New Zealand: Status, trends & priorities in soil management

Dr Alison Collins
A taste of NZ (1)

- NZ geologically young, tectonically active
- Highly variable - common soils - brown & pumice soils
- Erosion rates are on average 10 times global rates
- Maori assets and role
A taste of NZ (2)

- 55% of land in NZ under agriculture, forestry & horticulture (supporting >25% GDP)

- Soil managers therefore often farmers

- Agriculture not subsidized, but regulated – key drivers of change - market access & social license to operate
Pressure to increase GDP and national infrastructure, even on stony soils.

Rising environmental pressures – e.g. water quality & availability, mitigating GHG emissions.

But also concern for soil itself ‘Peak Soil’:
- elite & versatile soils currently being tar-sealed through urban expansion
- hill country soil loss through erosion
Taste of NZ (4)

• Science-based evidence valued to drive best practice & policy

• But endemic issues with underpinning science:
  – Capability
  – Investment
  – Evidence base -gaps
  – Data deluge
  – Uncertainty & provenance
  – Technology transfer
Precision

Getting ‘more from less’

Precision:
• Irrigation
• Effluent
• Nutrient application
‘Smart use’

- ‘Multi-functional landscapes’ (ES)
- Diversification – resilience to threats (natural & economic)
- Waste as a resource – e.g. metal waste to fortify crops
- New socio-economic collaborative management systems
  - high value activities on elite and versatile soils fragmented across multiple enterprises
  - ‘terroir’ with shared capital infrastructure and co-governance
Partnership & consolidation

- Moving towards working collectively across science, business and government
- Established Land & Water Forum - working towards collaborative, participatory decision-making model
- Established National Land Resource Centre
Knowledge and Information on the use of New Zealand’s Greatest Asset
Capability development

Erosion of knowledge – approaching ‘Peak knowledge?’

- Codify
- Training

How much do you agree with the following statement. There is a need to build capacity in soil and land resource science and/or management in my organization?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>34.0%</td>
</tr>
<tr>
<td>Agree</td>
<td>45.3%</td>
</tr>
<tr>
<td>No Opinion</td>
<td>17.0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>3.8%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
Communication

1. ‘Soil literacy’ big issue – public engagement

2. Technology transfer – barriers to uptake
   - better access to science information
   - customised delivery
PRIORITIES
Priorities for NZ

1. Biggest priority – find ways to manage soil to allow both economic growth and environmental protection

2. Increase ‘soil literacy’ in public and stakeholders (NZSSS)

3. Build evidence base through increased investment into science - national science challenges

4. Learn from, harmonise with, international initiatives

5. Work towards a national policy statement on soil/land

6. Embed soil protection into business/primary industry best practice