A GROUND BREAKING PROGRAMME ON WATER QUALITY

Between 2007 and 2011, Motu led an extensive research and dialogue programme on nutrient trading in Lake Rotorua, developing an innovative approach to this complex issue.

THE BACKGROUND

The quality of the water in Lake Rotorua has been declining since the 1970s, as increased agriculture has led to more nutrients in our waterways. In 2005, the Bay of Plenty Regional Council (BoPRC) instituted a freeze on farm nutrients at 2001–2004 levels, allowing some breathing space while they worked on a long-term solution. At this point, there was little international literature on the subject, but people such as Bill Bayfield, soon to be Chief Executive of the BoPRC, suspected that a nutrient trading system (a market-based programme that allows sources of leaching to trade allocations) would help the Rotorua catchment achieve their water-quality goals.

Motu senior fellow Suzi Kerr is an expert on environmental trading programmes, and Motu has been involved with New Zealand water quality issues since the early 2000s, when it worked with Waikato Regional Council on a nutrient trading programme in Lake Taupo. In 2007 Motu received a four-year grant from the Ministry of Business, Innovation, and Employment to investigate a trading system for Lake Rotorua more rigorously. As well as the nuts and bolts of the trading system, there was also a significant challenge in uniting the myriad stakeholder groups involved – from local iwi to farmers, scientists to economists. The standard method of disseminating research had traditionally been papers and articles, but Motu saw the potential for a far more creative, engaging, and effective approach.

THE PROJECT

In 2007 Motu, alongside partner NIWA, began extensive research into water quality management in Lake Rotorua. While they were investigating something similar to Lake Taupo's evolving nutrient trading programme, Rotorua's nutrient problem was both more complex and more severe. NIWA built a model of the Rotorua catchment,

WATER QUALITY FILM

MOTU, 2012

"This was a radical initiative which showed that self-authorising, bottom-up initiatives could be very influential. It was one of the early examples of a working collaborative process which gave encouragement to later and larger scale initiatives like the Land and Water Forum, and to regional collaborative approaches."

ALASTAIR BISLEY
CHAIR OF THE LAND AND WATER FORUM

which modeled how water (and therefore nutrients) arrive on the ground and flow through streams and groundwater to arrive at the lake. This became part of Motu's integrated assessment model which addressed a critical science question – how important is the fact that some farm nutrients take a long time to reach waterways when choosing the form of regulation. Motu established a dialogue group of local stakeholders, aimed at conveying the burgeoning scientific results, easing their qualms about the programme, and ultimately achieving buy-in on a way forward (or at least, the need for one). This group went on to hold 16 discussions over the four years of the programme. Motu published a series of papers on how a nutrient trading market could be designed, which formed the basis of the dialogue. However, it was soon apparent that the issue of water quality was a highly emotional one. Add to this that trading is a relatively abstract concept (and further, is perceived as a difficult one to properly comprehend) and it was clear that a new, more engaging method of communication was needed.

Motu developed two new dissemination channels: short films, which would convey the details of the proposed trading programme to stakeholders (regional councils, for example), and trading games for groups to play. These stylised, physical games allow participants to play the role of a dairy or sheep/beef farmer. Each farmer decides how much to produce each year and sees that increased agriculture means increased nutrient loss. During the game, regulations to control nutrient loss are introduced and players must respond by altering production and in some instances are able to trade nutrient allowances with other participants. As well as giving the players a more emotional, and therefore memorable, connection to the issue, the game helped reveal the real-life complexities of trading schemes, as people assisted (or cheated) others, discovered new opportunities, made mistakes and lost money, and reacted as real people.

Alastair Bisley, the chair of the Land and Water Forum, says Motu's unique approach to dialogue was significant: "it was bottom up, in the sense that it engaged a range of players who did not much talk to each other to discuss and come to terms with the science and economics of Rotorua's nutrient problems, and also to consider nutrient trading as part of the solution. It showed that groups at the catchment level could handle great social, political and technical complexity."

THE RESULTS

While the specifics of the solution to Rotorua's water quality issue are still to be resolved, the work Motu undertook was significant in terms of getting the relevant groups to agree that something must be done – a serious achievement in this political landscape. Through Motu and NIWA's work combining the scientific and economic sides of the equation, the broader research community now has a more sophisticated understanding of the water quality issue: this complex situation can't ever be solved; the goal should rather be striking the right balance. Crucially, Motu's work confirmed that it is not necessary to account for the varying lag times of nutrients – a question that was at the heart of the Rotorua issue. This knowledge has led to much more constructive discussions about water quality than previously, including a number of contributions to the Land and Water Forum, Environment Canterbury and the OECD, and most recently, a report for the Parliamentary Commissioner for the Environment. Motu's trading games have since been used to educate stakeholders in a number of climate change and water quality spaces.