Role of Trees in Reducing Air Pollution

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forestry, fisheries & the environment
Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Presentation Overview

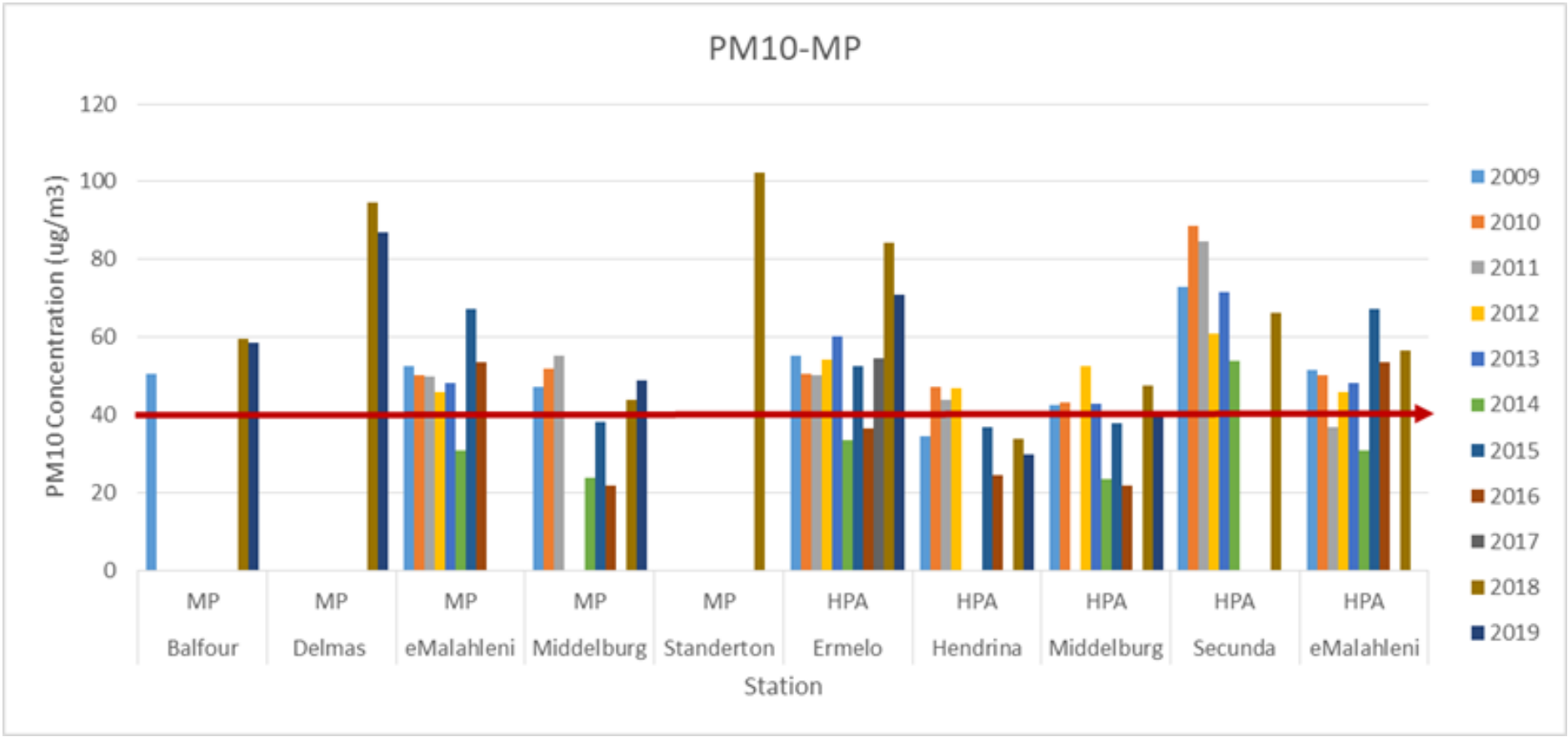
- Air Pollution Overview
- Air Pollution Trends
- National Priority Areas
- Air Quality Improvement Interventions
- Co-benefits of Planting Trees

Overview: Air Pollution Sources

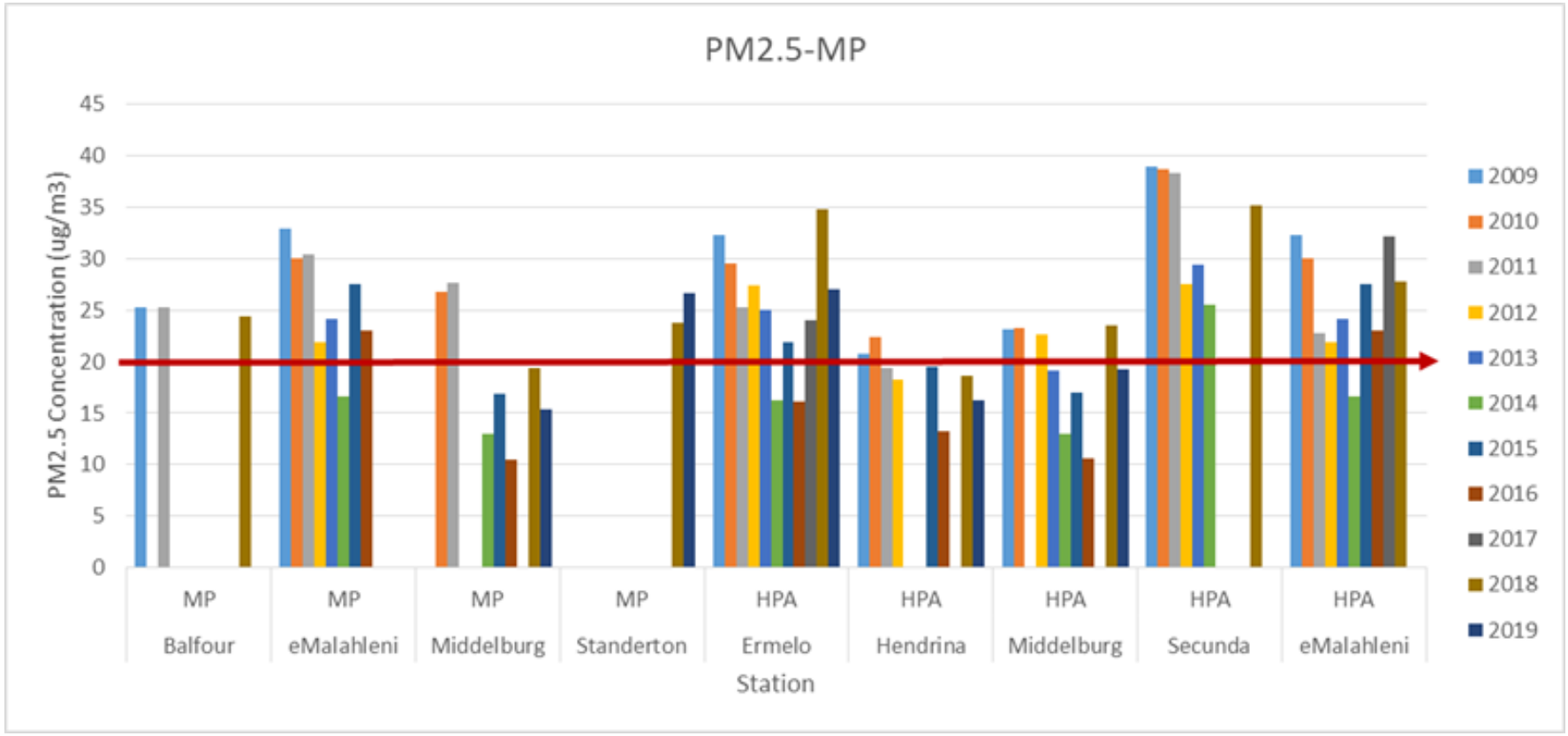
National Ambient Air Quality Standards (NAAQS)

Parameter	Averaging period	Concentration	Frequency of exceedance
PM10	24-hour	75 µg.m^{-3}	4
	annual	40 µg.m^{-3}	0
PM2.5	24-hour	65 µg.m^{-3}	4
	annual	25 µg.m^{-3}	0
SO_2	10-minutes	191 ppb	526
	1-hour	134 ppb	88
	24-hour	48ppb	4
	annual	19ppb	0
NO_2	1-hour	106 ppb	88
	annual	21 ppb	0
O_3	8-hour running average	61 ppb	11
CO	1-hour	26 ppm	88
	8-hour running average	8.7 ppm	11
C_6H_6	annual	3.2 ppb	0

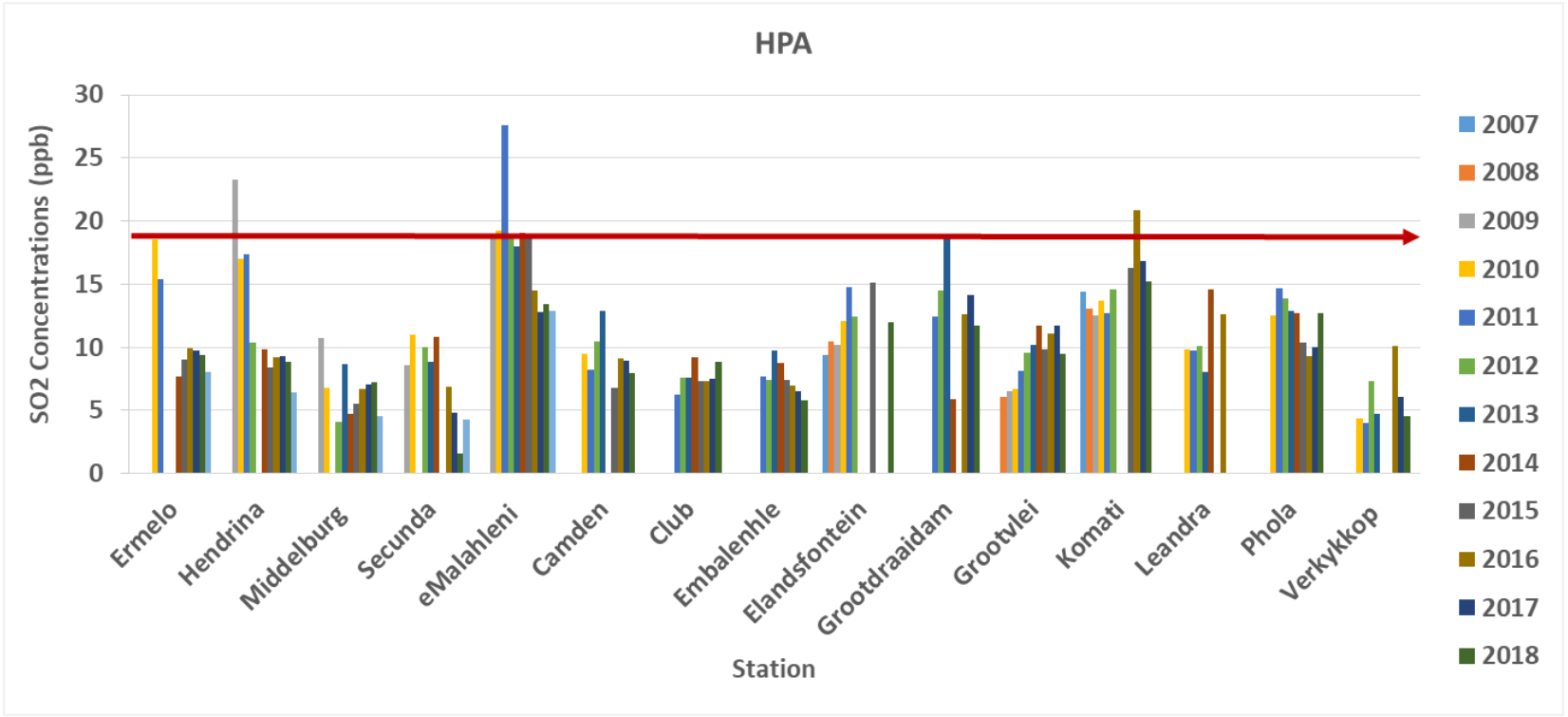
2009-2019 Annual Averages: PM_{10}



2009-2019 Monthly Averages: $PM_{2.5}$



2007-2019 Annual Averages: SO_2



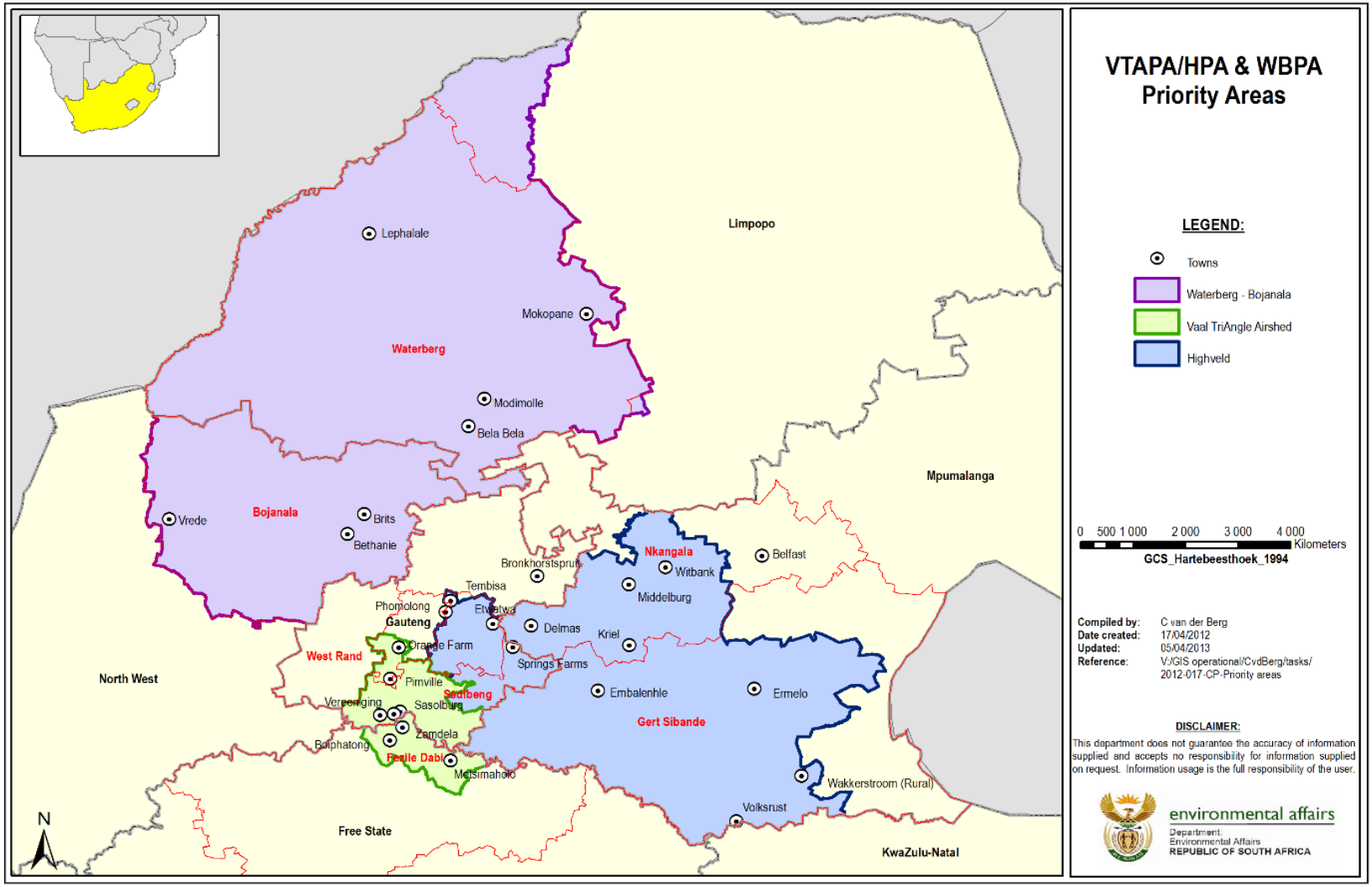
National Priority Areas

The Minister of Environmental Affairs has to date declared three (3) National Priority Areas in terms of Section 18(1) of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (AQA) namely, the:

- Vaal Triangle-Airshed Priority Area (VTAPA) in 2006,
- Highveld Priority Area (HPA) in 2007, and
- Waterberg-Bojanala Priority Area (WBPA) in 2012.

The declaration of the VTAPA and the HPA came about as a result of poor air quality due to industrial activities, domestic fuel burning, waste burning, and mining activities in these areas. The WBPA declaration was in line with the precautionary principle of the National Environmental Management Act (Act No. 107 of 1998) due to planned developments for the area.

National Priority Areas



Challenge of Addressing Air Pollution

- Historic poor spatial planning
  - *Creation industrial hotspots*
  - *Residential areas located in close proximity to industrial activities*
- Heavy dependence on fossil fuels
- Densely populated settlements
- Developing public transport systems

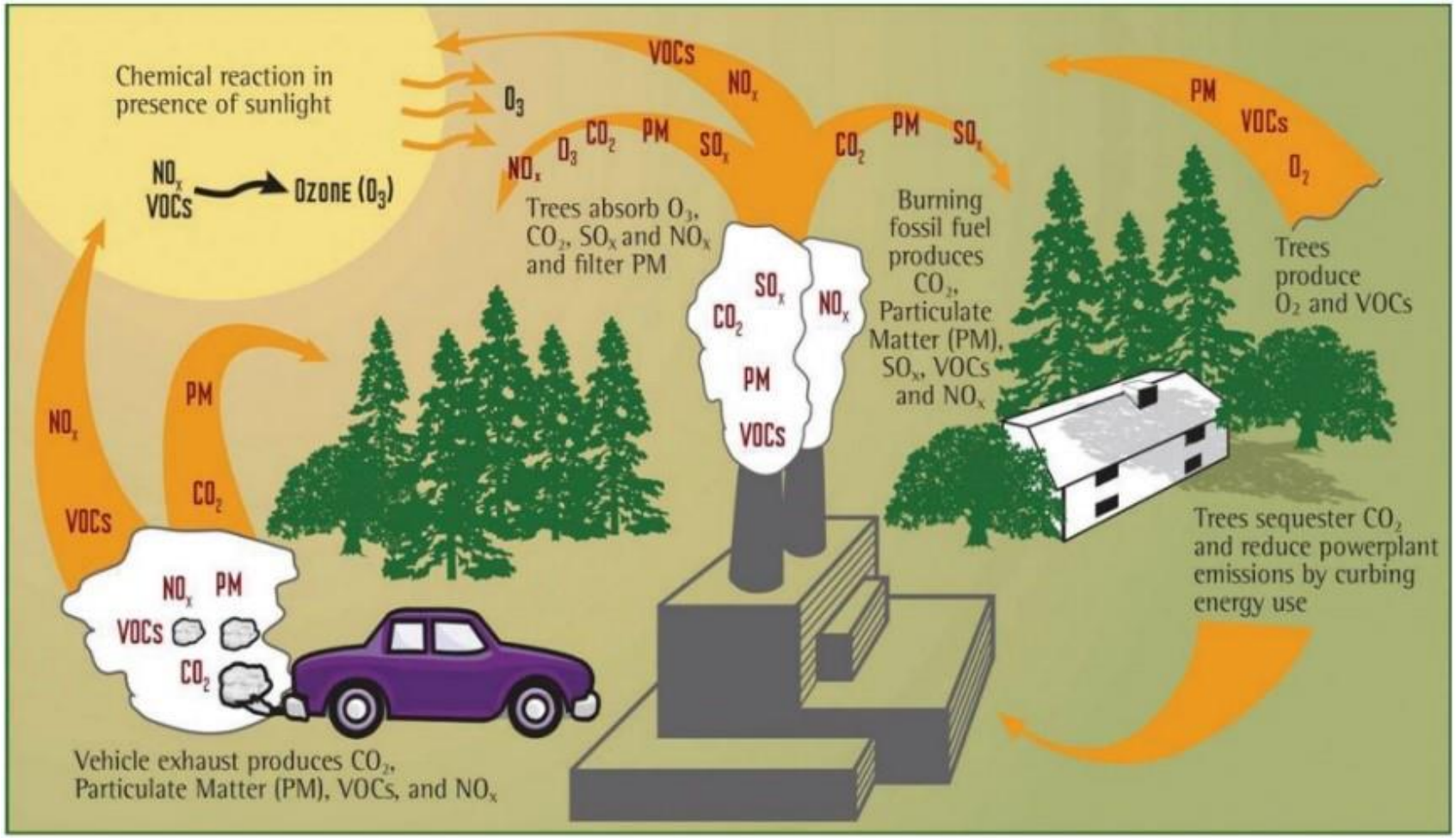
Air Quality Improvement Interventions

Air Quality Improvement Interventions

Awareness on Air Pollution & the Benefit of Trees

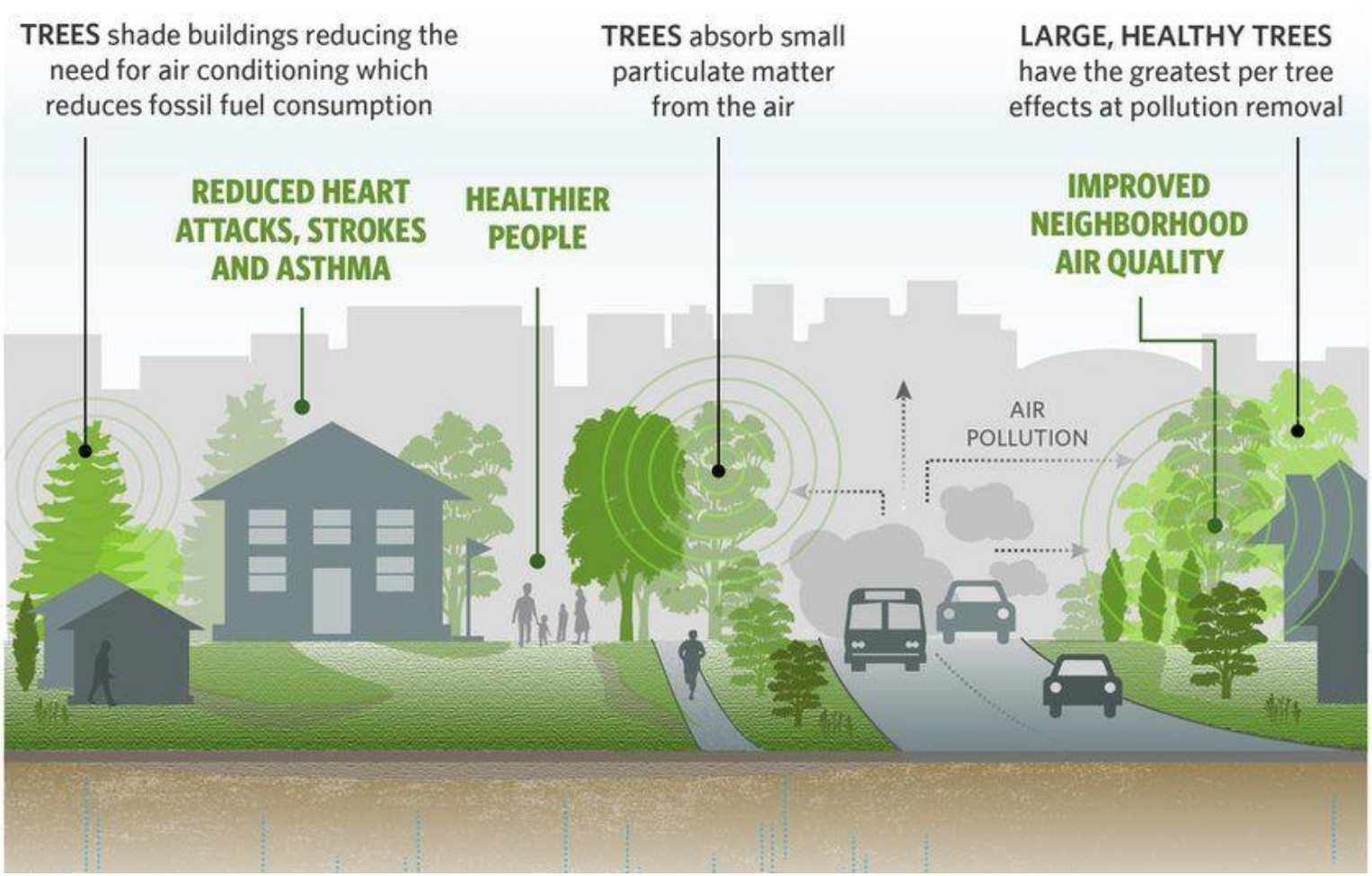
The Nature Conservancy:
Planting Healthy Air

Trees & Air Quality



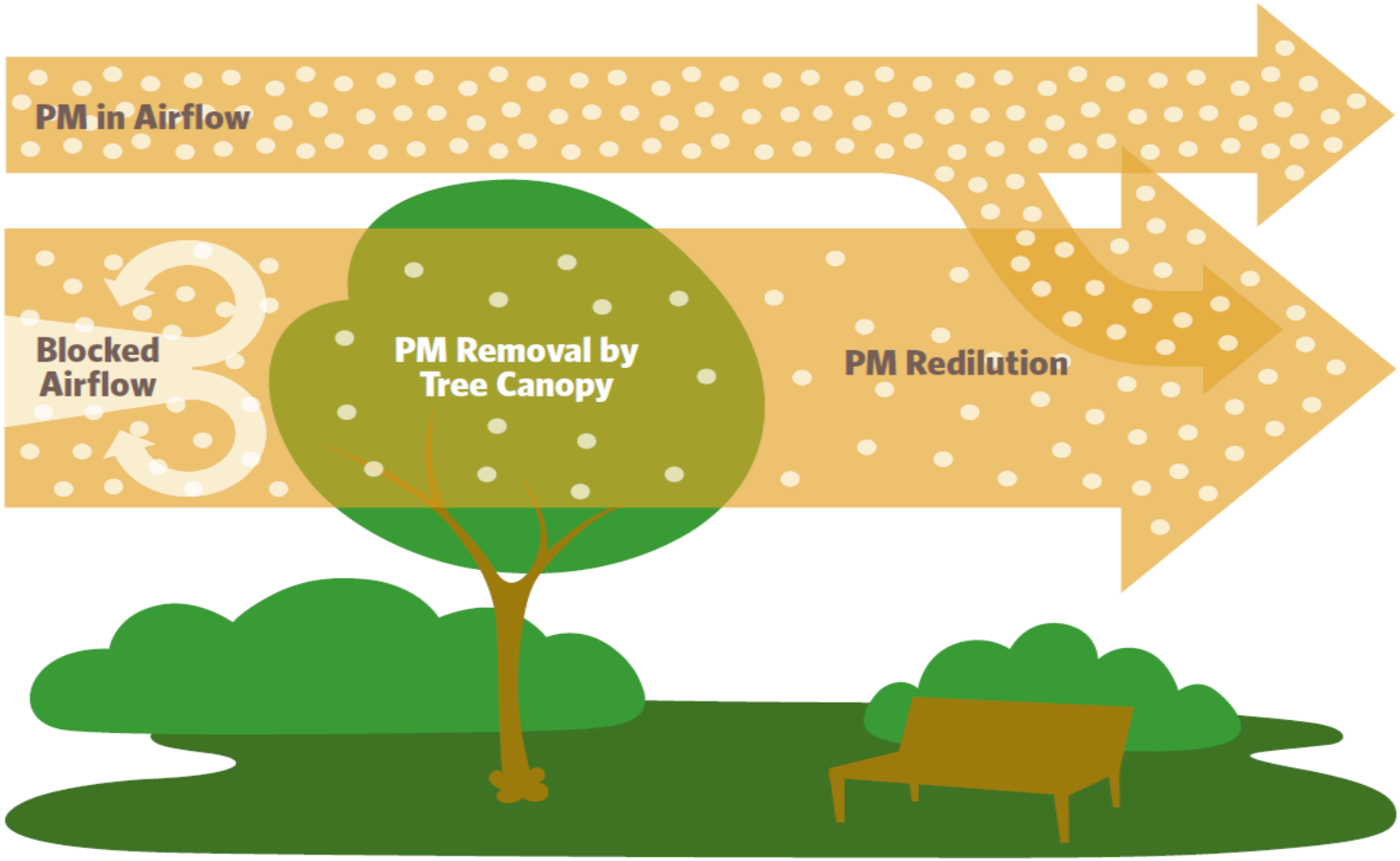
https://www.fs.fed.us/

Trees & Air Quality



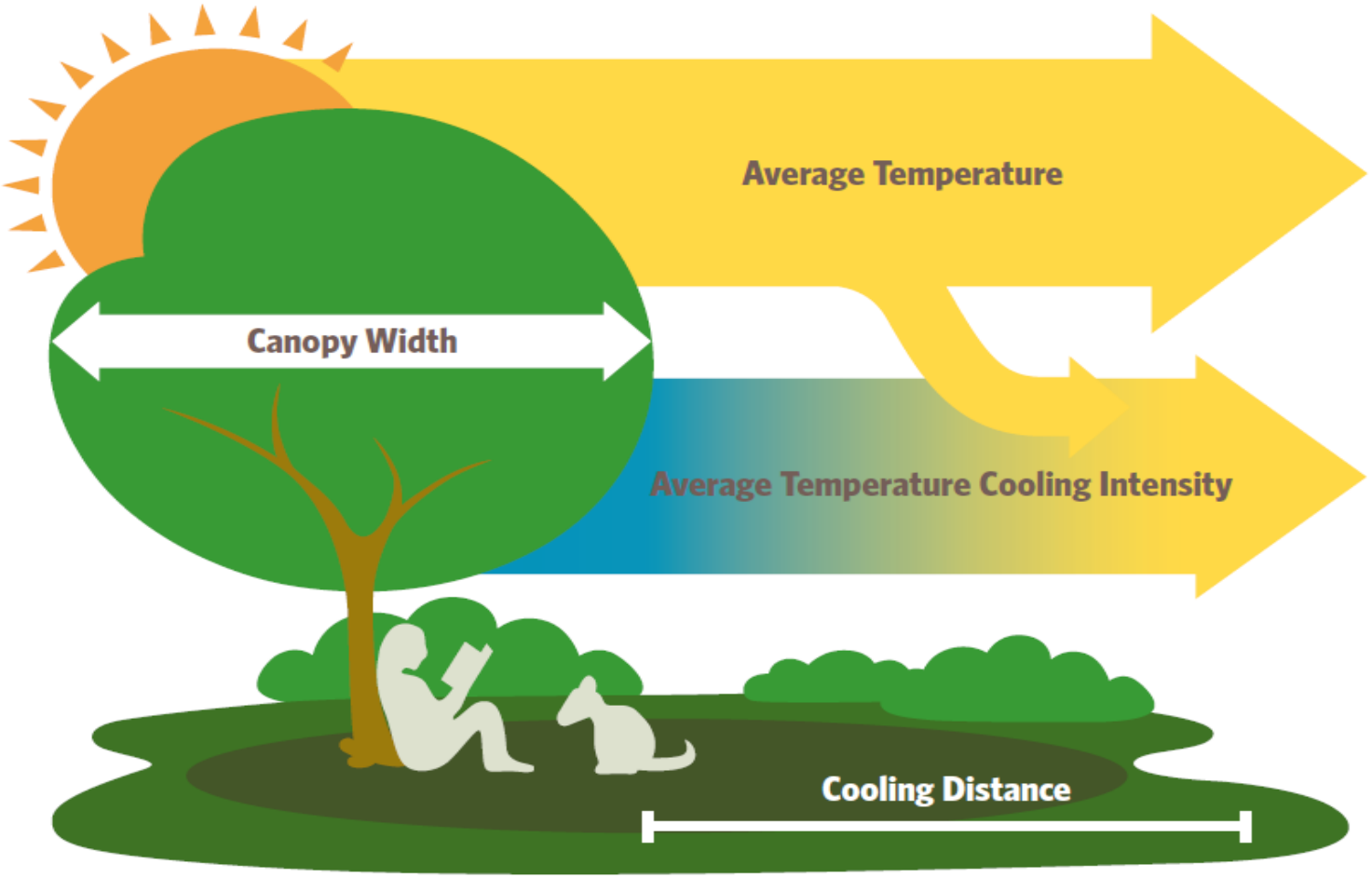
www.bbc.com

Removal of PM by Trees



The Nature Conservancy: Planting Healthy Air. Illustration by Mackinzie Jones

Temperature Mitigation by Trees

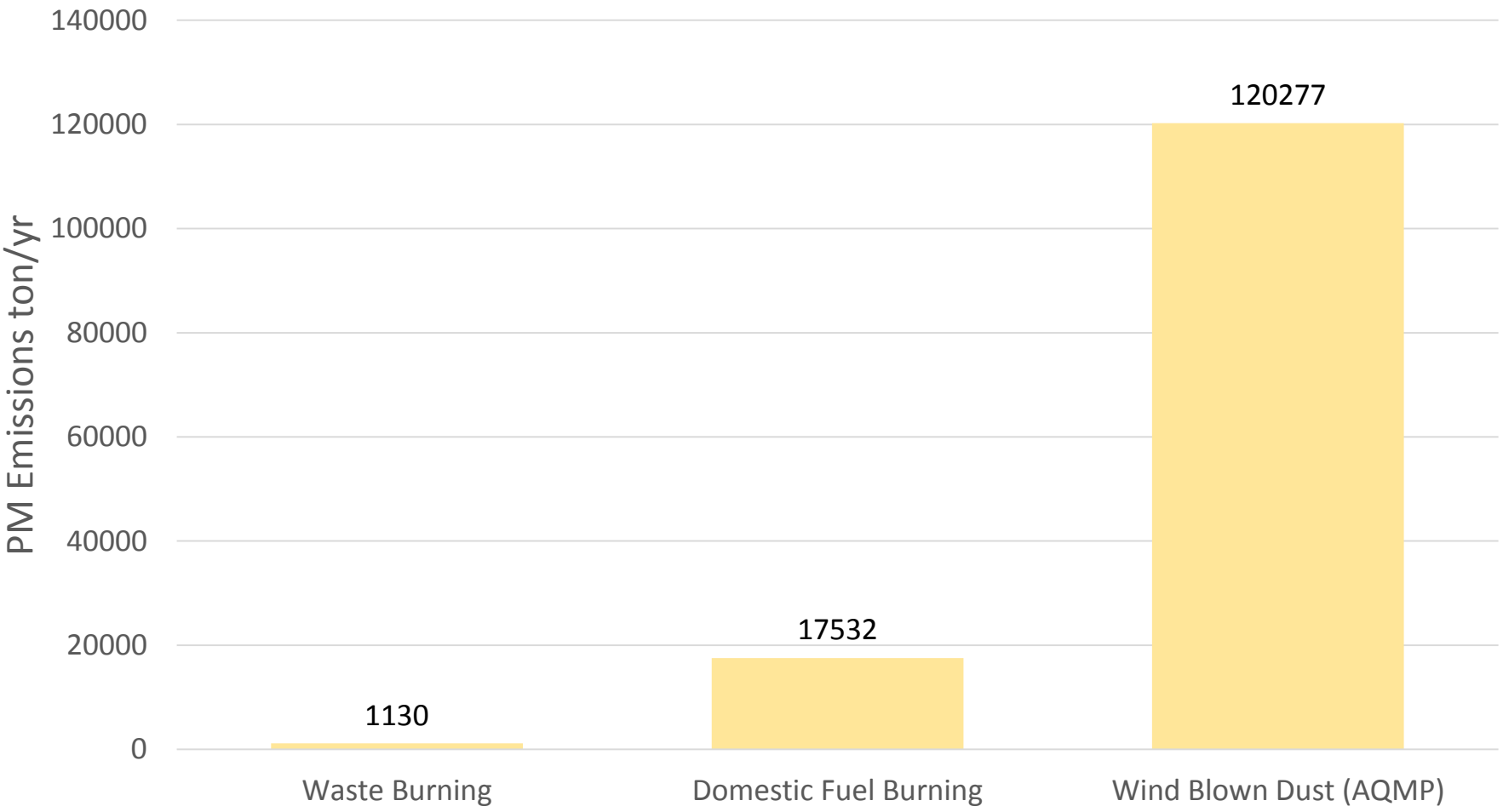


The Nature Conservancy: Planting Healthy Air. Illustration by Mackinzie Jones

Trees to the Rescue

https://sciencetoday.co.za/

HPA Particulate Matter Emissions



Awareness on Air Pollution & Benefit of Trees

Summary

- Air pollution is a complex challenge that requires a variety of interventions, at policy and local level.
- Partnerships needed to leverage existing resources and maximise impact
- It is essential to recognise and pursue *co-benefits* of various interventions
- Trees can play an important role is addressing *air pollution*, mitigate impacts of *climate change*, improve *biodiversity* and contribute to *food security*.

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