



## Circular Economy Forum 2025

# Enabling Conditions: Aligning Circular Economy Strategies with Sustainable Development Goals

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# Air Quality Related SDGs

Directly linked to AQ

Indirectly linked to AQ



**3.9.1: Mortality rate attributed to HH and ambient air pollution**



**11.6.2: Annual mean levels of PM2.5 and PM10 in cities**





# Air Quality Related SDGs

Directly linked to AQ

**3** GOOD HEALTH  
AND WELL-BEING



**3.9.1: Mortality rate  
attributed to HH and  
ambient air pollution**

**11** SUSTAINABLE CITIES  
AND COMMUNITIES



**11.6.2: Annual mean  
levels of PM2.5 and PM10  
in cities**

**50%**

**Reduction in health impacts  
by 2040**

(WHO conference, Cartagena,  
Columbia, March 2025)

**8.1  
million** Global number of deaths  
caused by air pollution  
annually. **~67% in Asia** (2021)

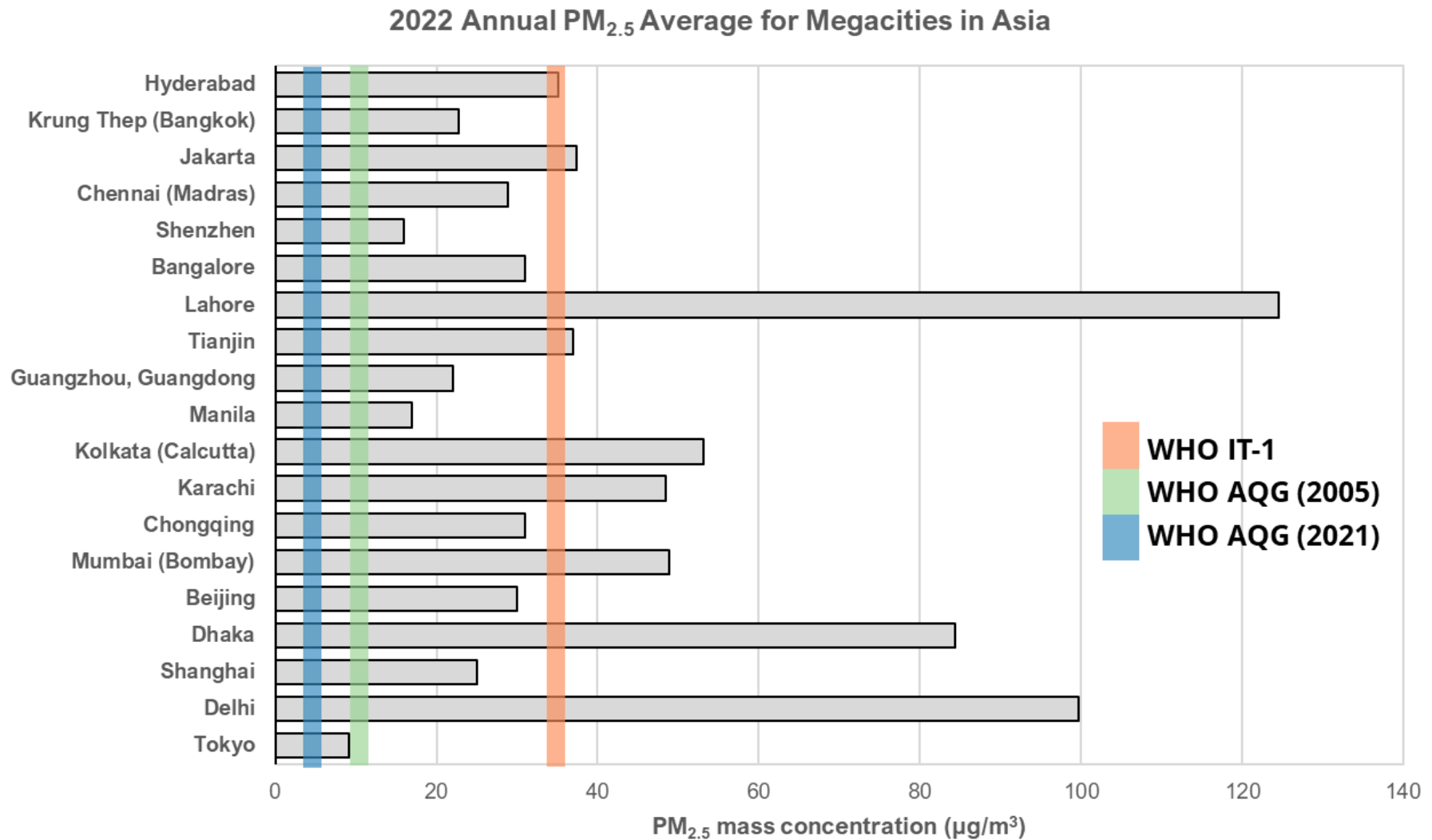
**Top 10 countries  
No. of deaths (2021)**

1. PRC (2.3 million)
2. India (2.1 million)
3. Pakistan (256,000)
4. Bangladesh (236,300)
5. Indonesia (221,600)
6. Nigeria (206,700)
7. Egypt (116,500)
8. Myanmar (101,600)
9. Philippines (98,209)
10. Vietnam (99,700)

**99**

Of the 100 most polluted  
cities globally are in Asia

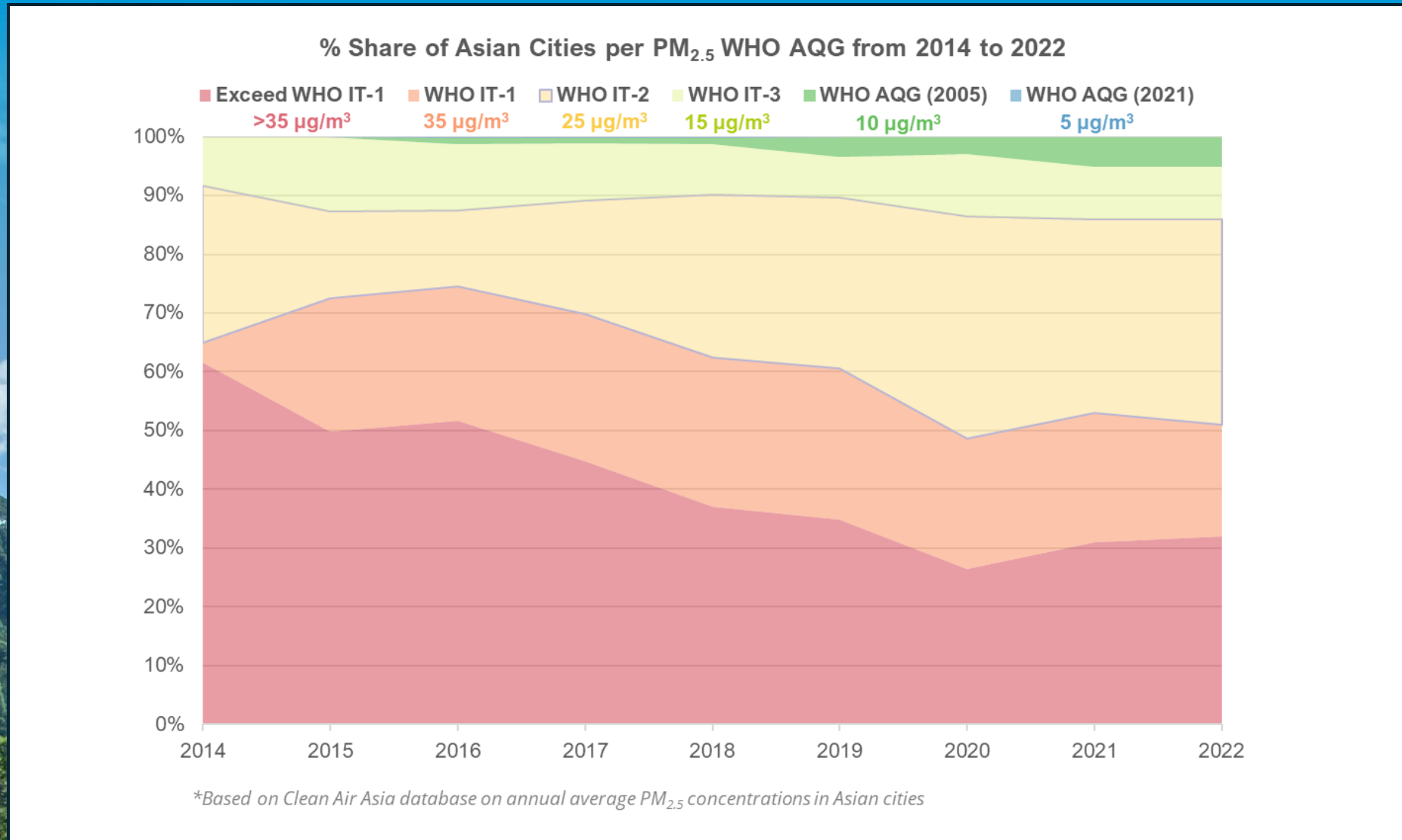
# AVERAGE PM<sub>2.5</sub> IN ASIA'S MEGACITIES



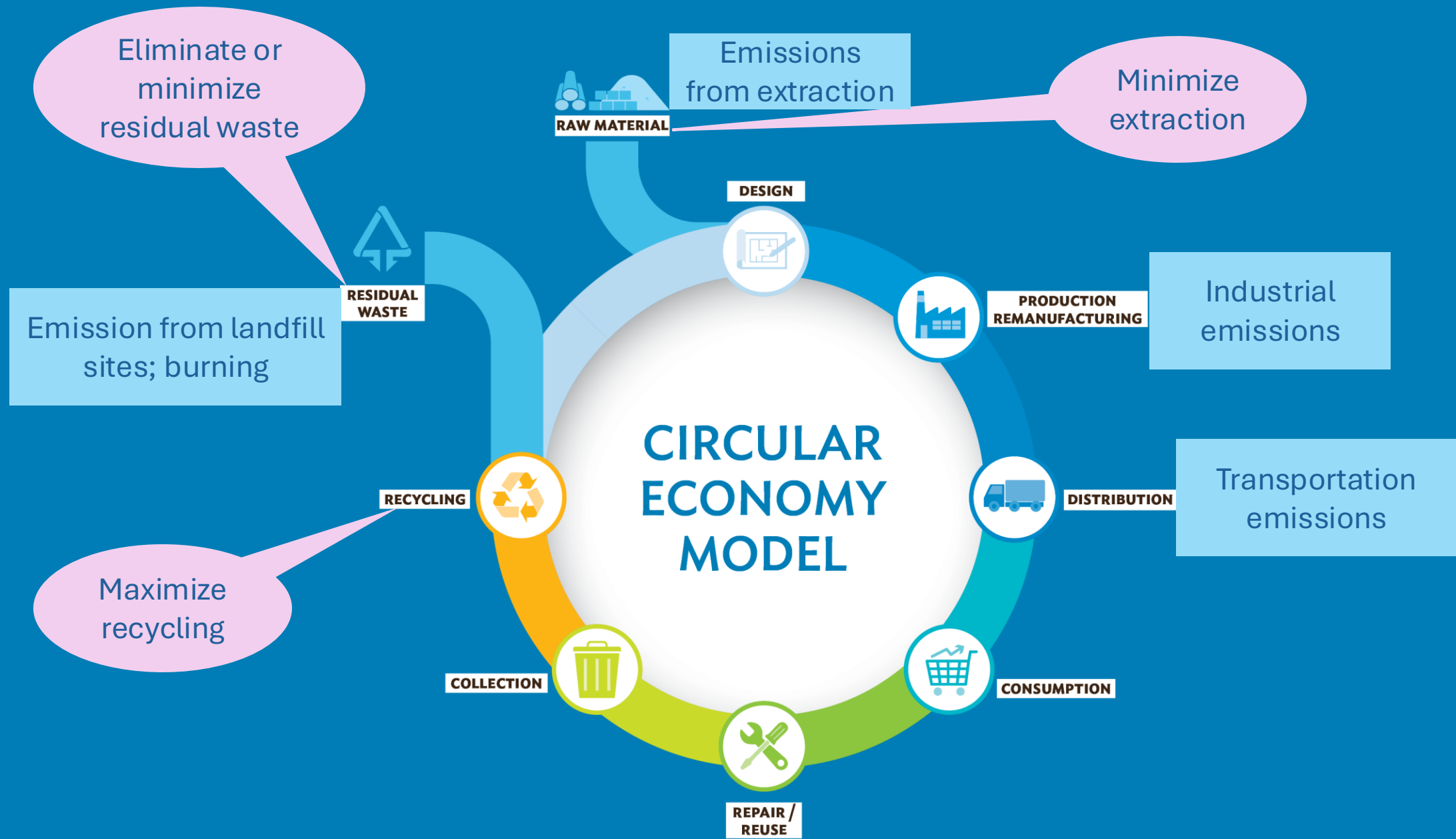
*\*Based on Clean Air Asia database on annual average PM<sub>2.5</sub> concentrations in Asian cities*



# AVERAGE PM<sub>2.5</sub> IN 808 ASIAN CITIES



# Circular Economy and Air Quality





## Circular Economy



## Reduces Air Pollution

- ❖ Decouples economic activity from consumption of finite resources
- ❖ Eliminates/reduces waste and pollution
- ❖ Circulates products and materials
- ❖ Regenerates nature

- ❖ Lower industrial emissions
- ❖ Reduced landfill emissions and burning of waste
- ❖ Reduced transport emissions



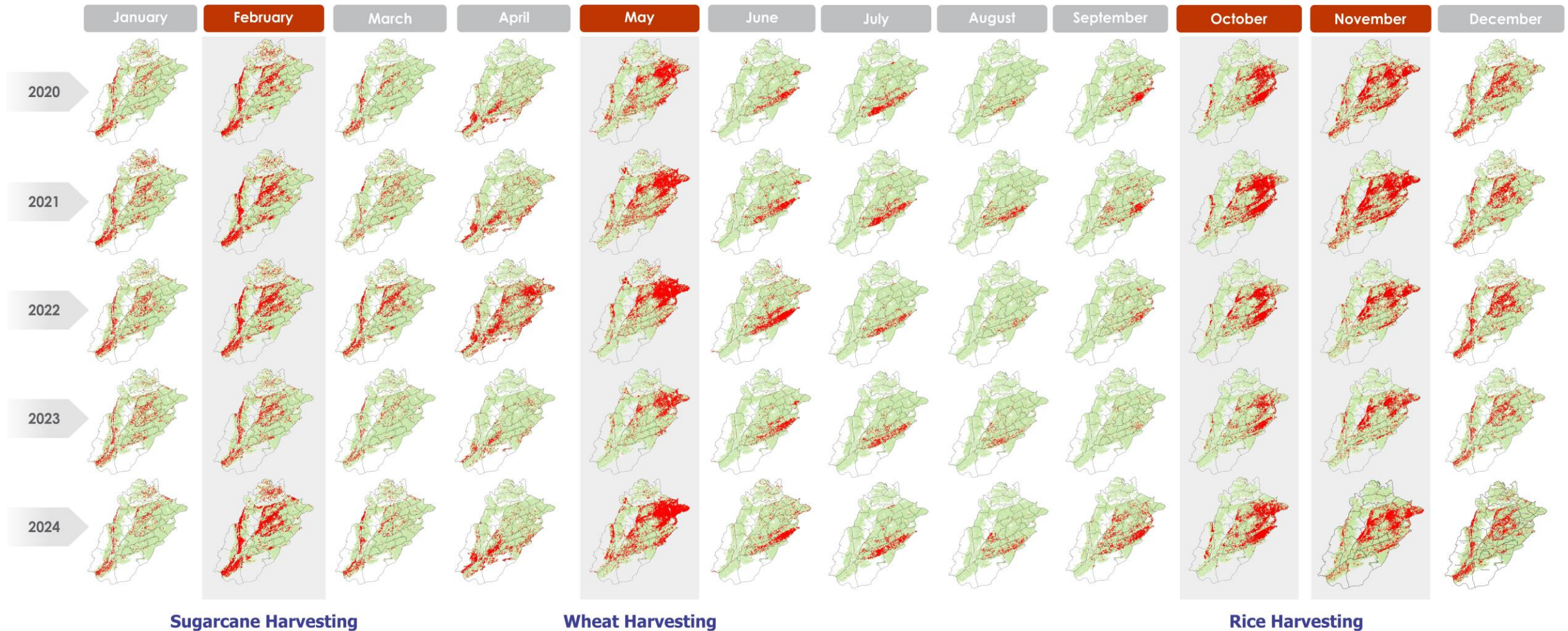
# CASE STUDY CROP RESIDUE MANAGEMENT IN PUNJAB PROVINCE, PAKISTAN

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ADB Consultant



# Record of Fire Incidents: Crop Residue, Wildfires & Waste Fires Punjab, Pakistan

Cooler temperatures and calm winds trap smoke from moist rice residue close to the ground, choking the air with thick PM-filled smog.



Source: [NASA Fire Information for Resource Management System & Consultant analysis](#)

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# Reasons for Burning Crop Residue

## Harvest methods leaving extra stalk in fields

- Increasing use of combine harvesters that leaves longer stalks



## Tight seeding schedule

Why do farmers burn?

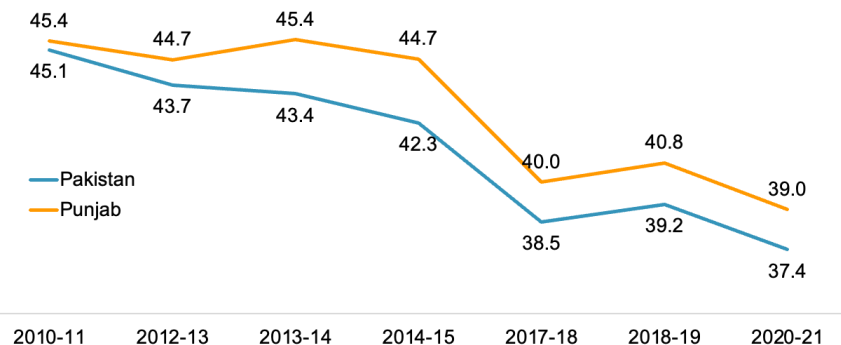
## Poor access to equipment / machinery

- Lack of appropriate machinery for straw collection
- Less availability of balers, choppers, low-till seeders



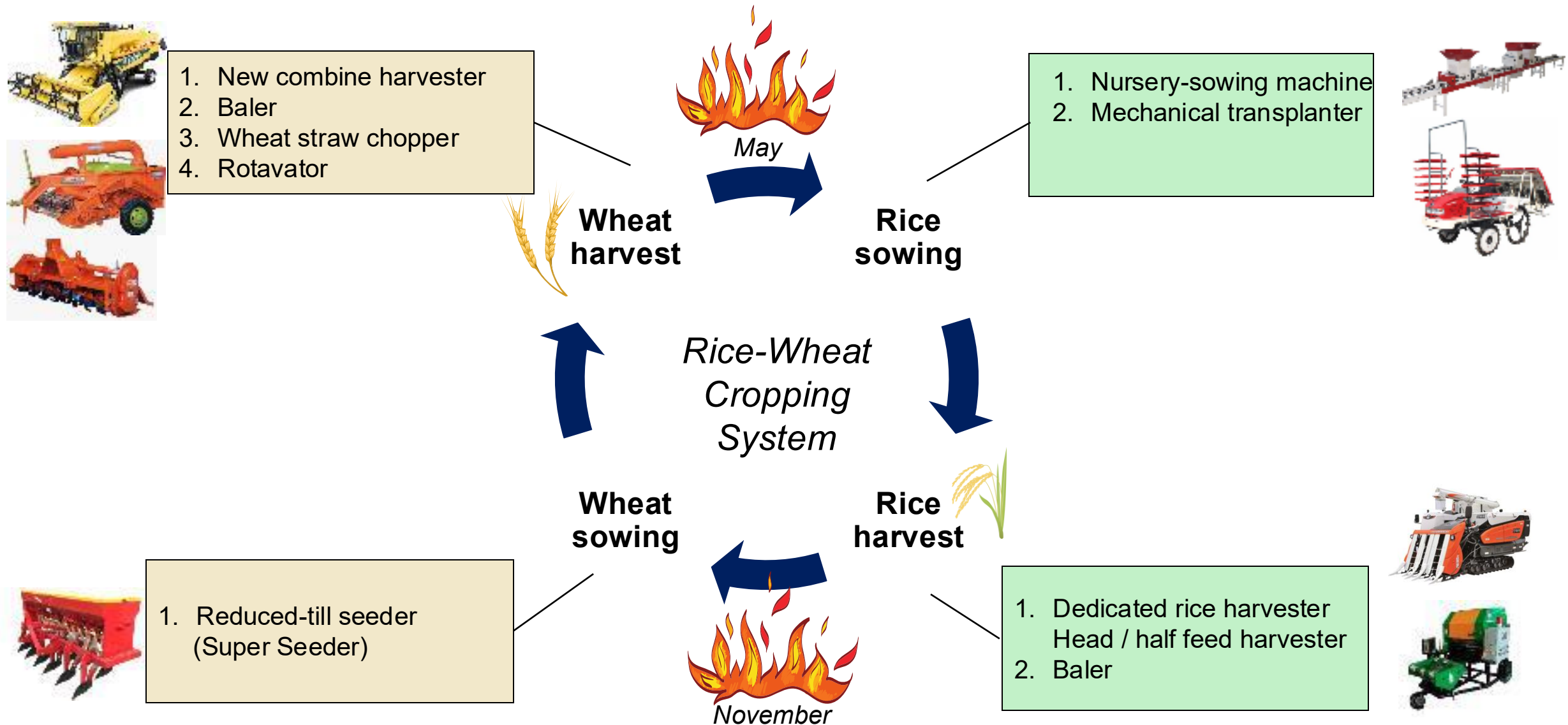
## Lack of resources & high labor cost

% Population engaged in agriculture sector





# Managing Crop Residues: On-field Interventions





# Turning the Ashes Around: Crop Waste Avoided from Burning

- ADB's Punjab Climate Resilient and Low Carbon Agriculture Mechanization Project
- Amount: \$ 120 Million COL + \$ 8 Million Grants
- Approval: Dec 2025
- Total rice cultivation area in Punjab: **2.2 million hectares**
- Total rice residue generated: **10.8 million tonnes**
- Area where residue burning would be avoided: **0.22 million hectares** (*10% of the total rice area*  $\approx$  *1.08 million tonnes of residue*)



- **Value-chain development** for sustainable use of crop residues in industry
  - Textile industry
  - Rice, par-boiling processing
  - Paper mills
  - Brick kilns
- Supportive policies and financing to **shift from conventional fuels to biomass-based energy** are required.



# Turning Crop Waste into Clean Energy

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# THANK YOU!

