

# The Great East Japan Earthquake

- Our Contributions to the Recovery Effort -

YOKOHAMA RUBBER  
CSR REPORT 2012

## Up Close

# 1



### Leveraging Our Know-how from the Yokohama Forever Forest Project for a Coastal Levee Project in Otsuchi Town

As an advocate of the "Forest That Protect Lives" project being implemented by Otsuchi Town, located in the Kamihei District of Iwate Prefecture, we will support a project that will serve as a model for future activities.

### Supporting strong and beautiful urban development for the future

Yokohama Rubber is an advocate of the "Forest That Protect Lives" being implemented by Otsuchi Town as part of the vision in its earthquake recovery plan to "our beautiful town, looking out on the sea, inspiring people to take a walk". As the first step, we will support a tree planting project that will serve as a model for future activities.

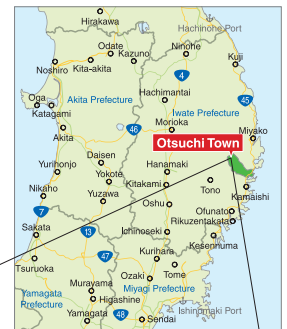
A "Forest That Protect Lives" is a concept first created by botanist Dr. Akira Miyawaki, who is currently serving as an advisor to the Yokohama Forever Forest Project. Essentially, trees are planted atop a coastal levee using the Miyawaki method, which involves planting native tree species to create a forest that is as natural as possible. This same method has been used for the Yokohama Forever Forest Project since its inception in 2007. A forest consisting of native tree species that support one another will form a solid forest floor that cannot be uprooted. This will help mitigate damage from tsunami and tidal surges. The lush green forest will also provide a beautiful landscape as well as give a sense of peace and serenity to the people living in the local community.

We hope to utilize the know-how gained from the Yokohama Forever Forest Project for the recovery and revitalization of Otsuchi Town. With this commitment in mind, we will actively implement and support tree planting activities together with members of the local community. On April 30, 2012, we held a tree planting event that included volunteers from the community and Yokohama Rubber.

A tree planting event was held on April 30, 2012 on a mound created onsite at the Otsuchi Water Treatment Center to serve as a model for the actual coastal levee.



Tree planting event attended by many in the local community



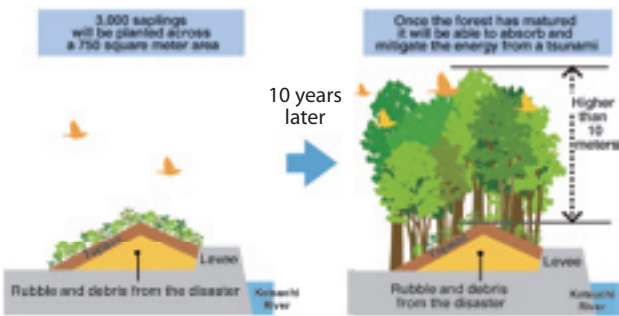
Regional and Local Map of Otsuchi Town

## Creating a safer, more secure coastal levee by effectively utilizing rubble and debris from the disaster

A unique feature of the "Forest That Protect Lives" concept is that rubble and debris still remaining from the disaster will be effectively used in the foundation. First, rubble and debris will be sorted and buried in the ground. On top of this a mound will be formed on which trees will be planted. This will create a layer of air between the rubble and soil, which will enable the roots of the newly planted trees to dig deeper into the ground. The tree roots will envelope the rubble, making the forest above stronger and more stable.

Building up the mound will ensure it serves as a safety net against future tsunami, while the act of tree planting will help heighten everyone's awareness toward disaster preparedness.

### Coastal Levee Plan



Conventionally, pine trees, which grow quickly and are tolerant of salt water environments, have been the tree of choice for tide-water control forests. However, research conducted on areas affected by the disaster showed that pine trees were weaker in terms of soil retention and more prone to falling. This demonstrated that pine trees would not function effectively in a tide-water control forest in these areas.

Native tree species planted using the Miyawaki method are ideal for creating a strong underground root system that provides stability. This will help mitigate tsunami damage and provide additional time to evacuate. At the same time, the forest will also help prevent people from being swept out to sea when a tsunami recedes.

Yokohama Rubber is committed to supporting this "Forest That Protect Lives" because it will help safeguard the lives of everyone in the local community.

## Message to Yokohama Rubber

Yokohama Rubber has helped to create valuable forest by planting some 500,000 trees of potential natural vegetation both in Japan and overseas under the aim of coexistence with leading technologies. Using this knowledge, Yokohama Rubber has taken the first-ever approach of creating a forest for mitigating disaster damage and conserving the environment from earthquake rubble and debris in Otsuchi Town, which suffered serious humanitarian and infrastructure damage due to the Great East Japan Earthquake. I am deeply appreciative of Yokohama Rubber Chairman Nagumo and President Noji as well as everyone involved in this project for taking the initiative to create a genuine furusato (hometown) forest that coexists with the local economy, helps safeguard members of the local community and protects the entire community from inevitable disasters, such as earthquakes, tsunami or fires. I look forward to the future development and activities of Yokohama Rubber.



**Dr. Akira Miyawaki**  
Plant Ecologist

### Conventional tide-water control forest (Japanese red and/or black pine)

[During a tsunami]



Pine tree roots reach deep into the ground depending on conditions, but in overly damp sandy areas along the coast pine tree roots extend outward, instead of downward, which weakens their stability. Swept away trees pose a threat to people and buildings.

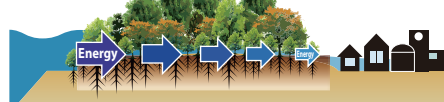
[When receding]



People and property are swept out to sea by receding water

### Future tide-water control forest (greenery that safeguards lives and property)

[During a tsunami]



The multilayered forest will act as a wall that will break up a tsunami and mitigate its energy. This will reduce water levels and flow speed, providing people with more time to evacuate.

[When receding]



People and property will not be swept out to sea.

Source: Website of the Tohoku Council for "Forest That Protect Lives"

## Message from the Mayor of Otsuchi



**Mr. Yutaka Ikarigawa**  
Mayor  
Otsuchi Town, Kamihei District,  
Iwate Prefecture

The rubble and debris from the tsunami symbolizes a part of the lives and in a sense something left behind by those that lost their lives in this disaster. A forest created atop this rubble and debris stands as a final resting place of souls. In this regard, this initiative will be a reminder of this disaster and that we must prevent future occurrences. Reconstructing a town that has lost everything starts from scratch, and in this sense, this forest created atop the ocean in Otsuchi Town will serve as a "Forest That Protect Lives" that helps the entire community drive the recovery effort forward. I am deeply grateful for the extensive assistance being provided by Yokohama Rubber.

## Feedback from a Participant



**Taku Sasaki**  
General manager  
Iwate Branch Head  
Yokohama Tire Japan Labor  
Union

The Sanriku area suffered extensive damage from the tsunami and took countless lives. Among these were our daily business partners, suppliers and the family members of employees. Dealing with such loss has been painful for us all. Since then, I have continually thought of how I, as a local from Iwate, can help restore the once scenic beauty of the Sanriku area. I feel proud of the fact that I was able to take the first step toward this goal by planting trees together with the people of Otsuchi Town. Going forward, I will be closely following the progress of this coastal levee.