

NZ Land Treatment Collective NEWSLETTER



Dedicated to improving and communicating technology for the land treatment of waste products



Update from NZLTC Chair – Grant Northcott

Greetings to all,

Another year is almost at an end, where did that one go?

I was fortunate to spend 4 months enjoying the European summer while most of New Zealand was experiencing (perhaps suffering may be a better description) a winter deluge. I love travelling to experience new cultures and sights. One thing I can't help taking notice of (to the consternation of my wife) is how other countries manage their waste and value (or not) their natural resources. I'm always intrigued to find out the view people in other countries have of their environment and the impact they have on it.

On numerous occasions I was quietly embarrassed when Europeans told me how beautiful they thought New Zealand was, how New Zealander's valued their environment, and how great it was we weren't making the same mistake of degrading our environment as has been done in many European countries. What do you say to that?! My standard response was that

we need to do much better than we previously have in New Zealand, and up until recently we've benefitted from our relatively small population and abundance and availability of fresh clean water.

The times have changed and in New Zealand we can no longer be confident of the purity of water resources, or afford to be complacent and expect the situation will not deteriorate further before it improves.

Land treatment of waste, and in particular liquid waste that would otherwise be discharged into waterways, can have a significant impact on reducing the degradation of, and improving water quality in New Zealand. But there's still no room for complacency. Successful land treatment is only realised by quality design underpinned by robust science. This is the niche space NZLTC occupies.

As ever larger influences can conspire against us or present opportunity. We hear a lot about what the

future may hold as our planet and humanity face the challenges of climate change, but what effect will future climate change have on water quality in New Zealand? What has to be considered to ensure land treatment systems retain resilience and reliability when they are challenged by the broader impacts of future climate change?

Good science is a great place to start, and so too will the 2018 NZLTC annual conference. With a special session on "land treatment and climate change" the NZLTC is facilitating discourse on this important topic. Organising for next year's NZLTC Annual meeting in Rotorua is underway and we're looking forward to a high level of participation and quality presentations. Please take note of the information and deadlines for the conference within this newsletter so your participation at Rotorua is secured.

Merry Christmas and best wishes for the New Year.

Grant

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Update from the Technical Manager – Louise Weaver



Hi all,

We have been busy preparing for the upcoming conference in Rotorua (7-9th March 2018). The technical committee have some exciting events planned for the social evening and the field trip. It certainly is looking like Rotorua will be a fun packed location for the conference! We will shortly be advising those accepted for presentation after the deadline of 20th December. So, there is still time to put in an abstract! This year's theme is "Benefits and Risks" which will include a focus on the impact climate change may have on land treatment activities. We have some fantastic keynote speakers lined up which we will announce soon on the website and Facebook page, so stay tuned!

The spotlight on research this edition is very timely with an overview of the Deep South National Science Challenge. Noel provides a great overview to the research and there are obvious links to the Land Treatment Collective with respect to the future issues that may arise from climate change. The research may also add light to more of the advantages to land treatment in the future with climate change driving issues such as reuse of waste, including greywater.

Remember to send us your fantastic photos of all things land treatment related for entry to the competition. The winner will be revealed at the conference in Rotorua in March.

Finally, I would like to wish everyone a happy and relaxing Christmas and a prosperous New Year!

Best wishes,

Louise

NZ LTC Online

You can follow NZLTC online via the following platforms: website, Twitter, LinkedIn and Facebook. Updates will be posted regularly with links to our newsletter, relevant land treatment research and news and conference updates.

<https://nzltc.wordpress.com/>



LinkedIn



NZ LTC Photo Competition

Send us photos of you and your favourite land treatment application. Each month a winner will be announced on our facebook page with the grand winner receiving a prize at the NZLTC 2018 Conference.

Send to: nzltc@esr.cri.nz



Spotlight on Research

National
SCIENCE
Challenges

THE DEEP SOUTH
Te Kōmata o Te Tonga

The Deep South Science challenge is one of 11 national science challenges; these challenges are a 10 year, multi-million dollar investment tackling New Zealand's hi-tech challenges to grow our economy.

The Deep South National Science Challenge is working to understand the role of the Antarctic and Southern Ocean in determining New Zealand's future climate, and the impact this role has on key economic sectors, infrastructure and natural resources. This will enable New Zealanders to adapt, manage risk and thrive in a changing climate.

The project is split with a mid-project review occurring in 2019. Research funding for individual sub-projects has a maximum period of five years.

There are five main programmes within the Deep South Challenge and multiple sub-projects within each programme:

1) Earth System Modelling and Prediction

The focus of this programme is to assemble the first New Zealand Earth System Model (NZESM), which will sit in the heart of the Deep South Challenge work. An Earth System Model combines the physical processes of atmospheric and oceanic circulation with the chemical and biological processes that impact the Earth system.

2) Engagement

This is a two-way engagement programme between the New Zealand communities, industry sectors, central and local government, and the science researchers.

3) Vision Mātauranga

The Deep South Challenge is applying the MBIE Vision Mātauranga objectives through strategic planning and research. These efforts will contribute innovative, practical and sustainable solutions for Māori and all New Zealanders.

4) Processes and Observations

The aim of this programme is to improve our understanding of the global climate system by observing processes in Antarctica, the Southern Ocean, and the atmosphere.

5) Impacts and Implications

If we can understand how climate change will impact New Zealand, we can plan for it more effectively. This involves taking a 'big picture' view. We need to explore how the many and varied impacts of climate change will interact with each other.

We're also aiming to make sure communities, end-users and stakeholders consider climate change in multiple contexts and make robust decisions about adaptation.

Further, we need to better understand the institutions that facilitate climate change adaptation. Our research is looking into historical responses to environmental threats and at the way climate-sensitive decisions are currently being made.

It is the results from Impacts and Implications stream that will be of most concern to the New Zealanders associated with the 3 waters sector. Other than the obvious implications from sea level rise, with defend or retreat options versus adapting to changing coastal areas, and economic implications such as escalating insurance costs, there are a number of other implications that need to be considered, such as changing climatic conditions, the potential diversification of our agriculture, loss of natural fauna and flora.

The potential implications of climate change reach far further than the coastal areas of New Zealand. The west side of New Zealand can expect an increase in intensity and frequency of precipitation events, whereas the east can expect a decrease. Weather patterns will be more extreme with more intense rainfall in places and longer droughts in others, ground water levels may become more seasonal and lightning storms more common.

Some of the potential implications for the 3 waters sector may be as follows:

For stormwater

- Reduction in gradients affecting low lying coastal areas.
- Lower level of service with existing stormwater service due to higher intensity rain events.

For wastewater

- Higher inflow and infiltration, both from higher inland ground water levels and from more intense and frequent rain events.
- Increase in hydrogen sulphide in coastal areas due to salt water intrusion.
- Reduced wastewater flows in times of drought.
- Relocation of low lying waste water facilities.

For drinking water

- Increase in raw water storage due to increase in drought conditions.
- Higher cyanobacteria issues with a change in temperature causing an increase in algae growth in dams, rivers and lakes.
- Higher risk of pathogens with increased rain events in winter and less dilution of animal waste during summer. Most pathogenic bacteria multiply fastest at temperatures close to human body temperature.
- More emphasis in leakage reduction and demand management with an increase pressure on available raw water.
- Increased corrosion of steel pipes due to higher ground water levels, perhaps requiring cathodic protection.

Water New Zealand is a member of the representative user group for the Deep South Challenge and sees the need to keep the 3 waters sector informed of the learnings of this science challenge as they become known. Despite Donald Trump's thoughts, it's not a case of if climate change will occur, but what is the best estimate of the rate of change

The intention is to have a number of presentations on this topic over the next year to help raise awareness.

Contact noel.roberts@waternz.org.nz for further information

NZLTC 2018 Conference—Rotorua



The NZLTC Technical Committee are pleased to announce that the 2018 annual conference will be held at the Rotorua Energy Events Centre.

This years conference theme is:

“Benefits and risks of land treatment”

We also invite papers related to the special session:

“Land treatment and climate change”

This theme will allow presenters to explore the complex nature of land treatment alongside the challenges that climate change presents.

There will be plenty of opportunities to network and social with a social event on Wednesday 7th March, formal dinner on Thursday 8th March and a field trip to relevant land treatment locations around Rotorua on Friday 9th March. The conference will also include a expert panel discussion on the key challenges facing the waste sector in the next 10–20 years (see this page for further info).

As always our student scholarships, conference awards and conference sponsorship packages are available.

AVAILABLE SPONSORSHIPS

GOLD Sponsor	\$4,500
SILVER Sponsor	\$2,500
BRONZE Sponsor	\$1,000
Conference dinner	\$2,000
Social evening	\$1,000
Lunch break	\$1000 each (x2 available)
Tea break	\$750 each (x2 available)
Trade exhibition	\$500 each
Student scholarship	\$1000

**MEMBERSHIPS TO NZLTC ARE NOW DUE
AND NEED TO BE PAID PRIOR TO THE
CONFERENCE REGISTRATION TO BENEFIT
FROM MEMBER PRICING.**

What are the key challenges facing the waste sector in the next 10-20 years? – NZLTC conference expert panel discussion

In 2007 the NZLTC Technical Committee undertook a stocktake process to define research needs for members and research capabilities of science providers. Ten years on it is time to how far we have come and undertake this process again.

The future challenges facing the industry present real risks for waste management infrastructure, operations and management.

Some of the waste management options readily available today (e.g. land filling of sewage sludge) may not be readily available in the future. Our low-lying wastewater treatment systems may be impacted by sea and ground water level rise. Land application systems may be severely limited by stricter nutrient management regimes. Fiscally constrained councils may not be able to afford to invest in much needed ongoing maintenance. These are just a few of the issues that might face the industry over the next 10 years.

This year at the NZLTC conference in Rotorua we will be convening a panel of international and national experts to debate the future issues and challenges - book your spot at the conference now and don't miss out on your opportunity to shape the future of the waste management sector.

Members of the panel include:

- Dr Sally Brown Research Associate Professor at University of Washington – expert in end-use and benefits of biosolids
- Professor Iain White, Professor at Waikato University and a co-author of the Deep South National Science Challenge report “Climate Change and Stormwater and Wastewater Systems”.
- Representatives from central, local Government and industry

NZLTC Technical Review—2017/2018

The topic for the NZLTC Technical Review this year is: [The impact of Climate Change on wastewater infrastructure and the land application of wastes](#).

Climate change is one of the World's wicked problems and will bring about challenges for all. We are yet to truly understand how the impact of climate change will unfold in different regions, specific locations, and over varying timescales. This makes it difficult to know how best to adapt.

Much of our wastewater infrastructure is not designed for the challenges climate change will bring, from sea level rise to the predicted changes in precipitation frequency and intensity. These potential changes will also impact the ability of land treatment systems to both accept and process waste, with possible impacts on both human and environmental health.

What do we need to know as a sector? How can we be prepared to best mitigate potential consequences of climate change?

Following the conference the technical review will address the following questions:

- What are the potential impacts of climate change on land use?
- What are the impacts for the waste sector?
- What changes may be in store and need to be considered for the operation of treatment of wastes by land application?



Image source: www.deepsouthchallenge.co.nz

2018 NZ Land Treatment Collective Annual Conference



CALL FOR ABSTRACTS

7th–9th March 2018
Rotorua Energy Events Centre

The NZLTC Technical Committee is pleased to invite submissions of abstracts for the 2018 NZLTC Annual Conference.

Abstracts should be relevant to the conference theme:

“Benefits and risks of land treatment”

We also invite papers related to the topic:

“Land treatment and climate change”

Abstract submission deadline: Wednesday 20th December 2017,
nzltc@esr.cri.nz

Student Scholarships

Two student scholarships are available, which include full registration plus \$500 towards travel and accommodation costs. Applications close 20th December 2017. Please contact nzltc@esr.cri.nz for an application form.

Conference Awards

In order to encourage the delivery of high quality papers, all abstracts submitted by the due date will be considered for the Conference Awards. Criteria and eligibility details are on the NZLTC website:

Three awards are available:

- Best overall paper
- Best technical paper
- Best presentation by a Junior Professional (<35 years)

For further information please contact:

Louise Weaver

NZLTC Technical Manager

Email: nzltc@esr.cri.nz

<https://nzltc.wordpress.com>



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Dates

Abstracts close	20th Dec 2017
Authors advised of outcome	10th Jan 2018
Registration opens	20th Dec 2017
Full papers due	9th Feb 2017
Early bird registration due	9th Feb 2017
Conference presentations	7-8th Mar 2017

2018 NZLTC Student Scholarships



The NZLTC committee welcome applications for the 2018 NZLTC Student Scholarship. The scholarship entitles a student to:

- Complimentary full registration to the NZLTC conference in Rotorua, 7th–9th March 2018
- Complimentary entry into all social events, which includes a social evening and conference dinner, and the field tour
- Reimbursement of up to \$500 (NZD) for conference associated travel and accommodation costs

The successful applicant is required to give an oral presentation on their research related to land treatment at the 2018 conference.

Applications are to address the following:

- how you qualify for the scholarship (i.e. enrolled academic institute)
- How your research is relevant to the NZLTC and conference themes
- How your career will benefit from attending and presenting your research at the conference

Applications are to be sent to: nzltc@esr.cri.nz

Applications close: 20th December 2017



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