

Editorial



Simon Wild - Editor

Welcome to the third edition of Environment Matters.

In New Zealand we are currently going through a period of key behaviour changing environmental sustainability legislation and strategies aimed at trying to control our influence on the environment. This includes strategies to control our greenhouse gas emissions, strategies to generate sustainable energy as well as how we should use and conserve energy, strategies to control and minimise solid waste, and how we should manage risks posed by environmental contamination.

Such developments will have far reaching effects that need to be taken into account by all land development projects, regardless of how advanced their development. Now more than ever, there's a need for good environmental advice.

It is thus perhaps not surprising that the range of projects that we are currently involved in mirror some of these external forces. In this edition of Environment Matters we include articles that describe how legislative changes and strategies

related to carbon emissions, land contamination and stormwater management are influencing land development projects. We also describe an extremely interesting project that we are currently undertaking for Christchurch City Council to investigate potential alternatives to the clean fill disposal of the City's construction and demolition waste.

We are also proud to have led the company's involvement in Keep New Zealand Beautiful Week when we had enthusiastic cleaning teams out in force in Auckland, Tauranga, Wellington and Christchurch.

We hope that the articles are of interest to you and get you thinking about how New Zealand's evolving environmental policies could affect your business. Please feel free to contact me or the authors with any comments or questions that you may have.

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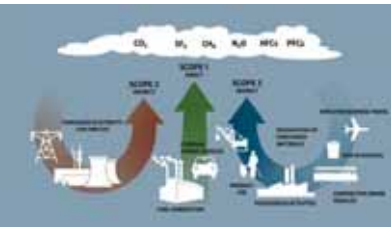
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Beca staff from the Tauranga Office participating in Keep New Zealand Beautiful Week

Who will it affect?



Source: GHG Protocol 2004

Whilst New Zealand contributes only a tiny proportion of world emissions, per capita greenhouse gas emissions are high due to heavy reliance on private transport and emissions intensive export industries. Emissions trading is emerging as a key instrument in the drive to reduce greenhouse gas emissions.

The rationale behind emission trading is to ensure that the emission reductions take place where the cost of reduction is lowest, thus lowering the overall costs of combating climate change.

The New Zealand government has decided to use an emissions trading scheme for greenhouse gas emissions as part of its proposed climate change response. The prospect of carbon pricing is becoming a reality as the Climate Change (Emissions Trading and Renewable Preference) Bill is due to be passed through Parliament in the second half of 2008.

The Government's intent is that the various sectors of the New Zealand economy will be brought into the NZETS in a staged transition, with the aim of having all the major sectors included by the start of 2013.

The sectors for which mandatory participation is required are forestry, liquid fossil fuels (mainly transport), stationary energy (includes coal, natural gas and geothermal), industrial process (non-energy

emissions, agriculture (includes pastoral and arable farming and horticulture), and waste. Forestry was the first sector to enter the scheme on 1 January 2008, with the rest to follow in stages to the start of 2013.

Those companies covered by the scheme will require an understanding of the potential impacts to business.

To those not directly required to participate in the scheme, the effect of emissions trading will mean an increase in the costs of products such as petrol and electricity, which will influence long-term investment decisions in renewable energy and energy efficiency.

Beca is currently involved in conducting assessments for clients involved in the ETS, particularly regarding opportunities and risks as a result of the scheme. We are also engaged with clients who are not required to join the ETS, assessing the voluntary market opportunities for carbon credits.

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Construction and Demolition Waste Disposal Alternatives

Identifying sustainable alternatives



Construction and demolition projects generate significant amounts of waste as well as questions regarding the disposal of this waste. Since construction and demolition waste, which includes concrete, bricks, glass, etc, is not usually contaminated, the cost of disposal to a secure landfill is not justified. Most of this type of waste is sent to cleanfills, that is landfills that accept only clean uncontaminated material including natural materials such as clay or rock or inert materials such as concrete or brick. However, there is huge potential for C&D waste to be reused or recycled. For example, crushed concrete could be reused as basecourse for roads.

Christchurch City Council recently engaged Beca to investigate potential alternatives to cleanfilling of construction and demolition waste. In order to better understand the nature and quantity of this material, our team is currently surveying the waste being sent to the cleanfills around Christchurch. Once this is complete, we will analyse the collected data

to determine which material types are disposed of in the largest proportions and will then investigate options for reuse and recycling of these wastes. involving members of the construction industry in order to better understand current site practices and any barriers to reuse and recycling. We will analyse the economic and environmental costs and benefits, including a carbon footprint assessment, of each option and compare these against cleanfilling in order to fully assess each option.

Undertaking this exercise will allow Christchurch City to find the most environmentally and economically sustainable for disposing of construction and demolition waste for the community and in the process, the construction industry.

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Industrial & Trade Process (ITP)

Preventing stormwater contamination from industrial sites is an increasingly high priority for regional councils throughout New Zealand. Most have now introduced strict rules in their Regional Plans requiring that industrial sites enforce measures to minimise the risk of stormwater-derived contamination, whether through direct spills, inappropriate material storage or from everyday site use. For most industrial sites this means having a stormwater-specific Environmental Management Plan (EMP) in place which may include the use of applicable stormwater treatment devices.

Beca Environmental is increasingly involved in preparing stormwater EMPs for clients developing or upgrading industrial sites, especially within the Auckland Region. Where sites are classified as having a medium or high-risk by the Auckland Regional Council, EMPs are required as part of the consenting process.

In order to prepare a stormwater-specific EMP, there is a need to understand what activities and processes take place on the site which may cause stormwater contamination, and the resultant potential environmental hazards. With this knowledge it is then possible to define standard stormwater management and operating procedures for routine tasks, together with applicable capital works such as building safer

storage facilities or stormwater treatment devices. A spill contingency plan also forms a vital aspect of the EMP.

For existing industrial sites, while the focus is upon limiting the environmental risks posed by stormwater contamination and therefore protecting the downstream environment, there is a need to integrate stormwater management aspects into the site's overarching management procedures. Often industrial sites already have an Environmental Management System (EMS) in place, in which case any developed EMS needs to add stormwater aspects into the existing management procedures rather than creating a whole new plan.

For the development of new industrial sites, with the active involvement of stormwater environmental engineers in the design process, there is the opportunity to design out many of the stormwater contamination risks and optimise the effectiveness of the site stormwater management regime.

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Industrial Stormwater Management

Helping Industrial Clients to Reduce the Risk of Stormwater Contamination



Keeping New Zealand Beautiful

Every September, hundreds of thousands of people participate in Keep New Zealand Beautiful Week by organising and participating in rubbish clean ups to keep New Zealand clean and green. KNZB Week 2007 ran from the 8th – 16th of September. As a corporate sponsor of Keep New Zealand Beautiful Week, Beca Water & Environmental organised clean ups around the country to contribute to the effort.

In Christchurch, a team of about 20 people spent the Saturday tidying Sumner Beach. The team put forward a good effort collecting around 30 rubbish bags within a few hours. Afterwards, Humphrey and Colleen Archer hosted a barbeque to reward the volunteers for their hard work.

Five people from the Wellington office took to Mount Victoria well-armed with rubbish bags on the somewhat windy, but sunny Thursday afternoon. No items of scientific interest were uncovered but a (rather short) tree was scaled by Paul Curtis to retrieve a beer box. On completion of the afternoon, the Wellingtonians patted each other on the back at a local watering hole.

The 25 person Auckland contingent of staff, family, and friends took to Eastern and Bucklands Beaches with rubbish bags, gloves, and can-do attitudes. After carefully disposing of 30 odd bags of rubbish, the team returned to the Leersnyder residence for some refreshing drinks and a barbeque. Particularly interesting rubbish items recovered included some Ganesh statues, a toilet brush, and a massive chain (which unfortunately could not be removed from the beach).

The Tauranga team, which outnumbered the others with 40 people from Beca and their families, spent the afternoon cleaning up Blake Park, Memorial Park and Tauranga Domain, with representatives from City Care (Tauranga City Council). A good time was had by all and well deserved drinks were had at the Cornerstone Pub on Tauranga Strand.

Thanks to all of those people who took part and organised the event and we look forward to doing it again in September 2008!

Taryn McQuinn, Malcolm Franklin, Michele Dyer and Emma Wiggins

Contributing to our Environment

Lending a hand to clean up New Zealand



Addressing Contaminated Land

Development of a national policy framework

In September 2007 the Ministry for the Environment (MfE) published a position paper titled Working Towards a Comprehensive Policy Framework for Managing Contaminated Land in New Zealand. This paper designated the development of nationally consistent methods for deriving soil contamination levels and numbers for triggering defined management actions as "High Priority".

New Zealand's management of contaminated land is undertaken by local government, consisting of regional councils and territorial authorities through the policies and rules of the district (city) and regional plans. Because each of the plans is prepared individually, plans vary greatly in how they address contaminated land. This variance has been exacerbated by the dearth of national standards containing risk based soil contamination guidelines.

Numerical risk based soil guideline values that are protective of human health and the environment are important tools in the assessment of contaminated land because they provide a value against which field results can be compared. The methods used to derive them are important because they allow the development of a conceptual model for a site. Typically, New Zealand practitioners and local government rely on a mixture of national and international guidelines from which to select numerical values. The approach for selecting guidelines is often guided by the MfE document Contaminated Land Management Guidelines No2: Hierarchy and Application in New Zealand of Environmental Guideline Values (2003) although district (city) and regional plans invariably have diverging soil criteria. The use of international

guidelines can provide difficulties during an assessment because the guidelines were developed for different environmental conditions. For example, many international guidelines do not consider the naturally elevated metal concentrations of volcanic soils, which are found in some parts of New Zealand.

In addition to inconsistent standard adoption, the reliance on a plethora of guidelines means that different toxicity assumptions and exposure scenarios are utilised for different contaminants on the same site.

The development of nationally consistent risk based methods and soil contaminant levels for human health would be a huge step forward in the assessment of contaminated land in New Zealand. The recommended approach involves the development of numerical criteria for priority contaminants that define appropriate management actions, filling an urgent gap in our contaminated land policy framework.

The challenge is to formulate appropriate methods and soil contaminant levels for New Zealand that can be incorporated by local government into consistent regional and district (city) plans. It is therefore beneficial to involve a number of different stakeholders in the development process including contaminated land specialists, toxicologists and policy makers. The inclusion of all District (City) and Regional Council's at an early stage will be integral to the formulation of an acceptable consistent approach.

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