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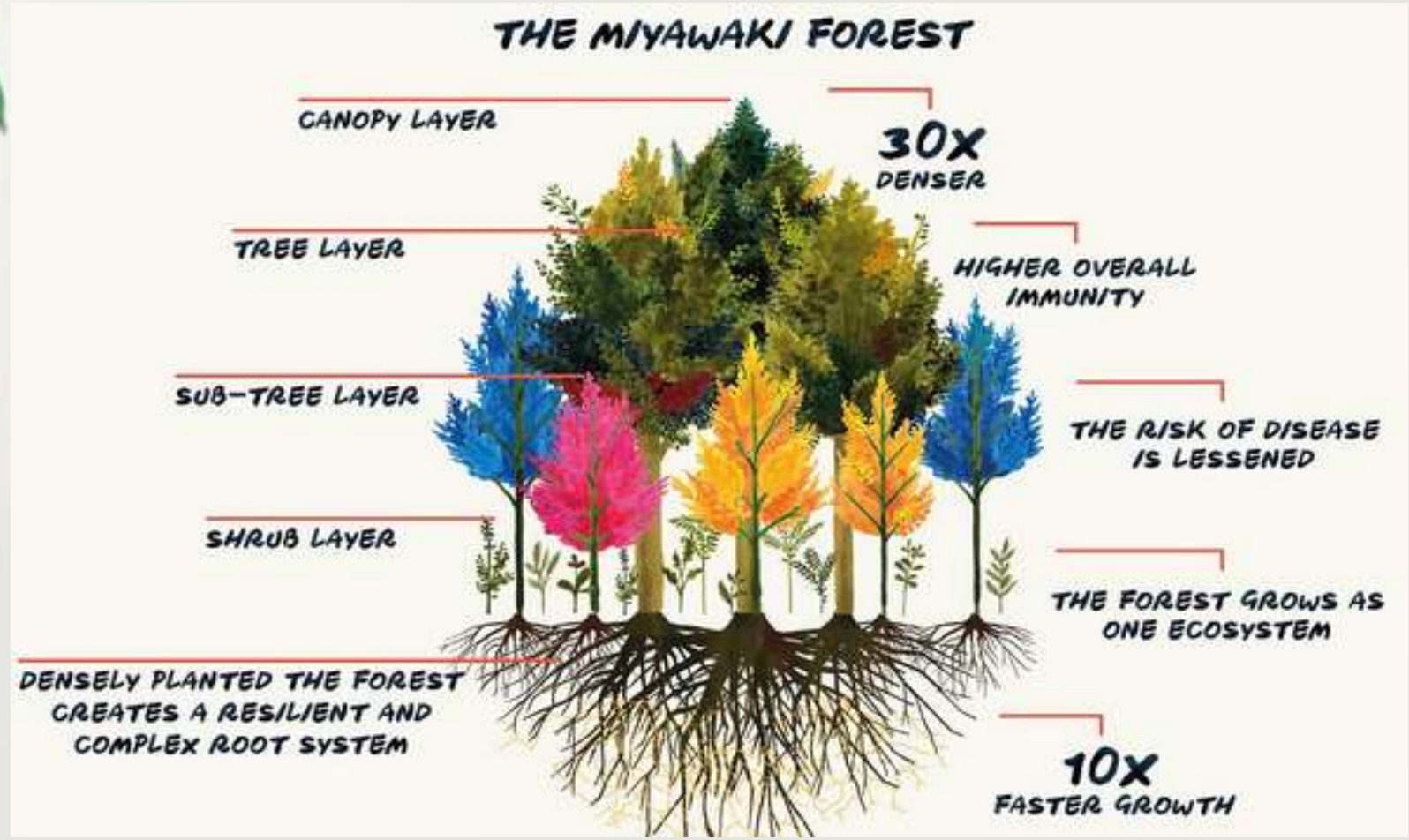
Miyawaki Plantation Method



Why in News?

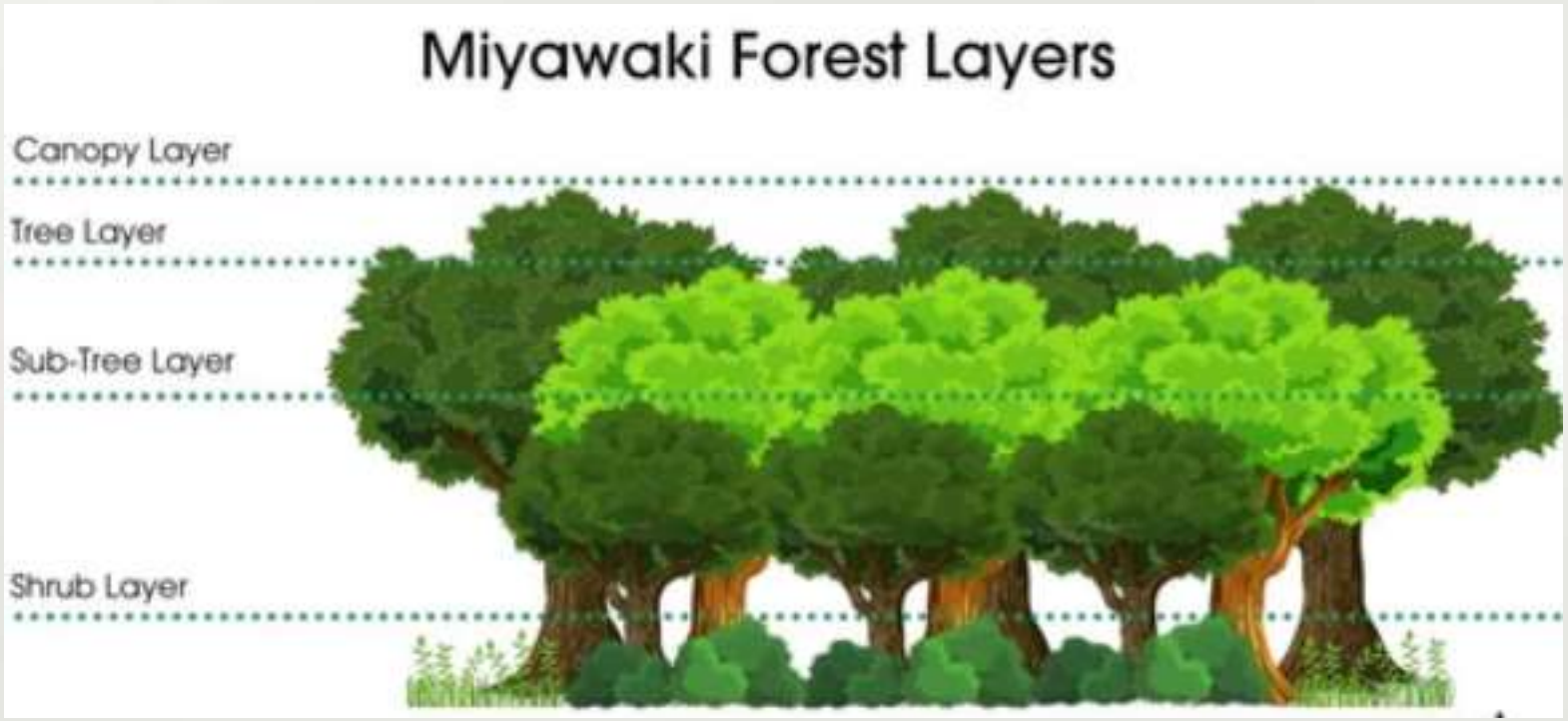
- Prime Minister of India in one of the episodes of 'Mann ki Baat', discussed the concept of Miyawaki plantation
- He shed light on the Japanese technique of establishing dense URBAN forests in limited spaces.
- The PM also cited the example of a Kerala-based teacher, Raafi Ramnath, who used the Miyawaki technique to transform a barren land into a mini forest called Vidyavanam by planting 115 varieties of trees.
- The Brihanmumbai Municipal Corporation (BMC) has also been creating Miyawaki forests in several open land parcels of Mumbai.

ABOUT Miyawaki Plantation

- It was named after Japanese botanist Akira Miyawaki,
- this method involves planting two to four different types of indigenous trees within every square metre.
- The methodology was developed in the 1970s, with the basic objective to densify green cover within a small parcel of land.
- The plants used in the Miyawaki method are mostly self-sustaining and don't require regular maintenance like manuring and watering.

Key principles of the Miyawaki Method

- The essential principle of the Miyawaki method is using species of trees that would occur naturally in that area and that work together to create a diverse, multi-layered forest community.
- This creates a resilient and thriving forest ecosystem with species that complement each other,
- It restores “native forests by native trees”

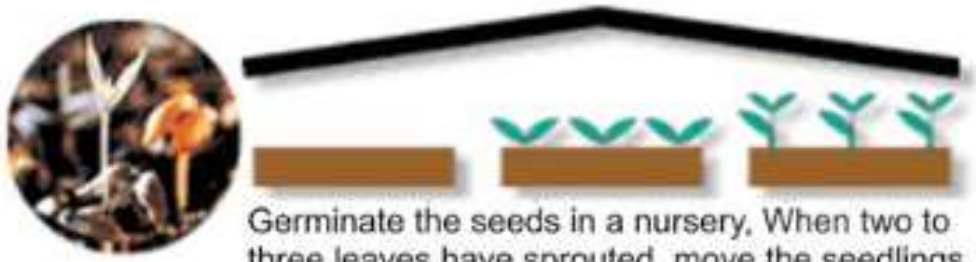


- In a Miyawaki forest, the seedlings are planted at very high densities.
- This replicates the regeneration process that occurs in a natural forest when a clearing in the canopy opens up due to a larger tree falling.
- The saplings grow very fast to compete for the light and then natural selection will favour the fastest growing individuals and act to thin out the trees.
- The result is a densely packed pioneer forest that grows in 20 to 30 years instead of taking 150 to 200 years.

Biodiversity

Planting numerous native species in close proximity to encourage natural competition, symbiotic relationships, and the development of a self-sustaining ecosystem

The Miyawaki method for restoring tropical forests



Germinate the seeds in a nursery, When two to three leaves have sprouted, move the seedlings to pots, Cultivate the seedlings in ports until their root groups generally fill the containers,

Cultivate under nets designed to cut out 60 percent of the sunlight for one to two months

Cultivate under nets designed to cut out 40 percent of the sunlight for one to two months.

Obtain seeds from natural tropical forests

Adapt to the natural environment in an existing forest (period of between one week and one month).

"No management is best management"

Plant and conduct maintenance for one to two years, From the third year entrust the trees to natural management At this point the rule is "No management is the best management"

Benefits of Miyawaki Method

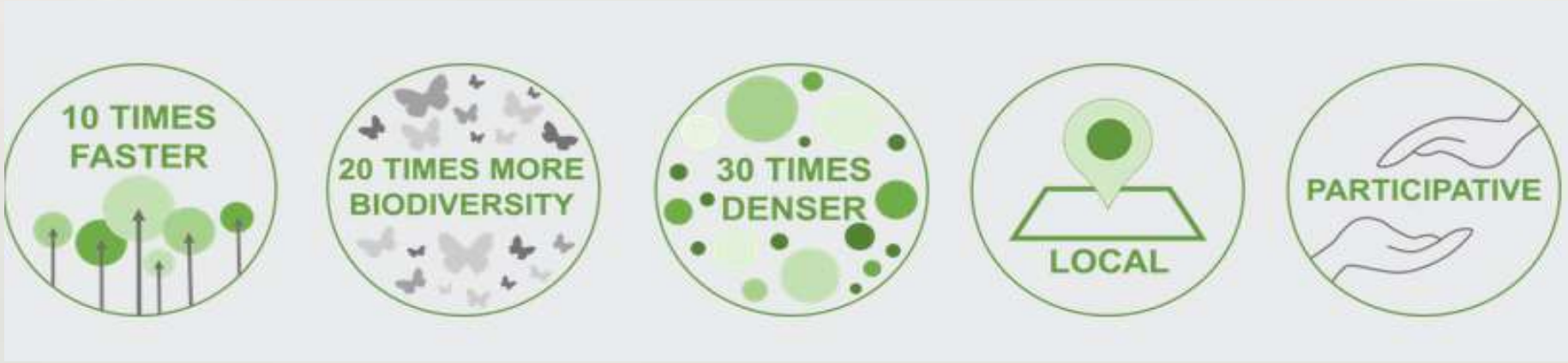
- **Rapid forest development:**

  Miyawaki forests have a **remarkable growth rate**, with **trees reaching maturity in a much shorter time** compared to traditional plantations **due to the dense planting**

  - A study revealed that **Miyawaki forests grow 10x faster**, are **30 x denser** and contain **100x more biodiversity**.

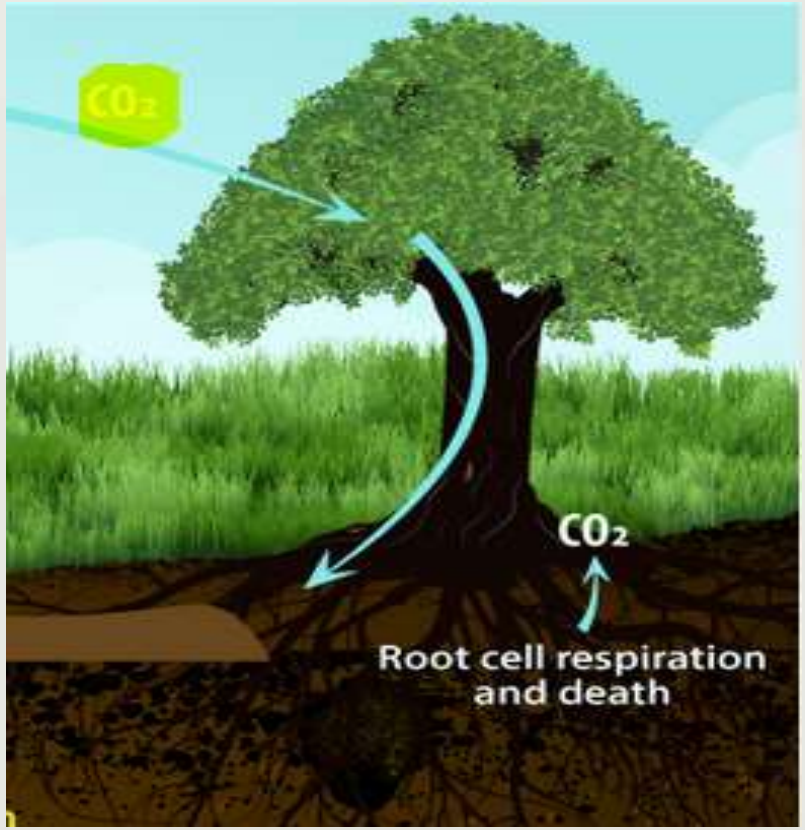
- **High biodiversity**:

  - The Miyawaki Method emphasizes the **planting of a wide variety of native species**
  - These forests **become thriving habitats for birds, insects, and other wildlife**, contributing to **overall ecosystem health and resilience**.



Enhanced carbon sequestration:

The dense vegetation and rapid growth of these forests enable efficient carbon absorption, helping to mitigate climate change and reduce greenhouse gas emissions.



Noise and air pollution reduction:

Miyawaki forests planted in urban areas can help mitigate noise pollution by acting as sound barriers and absorbing sound waves.

Additionally, they contribute to improving air quality by absorbing pollutants and particulate matter, thereby reducing air pollution levels.

Miyawaki Forest Method in Mumbai

- The Brihan-mumbai Municipal Corporation (BMC) has been implementing the Miyawaki forest approach in various vacant land areas of Mumbai to combat climate change, reduce pollution levels, and enhance the city's green cover.
- 54 Miyawaki forests have been planted in Mumbai so far.

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