

6 April 2023

The Secretariat  
Ministerial Inquiry into Land Use (MILU)  
[landuse.inquiry@mfe.govt.nz](mailto:landuse.inquiry@mfe.govt.nz)

**Submission: Ministerial Inquiry into Land Use (MILU) causing woody debris, including forestry slash, and sediment-related damage in Te Tairāwhiti, Tūranganui-a-Kiwa and Te Wairoa regions.**

Kia Ora Koutou

Thank you for your time to receive and review the enclosed submission from Eastland Wood Council - Te Kaunihera Pororakauo Te Tairāwhiti, representing 22 organisations in the region.

### **Introduction**

The issues we face today with regards to land use in our region, and how we deal with them to achieve industry and regional resilience and prosperity, are complex.

The Eastland Wood Council (EWC) and its members have welcomed this ministerial inquiry into past and current land-use practices and the impact of woody debris, including forestry slash and sediment, following the recent devastating cyclones. The forestry industry has accepted the need for change, has made changes following the 2018 storm events, and worked together diligently to put forward a range of measures designed to further mitigate the impacts of severe weather events, to protect our land, waterways and communities.

EWC suggests there are a number of interventions that can be undertaken to mitigate future impacts associated with commercial forestry plantations in the region, in the face of increasingly severe weather. It is clear however, that while the forest industry in isolation, can implement a portion of these, a collaborative approach with all land users, local and central government, and the community, will be required to implement sustainable long-term mitigation.

It has been encouraging to see, amongst the industry, the commitment to contribute to a better future and the changes necessary to make our industry sustainable and viable, and to support our community in the immediate aftermath of the most recent (summer of 2023) storms.

### **Acknowledgement**

We acknowledge the Government's commitment to work with our community and sector on this important inquiry. EWC acknowledges the professional integrity demonstrated by the Panel Members and their support staff and EWC valued the opportunity to engage directly with the Panel Members and support staff in a joint forum on Wednesday 8 March 2023 and during a field trip to visit forestry blocks on Friday 31 March 2023.

EWC and its members really feel for our communities in our region that have been affected by the severe weather events which led to the ministerial inquiry. Member forestry companies have resourced the clean-up of wood debris, including forestry slash, sections of stands (from steep slopes that have failed) and sediment, which impacted their neighbours and communities downstream. EWC and its members have worked closely with the Gisborne District Council (GDC) to support the region's response to the catastrophic impacts caused by Cyclones Hale and Gabrielle.

## **Executive Summary and Proposed Solutions**

Subsequent to the catastrophic cyclone impacts, EWC members have been working together to propose a range of practical solutions that can be undertaken to mitigate the impacts of forestry on the Tairāwhiti community. These measures, if implemented alongside other partners and with a particular reference to improving the relationship between our sector and the Gisborne District Council, will be critical to achieving success for our community.

There is, however, no silver bullet that will immediately solve the issue of slash and sediment in Tairāwhiti. Nor will the changes we propose, come without cost. However, if we are to achieve a sustainable transition that supports land use that is resilient to the increasingly severe weather, as well as achieving good community and social outcomes, then these costs need to be borne across those impacted, and supported by Government intervention where necessary.

In the immediate term, there are a number of further mitigations forestry companies will be implementing, which build on the changes already made since 2018 to improve forest harvesting practices and reduce the waste material able to be mobilised in severe weather events.

There is a lack of public awareness of the steps that have already been taken in the wake of the 2018 storms. The current slash and debris issues seen in the wake of the 2023 storms reflect the long-term legacy of planting and harvesting practices.

EWC members were pleased to show some examples of these changes when we met with Panel Members on Friday 31 March 2023. Further to these measures, which will, over time, serve to better prevent the mobilisation of harvest debris, EWC will be implementing its Good Practice Guideline for Catchment Management, which provides guidance for members to further strengthen and implement more stringent management practices inside forestry gates. Measures include planning to manage and limit the extent of clearcut, staging harvests in larger catchments, and evaluating slope stability and actively undertaking risk assessments based on aspect, slope gradient, slope length, stability, risk of landslides against major weather events.

In the short term, EWC have proposed a fulsome review of land that should be retired from plantation forestry land use. This review needs to incorporate the views of all land users, and should be based on scientific fact. At our suggestion, qualification for areas for consideration may include areas that have skeletal soils, areas impossible to harvest without significant environmental damage, and areas where soil strength would fail under a heavy crop, among other suggested points. In addition, areas identified as vulnerable to forest discharge should be mapped and resilience building mechanisms identified and agreed across all land users.

The extremely vulnerable soils of Tairāwhiti are widely acknowledged as a challenge unique to our region.

In many cases, the majority of plantation forests in the Gisborne Region and Wairoa District were established by the Government or under Government-funded schemes in response to past significant land erosion and slope failures. The forests were established for soil and land conservation purposes as well as to bring long term economic wellbeing.

By and large, the forests have delivered these outcomes. However, they are not resilient to increasingly severe and cyclonic storm events and many land failures have subsequently and most recently led to unacceptable environmental and social outcomes. To make a shift in some areas away from plantation forestry will require

measures to ensure an equitable and sustainable transition, including mitigations to support alternative employment opportunities for the impacted communities, and appropriate compensation for the landowners.

There remain well documented immediate technology and engineering mitigations that, with an improvement in the regulatory environment, can be implemented in the short term while longer term measures are considered and implemented. This includes allowing the installation of slash traps, and the reduction of mid slope roading densities and investment into lower impact harvesting systems.

Over the medium and longer term, EWC have proposed a range of solutions for consideration based on the findings of the aforementioned review of areas for retirement and agreed land use vulnerability exercise. We recommend a whole-sector approach to develop agreed proposals for alternative land use and cover.

In the forestry space, this could include, but is not limited to: retirement and transition to indigenous vegetation; or alternative non-production species, abandonment, or conversion to carbon forest only. For any land conversion to be successful, this will need to be reinforced by mechanisms to support a sustainable transition from the plantation forest land use to the alternate land use/cover, and long term plans to manage the retired land. There also needs to be some consideration of, and investigation into, developing a viable market for wood debris products.

At the same time, an immediate priority for our sector is to restore a positive working relationship with GDC. The resource consenting process is challenging in the Tairāwhiti region and members, in conjunction with EWC, have been attempting to engage GDC with a review of forestry resource consent conditions over a number of years. At the same time, we urge GDC to consider its resourcing for compliance and monitoring of the forestry sector, and to prioritise local knowledge and experience.

Collaboration is underrated. We look forward to working with our partners at GDC to plan and employ solutions together that will positively benefit our community.

In conclusion, the nature of the land in Te Tairāwhiti presents an inherent risk of failure that will persist regardless of land use practices. Mitigating these risks will require a coordinated effort together with iwi, mana whenua, other landowners, Gisborne District Council, Trust Tairāwhiti, central government and stakeholders.

This will need to include retiring land from productive use where the risks of slope failure cannot be mitigated, not building on high-risk flood plains and overland flow paths, and developing community based response plans.

Ends.

## 1. Discharges

In Tairāwhiti, over the past decade, large storm events have resulted in earthflows and landslides which have transported sediment and woody debris from within catchments, including pine plantations, native forests, riverine forests and pastoral land, to downstream locations. This has impacted communities, the environment and infrastructure.

**Problem Statement 1:** The underlying geology holds inherent risk which contributes to sediment discharges in large storm events and is prone to ongoing erosion.

**Problem Statement 2:** A large proportion of the newly mobilised debris seen as a result of storms in the last 24 months did not originate from harvesting practices, but instead from crop losses (8 - 10 year old trees). Solutions to reduce the impact of this non-harvest related debris on downstream communities is required.

**Problem Statement 3:** Given the background outlined above, mobilisation of harvesting debris also presents an ongoing risk that needs to be managed. Practices to reduce harvest debris migration is ongoing as a result of legacy harvesting issues.

### **Proposed Solutions**

#### **Immediately (in the next 12 months)**

- Identify areas to be retired from plantation forest land use and vulnerable to deposition from forest discharges.
- Develop processes and timeframes that allow for the risk assessment of land, including the managed retirement of high-risk production forestry land and its conversion to other vegetative cover and provide mechanisms to incentivise this transition.
- Reduce regulatory barriers that allow for engineered (e.g. debris nets) and non-engineered (e.g. vegetative barriers and debris “run off” areas) retention mechanisms to be implemented via a clear and cost effective approval process.
- Communication with local communities that any transition will take some time but that the industry is committed to positive outcomes but further debris migrations are likely in future large storm events due to legacy land use decisions.
- Support research and trials through Te Uru Rakau or other forest industry organisations like Forest Growers Research (FGR) that reduce woody debris and sediment available to be discharged in large weather events.
- Investment into lower impact harvesting systems which will need support for contractors to transition old or unsuitable harvesting equipment.

#### **Short term (next 1 - 2 years)**

- Identify areas to be retired from plantation forest land use and vulnerable to deposition from forest discharges.
- Develop processes and timeframes that allow for the risk assessment of land, including the managed retirement of high-risk production forestry land and its conversion to other vegetative cover and provide mechanisms to incentivise this transition.

- Development of landscape level risk mitigation through enabling catchment level discussions, collaboration and direction with neighbours and other key stakeholders.
- Determine environmental and socially appropriate alternate land use/cover on a property and catchment scale.
- Commission an independent science-based approach to catchment limits and coupe harvesting limits.
- Review silviculture regimes to determine whether current practices increase risk of slope failure and debris mobilisation and develop techniques to reduce this risk.
- Enable efficient and coordinated collective regional response to large storm events that see woody debris mobilise including the development of an equitable model of costs across all contributing land uses.

**Medium term (3 - 5 years)**

- Implementation of measures that require immediate and short-term development as outlined above.

**Please see Appendix 4 & 11 for more detail on these proposed solutions.**

## **2. Regulatory Environment**

**Problem statement:** The current regulatory environment is not achieving good environmental outcomes. The relationship between the plantation forest industry and GDC does not allow open discussion around challenges and solutions. Experience and understanding of forestry activities by local regulators is currently poor and regulations are not fit for purpose.

### **Proposed Solutions**

We are committed to collaboration with GDC at a sector level. We urge GDC to work with the sector and re-establish a meaningful relationship with EWC members, similar to the Hawke's Bay forestry group model.

We also encourage GDC to review resource consent condition wording, which is outdated and inconsistent, and to establish a well-resourced regulatory team based locally and dedicated to forestry activities.

Over the medium and longer-term, we recommend GDC consider an effectiveness and efficiency review of Tairāwhiti Resource Management Plan rules more stringent than NES-PF, recognising the difficult terrain of the region.

#### **Immediately (in the next 12 months)**

- Meaningful relationship development between Gisborne District Council (GDC) and EWC - similar to Hawke's Bay forestry group model.
- Review of resource consent condition wording.

#### **Short term (next 1 - 2 years)**

- Well-resourced regulatory team dedicated to forestry activities.

#### **Medium and long term (3 - 10 years)**

- Effectiveness and efficiency review of Tairāwhiti Resource Management Plan rules more stringent than NES-PF.

**Please see Appendix 5 & 11 for more detail on these proposed solutions.**

### **3. Sustainable Transition**

**Problem statement:** There is likely to be a reduction/retirement and in some cases, abandonment of some areas of the highest risk forest land. Ways need to be found to fairly compensate forest owners for this loss of land. There may need to be a transition to adjust socially to the inherent risks associated with the land in the region i.e., farmers moving off floodplains etc.

#### **Proposed Solutions**

Support from central and local government for a Just Transition away from plantation forestry in some areas, including financing of alternative employment opportunities for communities, and fair compensation for a loss of productive land.

#### **Short, medium, and long term**

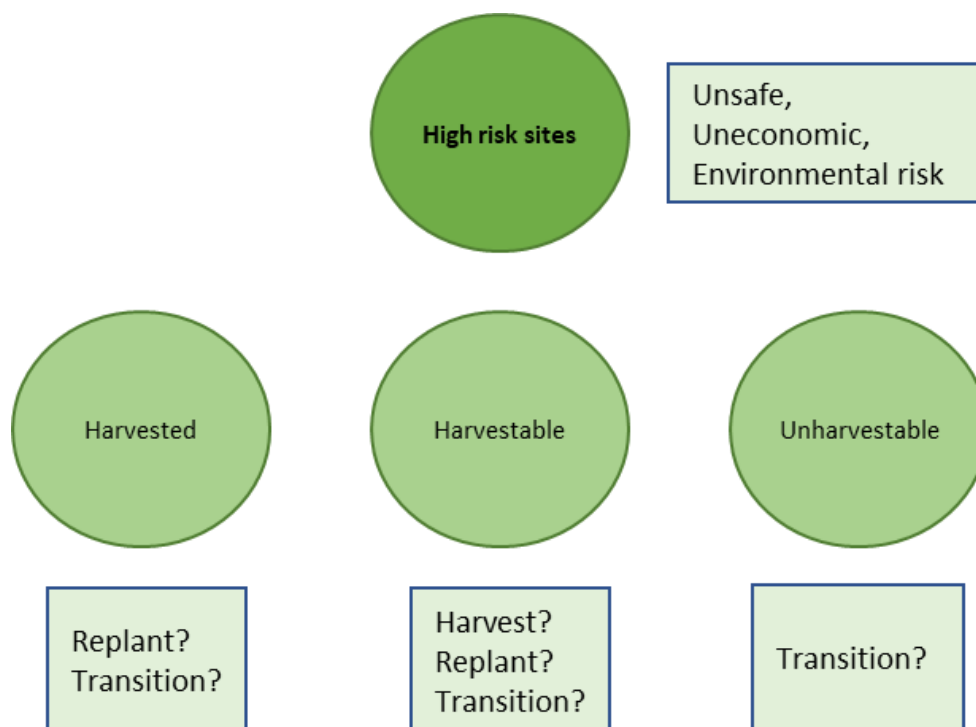
- Fair compensation for loss of productive use of land.
- Alternative employment opportunities for communities.
- Acceptance and support of timeframes and continued risk exposure.
- Supporting and enabling downstream processing and value maximisation investments.
- Future inclusive/joint management planning.
- Transition (to native) planning.

**Please see Appendix 6 & 11 for more detail on these proposed solutions.**

#### 4. High Risk Sites / Legacy / Abandoned sites / Standing Trees

**Problem statement:** Areas of plantation forestry exist predominantly on lands with high erosion and slope failure risk. Retiring these areas from a production forest regime does not necessarily solve the problem, as trees provide a level of support to the vulnerable soils. There is no clear process for identifying nor transitioning plantation forest into permanent forest or lower risk alternative land use while allowing landowners to achieve economic wellbeing.

#### **Proposed Solutions**



There needs to be a clear process established to support the ongoing sustainable management of these lands to ensure robust science and evidence-based decisions are made that are supported by regulatory/resource consent requirements, the ETS, and central and local government. This needs to recognise the wider social and environmental benefit retiring these lands brings to ensure landowners are not left bearing an unreasonable cost and, where possible, can continue to get an economic return off their land.

#### **Short, medium, and long term proposed solutions**

- Central Government facilitation to ensure local government planning effectively and equitably enables the retirement / transition to soil conservation management through the relevant regulatory regimes.
- Crown funded research is operationalised to provide effective tools for transitioning plantation forest areas to permanent conservation forest for both local government and private landowners.
- A Just Transition process that incentivises and support landowners to retire high risk land from productive use, that includes ongoing management of retired lands or the transfer of such lands into central/local Government management.

Please see Appendix 7 & 11 for more detail on these proposed solutions.



## **5. Landscape Management**

**Problem statement:** The landscape is vulnerable regardless of the land use, so we must work together to implement solutions to better manage the landscape and its uses, across all land users.

### **Proposed Solutions**

#### **Immediately (in the next 12 months)**

- Adoption and implementation of Eastland Wood Council Catchment Management Good Practice Guide. This guide has been prepared with the input of EWC members, to guide best practice for catchment management. The guide is currently in final draft and ready to be launched.

#### **Short term (next 1 - 2 years)**

- Determine environmental and socially appropriate alternate land use/cover on a property and catchment scale.
- Identify areas to be retired from plantation forest land use and vulnerable to deposition from forest discharges.
- Development of landscape level risk mitigation through enabling catchment level discussions, collaboration and direction with neighbours and other key stakeholders.

#### **Medium and long term (3 - 10 years)**

- Continue to develop in catchment management practices as learnings are gained through alternative land use, as outlined in appendix 11.

**Please see Appendix 8 & 11 for more detail on these proposed solutions**

## **6. Market and Processing**

**Problem statement:** There is currently no viable market for woody debris. The current business environment negatively impacts the viability of expanding the wood processing sector and/or the development of value adding processing of harvesting waste.

### **Proposed Solutions**

There are a range of possible actions/interventions that would contribute to a business environment that attracts investment into downstream processing of forest produce, including harvest waste. The Industry Transformation Plan presents the greatest opportunity to coordinate the relatively complex range of intervention required to actively promote and support industry transformation.

**These proposed actions are detailed in Appendix 6.**

## **7. Inherent / Persisting Risk**

**Problem Statement:** The nature of the land presents an inherent risk of failure which will persist. Debris and sediment mobilisation, especially in storm events, will never be eliminated. The expectations of the public for future rainfall events needs to be managed and the role of forestry as a legitimate productive land user recognised.

### **Proposed Solutions:**

- Government support to:
  - Establish a working group that includes forestry, government, GDC reps to work on solutions together.
  - Ensure local government planning effectively and equitably manages the inherent risks of the land through the relevant regulatory regime.
  - Crown funded research is operationalised through ministries to provide effective tools to manage geological and hydrological risks for both local government and private landowners.
  - Government implements a Just Transition process that allows landowners to retire high risk land from productive use or residential use. This will need to include ongoing management of retired lands or the transfer of such lands into central/local government management.
  - Develop resilient future proofed infrastructure and include risk in civil crisis management planning.
  - Disseminate information and social the challenge relating to persistent risks facing downstream communities.
  
- Build Resilience together by:
  - Establish an EWC working group to manage beach clean-up.
  - EWC to develop plan outlining steps to be taken prior to forecasted storm hitting.
  - Establish a memorandum of cooperation with GDC to work together on wood debris solutions and collaborate on development projects for mutual benefit.
  - Improved collaboration with GDC.

**Please see Appendix 10 & 11 for more background on this issue and EWC's proposed solutions.**

## Conclusion

Thank you for your time to receive and review this submission from Eastland Wood Council - Te Kaunihera Pororakau Te Tairāwhiti in conjunction with its members.

While our forests in Te Tairāwhiti are constantly cleaning the air we breathe, providing shelter, helping to prevent erosion, and growing in value, as a sector we recognise that we have lost our social license to operate.

Social license refers to “the ongoing acceptance and approval of an industry’s operations by local community members, and other stakeholders that can affect its profitability”.

“Despite demonstrable economic, social and environmental benefits, pine plantations are sometimes perceived as damaging to soils, fresh water, biodiversity, and rural farming communities” (Jones et al).

Misinformation around the effects and risks of plantation forestry have been around for as long as plantation forestry has been in New Zealand. However, anti-forestry rhetoric has increased in response to the impact of the ETS with the benefit of social media.

The Eastland Wood Council is committed to collaborating with central and local government in the spirit of goodwill to help establish reasonable expectations for the ongoing management of these highly erodible and unstable lands, especially as plantation forestry is to remain a land use option for Tairāwhiti.

In conclusion, the nature of the land in Te Tairāwhiti presents an inherent risk of failure that will persist regardless of land use practices. Mitigating these risks will require a coordinated effort together with; iwi, mana whenua, other landowners, Gisborne District Council, Trust Tairāwhiti, government agencies and stakeholders.

This will need to include retiring land from productive use where the risks of slope failure cannot be mitigated, not building on high-risk flood plains and overland flow paths and developing community based response plans.

The writer is available at your convenience if you require any clarification on the points raised in this submission.

Naku noa na



Te Whanau o Ruataupare te hapu  
Te Aitanga-a-Hauiti te iwi  
Ngati Porou te iwi

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**Attachments**

**Appendix 1: About Eastland Wood Council**

**Appendix 2: Land use in Te Tairāwhiti**

**Appendix 3: Agreed Facts**

**Appendix 4: Discharges**

**Appendix 5: Regulatory Environment**

**Appendix 6: Sustainable Transition**

**Appendix 7: High Risk Sites**

**Appendix 8: Landscape Management**

**Appendix 9: Market and Processing**

**Appendix 10: Inherent / Persisting Risk**

**Appendix 11: Proposed solutions**

## **Appendix 1: About Eastland Wood Council**

### **Our Kaupapa, Our Mission**

Eastland Wood Council - Te Kaunihera Pororākau o Te Tairāwhiti is an incorporated society which provides a collective voice for the forestry industry in Tairāwhiti.

### **Our Philosophy**

Eastland Wood Council members are proud to be part of the Tairāwhiti community. Our biggest priority remains the health, safety and wellbeing of our workforce and their families. This includes investing in our people and developing the next generation of leaders, by facilitating forestry training and providing visible career pathways.

We acknowledge production forestry has a key role to help transform our region into a carbon-neutral economy, where all land-based industries are environmentally sustainable.

EWC members represent more than 130,000 hectares of production forestry (not to be confused with permanent carbon forestry). EWC members reflect the supply-chain and include: forestry companies, forestry managers, contractors, trucking organisations, Eastland Port, ISO (stevedoring), timber mills and export.

EWC members represent approximately 80% of production forestry in Te Tairāwhiti. The other 20% of production forestry is made up of a range of different forestry blocks owned and managed independently (some are farmers). GDC will have details of who these other forestry landowners are, where the forestry blocks are located and when they are harvesting.

Planted forestry makes up just 20% of total area in Te Tairāwhiti. EWC does not employ forestry workers, nor do we own or manage forestry blocks. We are a representative voice for the sector.

Forestry industry harvest volumes (wood availability forecast) are predicted to exceed four million tonnes in the next 2 - 5 years and our members have been planning the significant labour growth required to meet this increased harvest.

### **What We Do - The Eastland Wood Council, on behalf of its members:**

1. Lobbies government, regulators, authorities, and non-governmental groups on aspects that are important to the forest industry in Tairāwhiti.
2. Provides advocacy for the forest industry.
3. Coordinates focus groups to guide positive outcomes for the forest industry in Tairāwhiti.
4. Provides proactive promotion of aspects important to the forest industry.
5. Coordinates emergency response for the forest industry in Tairāwhiti.
6. Provides media liaison for the forest industry in Tairāwhiti, including social media.
7. Determines strategies and actions to maintain and improve social licence.
8. Is a source of collective data on the forest industry in Tairāwhiti for legitimate organisations both external and internal to the industry.

## **What Eastland Wood Council requires of members**

As members of Eastland Wood Council, we:

1. Manage our business according to the Agreed Code of Practise for Safety and Health in Forest Operations (ACoP) and Eliminating Drugs and Alcohol from the Workplace Code of Practise for NZ Plantation Forestry.
2. Manage our business according to the NZ Environmental Code of Practise for Plantation Forestry (ECoP).
3. Subscribe to the principles of the NZ Log Transport Safety Accord and the NZ Forest Accord.
4. Actively promote the recruitment, training, and retention of forestry industry employees.
5. Are a responsible and proactive member of the Tairāwhiti community.
6. Uphold high ethical standards in business, community, and social interactions
7. Take accountability for our actions and inactions.
8. Work individually and collaboratively to improve the standards applied to the forest industry in Tairāwhiti.
9. Promote and support the practise and the business of forestry nationally.
10. Cooperate and collaborate with all EWC members, through the forum of the EWC, to strengthen and improve the business of forestry, forest practices and the positive image of the forest industry in Tairāwhiti .
11. Promote the holding of national and international certification of health, safety, and environmental management (e.g., FISC, SafeTree).

## **Workforce Development**

The EWC is dedicated to supporting training and education initiatives that will help build capacity and resilience with the forestry industry and other primary industries.

### **Generation Programme - Whakatipua to tatou iwi**

Since the generation programme was launched by EWC in October 2018 (in conjunction with training provider Turanga Ararau), this workforce development initiative has enrolled more than 100 trainees. At least 70 trainees have achieved NZ National Certificates in Forestry level 2 and/or level 3. The majority of these young leaders have also been awarded NCEA. 65 have gone on to secure 'apprentice type employment' in the forestry industry and the majority of others have gained work in other primary industry.

### **The Tairāwhiti Road Transport Recruitment & Training Programme (TRTP)**

Eastland Wood Council led this important driver development programme, in conjunction with the heavy vehicle industry and MBIE to take a planned approach with; recruitment, training and placing heavy vehicle drivers into employment. EWC's TRTP has trained 294 heavy vehicle drivers which provide diversity and resilience to the heavy transport sector in Te Tairāwhiti . Every industry has benefited from this important driver development programme, including the forestry supply chain which has recruited a further 91 drivers into the forestry industry.

## **The Forestry Industry is a Key Driver of the Economy in Tairāwhiti**

1. Further analysis of Facts & Figures 2019/2020 has enabled EWC to obtain a report specific to Te Tairāwhiti
  - a. Forestry represents the largest GDP by industry for our region (\$253 million) for year ending March 2019.
  - b. Forestry export revenues through Eastland Port totals \$438,808,547 for year ending March 2020.
  - c. East Coast and Hawkes Bay together supply and manufacture the second largest volume of sawn timber in New Zealand (493,436 cubic metres)
  - d. The forestry industry in Gisborne employed 1072 FTE's for the year ending March 2019
  - e. The primary industries support services in Gisborne employed 1294 FTE's for the year ending March 2019
2. We also acknowledge the significant contribution the forestry industry makes to Trust Tairāwhiti and the community groups that exist because of this philanthropic income.
  - a. In the 12 months to March 2021, Eastland Port's share of 2021's dividend to Trust Tairāwhiti was \$4.4 million. This was 50 percent of the dividend distribution of \$8.8 million. There is another \$1.2 million distribution which is Eastland Ports capital note interest that is paid at Group level.<sup>1</sup>
3. The forestry industry in Te Tairāwhiti also contributes .33 cents per tonne for all logs harvested; to the NZ Forest Growers Levy Trust. In round figures this equates to approximately \$1 million dollars per year which is used to fund industry R&D programmes and resource important health & safety initiatives.<sup>2</sup>

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<sup>1</sup> <https://www.gisborneherald.co.nz/business/20210805/eastland-group-rebounds/>

<sup>2</sup> Forest Growers Levy Trust figures, available: <https://www.fgl.org.nz/levy-statistics>



## Appendix 2: Land Use In Te Tairāwhiti

Planted forestry makes up just 20% of total area in Tairāwhiti, as broken down:<sup>3</sup>

1. Total Area; approximately 819,000 hectares in the District Valuation Roll. This is all assessments +23,000
2. Pastoral; approximately 491,500 hectares classed as Pastoral in the District Valuation Roll = this includes ineffective and any planted forestry areas on the farms.
3. Pastoral effective; approximately 345,416 hectares classed as Pastoral effective in the District Valuation Roll.
4. Planted Forest; approximately 163,156 hectares classed as planted forestry in the District Valuation Roll. Includes farms or 140,000 ha excluding farms.
5. Horticultural area; approximately 7,425 hectares classed as Horticulture effective (gross total 8,031ha) in the District Valuation Roll. Adding Arable plus Horticulture classification in takes it to approximately 9,918ha effective (11,000ha gross).
6. Area in native; approximately 237,509 hectares classed as ineffective area in mostly bush and scrub-lots reversion in the District Valuation Roll.

### Land Use

Forest export returns per hectare are, on average, half as much again as from pastoral farming. This is despite most of the forests growing on inferior hill country land.<sup>4</sup>

### Area and Volume

An average pinus radiata tree yields 2.4m<sup>3</sup> of wood at harvest.

A hectare of 28-year-old Pinus radiata contains between 650 and 800m<sup>3</sup> of wood.

One hectare grows up to 28m<sup>3</sup> of wood each year.

A log truck and trailer carries approximately 30 tonnes of logs (some trucks are rated and permitted to carry loads of up to 53 tonnes on specified routes).

### Climate Change<sup>5</sup>

Planting trees and forests is one of the best immediate responses to climate change.

Sustainably grown trees capture carbon dioxide from the atmosphere and the carbon is stored in the forest biomass.

Wood products and buildings continue to store carbon over their lifetime.

Trees also provide energy alternatives that can substitute for fossil fuels.

Timber and other wood products are low carbon-footprint materials compared with concrete and steel.

### Export

A log ship contains approximately 30,000 to 35,000 tonnes of logs.

By weight, the ratio of carbon to oxygen in carbon dioxide is 1-2.66

### Employment

Plantation forestry is a significant industry in the Gisborne District - directly employing 17.3% of those working in primary industries and generating 11.4% of the gross domestic product of the District.<sup>6</sup>

<sup>3</sup> Most recent land use reported by Lewis Wright Valuation and Consultancy Ltd (Gisborne District Councils Valuation Service Provider). The date of the District revaluation was 1 September 2020.

<sup>4</sup> Plantation Forestry Aotearoa - Forest Growers Levy Trust

<sup>5</sup> Planted forests and carbon - Scion Research - published by NZFOA

<sup>6</sup> Human capability in the primary industries: Part 2 2015 to 2019 - Qualification analysis by region mpi.govt.nz; and <https://www.stats.govt.nz/information-releases/regional-gross-domestic-product-year-ended-march-2020>

## **Appendix 3: Agreed Facts**

**EWC has identified the below points of fact, upon which our comments are based.**

- Te Tairāwhiti is characterised by highly erodible and unstable lands.
- Te Tairāwhiti has a long history of major storm events, including cyclones, which have had significant downstream impacts on local communities and infrastructure.
- The future is unlikely to be any different with climate change predicted to an increase the frequency and intensity of severe weather events in the Region.
- Afforestation is recognised as an effective tool in stabilising these fragile soils and reducing erosion and landslide risk. This underpinned past land management decisions in the region.
- The establishment of the majority of the pine plantations were promoted by local and central Government schemes aimed at minimising ongoing erosion and instability and to allow for ongoing productive use of the land.
- Storm events mobilise all manner of debris including rock, river aggregate, soil, woody debris (native, plantation, erosion control plantings, and riparian trees), fencing, vehicles, structures etc. These are deposited on floodplains, along river valleys, and in the coastal marine area.
- There are limitations to the extent afforestation can mitigate the impact of major storm events.

# Forestry Facts

## Land use

Forest export returns per hectare are, on average, half as much again as from pastoral farming. This is despite most of the forests growing on inferior hill country land (reference — Plantation Forestry Aotearoa - Forest Growers Levy Trust).

## Area & volume

- An average pinus radiata tree yields 2.4m<sup>3</sup> of wood at harvest.
- A hectare of 28 year-old Pinus radiata contains between 650 and 800m<sup>3</sup> of wood.
- One hectare grows up to 28m<sup>3</sup> of wood each year.
- A log truck and trailer carries approximately 30 tonnes of logs (some trucks are rated and permitted to carry loads of up to 53 tonnes on specified routes).

## Climate change

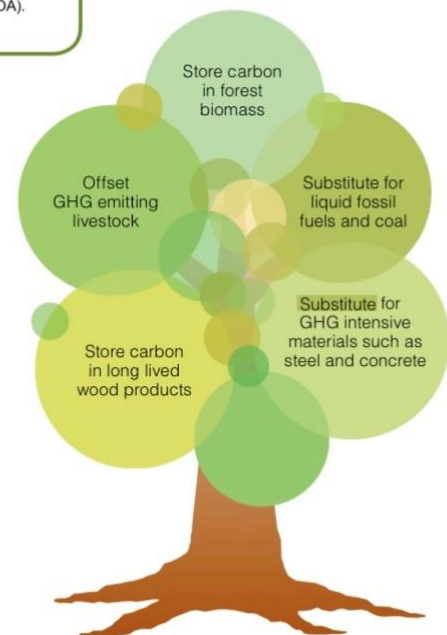
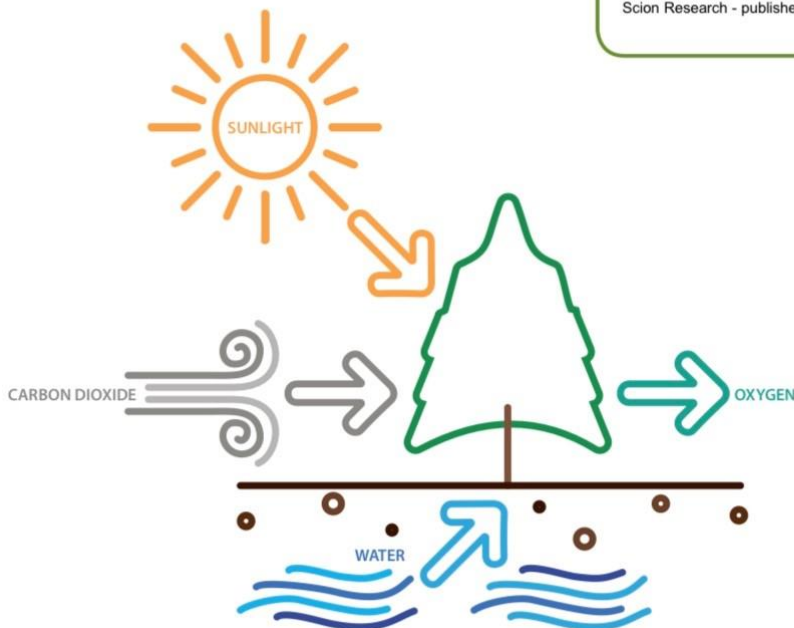
- Planting trees and forests is one of the best immediate responses to climate change.
- Sustainably grown trees capture carbon dioxide from the atmosphere and the carbon is stored in the forest biomass.
- Wood products and buildings continue to store carbon over their lifetime.
- Trees also provide energy alternatives that can substitute for fossil fuels.
- Timber and other wood products are low carbon-footprint materials compared with concrete and steel (reference — Planted forests and carbon - Scion Research - published by NZFOA).

## Export

- A log ship contains approximately 30,000 to 35,000 tonnes of logs.
- By weight, the ratio of carbon to oxygen in carbon dioxide is 1-2.66.

### Wood exports by destination

|               |                                       |
|---------------|---------------------------------------|
| China         | Philippines                           |
| Australia     | Taiwan                                |
| Japan         | Hong Kong                             |
| South Korea   | Malaysia                              |
| India         | Saudi Arabia                          |
| United States | Netherlands                           |
| Indonesia     | Other countries                       |
| Thailand      | (Reference — Facts & Figures 2020/21) |
| Vietnam       |                                       |



## Appendix 4: Discharges

### Background

It is hard to identify a set threshold of rainfall that will trigger a landslide, but it has been noted that, generally, an excess of 200mm over a few days leads to "significant regional land sliding events in New Zealand soft-rock hill country".<sup>7</sup> Once triggered, landslides and subsequent debris flows can rapidly become heavily laden with soil and woody debris, with a transporting power to their size.<sup>8</sup> These debris flows can occur on any susceptible land use type including pasture and forested land to varying extents. Debris flows from commercial pine plantations contain many sources of woody debris, including younger trees in their entirety as is also seen to occur in native forest, and older trees that have blown over for reasons not associated with harvesting and harvesting residue (slash).

These discharges can be placed into 4 categories in terms of defining specific problem statements to overcome the challenges faced:

1. Sediment.
2. Woody debris from both native and exotic tree species unassociated with harvesting operations
3. Harvesting debris associated with plantation forests.
4. Harvesting waste.

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<sup>7</sup> Landslide Hazard and Risk at 522.

<sup>8</sup> 2018 Marden Report at 22, and Michael Marden, Donna Rowan, and Alex Watson "Effect of changes in forest water balance and inferred root reinforcement on landslide occurrence and sediment generation following *Pinus radiata* harvest on Tertiary terrain, eastern North Island, New Zealand" (2023) *New Zealand Journal of Forestry Science* 53:4 <https://doi.org/10.33494/nzjfs532023x216x> at 13.

## **Appendix 5: Regulatory Environment**

### **Background**

The deterioration in relationship between the forestry sector in Tairāwhiti, and Gisborne District Council, has largely resulted from the enforcement process that was undertaken post the 2018 high rainfall events. It has become impossible for the Forestry sector to implement innovations and solutions. Various attempts have been made by members of the Eastland Wood Council to create dialogue and opportunities to engage between both parties, but these often fail.

The resource consenting process is challenging in the Tairāwhiti Region. GDC contract out much of the forestry consent applications to out of town consultants who are often lacking knowledge of fundamental forestry activities, the Tairāwhiti Resource Management Plan and unique Tairāwhiti landscape, and this issue is multiplied by GDC staff not knowing the NES-PF and the confusing interface this legislation has with the Tairāwhiti Resource Management Plan.

Gisborne District Council consent conditions have largely remained unchanged for the last 10 years.

Additional conditions have duplicated verbatim NES-PF regulation as consent conditions. Many conditions have been ultra vires and are out of scope. There has been no efficiency and effective analysis of consent conditions and it is unclear how current consent conditions would achieve a different outcome over and above that of the regulations in the NES-PF. Eastland Wood Council has been attempting to engage GDC with a review of forestry resource consent conditions. This has been ongoing for more than five years, with the process currently stalled due to the resignation of a key GDC staff member in September 2022.

There is limited capacity and industry experience of the GDC to undertake compliance monitoring. Monitoring visits are sporadic and compliance reports can take in excess of one month to receive post visit. Feedback subsequent to compliance inspections adds limited to no value to improve performance outcomes.

## **Appendix 6 - Sustainable Transition**

### **Background**

The majority of plantation forests in the Gisborne Region and Wairoa District were established by the Government or under Government funded schemes in response to significant land erosion and slope failures.

The forests were established for soil and land conservation purposes as well as to bring long term economic wellbeing. By in large, the forests have delivered these outcomes, however they are not resilient to increasing severe and cyclonic storm events and many land failures have led to unacceptable social outcomes.

With hindsight and to respond to the needs of the whenua, a transition from plantation forest use to another land use/cover is required in some areas, and should be one that is a sustainable transition; fair, equitable and inclusive, and supported by Government and Government agencies.

## **Appendix 7: High Risk Sites**

### **Background**

As well as providing soil and land conservation, along with other environmental benefits, forests that have been established in the Tairāwhiti area were promoted as sustaining long term economic prosperity for the Regions. Large areas of land were planted quickly and to the standards of the day. Trees were planted right to edge of streams and rivers and on very steep, unstable slopes – without thought of how they would be harvested. These practices, which are no longer in place today, were based on the scientific advice and to the standards of the time.

### **These forests and their legacy plantation practices pose a number of challenges for forest managers**

The timing and rate of harvest to meet market requirements and the capability of harvesting equipment pose challenges. Leave them too long and the trees get too big to be harvested, posing an escalating risk.

The steep, often broken landscape often requires an extensive and uneconomic roading and landing network, with its own inherent risks, to reach all planted areas, including;

- Trees that have collapsed into and across rivers and streams as a result of wind throw, toppling, or undercutting riverbanks.
- Highly unstable slopes that, as decision tools become available or as regulation requires, will see areas not harvested.

Ultimately, trees will be left unharvested raising concerns over the ongoing management of these areas especially where the underlying soils cannot support very large trees – especially in storm events. Equally, there will be areas that are harvested that will not be replanted either due to difficulties in harvesting, riparian setbacks, or the risk of or actual slope failure.

While the development of the transition process and the implementation of the support could be delivered in a short to medium timeframe, the retirement and ongoing management of high risk lands will be long to very long term with the full transition to stable multi-species indigenous forest taking decades.

## Appendix 8: Landscape Management

### Background

The forestry industry in the Tairāwhiti/Gisborne and Wairoa districts are confronted with some relatively unique catchment scale challenges. Large areas of high-risk erosion prone land were planted as part of a wider soil conservation programme.

It is now better understood for pine plantation forest on steep and erodible land, also susceptible to slope stability failures, that the period after harvest and before canopy closure of next tree crop creates a 'window of vulnerability', whereby landslides are coupled with wood residues.

The need for foresters to adopt practices that recognise catchment level issues has been clearly highlighted by a series of weather events that have caused catchment scale impacts from soil and woody debris migration.

However, reducing impacts on downstream properties will not result through a catchment-by-catchment approach from forest owners alone. There needs to be whole landscape planning undertaken to manage the interaction and risk mitigation strategies at a landscape level.

There have been a number of mitigations implemented by EWC members already, which are outlined below. These changes, implemented since the 2018 storms, have had an impact on improving resilience inside the forestry gates.

| Forest Industry action underway   | Additional suggested Government/Council Intervention  |
|---|---|
| <p>· <b>More stringent catchment management planning:</b></p> <ul style="list-style-type: none"> <li>• Managing the extent of clearcuts - Limiting clearcut size, and staging harvests in a larger catchment.</li> <li>• Leaving mature trees to help trap slash.</li> <li>• Constructing Slash Traps.</li> <li>• Evaluating Slope Stability when Planning (aspect, slope gradient, slope length, stability, risk of landslides, potential amount of harvest residues, gradient of gullies and connectivity to water bodies).</li> </ul> <p>· <b>Planting new land and/or replant.</b></p> <p>The best long-term strategy to mitigate catchment risks of harvest residues migration is through better risk assessment at time of planting forests.</p> <ul style="list-style-type: none"> <li>• Planting live harvest residue traps in non-production species.</li> <li>• the use of coppicing species</li> <li>• or in some circumstances retirement.</li> </ul> | <p>Enable carbon credit opportunities for pre 1990 forest on high erosion land.</p> <ul style="list-style-type: none"> <li>• Facilitate landscape planning with neighbours, iwi and stakeholders.</li> <li>• Take ownership (rather than promote, then prosecute), planning policy, public relations like the soil conservation programme early 1990s.</li> <li>• Risk Management Planning</li> <li>• Forward risk management planning for natural deposition of silt and debris.</li> <li>• Identify and transition high risk sites and infrastructure.</li> <li>• Socialise plan with community.</li> </ul> |



## Appendix 9: Market and Processing

### Background

There is currently no viable market for woody debris in the Tairāwhiti area. Depending on harvest method, it is estimated that 3-7% of woody material extracted from the forest to landings is not utilised and is left on site as harvesting waste. This results in large volumes of readily accessible feedstock. This volume of material would likely increase if there was a viable market.

Over the past 6-years there have been numerous visits by prospective investors to the region. Some have progressed with detailed due diligence; others have quickly stopped investigations. A range of products have been considered, including:

- woodchips,
- charcoal and activated carbon,
- wood pellets,
- fencing poles,
- and engineered sawn wood products.

### Contributing factors

For a range of reasons including the following factors, these have not progressed.

This includes:

- Low product value.
- Fragmented nature and geographical spread of feedstock.
- Regular but relatively small volumes available per collection, making existing loading and transport inefficient.
- Poor infrastructure and infrastructure resilience, impacting transport cost and risk.
- Lack of suitable infrastructure to facilitate cost efficient transport;
  - Port/shipping capacity
  - Rail
- Long term supply security related to tenure, ownership and ETS options.
- Lack of or limited industry ready zoning in proximity to feedstock. (e.g. Ruatoria)
- Limited services such as power and water in proximity to feedstock.
- Skills and labour shortage in the region.

### Proposed Solution Matrix

Factors preventing the development of a viable market for woody debris and some possible solutions, or parts thereof are outlined in the table below.

| Factor  | Possible Solutions  |   |
|---|---|---|
|   | Forest Industry   | Government  |
| Low product value   | <ul style="list-style-type: none"> <li>Industry collaboration to aggregate supply and develop a viable product offering to a market.</li> </ul>   | <ul style="list-style-type: none"> <li>Government policy instruments to protect and develop local processing/value adding industry. Tax holidays, Subsidies, penalties for pollution, rebates for processed volumes etc.</li> <li>EECA support for bioenergy plants located throughout the region</li> </ul>  |
| Fragmented nature and geographical spread of feedstock  | <ul style="list-style-type: none"> <li>Collaboration and workshop to develop tangible data on locations and volumes over time.</li> </ul>   | <ul style="list-style-type: none"> <li>Conduct industry study into volumes over time.</li> </ul>  |
| Regular but relatively small volumes available per collection, making existing loading and transport inefficient. | <ul style="list-style-type: none"> <li>Industry collaboration to consider/develop a level of supply commitment in order to facilitate bespoke infield and local transport or alternatively currently available transport solutions.</li> </ul>  |   |
| Poor infrastructure and infrastructure resilience, impacting transport cost and risk.                             | <ul style="list-style-type: none"> <li>Industry collaboration to provide forecast volumes and road use to council to facilitate focus on specific routes.</li> <li>Make road construction and maintenance resources available for use on council infrastructure.</li> <li>Provide and develop options for metal extraction at a local level to reduce aggregate transport costs for make aggregate available for local road use.</li> </ul> | <ul style="list-style-type: none"> <li>Improve efficiency of road maintenance spend.</li> <li>Future and long-term planning to incorporate traffic volumes as a function of Capital upgrades or new route/infrastructure spend.</li> <li>Undertake preventative maintenance on infrastructure.</li> <li>Provide and facilitate local metal extraction consents.</li> <li>Reconsider road maintenance contract model.</li> </ul> |
| Lack of suitable public infrastructure to facilitate cost efficient transport:<br>Port/shipping capacity          |   | <ul style="list-style-type: none"> <li>Expedite planned port expansion.</li> <li>Consider overhead, overland, oversea conveyor facility into the bay.</li> <li>Develop coastal shipping capacity</li> <li>Consider shipping/export facilities at Tolaga Bay, Tokomaru Bay, Hicks Bay, Te Araroa</li> </ul>  |

|   |  |  |
|---|--|--|
| Lack of suitable public infrastructure to facilitate cost efficient transport: Rail |  | <ul style="list-style-type: none"> <li>• Reconsider rail network expansion, repair, upgrade.</li> <li>• Consider upgrading rail into Eastland Port.</li> </ul>   |
| Lack of or limited industry ready zoning in proximity to feedstock. (e.g. Ruatoria) |  | <ul style="list-style-type: none"> <li>• Proactive zoning to provide for development.</li> <li>• Expedite development consenting.</li> </ul>   |
| Limited services such as power and water in proximity to feedstock.                 |  | <ul style="list-style-type: none"> <li>• Proactive expansion of networks to facilitate services.</li> <li>• Consider Co-gen plant development on the East Coast.</li> </ul>                                    |
| Long term supply security related to tenure, ownership and ETS options.             | <ul style="list-style-type: none"> <li>• Industry commitment to market.</li> </ul>   | <ul style="list-style-type: none"> <li>• Expedite the ITP process</li> <li>• Improve the forestry narrative through supportive media statements.</li> <li>• Communicate plans to reduce insecurity.</li> </ul> |
| Skills and labour shortage in the region.   | <ul style="list-style-type: none"> <li>• Increased focus on mechanisation.</li> <li>• Increased focus on automation and robotics.</li> <li>• Increased focus on mechanizing manual labour work and upskill these workers.</li> </ul> | <ul style="list-style-type: none"> <li>• Investment in tertiary and skills training.</li> <li>• Expedite residential zoning and consenting to make housing affordable.</li> </ul>                              |

## **Appendix 10: Inherent / Persisting Risk**

### **Background**

The Te Tairāwhiti district landscape consists predominantly of steep hill country, coastal plains, and river valleys. The nature of the land presents an inherent risk of failure that will persist regardless of the land use.

A significant factor contributing to failure risk is the region's geology. The land is characterised by a mix of sedimentary, volcanic, and metamorphic rocks that are prone to landslides, erosion, and soil instability.

For example, the Waiapu and Waipaoa Rivers carry the most sediment in the North Island, transporting 39.6 Mt/y and 9.9 Mt/y, respectively (NIWA, 2019). Their combined load represents 44.8% of the North Island load and 27.3% of the national load (NIWA, 2019). Detailed studies in the Waipaoa catchment at East Cape have estimated that the pre-human sediment load was only about 15% of the contemporary load, with most of the increase occurring following European deforestation (NIWA, 2019).

Erosion and landslip risk is exacerbated by land use practices. For example, the development of intensive farming in the region involved clearing indigenous vegetation for pasture land which led to soil erosion and increased water runoff. This, in turn, led to landslides, riverbank erosion, and other forms of land degradation.

In response, successive Governments sponsored afforestation programmes that resulted in much of the Region's plantation forests. These forests were often planted within a very short time and, consequently, are being harvested over an equally short time - creating a new risk of erosion and slope failure in harvested areas or areas of young trees.

However, as Cyclone Gabrielle and preceding events showed, slope failure has not been restricted to harvested areas or young trees with both indigenous and areas of pine trees greater than 10 years of age subject to slope failure. This reflects the inherent risk and history of the land.

The largest population concentration in the region is situated in Tūranganui-a-Kiwa Gisborne with Tolaga Bay and Ruatoria being the next largest concentrations. These population centres are clustered around major rivers so that most people in the region live in or adjacent to flood plains which increases the risk of damage to homes during intense weather events.

Rivers not only spill onto flood plains, it is where debris and silt is deposited - which is what creates the fertile flood plains that agriculture and horticulture often rely on. However, as history shows, these plains come with inherent and persistent risk that requires major engineering works to mitigate - works that provide unjustified levels of comfort for many leading to investments in buildings and infrastructure. The inherent risks of these decisions is either not recognised or is significantly discounted.

## Appendix 11: Potential Solutions

Internal to Plantation Forests (green text) – for immediate neighbour/ community (blue text) – both parties (black text)

| Timeframe         | Area       | Solution  | Government support                      | Benefits   | Risks  | Integration |
|-------------------|------------|---|---|--|--|-------------|
| Current Practices | Discharges | <p>1. <b>Improved Harvesting Practices to reduce the waste material able to be mobilised in severe weather events.</b> This includes the following already in place</p> <ul style="list-style-type: none"> <li>• Rehabilitation of landings</li> <li>• Post Operations cleaning of waterways (some)</li> <li>• Binwood removal/sale</li> <li>• Harvest waste placement</li> <li>• Catchment management</li> <li>• Mechanical falling to reduce breakage</li> <li>• Pre-bunching to optimal extraction lines.</li> </ul> | None. BAU and already current practice. | Reduced material left in forest that can be mobilised. | <p>Public Knowledge and awareness of effectiveness of management strategies already in place currently lacking.</p> <p>Does not eliminate the risk of woody debris mobilising on Tertiary Mudstone geology prone to landslide failures</p> <p>Trade off between Health &amp; Safety and Environmental outcomes. Some debris left on slopes like windthrow is too dangerous to extract.</p> |             |

|                                 |  |   |  |                   |  |  |
|---------------------------------|--|---|--|-------------------|--|--|
| <p><b>Current Practices</b></p> | <p>Discharges High Risk land Land management</p> | <p>2. <b>Improved Engineering Practices to reduce the likelihood of widespread infrastructure failure leading to woody debris mobilising in severe weather events.</b> This includes the following already in place, which could be supplemented by further financial support for research:</p> <ul style="list-style-type: none"> <li>• Harvest Planning improvements e.g. geometric engineered design for all road and landing builds</li> <li>• Grass seeding of exposed disturbance</li> <li>• Earthworks quality/standards</li> <li>• Compaction of fill</li> <li>• Reduced sidecast and unmanaged fill.</li> <li>• Increased use of slope maps/terrain modelling</li> <li>• End haul of surplus fill</li> </ul> | <p>Support research and trials through Te Uru Rakau or other Forest Industry organisations like FGR (Forest Growers Research).</p> <p>Increased investment in harvesting and engineering technologies to overcome the current trade-off between health and safety and environmental outcomes</p> | <p>Resilience</p> |  |  |
| <p><b>Current Practices</b></p> | <p>Discharges High Risk land Land management</p> | <p>3. <b>Improved ‘other’ forestry Practices to reduce the waste material able to be mobilised in severe weather events.</b> This includes the following already in place</p> <ul style="list-style-type: none"> <li>• Overshowing cutover</li> <li>• Living and mechanical slash catchers</li> </ul>   | <p>Acknowledgment that Industry is making considerable positive steps to reduce risk.</p>  |                   |  |  |

|                                 |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|
| <p><b>Current Practices</b></p> | <p>Discharges<br/>Land Management<br/>High risk land</p> | <p>4. <b>Development and Implementation of Catchment Management – Good Practice Guidelines</b>, which cover:</p> <ul style="list-style-type: none"> <li>• Catchment management planning</li> <li>• Managing the extent of clearcuts - Limiting clearcut size, and staging harvests in a larger catchment.</li> <li>• Leaving mature trees to help trap slash.</li> <li>• Constructing Slash Traps.</li> <li>• Evaluating Slope Stability when Planning (aspect, slope gradient, slope length, stability, risk of landslides, potential amount of harvest residues, gradient of gullies and connectivity to water bodies).</li> <li>• Planting new land and/or replant. The best long-term strategy to mitigate catchment risks of harvest residues migration is through better risk assessment at time of planting forests.</li> <li>• Planting live harvest residue traps in non-production species.</li> <li>• the use of coppicing species</li> <li>• or in some circumstances retirement.</li> </ul> | <p>Enable carbon credit opportunities for pre 1990 forest on high erosion land.</p> <p>Facilitate integrated landscape planning with neighbours, iwi and stakeholders.</p> <p>Take ownership (rather than promote, then prosecute), planning policy, public relations like the soil conservation programme early 1990s.<br/>Risk Management Planning</p> <p>Forward risk management planning for natural deposition of silt and debris.</p> <p>Identify and transition high risk sites and infrastructure.</p> <p>Socialise plan with community.</p> |  |  |  |
|---------------------------------|--|--|--|--|--|--|

| Timeframe                                      | Area   | Solution  | Government support  | Benefits   | Risks  | Integration   |
|--|--|---|---|--|--|---|
| <b>Immediately<br/>(in next 12<br/>months)</b> | Discharges<br>High Risk sites<br>Sustainable<br>Transition<br>Land<br>Management | <p><b>1. Identify areas to be retired from plantation forest land use and vulnerable to deposition from forest discharges*</b> (traditional approx. 30-year rotation of Pinus radiata).</p> <p>The areas to retire could include:</p> <ul style="list-style-type: none"> <li>• skeletal soils,</li> <li>• areas impossible to harvest without significant environmental damage/inability to manage slash,</li> <li>• areas that would never be harvested for safety or access reasons,</li> <li>• areas where soil strength would fail under a heavy crop,</li> <li>• areas that had a very high susceptibility of land-sliding with connectivity to waterbodies</li> </ul> <p>The areas vulnerable to forest discharge should be mapped and resilience building mechanisms identified.</p> <p>These measures could include:</p> <ul style="list-style-type: none"> <li>• identification of infrastructure/investments that is at risk</li> <li>• relocation of dwellings/infrastructure</li> </ul> | <p>Modelling</p> <p>Mapping</p> <p>Consultation and collaboration with stakeholders</p> <p>Communication – regular, timely, with all stakeholders</p> <p>Financial and/or in-kind assistance</p> <p>Indemnity from prosecution based on failures of the land and discharge of sediment, woody debris and slash from the areas to be retired</p> <p>Commitment from GDC to support transitional strategies.</p> <p>Consultation and collaboration with stakeholders/communities.</p> <p>Support research and trials through Te Uru Rakau or other Forest Industry organisations like FGR (Forest</p> | <p>Community understanding of the process and project and the need for a Just Transition</p> <p>Independent modelling and mapping</p> <p>Stakeholder collaboration and consensus</p> <p>Just transition with fair and equitable allocation of costs and benefits</p> <p><b>Ability to make changes for the better, without fear of prosecution and resource expenditure to no material environmental or social benefit</b></p> | <p>Delay in modelling and mapping</p> <p>If modelling and mapping not adequately resourced, it could be sub-optimal. This could be partially off-set by ground truthing.</p> | <p>Community resilience</p> <p>Operationalising research</p> <p>Meaningful Partnerships</p> <p>Innovation</p> |



|   |   |   |  |  |   |  |
|---|---|---|--|--|---|--|
| <p><b>Immediately<br/>(in next 12<br/>months)</b></p> | <p>Discharges<br/>High Risk sites<br/>Land<br/>Management</p> | <ul style="list-style-type: none"> <li>• Protection of at-risk investment if practicable (e.g., stop bank)</li> <li>• identification of where mitigation would be best undertaken on land that is not forest land or in forest ownership (e.g., wetland development, living slash fences)</li> </ul> <p>*Any areas identified by modelling and mapping must be ground truthed to ensure integrity of data and acceptance to stakeholders, Council and Crown</p> <p><b>2. Reduce regulatory barriers</b> that enable slash nets &amp; other mitigants to be expedited.</p> | <p>Growers Research). Build on, trial and integrate research into practices e.g. proven ground cover species to be oversown after harvest. Technology for cleaning out waterways. Contractor and employee training.</p> <p>Support Contractors to transition old or unsuitable harvesting equipment</p> <p>Commitment from GDC to remove regulatory barriers to implementation</p> | <p>Community understanding of the process and project</p> <p>Action on the ground</p> <p>Stakeholder collaboration and consensus</p> | <p>Not all catchments will have areas where these can be installed and maintained regularly.</p> <p>GDC does not take a supportive position and continues to believe that regulation and prosecutions will solve the problem.</p> |  |
|---|---|---|--|--|---|--|

|   |  |  |  |   |  |  |
|---|--|--|--|---|--|--|
| <p><b>Immediately<br/>(in next 12<br/>months)</b></p> | <p>Discharges</p>  | <p><b>3. Communication</b> of erosion &amp; natural processes. There is a real need to inform the communities that transition will take some time but that the industry is committed to positive outcomes but further debris migrations are likely in future large storm events</p>  | <p>Consultation and collaboration with stakeholders</p> <p>Communication – regular, timely, with all stakeholders (regulatory, industry, and community)</p>                            |   |  |  |
| <p><b>Immediately<br/>(in next 12<br/>months)</b></p> | <p>Discharges<br/>High risk land<br/>Land<br/>Management</p> | <p><b>4. Support and Implement further Harvesting &amp; Engineering Developments</b> that reduce woody debris and sediment available to be discharged in large weather events including</p> <ul style="list-style-type: none"> <li>• Reduction of mid slope roading densities</li> <li>• Investment into lower impact harvesting systems</li> </ul> <p>Reduction in landing sizes and further investment in technologies that support de-phased harvesting operations.</p> | <p>Multidisciplinary research review and operationalising and refining of existing tools</p> <p>Dedication of time and resources both at central (MPI / TUR) and local (GDC) level</p> |   |  |  |
| <p><b>Immediately<br/>(in next 12<br/>months)</b></p> | <p>Discharges<br/>Sustainable<br/>Transition</p>             | <p><b>5. Communication</b> of a sustainable transition project to retire unsuitable areas from plantation forestry and the process and support mechanisms for this.</p>  |  | <p>Community understanding of the process and inherent risks</p> <p>Stakeholder collaboration and consensus</p> |  |  |

|   |   |  |   |   |  |  |
|---|---|--|---|---|--|--|
| <p><b>Immediately<br/>(in next 12<br/>months)</b></p> | <p>High risk land<br/>Land<br/>Management</p> | <p><b>6.</b> Identification and assessment of exiting <b>risk assessment tools</b> and, where lacking or further refinement required, commissioning of further work.</p> | <p>Urgency to the completion and implementation of the NES-PF one year review recommendations - support for councils with specific guidance and training on forestry activities</p> |   |  |  |
| <p><b>Immediately<br/>(in next 12<br/>months)</b></p> | <p>Regulatory<br/>Environment</p>             | <p><b>7. Meaningful relationship development</b> between GDC and EWC – similar to Hawkes Bay forestry group model</p>  |   | <p>Upskilling regulators &amp; foresters – field days – operational policy</p> <p>Research and technology adoption</p>  | <p>No consensus on process and support mechanisms</p> <p>Process derailed by extreme views/positions and/or unachievable expectations</p>  |  |
| <p><b>Immediately<br/>(in next 12<br/>months)</b></p> | <p>Regulatory<br/>Environment</p>             | <p><b>8. Review of resource consent conditions</b></p>   |   | <p><b>Solutions focused</b></p> <p><b>Focused resource consent conditions that are meaningful and enforceable, commensurate with the effects of the activity.</b></p> <p><b>Ability to amend consent conditions as we learn more / allow for innovation</b></p> | <p>Lack of robust tools to support process delaying timeframes.</p> <p>Delay in review impacting needed changes now.</p> <p>Staff retention / experience / education and consistency</p> |  |

| Timeframe                        | Area  | Solution  | Government support   | Benefits  | Risks   | Integration  |
|----------------------------------|---|---|--|---|---|--|
| Short term<br>(next 1 – 2 years) | Discharges<br>High risk land<br>Sustainable<br>Transition | <p><i>[Timeframe contingent on robust risk assessment tools being available.]</i></p> <p><b>1. Identify areas to be retired from plantation forest land use and vulnerable to deposition from forest discharges</b> * (traditional approx. 30-year rotation of Pinus radiata).</p> <p>*Any areas identified by modelling and mapping must be ground truthed to ensure integrity of data and acceptance to stakeholders, Council and Crown</p>   | <p>Modelling</p> <p>Mapping (LUC and Landslide Susceptibility at more granular level than 1:50,000)</p>  | <p>As above and</p> <p>Options are available, supported by research</p> <p>Support mechanisms are enabled and appropriately funded.</p>   | <p>As above and</p> <p>Crown or council could choose not to be part of the solution (consider Crown involvement in Matata, post Canterbury Earthquakes)</p> | <p>Transition of forests to indigenous species</p> <p>Community resilience</p> |
| Short term<br>(next 1 – 2 years) | Discharges<br>Sustainable<br>Transition                   | <p><b>2. Determine environmental and socially appropriate alternate land use/cover</b> on a property and catchment scale.</p> <p>Alternate land use/cover could include:</p> <ul style="list-style-type: none"> <li>• Longer rotation production species</li> <li>• Retirement and transition to indigenous vegetation</li> <li>• Retirement and planting with alternate non-production species - e.g., crows nest poplar</li> <li>• Abandonment</li> <li>• Use of temporary fencing vs permanent</li> <li>• Retain current tree cover and convert to carbon forest only</li> </ul> | <p>Research into viable alternate land use/cover</p> <p>Consultation and collaboration with stakeholders</p> <p>Communication – regular, timely, with all stakeholders</p> <p>Financial and/or in-kind assistance</p> <p>Fiscal budget from Crown</p> <p>Willingness and commitment from Crown and Council</p> <p>Indemnity from prosecution based on failures of the land</p> | <p>Just transition is enabled</p> <p>And all parties are aware of what support mechanisms are available.</p> <p>Ability to make changes for the better, without fear of prosecution and resource expenditure to no material environmental or social benefit</p> <p>Stakeholders are informed and engaged in the project</p> |   |  |

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| <p><b>Short term<br/>(next 1 – 2<br/>years)</b></p> | <p>Discharges<br/>High Risk Sites<br/>Sustainable<br/>Transition<br/>Inherent and<br/>Persistent risk</p> | <p><i>Note: none of these options will remove liability in the event of subsequent discharges of slash, woody debris and sediment.</i></p> <p><b>3. Identify support mechanisms</b> to support transition from the plantation forest land use to the alternate land use/cover (and underlying principles – e.g., fair opportunity, comparative justice, Te Ao Māori).</p> <p>Support mechanisms could include:</p> <ul style="list-style-type: none"> <li>• Equitable and effective changes to the Tairāwhiti Resource Management Plan to support land use change including ‘enabling’ regulation as compared to ‘restrictive’ regulation</li> <li>• Council / Crown acquisition of land</li> <li>• Caveat/covenanting of retired land</li> <li>• <b>Compensation to forest owners for loss of value of crop</b></li> <li>• Compensation to landowner for loss of economic use of land</li> <li>• <b>Indemnity from ETS liability</b></li> <li>• Incentives to speed up the land use/cover change.</li> </ul> | <p>and discharge of sediment, woody debris and slash from the areas to be retired</p> |  |  |  |
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| <p><b>Short term<br/>(next 1 – 2<br/>years)</b></p> | <p>Discharges<br/>Inherent &amp;<br/>Persistent Risk<br/>Social licence</p> | <ul style="list-style-type: none"> <li>• Crown willingness to re-address Tiriti o Waitangi Settlements for areas identified as not suitable for plantation forest.</li> <li>• Financial incentives to transition high risk land to alternative land use than pine plantations. Support local native tree nurseries to scale up.</li> </ul> <p><b>4. Enable Efficient and Coordinated collective Regional Response</b> to large storm events that see woody debris mobilise.</p> <p>Development of equitable model of costs across ALL contributing land uses.</p> |  |   |   |  |
| <p><b>Short term<br/>(next 1 – 2<br/>years)</b></p> | <p>Discharges<br/>Land<br/>Management</p>                                   | <p><b>5. Development of Landscape Level Risk mitigation</b> through enabling catchment level discussions, collaboration &amp; direction with neighbours and other key stakeholders</p>  |  |   |   |  |
| <p><b>Short term<br/>(next 1 – 2<br/>years)</b></p> | <p>Regulatory<br/>Environment</p>   | <p><b>6. Well-resourced regulatory team dedicated to forestry activities</b></p>  | <p>Resources allocated to forming regional planning and monitoring resource dedicated to Forestry activities</p> | <p>Focussed resource consent conditions that are meaningful and enforceable, commensurate with the effects of the activity.</p> | <p>Staff retention / experience / education and consistency</p> |  |

| Short term<br>(next 1 – 2<br>years) | Viable market  | 7. <b>Investigation and support for future development of viable market for forestry debris</b>   | Resources allocated to investigation of barriers for the development of a viable market for debris.  | Timely granting of resource consents<br><br>Compliance inspections that are timely, focussed and from a collaborative perspective first before enforcement (in line with council enforcement policy).<br><br>Government led to being grater high-level coordination to project that has otherwise been disparate. |   |   |
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| Timeframe                           | Area   | Solution  | Government support   | Benefits  | Risks   | Integration   |
| Medium term (3 - 5 years)           | Sustainable transition                               | 1. <b>Identify and establish support mechanisms</b> to support transition from the plantation forest land use to the alternate land use/cover.      | Consultation and collaboration with stakeholders<br><br>Willingness and commitment from Crown and Council<br>Financial and/or in-kind assistance | Stakeholder engagement and consensus at a property and catchment level.<br><br>Research based decisions   | Not everything can be achieved at the same time and with pace | Transition to indigenous vegetation<br><br>Community resilience |
| Medium term (3 - 5 years)           | Sustainable Transition<br>Inherent & Persistent Risk | 2. <b>Plan for transition</b><br>Determine the actions and timeframes required for the successful transition on a property scale (output = Property | Fiscal budget<br><br>Dedicated task force to develop and confirm   | Knowledge of options and support mechanisms   | Transition Plan will be variable across the community         |   |

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|  | Regulatory environment | <p>Transition Plan and catchment scale (Catchment management plan).</p> <p>Options could include:</p> <ul style="list-style-type: none"> <li>• Poisoning existing plantation forest crop</li> <li>• Planned/staged harvesting of the existing plantation forest crop (could be at sub optimal age)</li> <li>• Abandonment of the existing plantation forest crop for natural transition to indigenous vegetation</li> <li>• Felling existing plantation forest crop to waste (leaving a woody debris liability)</li> <li>• Managed retreat from high risk downstream area including relocating building and infrastructure.</li> </ul> <p>Other actions could include:</p> <ul style="list-style-type: none"> <li>• Physical work</li> <li>• Land acquisition</li> <li>• Compensation</li> <li>• Caveats/Covenants on Titles</li> </ul> <p>Consider ongoing requirements/implications from:</p> <ul style="list-style-type: none"> <li>• NPS-IB</li> <li>• Pest management (wildings, animals, weeds)</li> </ul> | <p>Property Transition Plans and catchment management plans.</p> <p>Indemnity from prosecution based on failures of the land and discharge of sediment, woody debris and slash from the areas under Property Transition Plans</p> | <p>Ability to make changes for the better, without fear of prosecution and resource expenditure to no material environmental or social benefit</p> |  |  |
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| <p><b>Medium term (3 - 5 years)</b></p> | <p>Regulatory Environment</p>  | <p><b>3. Effectiveness and efficiency review of Tairāwhiti Resource Management Plan rules more stringent than NES-PF</b></p>   | <p>Resource allocated to allow for efficient and effective regulatory process</p> <p>Consultation and collaboration with stakeholders</p> <p>Communication – regular, timely, with all stakeholders</p> | <p>Fit for purpose regulatory regime that is outcome focused</p> <p>Equitable and effective changes to the Tairāwhiti Resource Management Plan to support land use change including ‘enabling’ regulation as compared to ‘restrictive’ regulation</p> <p>Stakeholder collaboration and consensus</p> | <p>Staff retention / experience / education and consistency</p> |  |
| <p><b>Medium term (3 - 5 years)</b></p> | <p>Land Management<br/>High risk land<br/>Inherent and persistent risk</p> | <p><b>4. Additional / supplementary land management practises</b><br/>Building on the measures already implemented behind forestry gates since 2018 to:</p> <ul style="list-style-type: none"> <li>Mosaic of Pinus Radiata planted on the high productivity/low risk sites only, coupled with alternative species on protection zones (streams, earthflows, landslide sites).</li> </ul> |   |  |   |  |

|                                      |  | <ul style="list-style-type: none"> <li>• Larger stream setbacks but planted in alternative fast growing tree species that prevent woody debris migration at next harvest.</li> <li>• Promotion of natives on landslide prone sites is much longer-term strategy only or will only lengthen the window of vulnerability and not enhance shorter term defence needed to hold back wood residue migration.</li> <li>• Development of a mosaic harvest regime for next rotation.</li> <li>• Enhance opportunities for lower impact harvesting systems.</li> </ul> |  |   |                                       |   |
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| Timeframe                            | Area                                   | Solution  | Government support   | Benefits  | Risks                                 | Integration   |
| Long term (5-10 years)               | High Risk Sties Sustainable Transition | <b>Ongoing management and support of Property Transition Plans / Catchment Management Plans</b> as specified or authorised by amendment in the Property Transition Plan.  | As above and<br>Monitoring and measuring change.<br><br>Adjusting actions according to information from research | As above  | As above                              | As above  |
| Timeframe                            | Area                                   | Solution  | Government support   | Benefits  | Risks                                 | Integration   |
| Far into the future (10 – 100 years) | Discharges Sustainable Transition      | <b>1. Ongoing management of retirement areas</b> as specified or authorised by amendment in the Property Transition Plan.   | Communication<br><br>Monitoring<br><br>Measuring change  | Engaged stakeholders<br><br>Knowledge of effectiveness on interventions | Financial costs may not be sustained. | Community resilience<br><br>Transition to indigenous vegetation |

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| <p><b>Far into the future (10 – 100 years)</b></p> | <p>High Risk sites<br/>Land<br/>Management</p> | <p><b>2. Long term sustainable management of properties and catchment</b></p> | <p>Task force / people resources for implementation (could include redeployment of existing food and fibre workers).</p> <p>Indemnity from prosecution based on failures of the land and discharge of sediment, woody debris and slash from the areas to be retired.</p> |  | <p>Financial costs may not be sustained.</p> |  |
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