



## Outcomes of the Sustainability Indicators Workshop

### Summary

To remain competitive in international markets it is becoming increasingly important to be able to prove that the forest sector has a 'Licence to Operate'; this depends in the industry's environmental credentials.

A forest sustainability indicator development workshop was held in June 2011 with representatives from the forest sector, regional and national government agencies, environmental NGOs, and science organisations to discuss development of water, biodiversity and erosion indicators and monitoring frameworks.

The current status of indicator work by agencies external to the sector but relevant in coverage to indicators for water, biodiversity, and erosion was reviewed. Issues of compatibility with, and divergence from, concepts for indicators in forest sustainability are here highlighted from the presentations. There was strong agreement that indicators should be scientifically based, applicable at a range of scales, consistent with national monitoring frameworks and other land uses, cost effective, regularly monitored, and linked to best management practices. Indicator frameworks should be underpinned by robust statistical sampling design and should be able to fit within national monitoring systems across land uses.

### Ongoing Focus and Next Steps:

Further areas of focus for development of indicators for soil, water and biodiversity were identified to carry the program forward toward the completion of a monitoring indicator framework for the forest industry. This will be supported by the establishment of a forest monitoring cluster group.

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### Workshop Background

Research on sustainability indicators and monitoring frameworks has been under way in the Protecting and Enhancing the Environment through Forestry programme since 2009. Early stages of the research identified water, biodiversity and erosion as key areas of interest.

The programme has begun to define what indicators may be suitable, and how they may be measured. Ultimately these indicators should form part of a national reporting framework for planted forests to support sustainability reporting, and ultimately the sector's licence to operate under the Forest Stewardship Council (FSC), plus regional, national and international reporting needs such as NZ State of the Environment or International Montréal Process reporting.

As part of the indicator development, a workshop was held on 17<sup>th</sup> June 2011 with representatives from the forest sector, regional and national government agencies, environmental NGOs, and science organisations. The workshop aimed to:

- address the challenge of proving forestry's licence to operate with respect to water, biodiversity and erosion through the development of indicators and monitoring systems;
- evaluate if these indicators and monitoring systems can be integrated with wider national reporting systems;
- determine if these frameworks can be used to improve land use planning; and
- evaluate how the indicator information can be communicated and used.



The workshop participants listened to a number of presentations<sup>1</sup> on the context for sustainability indicator frameworks, and on the specific needs for water, biodiversity, and erosion indicators in forestry, and then undertook facilitated focus group discussions that covered each of the three topics plus framework design. The discussions were aimed at teasing out the most important points related to these topics in terms of the need to demonstrate Sustainable Forest Management.

## Workshop Outcomes

### **Common Discussion Themes Emerging:**

Core attributes of indicators should include national coverage, established reference conditions, consistent measurement, compatibility with other monitoring systems across land uses, usability at multiple scales (measure once, use many times), standard methodologies, future proofing, cost efficiency considerations and links to best management practices.

**Water:** Any monitoring framework must fit within any national monitoring network and allow comparison of information across land uses and at different scales. Indicators adopted need to be relevant to forestry. A preliminary list was identified that included:

- suspended solids;
- clarity;
- standardised nitrogen and phosphorus levels;
- social and cultural indicators; and
- swimming and fishing.

Focus was predominantly on water quality, but water yield information is also important to determine impacts of land use change. The need to be able to refer indicator levels to reference conditions in undisturbed ecosystems is very important, but difficult to achieve.

**Biodiversity:** Any indicators developed should be based on the Montréal Process where possible, and be comparable across land uses.

Indicators should be able to represent changes in biodiversity and ecosystem function. Potential indicators were identified and screened against the impacts of forest management and applicability across land uses.

Potential indicators included:

- rare and threatened species;
- stream biodiversity (e.g. fish);
- proportions of landscape in native forest; soil biodiversity (e.g. fungi, invertebrates);
- above ground native biodiversity (e.g. insects, plants, birds);
- weed distributions; and
- areas with pest, weed and fungal control.

Both DOC and Regional Councils are developing a series of biodiversity indicators to be used in association with natural ecosystems monitoring and based around the LUCAS plot system. These could form a basis for indicators within planted forests. Since the workshop, these have been further evaluated for applicability and found to align very well with Montréal Process indicators.

**Erosion:** There is a very high public interest in soil erosion, especially after an event when physical disturbance has occurred. While it is well known that forests reduce erosion, there is a need for hard comparative data on this across landforms and uses. Indicators to quantify areas of land affected by erosion are needed, and regular LiDAR mapping of landscapes could deliver this at a national scale. Indicators should be able to compare erosion rates with reference levels from undisturbed environments. Reference condition data from natural forest catchments is currently very scarce. Overall, as with other indicators, common indicators that can be applied across land uses will be needed – such as area affected by mass movement, or sediment loading in streams.

Scale, timing, frequency and cost of measurement will be very important in the monitoring design. National scale monitoring approaches will differ from local or harvest unit scale.

<sup>1</sup> <http://www.ffr.co.nz/documents/5395>



LiDAR technology is likely to be highly applicable at this smaller operational scale. But soil monitoring can be extremely expensive and so Montréal Process soil indicators have moved to indirect measures such as compliance levels with soil management regulations.

### Ongoing Focus and Next Steps:

The workshop demonstrated excellent progress on the key indicator areas of water, biodiversity and erosion. The work fits very well within national monitoring system developments by regional and local government agencies. Developing a robust set of indicators and a monitoring framework for New Zealand's planted forests that will underpin FSC and other licence-to-operate requirements is well within our grasp.

**Water:** Continue to develop core indicator set, develop statistical design for a monitoring framework and contribute the development of a national water monitoring framework through MfE expert panels.

**Biodiversity:** Continue to explore adoption of DOC and Regional Council biodiversity indicators for planted forests and reserves with the additional incorporation of currently researched LiDAR indices

**Erosion:** Currently the boundaries between research needs related to harvesting impacts and erosion and the development of monitoring frameworks are unclear. Continue work on the design of appropriate national and operational indicators, but also identify research needs to underpin these future developments. Contribute to development of national indicators through involvement in the national environmental standard for plantation forestry and wider MfE forums.

**Integration:** The forestry sector should ensure it is closely engaged in the development of national and regional indicator monitoring systems to ensure appropriate indicators are developed and adopted. There needs to be consistency across land uses, and primary sectors through participation in a common national framework.

### **Indicator Framework Development.**

Consistent with integration, develop a draft indicator framework that could meet forest sector needs (FSC, RMA, international markets) with a focus on key indicators, statistical sampling design (spatial and temporal), available data sources and sampling frameworks (such as LUCAS), costs and benefits, and linkages to national monitoring frameworks.

**Licence to Operate.** Currently there is no 'State of New Zealand's Planted Forests' report. We will explore the possibility of taking available data from the 2009 Montréal Process report and other sources to develop such a report. This exercise will show where the information gaps are, and will help inform further development of the planted forests indicators. In 2010, MAF convened a 'State of NZ Forests' meeting with DOC, MfE, NZFOA, Landcare Research and Scion. With MAF we will convene a follow-up meeting to focus specifically on planted forests.

### **Stakeholder Engagement.**

1. Establish an industry cluster group to provide input into the developing concepts.
2. Hold a workshop on erosion and mass movement to refine the key science questions to be resolved (March 2012).
3. With MAF, convene a second State of NZ Forests meeting (early 2012).