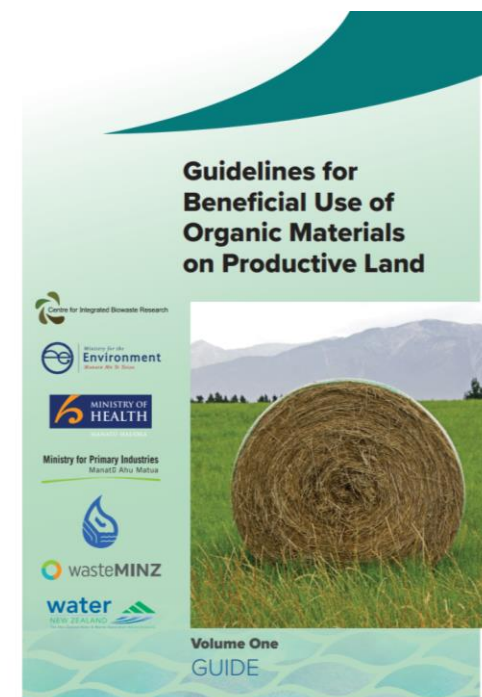


Guidelines of beneficial use of organic materials on productive land – an update

Maria J Gutierrez Gines

Katie Beecroft



Introduction

Why do we need guidelines?

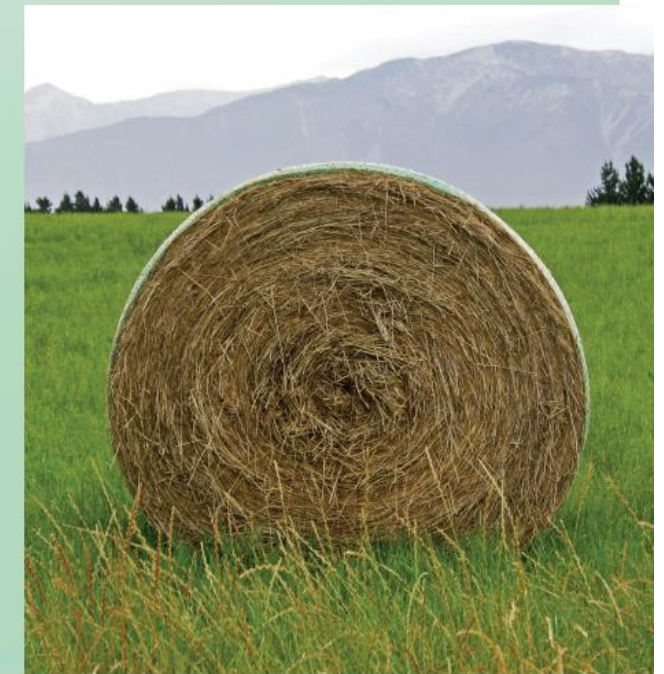
What is being updated?

Process

Consultation



Guidelines for Beneficial Use of Organic Materials on Productive Land



Volume One
GUIDE

Opportunities for reuse

Soil conditioning

Nutrient supply

Reduce landfilling

Carbon management

Closing the loop on nutrient loss



Biosolids

Fertilizer

Getting from there to here

A little bit of history

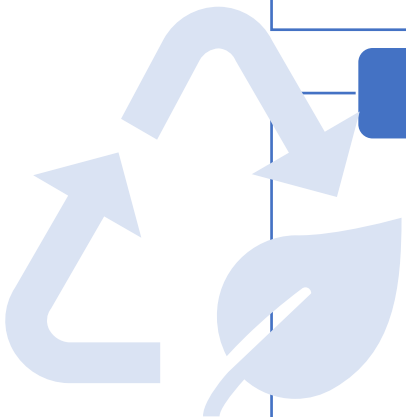
- 1992 Public health guidelines for safe use of sewage sludge on land
- 2003 Guidelines for the Safe Application of Biosolids to Land in New Zealand
- 2012 review of the 2003 guidelines
- Now expanded to Organic Materials

Why “Organic Materials”?

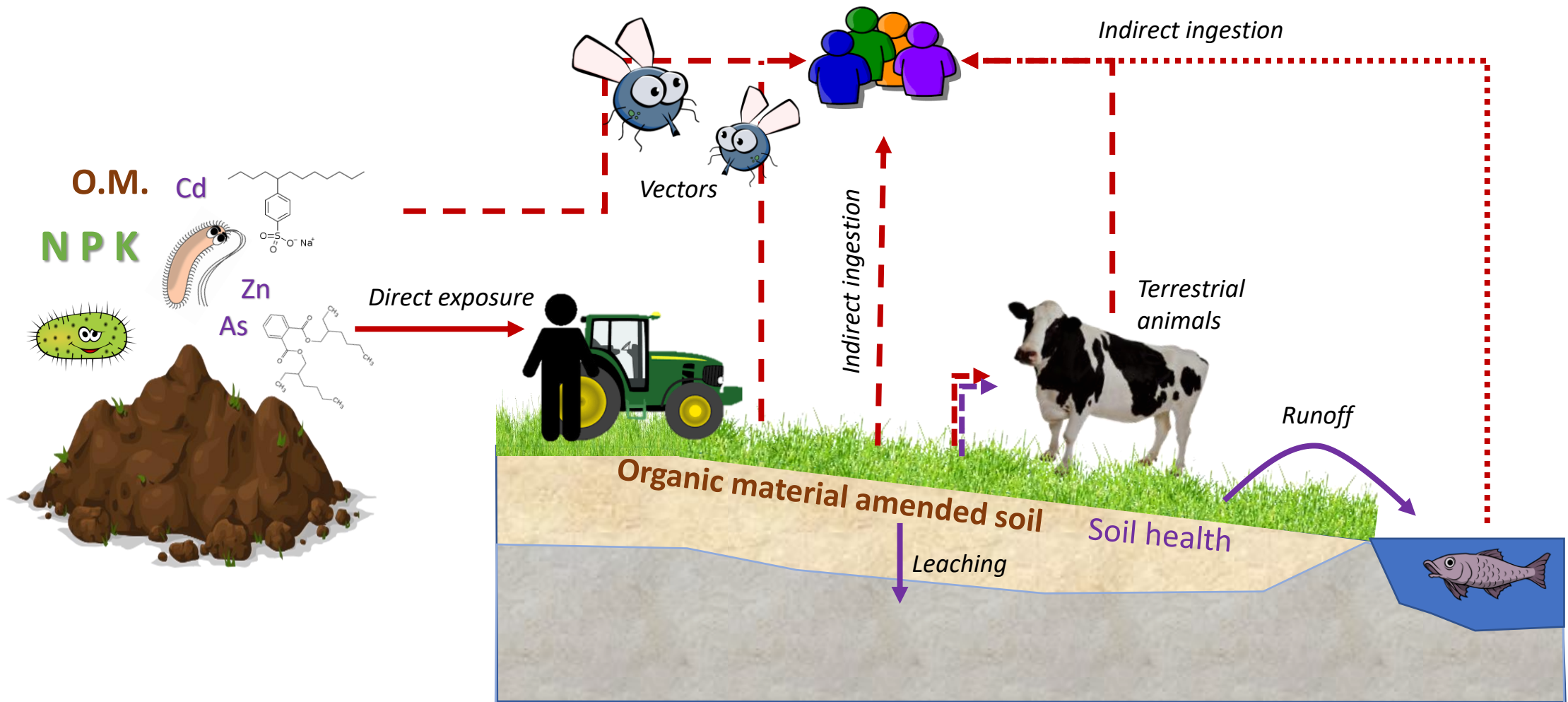
- No consistency in management of other organic wastes
- Lack of guidance for other biowastes
- 2003 guidelines often used
- Different wastes have different risks and contaminants

Why do we need Guidelines anyway?

- Pathway to beneficial use
- Brings together good science for predicting and protecting from risks (environmental, public health, future land use)
- Helps producers and end users to plan a discharge
- Helps regulators to assess effects

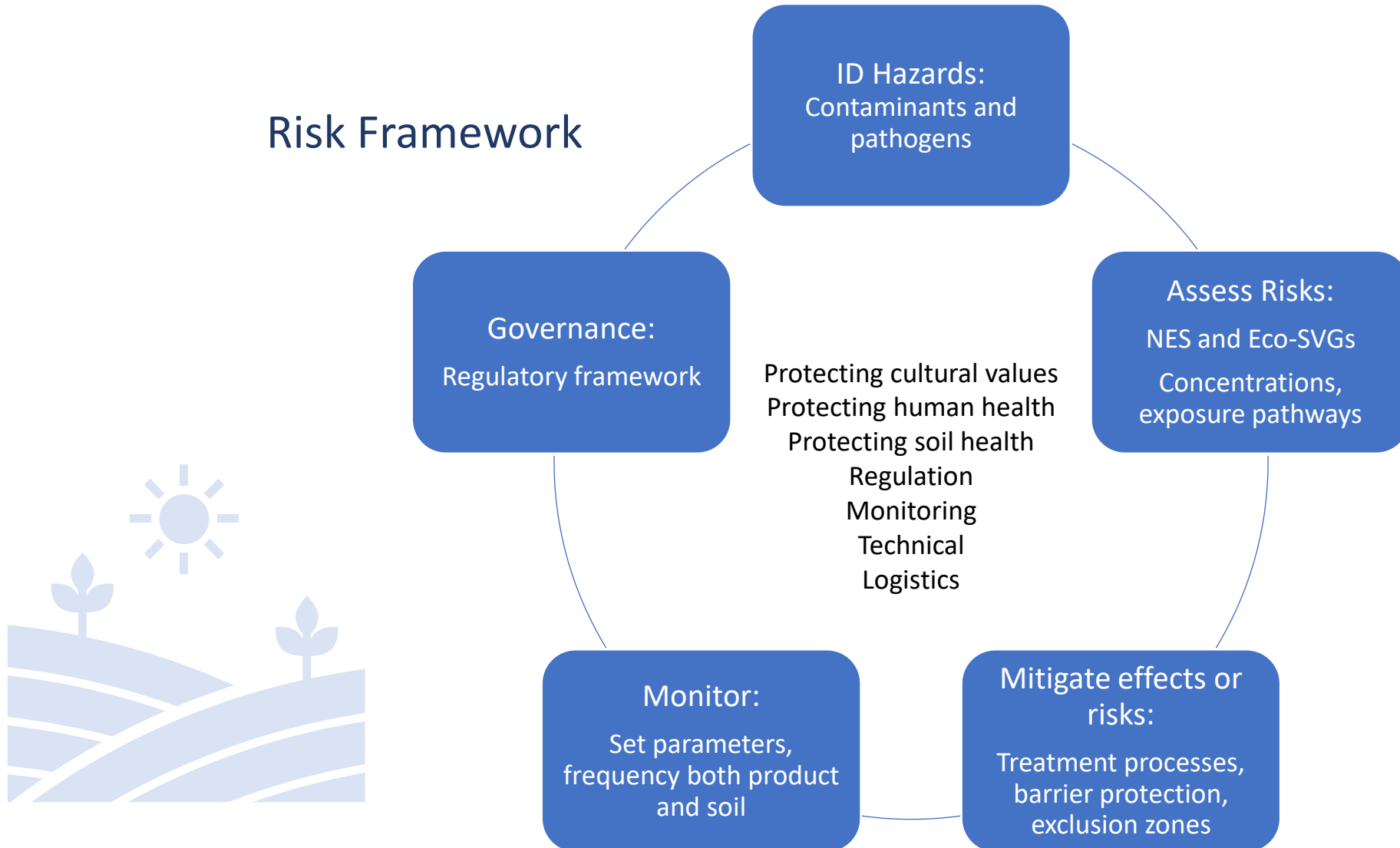


Human exposure pathways and potential environmental impacts

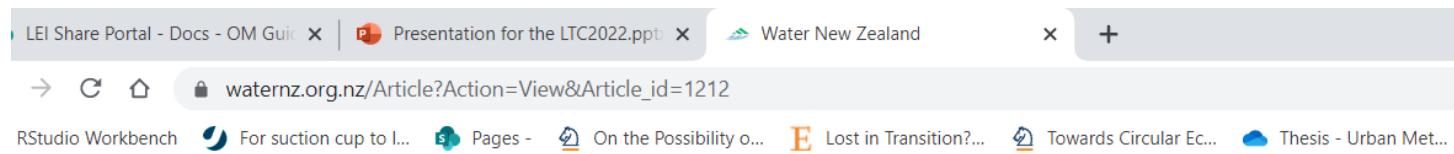


Objective of guidelines is to eliminate or mitigate the risks of organic materials application to productive land

Risk Framework



Guidelines are informed by science



DOWNLOAD DRAFT 20172012 VOLUME 2 (WITHOUT ATTACHMENTS)

2ND DRAFT ATTACHMENTS FOR DOWNLOAD

Section 4.1 Pathogens Review

Section 4.2 Pathogens

Section 5 Trace Elements

Section 6.1 Organic Contaminants

Section 6.2 Organic Contaminants

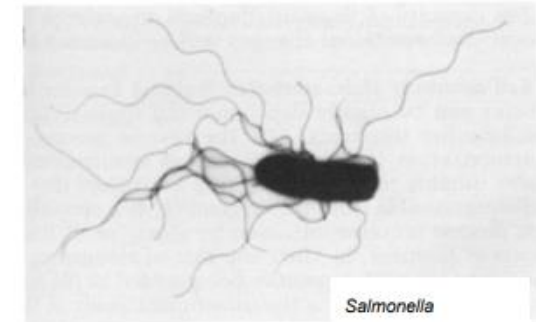
Section 7.1 Community Engagement Framework

Section 7.2 Tapu to Noa

Attachments

20171220 draft vol 1 Guide.pdf

20171220 draft vol2 Tech Manual - WITH ATTACHMENTS.pdf



Organic Materials Guidelines - Pathogens Review

Jacqui Horswell and Joanne Hewitt

Peer reviewed by Wendy Williamson and Jennifer Prosser

31st July 2014

And through engagement with community



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2ND DRAFT ATTACHMENTS FOR DOWNLOAD

Section 4.1 Pathogens Review

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Section 5 Trace Elements

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FROM TAPU TO NOA – MĀORI CULTURAL VIEWS ON HUMAN BIOWASTE MANAGEMENT

James Ataria^A, Virginia Baker^B, E.R. (Lisa) Langer^C, Joanna Goven^D, Alan Leckie^A and Mark Ross

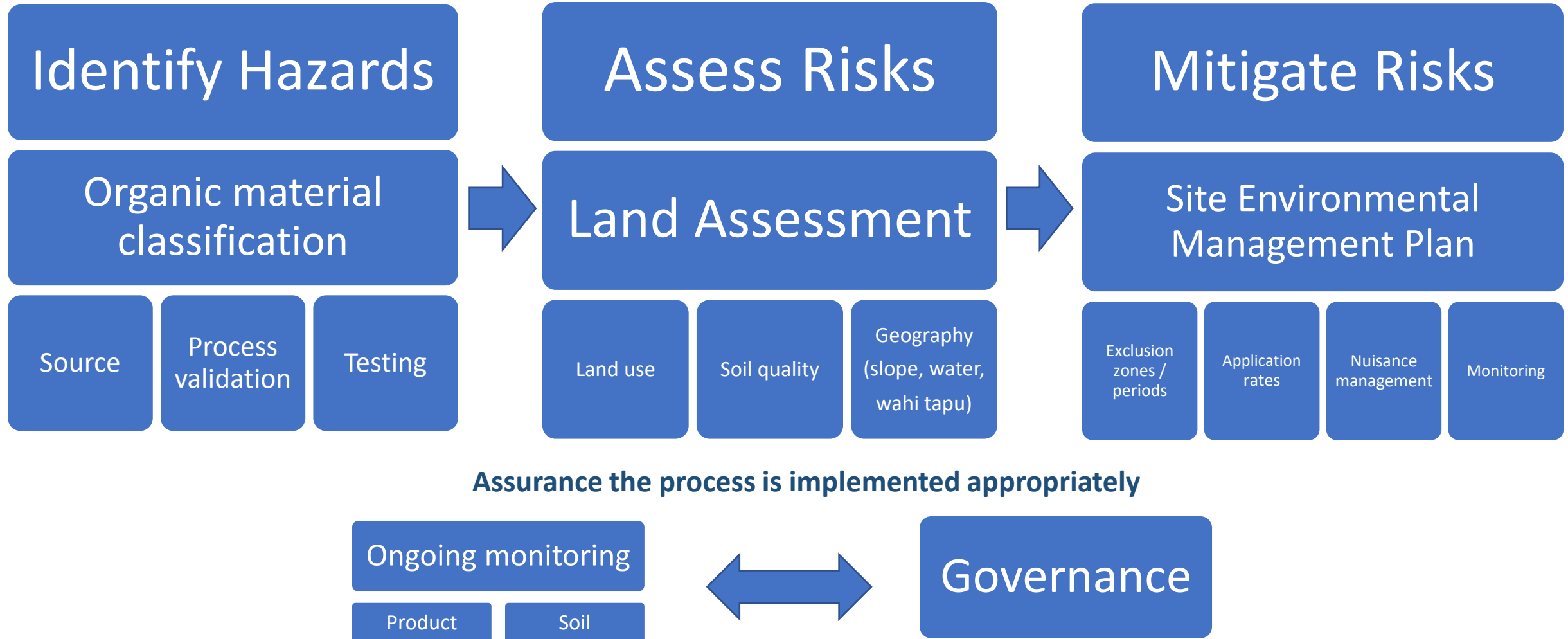
^ACawthron Institute, Private Bag 2, Nelson; ^BESR Ltd, Kenepuru Science Centre, PO Box 50 348, Porirua; ^CScion, PO Box 29 237, Christchurch; ^DKukupu Research Ltd, Pigeon Bay

Corresponding author. Email: Jamie.Ataria@gmail.com

Abstract:

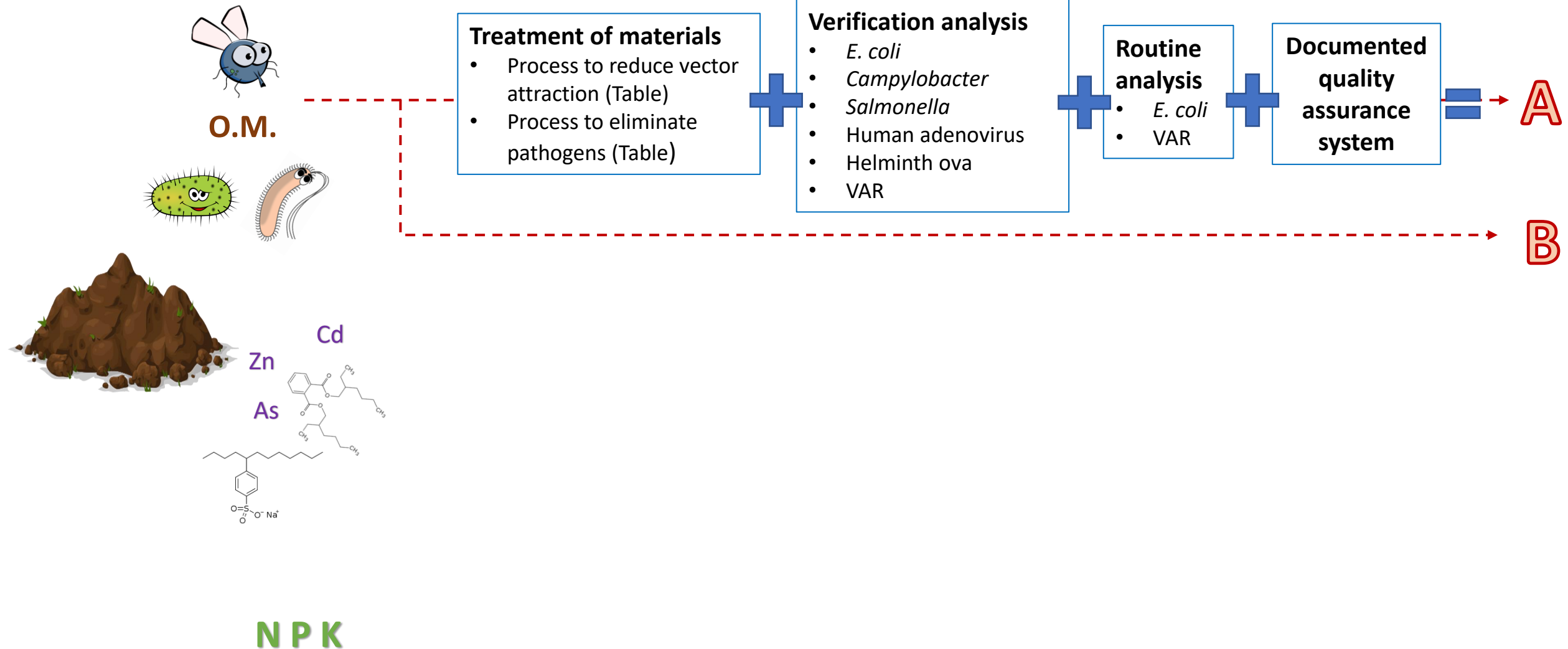
Tapu (forbidden or restricted) and noa (ordinary or free from restriction) are key Māori cultural concepts that continue to influence and inform present Māori praxis and thinking on all aspects of society, including biowaste management. Traditional management of human waste effluent was highly prescriptive. Processes and procedures were nested within cultural values and ethics that in turn were influenced by local context and circumstance. The tapu and noa constructs work in conjunction with other values to govern human behaviour and relationships with the environment at any point in time. However, tapu and noa are not fixed and can change through time as a result of a specific action or consequence; thus influencing the ability to interact or use an object or resource which create interesting management implications for human waste. This paper will discuss these factors, based on literature and previous research with Ngāi Tahu (Pauling & Ataria

Process for Safe Beneficial Reuse



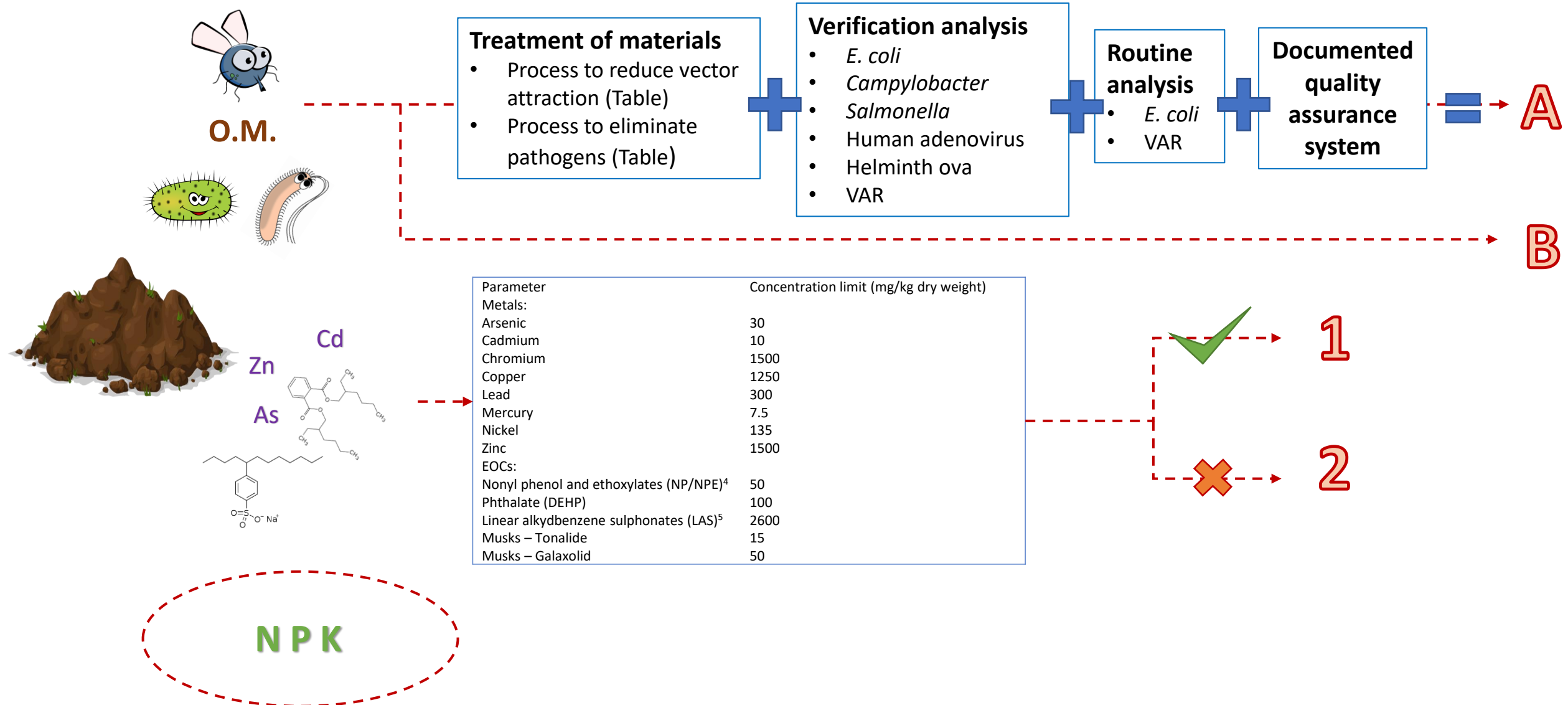
How would this work for biosolids?

1. Identify hazards = what product do I have and what are its risks?



How would this work for biosolids?

1. Identify risk = what product do I have and what are its risks?



How would this work for biosolids?

Assess Risks

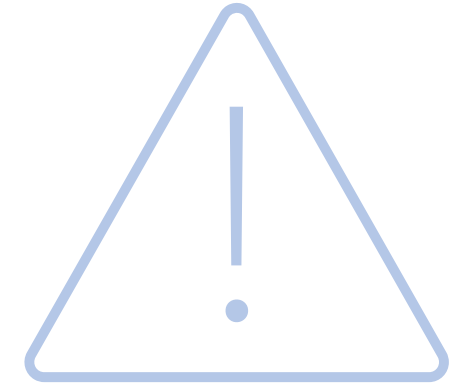
Land Assessment

Land use

Soil quality

Geography
(slope, water,
wahi tapu)

Is this land suitable to receive biosolids?



Mitigate Risks

Site Environmental Management Plan

**Ensuring residual risks are managed, and
we don't negatively affect the
environment**

Exclusion
zones /
periods

Application
rates

Nuisance
management

Monitoring

*These elements will depend on
the residual risks = NPK + other
risks depending on product
classification*

200 kg N/ha/y

Process for Safe Beneficial Reuse

The hazards associated with different materials need to be assessed

Identify Hazards

Organic material classification

Source

Process validation

Testing

Need to be described

Assess Risks

Land Assessment

Land use

Soil quality

Geography
(slope, water,
wahi tapu)

These steps are the same as for biosolids

Mitigate Risks

Site Environmental
Management Plan

Exclusion
zones /
periods

Application
rates

Nuisance
management

Monitoring

Assurance the process is implemented appropriately

Ongoing monitoring

Product

Soil

Governance

How would this work for materials other than biosolids?

Describe the source

- What process is the material from?
- Is there any human products?
- Does it come from animal industry (faecal material, gut material, body parts)?
- What treatments might the material have been subject to?

What contaminants might be present?

- Review against biosolids table
- Pharmaceuticals
- Endocrine disrupters
- Herbicides or pesticides
- Surfactants, detergents, plasticisers in process

What is the risk from these contaminants?

- Emerging understanding
- Adaptive approach
- Guidelines discuss process to enable “other” contaminants to be considered

What testing is needed?

- Product verification
- Routine analysis
 - In the product
 - In the environment
- What are acceptable levels

Source	Possible contaminants
All	Nutrients for loading (N, P and others)
Greenwaste from an orchard	Metals and organic compounds from pesticides, potentially herbicides
Paunch material from meat works	Drench chemicals (metals and organic) <i>E.coli</i> , <i>Campylobacter</i> , <i>Salmonella</i> , helminths Ruminant specific pathogens?
Poultry manure	Metals such as arsenic and zinc, pathogens
WAS from a dairy factory	Metals, surfactants, fat, oil and grease (FOG), sodium



Conclusions



Guidelines need to be clearer

There is no new technical information to be added

We have confidence in the science that the guidelines are based on

Next steps



Rewrite the guidelines for more practical use

Seek further Māori and community input

Receive and process feedback from NZLTC Community

Acknowledgements



Current team finalising the Guidelines:

Rob Tinholt - Chair (Watercare)

Peter van der Logt (MPI)

Sarah Burgess (MOH)

Noel Roberts (Water NZ)

Bruce Croucher (MfE)

George Fietje (WasteMinz)

Maria J Gutierrez Gines (CIBR – ESR)

Katie Beecroft (NZLTC)