AQMx Sectoral Guidance on Crop Residue Burning and Wildfire Management

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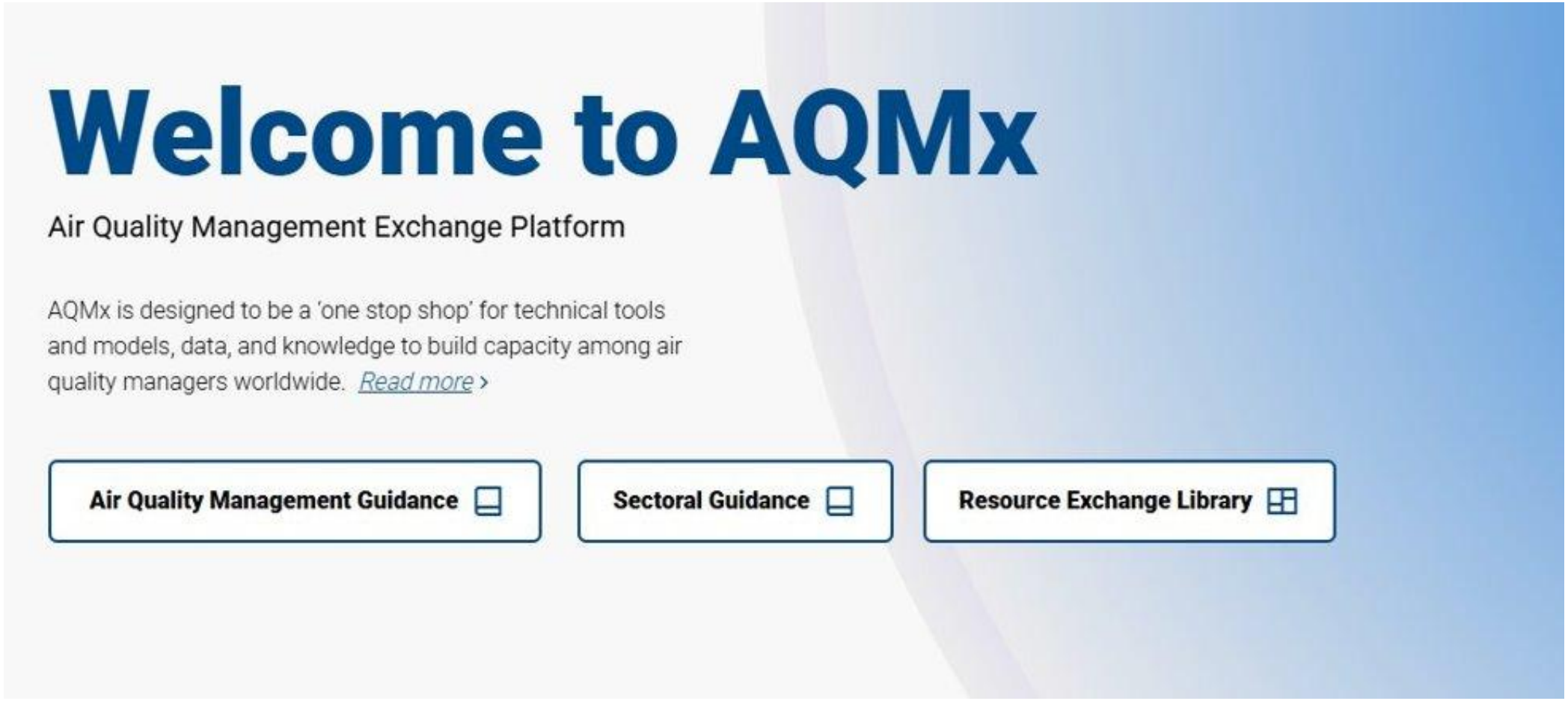
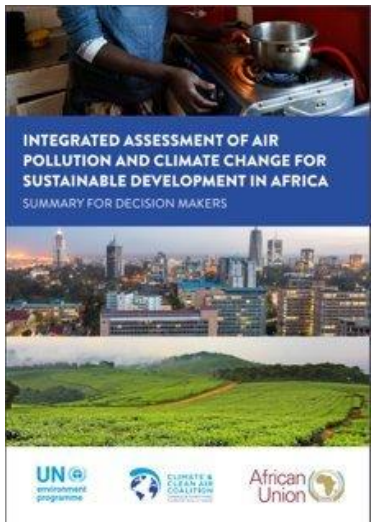
Air Quality Management Exchange Platform (AQMx)

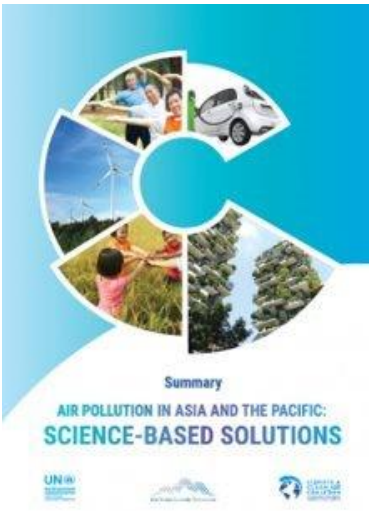
A one-stop shop for guidance and capacity-building on air quality management.

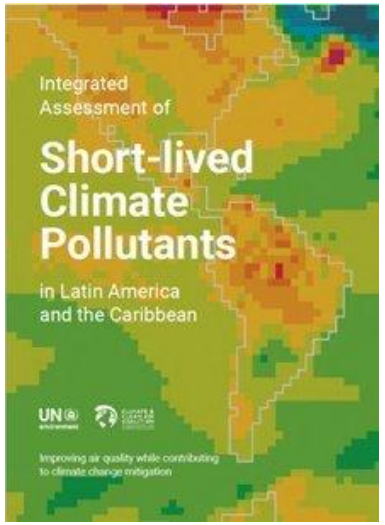


AQMx Sectoral Guidance

- Concrete, actionable guidance to implement proven clean air policies
- The “Implementation Guide” to SLCP mitigation measures identified in CCAC regional assessments
- Focus on black carbon-rich sources
- First set of Sectoral Guidance launched at UNEA-7:
  - Crop Residue Burning
  - E-Cooking
  - Fuel Quality
  - Open Waste Burning







AQMx Guidance on Crop Residue Burning

Bans alone don't work.

Effective strategies:

- **Providing farmers with practical and affordable no-burn alternatives (in-situ/ex-situ crop residue management)**
- **Strengthening markets for agricultural residue**
- **Removing information barriers and investing in long-term behaviour change**

Focus on multiple benefits: ending crop residue burning can provide cleaner air, better harvests, and fairer opportunities for every farmer.

Air Pollution and Agriculture

Emissions

48% of global methane emissions.

15% of global PM2.5 emissions.

9.5% of global black carbon emissions.

79-121 million tonnes of annual global crop production losses due to ground-level ozone.

Benefits of **mitigation**

Protection of human health.

Improvement of soil quality and agricultural productivity.

Slow near-term warming.

Solutions

Eliminate crop residue burning by providing profitable, no-burn alternatives to farmers.

Improve livestock manure management.

Optimise nitrogen fertiliser use.

AQMx Powered by Climate & Clean Air Coalition — a UNEP convened initiative

UN environment programme

Funded by the European Union

Source: Avnery *et al.*, 2011; EDGAR 2018-2022

AQMx Guidance on Crop Residue Burning

A 10-step implementation framework / check-list with actionable recommendations.

Each step is complemented by a list of curated supporting resources:

- **Key reports and guidelines**
- **Tools and models**
- **Databases**

Focus on available financing options, and gender/socio-economic equity mainstreaming.

Real-world success stories demonstrating replicable best practices.

Why take action on Crop Residue Burning?

Step 1. Baseline Assessment

Step 2: Institutional Arrangements

Step 3. Planning and Design

Step 4. Policy Integration

Step 5. Standards and Regulations

Step 6. Communications and Awareness-Raising

Step 7. Implementation

Step 8. Enforcement

Step 9. Capacity-Building

Step 10. Monitoring and Evaluation

How can you finance alternatives to Crop Residue Burning?

How can you include gender and socio-economic equity considerations?

Success stories

AQMx Guidance on Crop Residue Burning

India – Coordinated regulations and subsidies for no-burn CRM

CIAT International Center for Tropical Agriculture

CRB is one of the leading causes of ambient air pollution in Northern India during the onset of winter, every year. To curb these fire events, the Government of India has adopted a comprehensive and multi-pronged policy approach, particularly for the paddy-wheat cropping systems prevalent in the northwestern Indo-Gangetic plains (Government of India, 2024). This includes a ban on CRB imposed in 2015 by the National Green Tribunal (NGT) for five Indian states: Punjab, Haryana, Uttar Pradesh, Delhi, and Rajasthan (The National Green Tribunal, 2015). The ban was accompanied by the announcement of fines ranging between 2,500-15,000 INR (~$28-$167) on violating farmers.

Thailand – Initial success of microbial solutions

Paul Arps. Slash-and-burn in Northern Thailand.

CRB is commonly practiced by Thai farmers growing pigeon pea, cotton, sugarcane, paddy, and maize crops. This seasonal burning that lasts from January to April, leads to poor air quality and toxic haze in the region (NASA, 2024). Notably, paddy field burning accounts for almost one-third of the recent 10,543 CRB events (Thai News, 2025).

To address the resulting air pollution and CRB, the Thai government introduced several policies, including the Master Plan for Climate Change (2015–2050), and the Environmental Quality Management Plan (2017–2021) (Akahoshi et al., 2024). Additionally, a ban on CRB was imposed during the burning season. Farmers violating this ban face fines ranging

AQMx Guidance on Wildfire Management

Objective:

- Apply the 10-step implementation framework to wildfire management
- Ensure alignment with key initiatives and best practices of integrated fire management (FAO Global Fire Management Hub, UNEP “Fire Ready Formula”)
- Build a repository of robust knowledge products in the AQMx Library

AQMx Guidance on Wildfire Management

Focus on:

- Long-term planning (vs emergency response)
- Integration with air quality management policies
- Intersection with crop residue burning
- Regional cooperation mechanisms

Launch: May 2026 (external review process opened to all interested experts).

Air Pollution and Wildfires

Wildfires are both a consequence of, and contributor to, climate change; smoke plumes can travel long distances and have severe health impacts.

Emissions & Impacts

20.6 million tons of PM2.5 emissions.

4.33 billion tons of CO_2 emissions (60% increase between 2000 and 2019).

1.5 million annual deaths between 2000 and 2019.

Benefits of **mitigation**

Protection of **human health**, **ecosystems**, and **biodiversity**.

Climate change **mitigation**.

Reduced risks to **buildings** and **infrastructure**.

Solutions

Fuel management (physical removal, chemical treatment, prescribed burning – taking into account air quality impacts).

Traditional / indigenous fire management practices.

Early-Warning Systems and health sector preparedness.

Integrated fire management (5 Rs: Review and analysis; Risk reduction; Readiness; Response; Recovery).

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Source: UNEP (2022), Global Wildfire Information System (2025), Xu *et al.* (2024).

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Thank you!

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