Role of Forests in Climate Change Adaptation in The Global South

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Increase in mountain disasters and storm surge damage due to climate change

- Human-induced climate change increases the frequency and intensity of extreme events, causing widespread adverse impacts and associated losses and damages to nature and people beyond those caused by natural climate variability (IPCC AR6 WS2).

- **Uncontrolled** changes in land use in mountainous and coastal areas exacerbate the severity of damage.

- It is necessary to enhance the resilience of mountainous and coastal areas through forest maintenance and development to mitigate the damage caused by natural disasters.

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The Need for Disaster Risk Reduction Utilizing Forests

- During periods of economic growth, traditional land use rules were disregarded, and land use expanded into areas with high disaster risk, resulting in frequent disasters.
- Early adoption of forest conservation techniques for mountain disasters and protective measures against storm surge damage represents a highly cost-effective investment for the future.
- Proper forest management is a feasible measure for disaster risk reduction.

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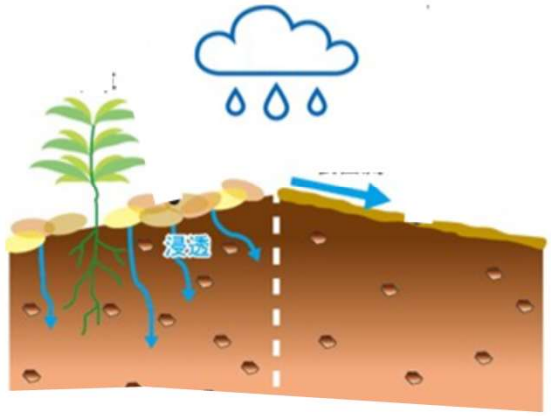
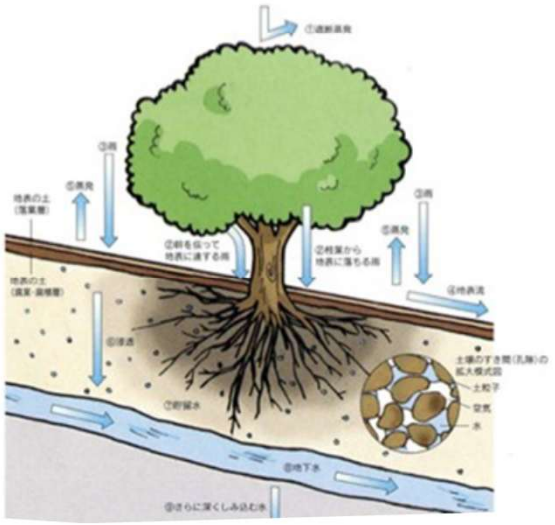
Surface Collapse Prevention

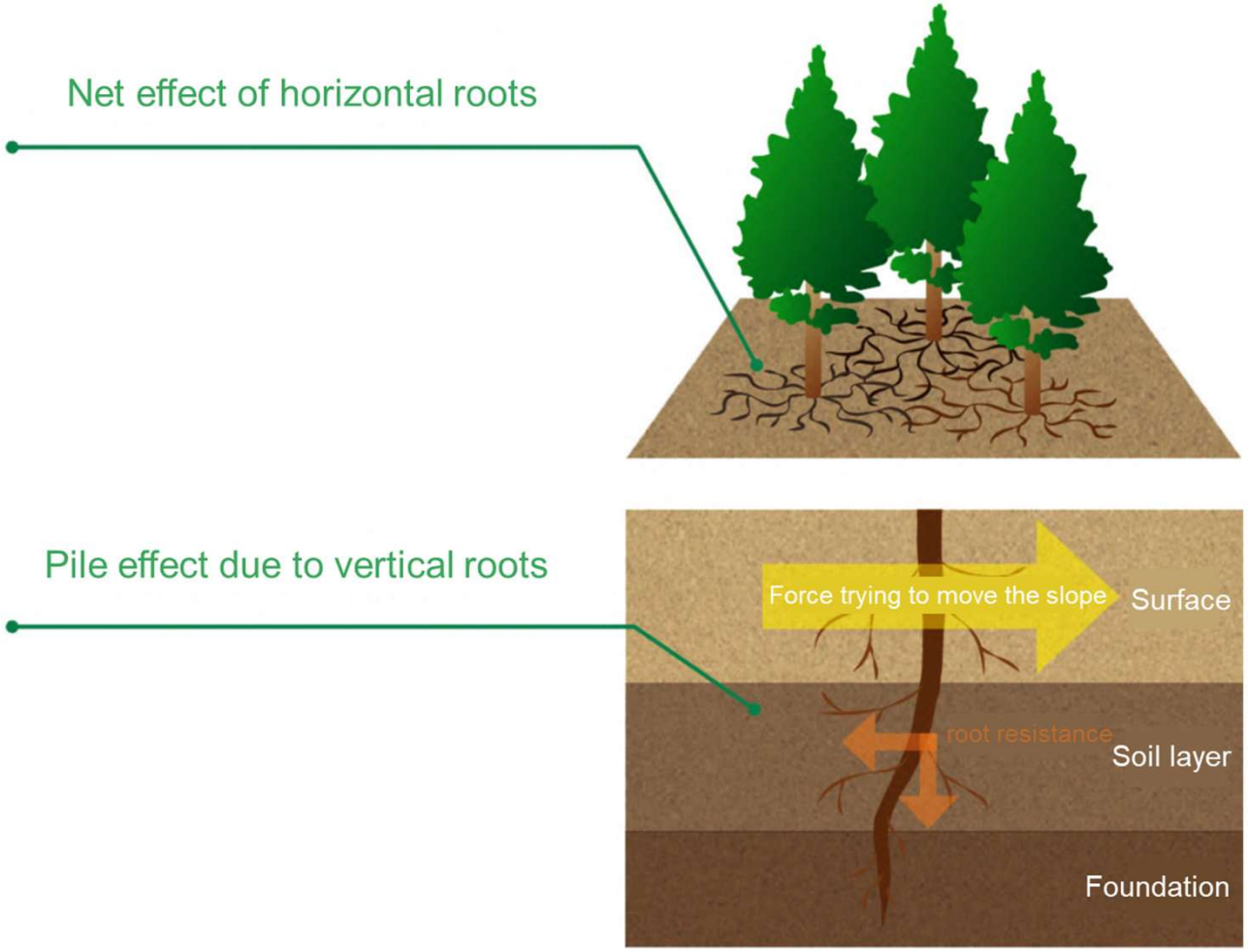
Surface erosion prevention



Flood mitigation

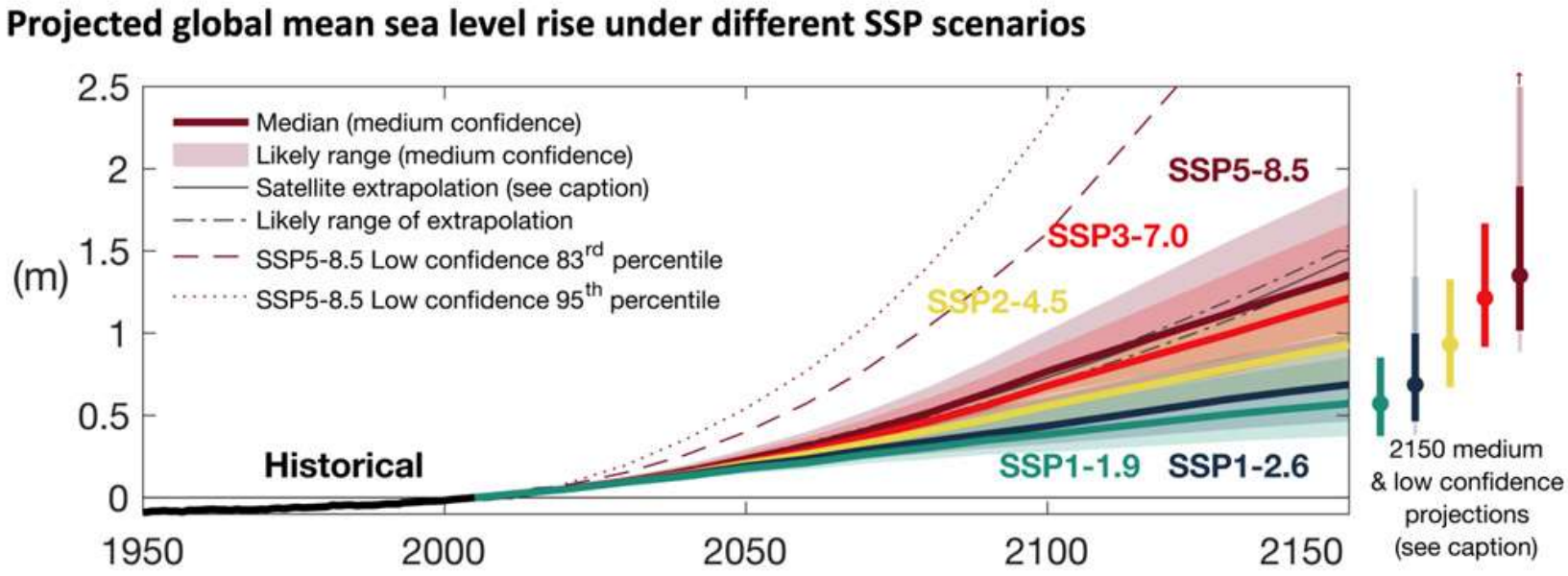


The Effect of Root Systems in Preventing Surface Erosion



Quoted from the Forest Management Division, Forest Conservation Department, Forestry Agency (2023)

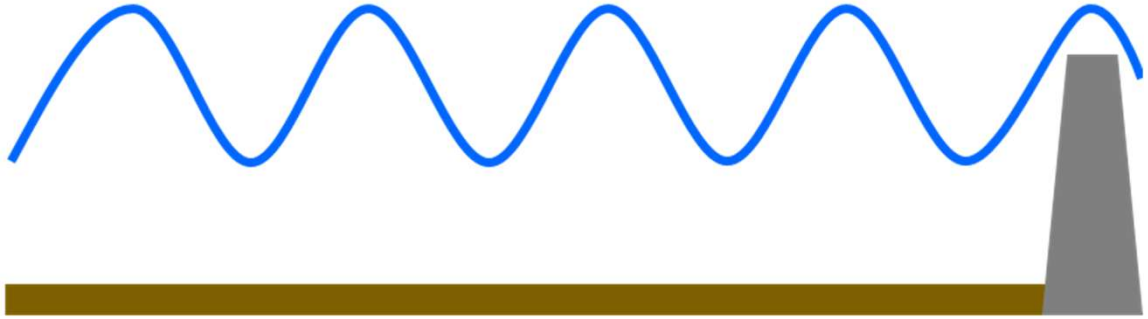
Global climate change is expceted to result in a rise in sea level and a decrease in central pressure, resulting in more large typhoons, increasing the risk of disasters from high waves and storms in coastal areas.



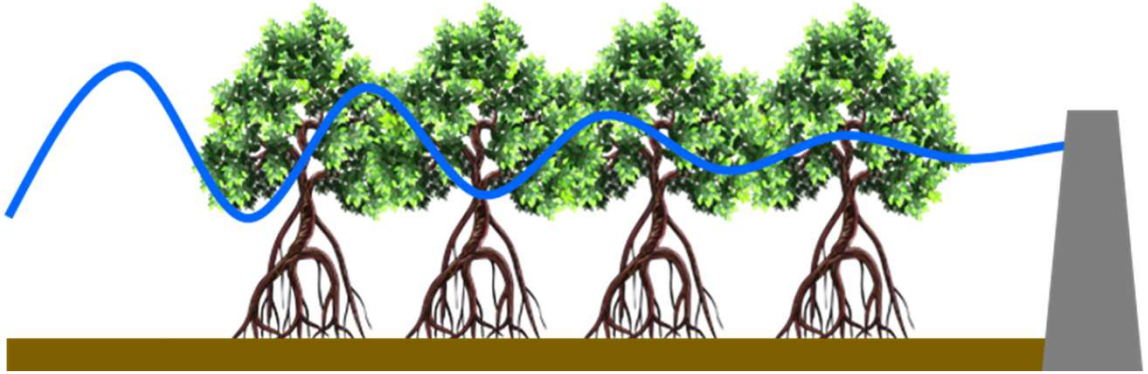
- Mangrove forests have the potential to prevent erosion of coastal areas due to rising sea levels caused by climate change and to reduce the risk of storm surges caused by typhoons, which are expected to become stronger as sea temperatures rise.
- As an action to reduce the hazard of coastal areas exposed to the risk of sea level rise, conservation activities in coastal areas through mangrove reforestation are being actively promoted.

Wave attenuation by mangroves

Without mangroves, the force of the waves is not weakened.



With mangroves, wave energy is reduced.



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Mazda et al. 1997

As a measure to mitigate the risks faced by coastal areas vulnerable to sea level rise, mangrove planting initiatives for coastal conservation are being actively promoted.

Photography by Yasumasa Hirata

To benefit from the disaster risk reduction functions of mangroves

Issues in Mangrove Reforestation

Overcrowded forest stands caused by logging bans

Insufficient post-planting care

Sand deposition due to changes in tidal currents

Photography by Yasumasa Hirata

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