CASE STUDY

The Upper Taieri River Catchment, Maniototo

The Upper Taieri River catchment, inland from Dunedin, has a difficult climate, harsh landscape and an annual rainfall of only 350mm – so access to water is crucial.

There are currently 135 water consents/permits within the study area, but there are more individual users than this as some consents are for bulk supply.

Most consents are used to irrigate sheep and beef farms, however there are also several substantial dairy farms, a hydro-generation company and a large gold mining operation within the catchment. Some farms do not have access to irrigation water; and, because the Taieri River is currently over-allocated, few new water-take consents can be granted.

The 150-year history of water use in this catchment has been marked by a high degree of fragmentation and self-interest, exacerbated by a unique system of mining rights to water, issued during the gold rush and now used for irrigation. These have a priority-of-take system that over-rides the Resource Management Act. Effectively, neighbours have priorities over each other based on an historic first-in first-served allocation, which often make little practical sense.

These mining rights expire in 2021 and irrigators are now looking to revolutionise the way water is allocated within the catchment to ensure the whole community benefits – that farms remain viable without depleting the Taieri's water resources.

In a joint project between the Landcare Trust and Otago's School of Surveying, MapChat is being used to promote multi-stakeholder involvement in this resource management process.

Farmers will work alongside the Catchment Management Group and other community stakeholders to develop sustainable, user-managed processes that involve on-going monitoring and reporting. By using MapChat, farmers and other stakeholders create individualised irrigation strategies and requirements, and then "discuss" these individual solutions within the context of a community-based management approach. Sustainability of water access and continued viability of farming practice are central to this discussion.

Farmers can, for example, comment on locations and issues of concern by annotating specific map features – such as a particular stretch of river – or create new map features, such as areas where they feel that irrigation is being overused relative to perceived need.

MapChat will enable these individual strategies to be discussed collectively, with the ultimate aim of developing an equitable strategy for the entire community. Hall says that initial comments from farmers as to the usefulness of a MapChat-based approach are very positive. The farmer group communicates through "field day" meetings organised by Landcare on a regular basis and hopes to start collecting data soon on the irrigation future for the Upper Taieri watershed.

The aim is develop better relationships, smoother Resource Management Act processes, fairer community outcomes, improved environmental outcomes and, of course, a more efficient use of water.

In addition to using MapChat, farmers communicate through "field day" meetings.

MAP CHAT
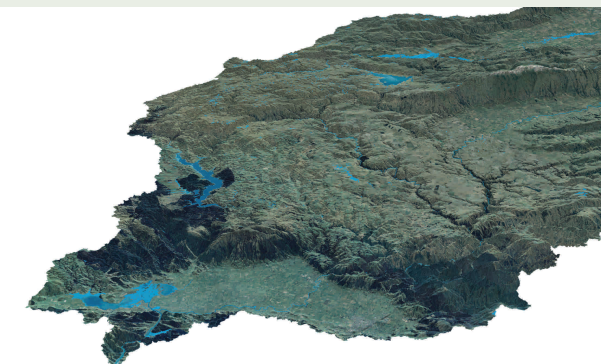
FURTHER INFORMATION

Professor Brent Hall
School of Surveying
University of Otago
PO Box 56
Dunedin 9054
New Zealand
Tel 03 479 7613
Email brent.hall@surveying.otago.ac.nz
www.surveying.otago.ac.nz

Gretchen Robertson
Projects Co-ordinator
NZ Landcare Trust
Tel 03 454 6464
021 267 5664
Email gretchen.robertson@landcare.org.nz
www.landcare.org.nz

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The University of Otago, first.

MAP CHAT

In isolated rural areas, where complex land-related issues might need to be discussed, group decision-making can be difficult to achieve. While many stakeholders may need to be consulted, and their needs and opinions considered, it can be almost impossible to bring everyone together at the same time in the same place with an equal opportunity to have their say.

Or is it?

MapChat may provide a solution to this problem. Using the connectivity of the internet and modern computing technology, it brings dispersed communities together in virtual contact to discuss issues of common interest.

Combining web-mapping and instant messaging, MapChat, quite simply, uses digital maps as the medium of communication. This tool was developed by Professor Brent Hall and associates while at the University of Waterloo, Canada. Now, as head of the University of Otago's School of Surveying, he and research fellow Michael Leahy are refining and customising it for practical use.

Hall describes the technology as a geographic information system (GIS) that encourages public participation through the use of the internet. As such, it enables farmers and other members of rural communities to communicate in real-time, on-line, using "live" maps of an area of interest. It is ideally suited to any decision-making process that requires input from a wide range of stakeholders, such as resource management issues – housing developments, water use and wind farm developments, among others.

Operating across the World Wide Web with secure log-in access to approved participants, the map interface comprises a number of layers that can be turned on and off, and is twinned with a messaging service. Its tools include those for highlighting areas of concern, drawing new features on map layers, adding text and comments, and sending messages.

All comments and messages are time-stamped, threaded together and stored in a database for review and analysis. This means they can be shared live or viewed later – in much the same way as a text message or email – providing the flexibility of full and frank discussion without the need for participants to attend time-consuming public meetings that may be held some distance from their farm.

MapChat saves all chat-based comments and links them to map selections, enabling participants and/or decision makers to arrive at a conclusion or solution that takes all opinions and points of view into account, to the fullest extent possible.

Hall says MapChat is cost-effective. It is written using open source software, which is free. The only cost is that of setting up a server and, while the new generation of farmers is generally tertiary-educated and internet-savvy, every effort is being made to ensure the software is as user-friendly as possible. It does, however, require Broadband access.

MapChat is now undergoing its first New Zealand trial – on an Upper Taieri water resource management project – and, if it is proven to be successful, it promises great potential in other areas of rural resource management and farming practice or issues in which public input is required.