwriting of shares should only occur when there is an appropriate exit strategy in place²⁸ and the shares are openly tradeable. Finally, in cases where there are demonstrated net environmental benefits generated by the development project, there may be a case for a direct government grant in recognition of these public goods.

²⁸ Such an exit strategy may incorporate defined repayment terms, or subject to a number of key performance indicators being met, a private sector party agrees to take the investment over from the Council within a defined period – see also para 29.

Conclusion

36. This paper provides an overview of the main findings and a commentary on critical issues relating to the development of large-scale water enhancement schemes in New Zealand. With the withdrawal of government from the driving role for these developments in the 1980s, the private sector has now become the development instigator, but has struggled with the complexity of the information requirements that these types of projects generate, and the detail of the development, management and institutional options faced. This paper attempts to fill information gaps in the above key areas and so lead to more informed decision-making and debate on the main requirements for sustainable developments.
37. The development process for large-scale water enhancement projects is complex and time consuming, involves a large number of stakeholders, and encompasses important considerations in resource management including economic, social and environmental outcomes. The benefits from well-formulated, sustainable developments can be considerable, but these will only be achieved with good understanding of the roles and functions of each of the parties involved, and with resource allocation decisions being based on the best available information relating to the status of the resource base, social and economic impacts, and environmental risks. In addition, the institutional structure of the development entity is critical to the long-term success of the project in accessing debt and equity capital, as is a thorough appreciation of risk at all stages of the development process.
38. A key feature of the large-scale water enhancement projects under investigation, is that they are of a scale that is significant in terms of total resource use. While these studies have not specifically examined each of the current water enhancement projects in any detail, it is clear that the scale of the potential developments merit the interest of central government for several reasons. First, the water resource requirements are large enough to be of national significance; and second, the economic, social and environmental impacts, positive and negative, are clearly of a scale that requires central government attention. These projects inevitably require conservation²⁹ storage and, as suitable storage sites are limited, if steps are not taken to secure these sites there will be difficulties for future development. It is clear that potential irrigation developments need to be considered within the framework of a national development strategy for the use of water resources; and that such a strategy has yet to be developed.
39. This paper offers insights into the key issues that should be addressed by the major players in the process – the private sector (scheme proponents, financiers, etc.) together with local and central government – canvasses the options that are available, and addresses the particular considerations that affect the preferred alternative that may be appropriate. While every situation is different, there are key generic issues associated with the development of large-scale water enhancement projects that are similar for all projects, and it is hoped that this report provides the platform for an improved understanding and debate on these considerations.

²⁹ Storage, preferably in sites located away from the main river channels, of high river flows for release during low flows in the summer period.