

Biosolids management and the community: travel report

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In April this year I was fortunate enough to visit the United States to attend the Water Environment Federation (WEF) Joint Residuals and Biosolids Management conference in Nashville, Tennessee. This trip was made possible thanks to the generous support of the NZ Institute of Forestry Balneaves Travel Award.

First I should take a step back and explain what a then Forest Research (now Ensis) scientist was doing at such a conference. As a social researcher in a number of Ensis research programmes, I lead a social objective in the Waste to Resource programme which is investigating social values and beliefs in waste management, and in particular biosolids (sewage sludge).

Biosolids are produced in large volumes daily. Approximately one million wet tonnes of biosolids are produced each year in New Zealand (The New Zealand Waste Management Strategy, Ministry for the Environment 2002). Christchurch alone produces 500 wet tonnes of sludge per week, or 24,000 tonnes per year. In New Zealand biosolids have traditionally been disposed of in landfills, and more recently applied to plantation forests (and hence the technical focus of the research programme).

Dr Joanna Goven from the School of Political Science and Communication, University of Canterbury, and I recently reviewed literature to gain knowledge of reuse options and biosolids management in developed countries. Following decades of land application, Germany, Denmark and Switzerland are considering banning land application of biosolids in light of uncertainties around the impacts of some of the compounds contained in biosolids. In the United States the application of biosolids to agricultural and forestry land has been occurring for several decades; however, public opposition to land application has significantly increased since the mid-1990s.

The philosophy of the Waste to Resource research programme is that long-term success of waste management strategies is dependent on all four pillars of sustainability - environmental, economic, social and cultural sustainability. Our social research focus has been to bring the community into the decision-making process. Along with researchers from Landcare Research and Te Runanga o Ngai Tahu, we designed and conducted a series of Scenario Workshops for the Christchurch City Council to allow representatives from the community, businesses, Maori, regulators in Christchurch and surrounding rural areas to direct the Council towards a future biosolids reuse strategy.

My trip to Nashville was an opportunity to gather some technical information, particularly on bioenergy, and to develop more contacts to discuss our public dialogue approach with researchers and practitioners. The first session I attended was a pre-conference workshop on "Bioenergy: high performance anaerobic digestion". I have a keen interest in bioenergy stemming from an aim

to put alternatives before the community in Christchurch as a possible new direction to enable biosolids reuse. The presentations were fairly technical and I was no doubt the only non-engineer in the audience, but I increased my knowledge and obtained useful information to use here in New Zealand. Interestingly, bioenergy is the direction the community has since requested the Christchurch City Council explore following the seven Scenario Workshops we conducted between June and September 2005.

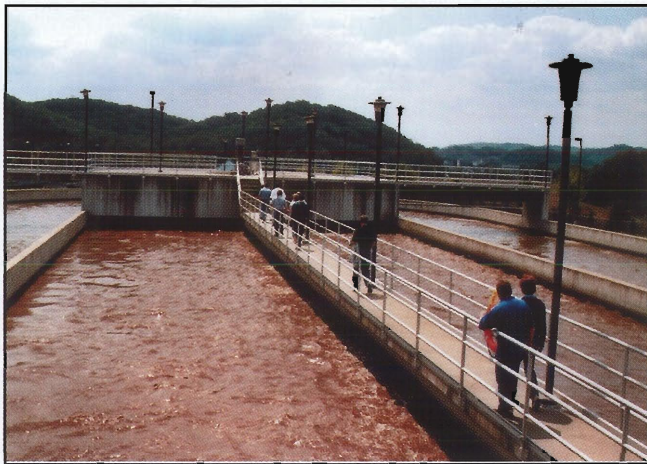
On the biosolids technical tour I observed a land application programme with Class B biosolids applied to agricultural land alongside the Harpeth Valley Utility District Sewer Plant, after viewing the Dickerson County water and wastewater treatment plants. Class B refers to biosolids which have been treated to reduce, but not eliminate the pathogen load, and are less stable than Class A.

The Harpeth Valley Utility District plant treats sewage from about 25,000 people, but no large industries. I was intrigued to view biosolids (4.2% solids) being injected about 23 cm into the ground by what they term a 'terrigator'. A total of 125 hectares of land are dedicated to disposal and nearly 1 M Kg was applied last year. The ground is left for 30 days prior to planting with native grasses, wheat, barley, hybrid hay, soybeans or clover to provide food for animals that live on the property, such as white-tailed deer, quail, red fox, possums, coyotes, rabbits, wild turkey, squirrels, otters, Canadian geese etc. Interestingly their publicity material was entitled 'Good neighbors are quiet, clean and thoughtful - just like our wastewater treatment facility'. They claim to have good community relationships including with neighbours, and they plan to encourage people to come to visit the wildlife.

My principal motivation to attend the conference was not the technical sessions, but rather my interest in public participation as I had been corresponding with Ned Beecher, New England Biosolids and Residuals Association and Nora Goldstein, Executive editor, BioCycle. They presented their work on tackling public perception with public participation and the application of the Water Environment Research Foundation biosolids public perception study. I also attended the half day session they moderated which was entitled 'Set a course for public participation - engage'. Discussion covered trust, credibility, 2-way communication and public participation tools. Real life experiences were provided. Kathleen Hamel, Operations and maintenance supervisor, Western Lake Superior Sanitary District reported on the bold initiative she took of inviting a leading national opponent to biosolids land application to evaluate improvements her company could make to community engagement and dialogue.

I presented a joint paper with Joanna Goven on 'The potential of social dialogue on biosolids research

Harpeth Valley Utilities District Wastewater treatment plant, Tennessee, claims to be "one of the best managed and operated wastewater plants in the US" and uses a 100% aerobic treatment process.



and policy in New Zealand' at the public education and communication session to an audience of about 50 people. An abstract of the paper is contained in the conference proceedings CD, and the full paper was given to participants and has been submitted to the Journal of Environmental Management. There was considerable interest in the approaches outlined in our paper. I was pleased to receive some feedback following the conference which showed that the full session had been scored very highly by participants. Some had rated it as the best session at the conference and others suggested that they should always have a non-American (someone from a Commonwealth country) to talk to them on public involvement as they considered that our approach is different and helpful to them.

There was strong interest in our research and I sensed a realisation on the part of delegates that public needs and views must increasingly be brought into the equation to ensure long-term sustainability. However, I also had the impression that the motivation for most agencies in the US was to use public participation as a vehicle to gain broad acceptance of land application of biosolids. Our approach of asking the community to take on some responsibility for the biosolids that they produce daily, and be involved in decision-making went further than American waste treatment managers would be prepared to go at this stage. Attending the WEF Residuals and Biosolids Outreach and Education Subcommittee meeting made me realise that most are still working on the assumption that if you educate the public they will accept your management strategy. There is a growing public demand for knowledge and calls for a precautionary approach to the land application of wastes in light of uncertainty of the effects, such as effects of pharmaceuticals and body care products. Social and political forces may take the future debate out of the hands of agencies and engineers and place it firmly in the public arena.

I detected a rather cavalier attitude to the issue of biosolids and their occurrence in the food chain amongst

A 'terragator' is driven over agricultural land injecting sewage sludge (biosolids) into the ground. After a resting period of 30 days crops are sown to provide food for a variety of animals which live on the property.



many conference delegates. I started an informal survey asking participants whether they would put biosolids on their lettuces and I found unanimous acceptance of this. The only exception was someone who ran into problems with his neighbour who complained that too many worms came out of the soil treated with biosolids and wiggled over the driveway when it rained! This attitude was contrasted on my return to New Zealand by a strong message from Māori that biosolids should be kept out of the food chain and the acceptance of this restriction by other community members at our Scenario Workshops.

The conference was attended by over 500 delegates – the largest proportion Americans, about 30 Canadians (including two members of the community who, in an impressive initiative, had had their expenses paid to attend the conference) and a few from Britain, France, Australia, South Africa, China, Ghana, Sierra Leone. One other New Zealander attended - an international waste management consultant from Auckland.

The conference provided an opportunity to extend our knowledge and contacts in managing the urban waste stream. In addition, it provided an opportunity for us to heighten North American waste managers' awareness of the need to dialogue with the community to ensure long-term sustainability of waste management.

Prior to the start of the conference I went to Chicago, Illinois to meet with two social scientists working in fire research for the US Department of Agriculture to gain an insight into their social fire research for my new area of research – community resilience and recovery following wildfires.

This was a very fruitful meeting with the possibility of future research collaboration. I would like to thank the NZ Institute of Forestry for awarding me the Balneaves Travel Award which made this trip possible.