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INFORMATION

- This insert contains the reading text.
- You may annotate this insert and use the blank spaces for planning. **Do not write your answers** on the insert.

This document has **4** pages. Any blank pages are indicated.

The living bridges of Meghalaya

When monsoon clouds bring pelting rains to the community of Tyrna, local villager Shailinda Syiemlieh needs to take the nearest bridge to cross the flooded stream. The bridge is no conventional bridge made of concrete or metal. Instead, it is constructed – or cultivated – from a single giant fig tree that grows by the riverbank. The structure that Syiemlieh walks over is a tangle of exposed aerial roots that have knotted and woven together. This bridge not only blends perfectly into the landscape, it also helps to support the natural ecosystem.

Tyrna lies in the north-eastern Indian state of Meghalaya, which is home to hundreds of these bridges. For centuries, they have helped the indigenous Khasi and Jaintia communities to cross swelling rivers in monsoons. Meghalaya includes some of the wettest locations on Earth. In the past, when monsoon downpours periodically isolated the remote villages from nearby towns, the villagers trained the living exposed roots of Indian rubber fig trees (*Ficus elastica*). 'Our ancestors were so clever,' says Syiemlieh. 'When they couldn't cross rivers, they made the living root bridges.'

Building these bridges takes decades of work. It begins with planting a young sapling of *Ficus elastica* – a tree that grows abundantly in the subtropical climate of Meghalaya – in a good crossing place along the riverbank. First the trees develop large anchoring roots and then, when stabilised, after about a decade the maturing trees sprout secondary, aerial roots from further up the trunk. These aerial roots have a degree of elasticity, allowing them to be joined and intertwined to form stable structures.

Using a method perfected over centuries, the bridge builders entwine the aerial roots onto a bamboo or other wooden scaffolding, coax them across the river and finally implant them on the opposite bank. Over time, the roots shorten, thicken and produce offshoots called daughter roots, which are also trained over to the other side. The builders intertwine these roots with one another or with branches and trunks of the same or another fig tree. They all fuse together – and weave into a dense frame-like structure. This network of roots matures over time to bear loads; some bridges can hold up to 50 people at once.

The generations that follow the initial bridge builders continue to maintain and develop the bridge. While only one person may take care of a small bridge, most bridges require the collective effort of families or even an entire village – sometimes several villages. This process of care and development down the generations can last for centuries, with some bridges being up to 600 years old.

Living bridges are a regenerative form of architecture, growing stronger with time. 'When it rains heavily, small cement bridges wash away and steel bridges tend to rust, but living root bridges withstand the rains,' says Syiemlieh. 'People came to realise that root bridges are much more durable than modern alternatives, and they cost absolutely nothing. So villagers now repair root bridges they had abandoned in the forest valleys.'

Root bridges do not outperform the conventional kind in every sense. For example, a conventional bridge can bear more weight. Unlike conventional bridges though, root bridges are part of their surroundings. Besides producing their own building material, the trees absorb carbon dioxide. Over their lifetimes, they help to stabilise the soil and prevent landslides. While conventional bridges can disrupt the soil layers, root bridges can anchor different soil structures which helps to protect against soil erosion. Fig trees are also a keystone species, promoting biodiversity around them: moss grows on them, squirrels live in their branches, birds nest within their canopy, and they support insects that help with pollination. The process of turning these trees into bridges can help larger animals to thrive in their habitat as well. The living root bridge is embedded within the forest and animals do not differentiate between the bridge and natural forest. Bark deer and clouded leopards are known to use root bridges to move from one part of

the forest to another.

As well as being beneficial to local nature, the root bridges are part of Khasi culture and have always brought economic benefits to the community. In the past, a network of bridges kept villages connected with nearby cities during the monsoon season, providing a pathway for locals to transport and sell betel nut and broom grass. Today, there is the tourism economy they bring, says Syiemlieh. Already popular with tourists, the bridges have been submitted to UNESCO's[1] provisional list for the coveted world heritage site status. This status is awarded to a landmark or area for its cultural, historical or scientific significance. It is hoped that this will preserve the bridges for future generations and also help to boost tourism in the area.

Glossary
[1]UNESCO: United Nations Educational, Scientific and Cultural Organization

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