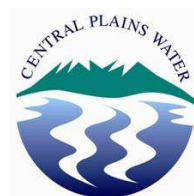


Comparison of Piped and Open Channel Distribution of Irrigation Water Supplies



Ministry of Agriculture and Forestry
Te Manatū Ahuwhenua, Ngāherehere



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CD and hard copies are available from INZ at cost and by request.

The Ritso Society

The Ritso Society was incorporated on 3 April 2002

The key objectives of the society are:

- To promote and develop knowledge and understanding of water enhancement schemes on the Central Canterbury Plains between the Waimakariri River to the north and the Rakaia River to the south (“Central Plains”);
- To represent the interests of the Central Plains primary producers on issues and statutory decisions pertaining to the allocation and use of water;
- To raise awareness in Central Plains of the potential that irrigation brings for economic development;
- To promote and develop knowledge and understanding of the issues associated with the use of irrigation and associated land use change.

Membership of the Ritso Society includes business people, primary producers and others with an interest in promoting the economic well-being of Selwyn District and the wider Canterbury region.

The Ritso Society is named after Mr GF Ritso, who served as county engineer for Malvern during a period late in the nineteenth century, and in 1883 wrote:

“No doubt, in a few years, works will be constructed for the purpose of using the waters of all principal rivers for irrigating the plains, thus making water meadows which will fatten probably five or six sheep, or a proportionate number of cattle to the acre, on land two acres of which will barely support one sheep.”

The Ritso Society acknowledges with thanks the Ministry of Agriculture and Forestry Sustainable Farming Fund, Central Plains Water Ltd., Amiantit and Meridian Energy for their financial support of the project and the many farmers and community and professional people who gave so generously of their time. We also acknowledge the authors of the report and Dr Terry Heiler of Irrigation NZ who managed the project on our behalf.

Ross Keeley
Chairman, The Ritso Society
August 2007

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Preface

This report on the methodology for comparing the pros and cons of piped versus open channel irrigation water distribution systems has been prepared under the auspices of The Ritso Society and managed by Irrigation NZ Inc (INZ). It provides a comprehensive guide for communities and developers interested in making a choice between piped and open channel irrigation water distribution systems in feasibility investigations, or in situations where there is consideration of converting existing open channel systems to pipes.

As described in the report, the relative importance of the technical, economic, social and environmental merits and demerits of either distribution option, is very much site specific. In order to inform the generic issues involved in the comparison, the report takes a case study approach – learning about the generic by doing the specific. The study concluded that this can be a valuable methodology for advancing understandings of the complex and interrelated issues involved.

The main finding of the study was that piped distribution may be a more attractive long term option, in specific situations where there is sufficient gravity head between points of supply and demand areas. In the case studies investigated, results indicate that situations with land gradients greater than about 1 in 170 would benefit from a detailed analysis. Gradients in excess of this value exist over a good deal of the drier eastern seaboard of NZ where irrigation opportunities exist.

The material presented in the report reflects the considerable experience and understandings of the project team, and is believed to be the first of its kind in NZ where the generic issues have been deliberately surfaced by the case study approach.

The project received funding support from the Sustainable Farming Fund under the Ministry of Agriculture and Forestry (MAF), Central Plains Water Ltd, Meridian Energy and the Amiantit Corporation based in Saudi Arabia. This support is gratefully acknowledged.

The project team responsible for the development of the report included Ian McIndoe and Rose Edkins, Aqualinc Research Ltd.; Craig Scott of Riley Consultants Ltd.; Sue Cumberworth of The AgriBusiness Group and Dr Nick Brown, economist. Dr Terry Heiler of INZ managed the project on behalf of The Ritso Society.

The report of the project will be made available free of cost through the web sites of MAF, INZ and The Ritso Society, with CD and hard copies available from INZ at cost and by request.

On behalf of the irrigation community of stakeholders, I congratulate the project team on completing this work and breaking new ground in the process.

Dr Terry Heiler
Chief Executive
Irrigation NZ Inc.
August 2007