



Aratu Forests limited  
Level 2  
77 Peel Street  
Gisborne  
4010

## Questions and answers

### **Why is Aratu planning to install debris nets?**

Aratu is proposing to install three debris nets at Te Marunga, Waimanu and Wakaroa Forests as part of a range of measures it is using to reduce the migration of woody debris from its plantations. These are recognised around the world as a robust additional measure of protection alongside other forest management practices to minimise woody debris accumulating in plantations.

### **Why is Aratu now proposing this after the damage caused by recent storm events?**

Aratu first proposed the installation of two debris nets in 2019 across tributaries of the Waimata and Uawa rivers. This followed storm events in 2018. After consultation with the community and the Gisborne District Council Aratu submitted a resource consent in March 2019.

After almost three years of consultation with the council and considerable investment, Aratu withdrew its application in December 2022 as the pathway to getting approval was unclear. Aratu had received positive feedback from local communities during the initial consultation for that application.

Forestry owner Rayonier gained consent from Hawke's Bay Regional Council to construct a similar debris net in its Matariki forest near Wairoa. This consent was granted quickly, and the net has proven effective (see answer below).

While the result in Tairāwhiti was disappointing in the light of the 2023 storm events, Aratu continued to examine the advantage of debris nets leading to the current proposals.

### **How effective are debris nets in major storms?**

Debris nets have been proven effective around the world at saving lives, buildings and land from the impact of storm events and rock falls. In forestry environments, these highly engineered structures provide an effective mechanism to trap large woody material in waterways before being discharged further down the catchment. The flexible design allows the nets to soak up impacts in much the same way as the crumple zone in a car protects its occupants during a crash. The nets are held in place by 20 or more rock anchors, each around 8m long, and individually tested to ensure their holding capacity.

The nets are designed to allow water to continue to pass through and over the top and remain intact. The nets are comprised of flexible rings made from high tensile strength steel. These have a high elastic/plastic energy absorption capacity meaning they can withstand multiple impacts from rock falls and avalanches, as well as from woody debris. At the top of every barrier a wingle extension rope concentrates the debris flow material to the middle of the barrier to avoid erosion of the stream banks.

The nets are to be placed in easily accessible locations to allow debris to be removed post storm events. They are commonly installed on a straight section of river, with sufficient bank height at either side for anchoring.

### **Why has Aratu chosen to partner with Geobrugg?**

[Geobrugg](#), a Swiss company established in 1888, has pioneered the development of high strength steel wire debris nets to mitigate geohazards in various locations from rivers to cliff faces. In the last 10 years Geobrugg has installed over 250 debris flow barriers in more than 25 countries including New Zealand. Aratu has chosen to partner with Geobrugg given its successful track record - it has over 60 years' experience with over 350 employees in more than 50 countries.

### **What is New Zealand's experience with debris nets?**

The nets have been successfully trialled by Rayonier in its Matariki forest in northern Hawke's Bay across a tributary to the Mohaka, below an 800-hectare catchment. Since installation, the net has been subject to three debris flows where it prevented a significant amount of material from migrating downstream. In all these events the net has easily supported the weight of the debris and only minor maintenance has been required after each event. The success of this net was recognised by the Ministry for Primary Industries which noted in its 2024 slash risk management handbook that "since installation it has successfully captured slash and other woody debris mobilised by rainfall induced landslide events".<sup>1</sup>

Following the 2016 Kaikoura earthquake a series of nets were installed along the coastal highway to stabilise cliff faces and protect trains and vehicles from rockfalls. Nets have also been installed in the old Manawatu Gorge, at Springs Junction, and in the Haast Pass area.

### **How is Aratu changing its forest management practices to prevent woody debris migrating in future?**

Since taking over the forests in 2019, Aratu has introduced a range of measures to improve the stability of the environment, and to reduce the amount of woody material that can migrate from plantations during storm events. Some of these measures are required by law under various resource consents and under the National Environmental Standards for Commercial Forestry (NES-CF) and others are additional. Aratu is committed to meeting its legal obligations and going further where necessary. Measures include:

*Removal of debris on hill sites:* On a monthly basis and at the completion of harvest all harvest areas are closely inspected using both visual and AI supported interrogation of high-resolution drone imagery. This allows Aratu to identify any area where accumulations of material need to be removed and confirm when this has been completed.

---

<sup>1</sup> [P69 Slash risk management handbook, Ministry for Primary Industries, June 2024](#)

*Removal of debris on landing sites:* Before 2018 the waste material that could not be sold was often stored on or over the edge of the landing. Aratus current practice is that no waste material should be stored over or on the edge of the landing after harvest (unless deemed of very low risk). During the operation the waste material is carted away for burning or storage in a safe area. At the completion of a harvest any remaining waste is pulled back into the centre of the landing where it cannot migrate during storm events. Wherever possible Aratu has revisited landings used before 2018 and retrieved the material that was left over the edge.

*Roading improvements:* All roads and landings are now designed using a 3D geometric road engineering program. This helps identify and mitigate high risk areas. It calculates how much dirt needs to be shifted as the road is built. It also identifies in advance safe and stable locations where excess material can be stored. Once designed, roads and landings are built to an extremely high standard with specific changes since 2018 around removing organic material from fill, significantly improved compaction of fill material using additional machinery, improving the geometric stability of the fill material by making it less steep, sowing of grass and installing engineered water and erosion controls. Even in the big storms there have been very few slips on the infrastructure built to the new standard. Roding costs have tripled since 2018 largely due to these changes, amounting to additional investment of around \$5 million each year.

*Protection of riparian zones:* Harvest plans have been updated to avoid wherever possible pulling trees over waterways. In some cases, Aratu has also left 30m-60m riparian strips of pine trees to preserve waterways.

*Native plant corridors:* Aratu is increasing replanting setbacks around waterways to create wildlife corridors and protect the waterways. These are replanted or reverted so the areas regenerate in natives which can act as a barrier to prevent trees falling into water as well as promoting biodiversity. The planting of poplar trees is also being trialled around waterways. NES-CF requires 5m-10m setbacks from waterways. Aratu has a minimum setback of 10m to align with Forest Stewardship Council principles. Aratu often sets back further than this on higher risk sites setting back between 30m-250m.

*Planting and pruning regime:* Aratu has changed how it plants and tends trees. The new regime is focused on creating smaller trees (1-2 tonne, as opposed to the current 3-5 tonne) with smaller branches. Due to the difference in size the stems should break less frequently and should reduce the size and quantity of woody debris left in the cutover at time of harvest. This regime should also maintain canopy closure for longer as fewer trees will be taken out during the thinning operation. Canopy closure is important as the canopy intercepts water and reduces the water velocity before it comes in contact with the ground. Without the canopy the water velocity is higher and leads to greater instances of erosion and scouring.

*Catchment constraints:* In Okiwa Forest Aratu is operating under catchment constraints, which restricts the area that can be harvested over a period. This ensures that tree cover is maintained for a longer period and the next rotation of trees is well established before the last mature trees are removed.

**Is Aratu only doing this now knowing a possible Environment Court ruling on Gisborne District Council's enforcement order may force it to install debris nets?**

No. Aratu has long planned to install debris nets since its first attempt in 2019. As there is a legal process underway in relation to the enforcement order Aratu is unable to comment further.