

FUTURE ENVIRONMENTAL CHALLENGES AND NEW ZEALAND'S PLANTED FORESTS

Tim Payn with input from 102 NZIF members

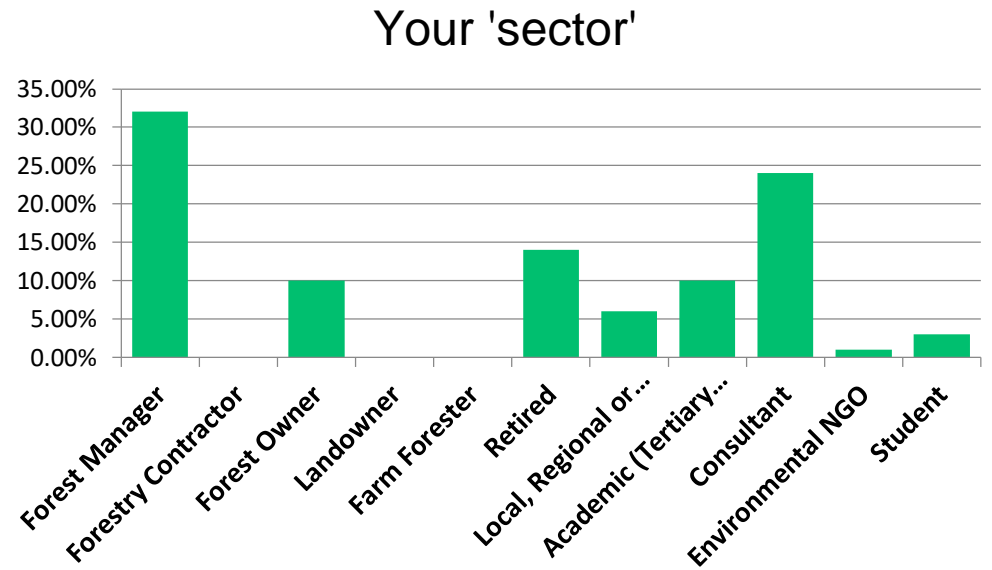


Outline

- Environment Defined
- Current Challenges
- Past and Changes
- Future Challenges
- Building Resilience

The survey

- Pop quiz – free form Survey Monkey
- Simple questions
 - Current challenges
 - Changes in Environmental Management in last 10 years
 - Future Challenges
- Straightforward/rudimentary ‘bioprocessor’ analysis
 - My brain!
- Only NZIF members





Physical

Social & Cultural

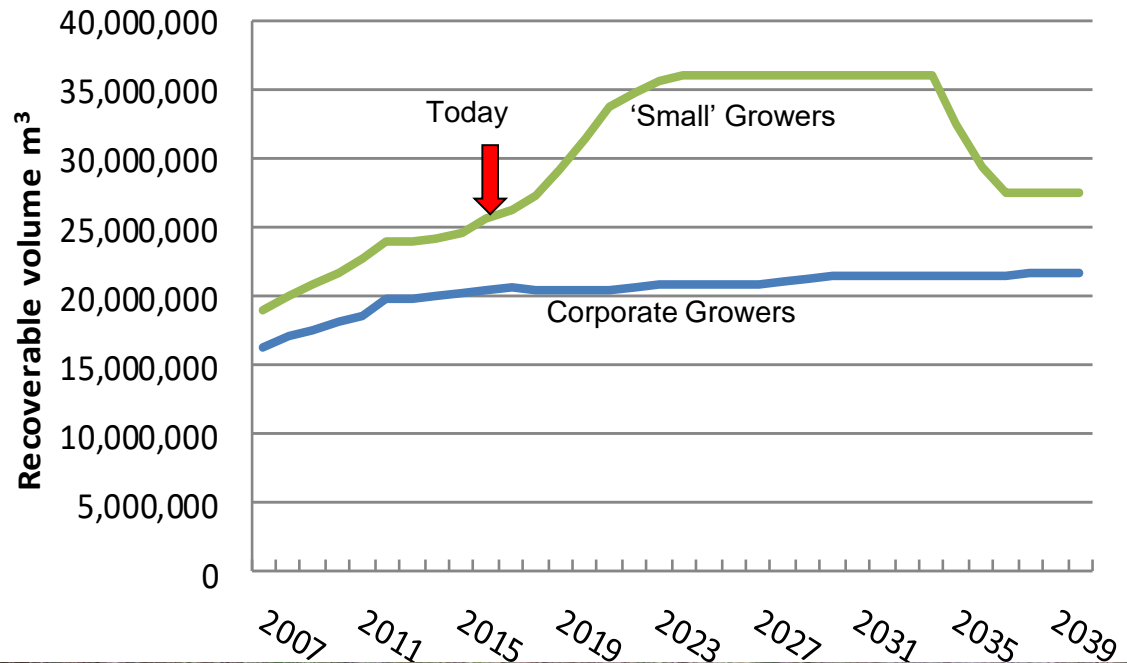
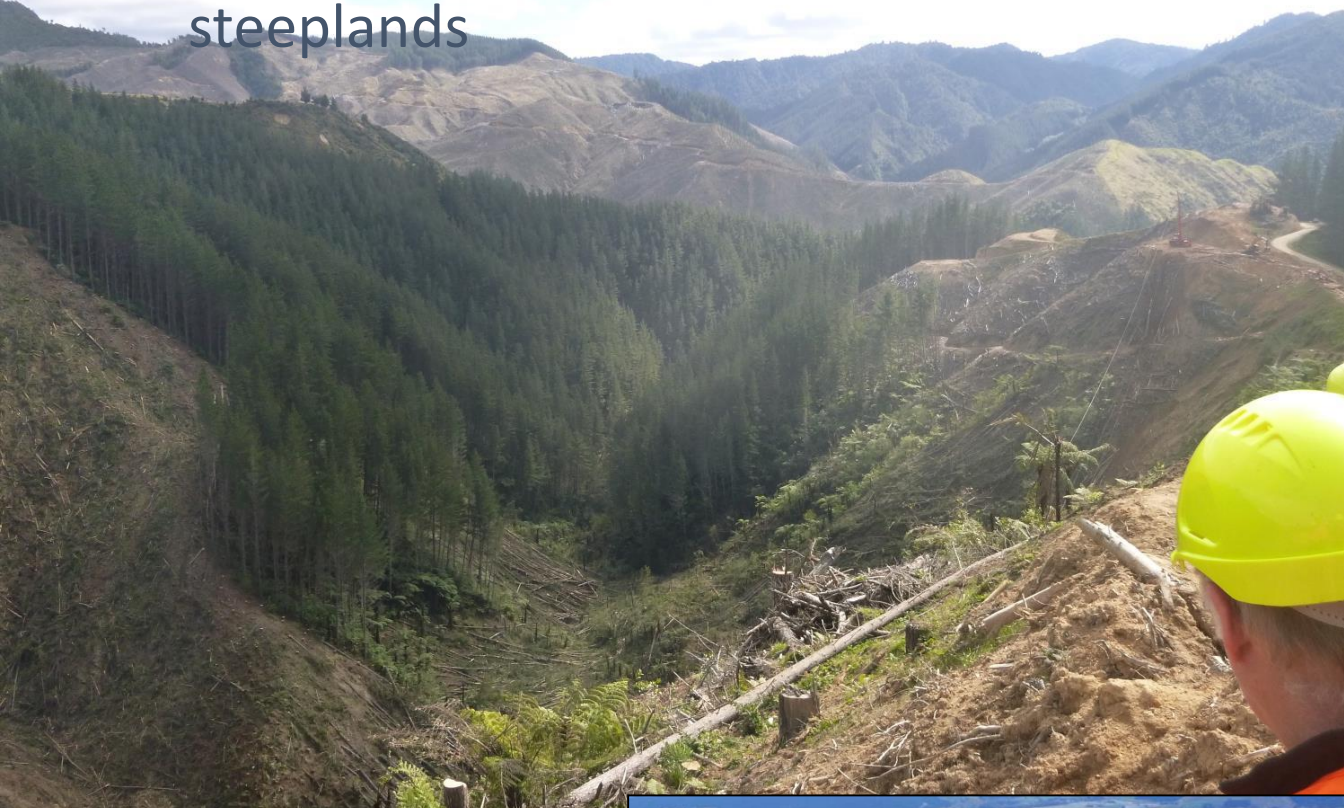
Environment Defined

Policy & Regulatory

Economic & Market

A Very Challenging Environment

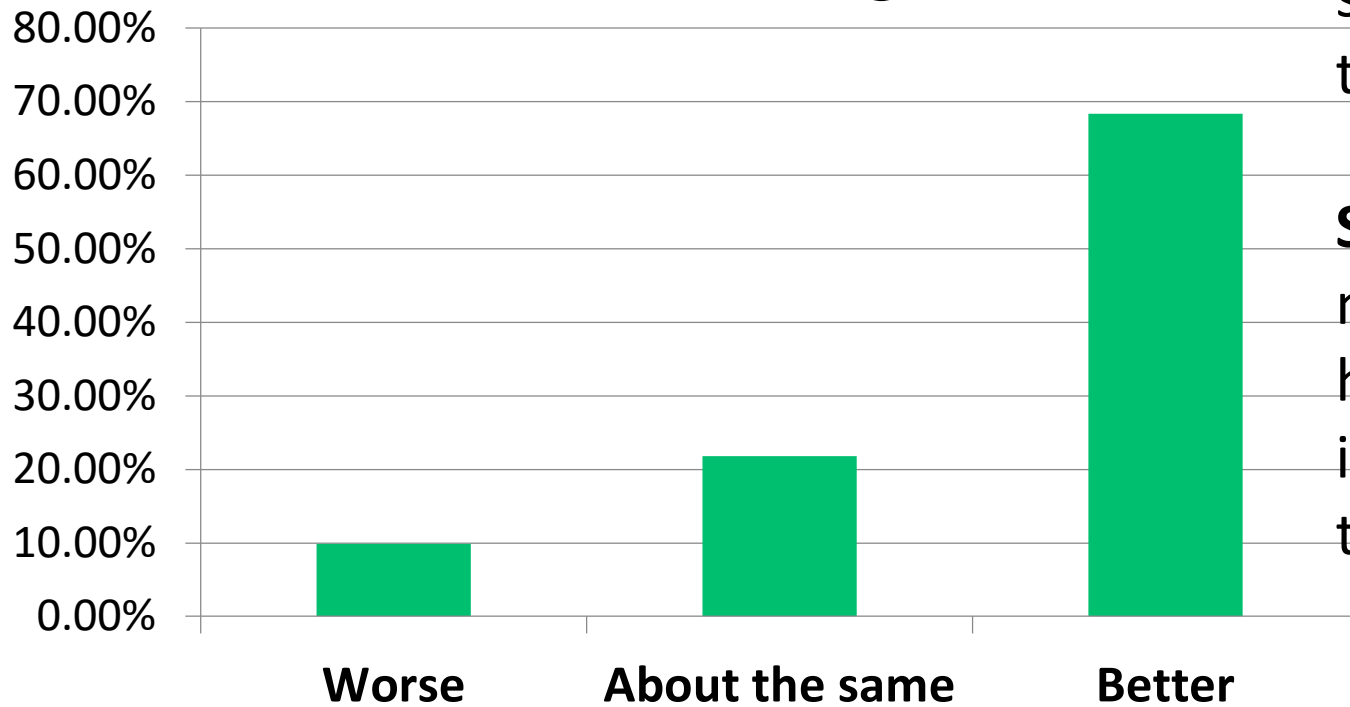
65% of national harvest in 2024 from
steeplands



Do you think environmental management is better, worse or about the same as a decade ago

Better: better standards, processes, EMS, certification, technologies – remote sensing etc, NES-PF, ECOP, Roding Manual, more stringent controls, better monitoring, training, understanding, commitment

Same or worse: general environmental management in NZ more lax, move to harvest steepplands has increased risks and impact, more frequent storms exacerbated this



Emerging Challenges



- Again 50% responses physical and 50% human

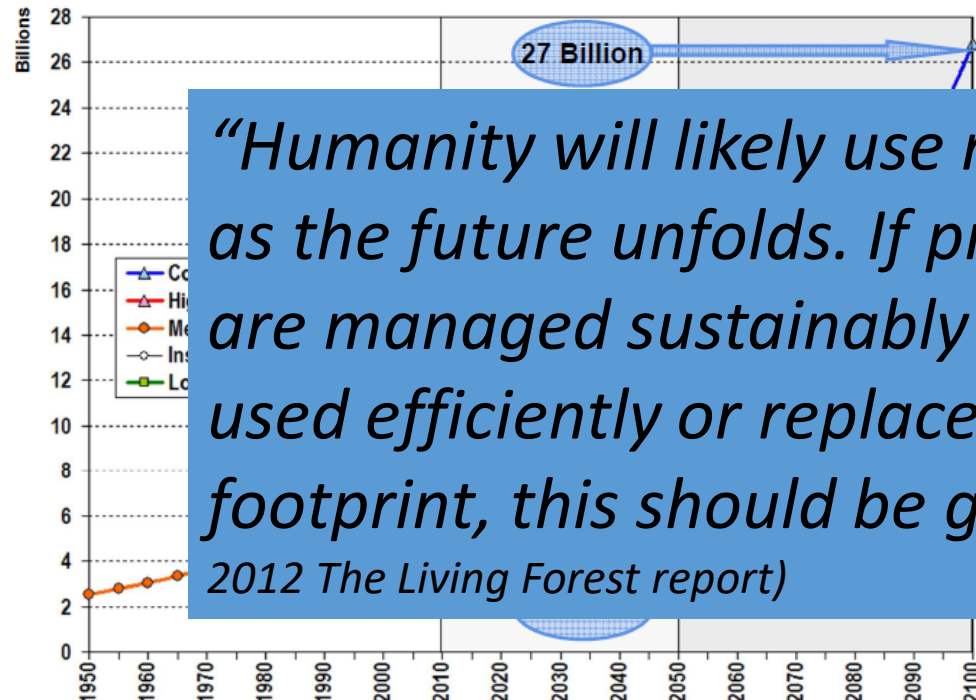
The Great Acceleration

Drivers

Impacts

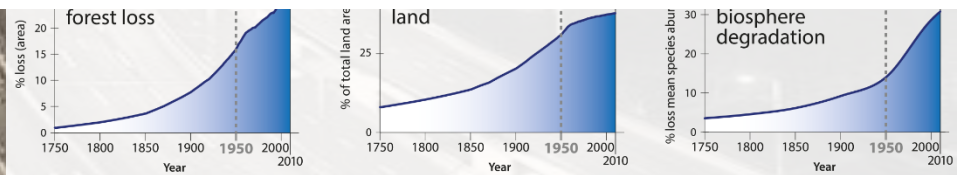
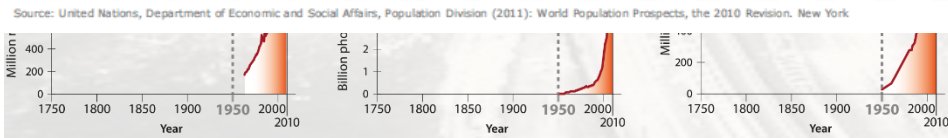


Total Population by Variant, 1950-2100



“Humanity will likely use more wood in more ways as the future unfolds. If production forests are managed sustainably and wood products are used efficiently or replace others with a heavier footprint, this should be good for the planet.” (WWF 2012 The Living Forest report)

United Nations Department of Economic and Social Affairs – Population Division



Rising to the Challenge – building resilience

- What do others think?
- Responding to climate change – ‘climate smart forestry’
- The physical environment
- The political environment and maintaining Social License

Climate Cloud

Climate change will affect planted forests in New Zealand



Projections of how climate will change:

Over the next two or three forestry rotations, NIWA projects the following likely trends in New Zealand's future climate:
 • Warmer by about 2.0°C • Wetter in the west and drier in the east • More extreme weather events.

- ✓ Some of these changes will create opportunities.
- ⚠ Others will require higher levels of risk management.



Welcome to Climate Cloud

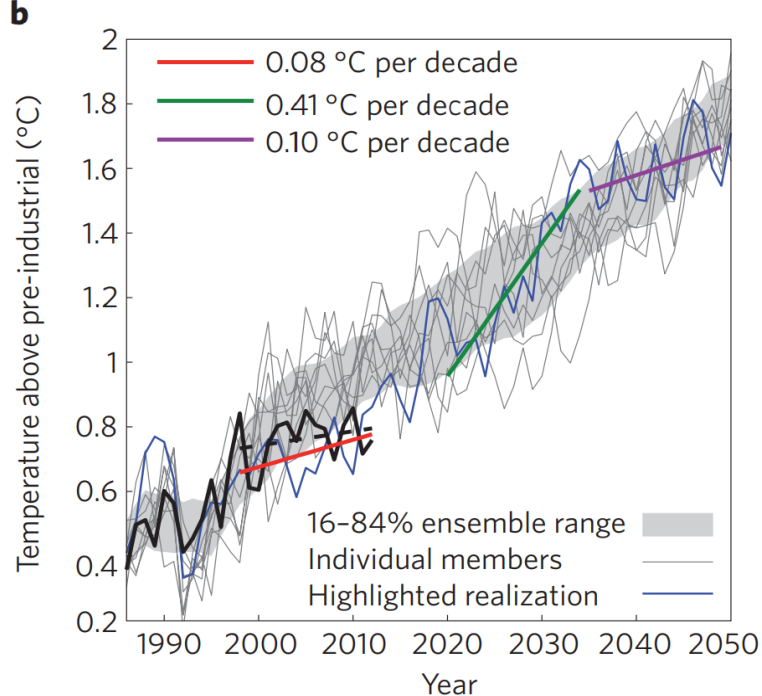
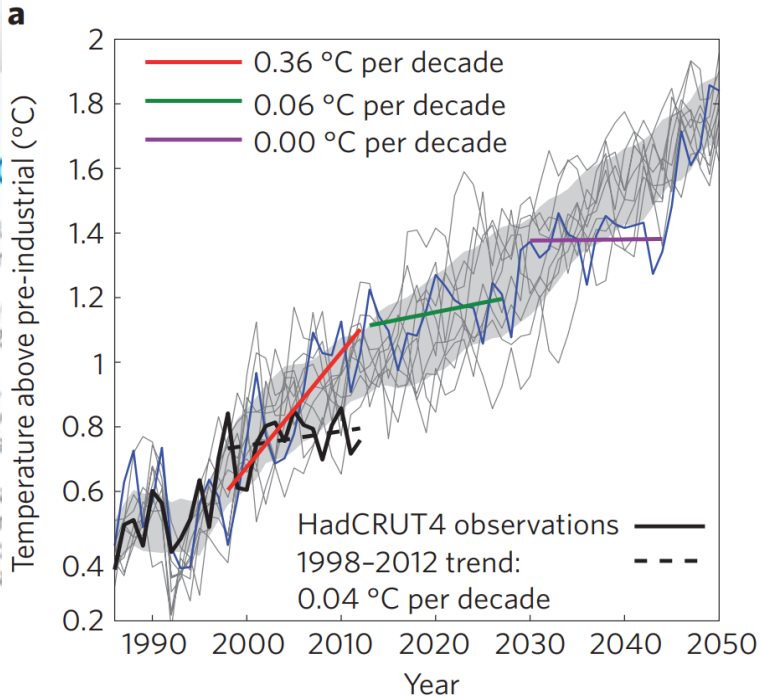
Climate Cloud is a collection of resources related to the impacts of climate change on land based business.

The Climate Cloud contains reports, fact sheets and more. These resources are mainly from New Zealand.

Find content by using the search to the right, enter one or more keywords and click GO. The search is accessed by clicking the Advanced Search.

In the Advanced Search you may select a view, use the drop-down lists and/or enter a search term. You can also filter the results by criteria you really need because the items in the search results will satisfy all of the criteria you set. When you click on a result you will be taken to the full report.

See the Search Help for more information.



Hawkins et al Nature Climate Change

Summary

- ✓ Tree growth responds directly to changes in temperature, water availability and CO₂ concentration. In many regions, this could mean higher productivity and opportunities to establish faster-growing forests.
- ✓ Climate change issues are driving policy to offset CO₂ emissions. Carbon forestry offers increased revenue streams for growers. Demand for sustainable wood products is expected to increase.
- ✓ Climate change has highlighted the potential for using forests to protect soil and decrease risks of flooding.
- ⚠ The impact of pests and diseases, weeds, fire, intense rainfall and high wind cause significant economic losses in planted forests. These risks are expected to increase with climate change.

Impacts

- Fire, Wind, Drought, Floods, Pests, Diseases, Weeds, Productivity

Inventory

- National carbon accounts
- Land Use Change

Mitigation

- Carbon forests
- Fossil fuel replacement

Implementation

- Climate Cloud
- Economic Models
- Fact sheets
- New management practises
- Societal engagement

Soil is frozen in winter ~ 6 months, but in last 4-5 years the winter season is shortened down to 4 months



Photo Przemyslaw Majewski

Adaptation: Climate Smart Villages



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



Physical Environment

Forestry on steep slopes 'a disaster'

Marlborough is heading for an "environmental disaster" if the Marlborough District Council does not shut down forestry on steep and erosion-prone slopes, council environment committee chairman Peter Jerram says.

The committee wants the council to review its rules to stop pine forests being replanted on steep, erosion-prone land.

Mr Jerram said Marlborough forestry was planted on some of the steepest country in New Zealand.

"I believe that the soil erosion we are seeing here is an indication that we are heading for an environmental disaster in this province if we don't shut it up."

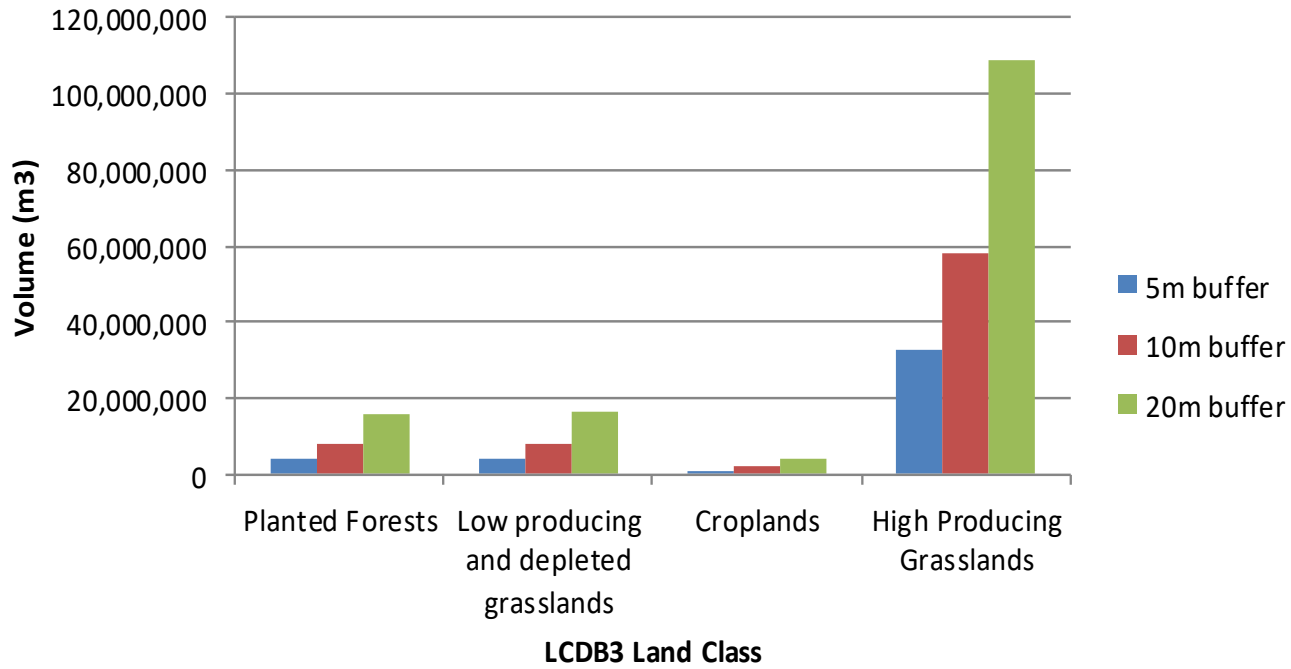
Council regulatory manager Hans Versteegh said pine trees did not belong on steep, erosion-prone land. The storms on December 28, which he expected to happen once every 25 years, showed the land was not suitable.

Steeplands – research areas

- benchmarking impacts
- lower impact harvesting systems
- residue recovery and minimisation
- conversion to permanent native forest
- Erosion terrains, Sednet
- forest design to trap debris flows
- spatial economic model for steepland management
- finer scale hazard risk assessment
- planting mixtures to close window of vulnerability
- coppicing species to close window of vulnerability
- fertilisation for productivity and uniformity

Riparians and water quality

Potential radiata volume at age 30 for 3 riparian buffer scenarios (5m, 10m, 20m) beside streams >3m



“Social license” generally refers to a local community's acceptance or approval of a company's project or ongoing presence in an area. It is increasingly recognized by various stakeholders and communities as a prerequisite to development.

LEVEL OF SOCIAL LICENSE	SYMPTOMS/INDICATORS
WITHHELD / WITHDRAWN	Shutdowns, blockades, boycotts, violence / sabotage, legal challenges
ACCEPTANCE / TOLERANCE	Lingering/recurring issues & threats, presence of outside NGOs, watchful monitoring
APPROVAL / SUPPORT	Company seen as good neighbour, pride in collaborative achievements
PSYCHOLOGICAL IDENTIFICATION	Political support, co-management of projects, united front against critics

In Conclusion

- Environmental challenges will be human and physical
- Establish National Forestry Adaptation Working Group to prepare for climate change
 - Especially extreme events
- Ramp up research on steeplands
 - Retirement of worst of the worst
 - Permanent buffer forests at forest boundaries
 - High value riparians for water quality and carbon
- Develop and communicate Forestry's narrative to support License to Operate
 - Get on the front foot – evidence based truth!