SDC Network **Climate, DRR & Environment**

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Swiss Agency for Development and Cooperation SDC

WELCOME

Clean Air, Climate and Health
Learning Journey

15 October 2025

ENGLISH

Interpretation available

Live voice interpretation is available for Spanish - English.

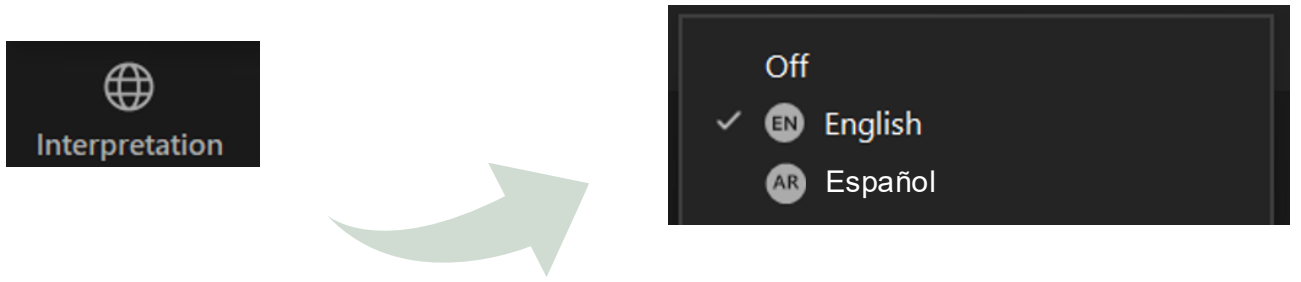
Click on the “Interpretation” icon (globe) in your menú bar and select language.

ESPAÑOL

Interpretación disponible

Interpretación en vivo disponible para español – inglés.

Haga clic en el ícono de “interpretación” (globo) en el menú y seleccione el idioma.



Team

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Senior Advisor
Learning & Communication,
Helvetas Swiss
Intercooperation

Today's journey

Short look back

Rafael Millán
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SDC Regional Hub Lima

Latin America

Adrian Montalvo
Head of CALAC+ Programme

India

Anju Goel
Senior Fellow at TERI - The Energy and Resources Institute

Mekong

Patrick Büker
Project Lead SEACAI Project
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GIZ

China

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Mongolia

Benoît Meyer
Sector Policy Advisor, PGE / Governance, SDC

WRAP UP

Knowlede Platform

& Knowledge Hubs

Short look back to session #1

Clean Air, Climate and Health
Learning Journey

What did do in the first session of the Learning Journey?

- Key input: **Climate**
- Key input: **Health**
- Group discussion on regional **challenges & solutions**
- **Pitches:**
  - Latin America
  - India
  - South East Asia
  - China
  - Mongolia

Activities
LATIN AMERICA

Clean Air, Climate and Health
Learning Journey

Adrian Montalvo
Head of CALAC+ Programme
adrian.montalvo@swisscontact.org

Climate and Clean Air in Latin American Cities – Plus

(CALAC+)

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Agencia Suiza para el Desarrollo y la Cooperación COSUDE

CALAC+
Programa Clima y Aire limpio en Ciudades de América Latina

swisscontact

In Latin America Region

- **>150 million people** live in cities that exceed WHO air quality guidelines.
- **320,000 deaths** attributable to air pollution.
- Air pollution is the **leading environmental risk** to health.
- Externalities costs reach between **2% – 4%** of GDP

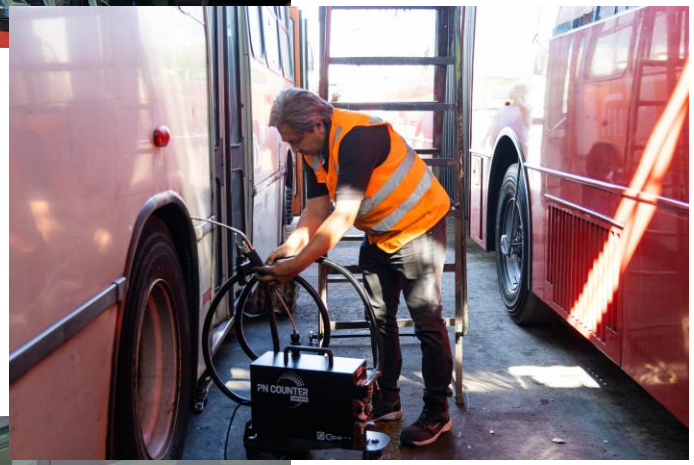
Source: Presentation of Juan José Castillo, PAHO

CALAC
Programa Clima y Aire limpio en Ciudades de América Latina

CALAC+: 04 capital cities in 04 countries

CALAC
Programa Clima y Aire limpio
en Ciudades de América Latina

Soot-free and low carbon buses



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Programa Clima y Aire limpio
en Ciudades de América Latina

Policy incubators for NRMM

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Regional and global cooperation

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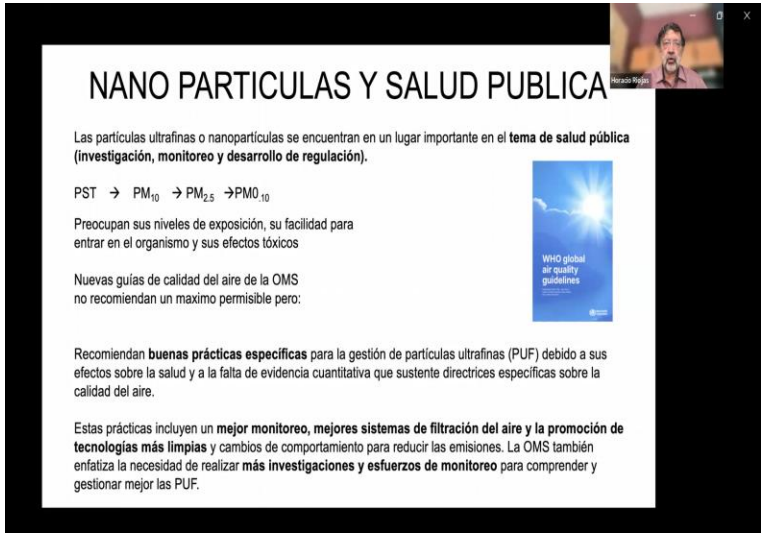
en Ciudades de América Latina

Working Group – NPTI Latin America



Proficiency testing

Technical documents

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Knowledge transfer / exchange

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en Ciudades de América Latina

Tools for Emission Calculations and Cost-Benefit Analysis of Emission Reductions

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Emissions reduced:

127 630,2 tCO2

679,6 t black carbon

Estimates for 2035:

1,041,918 tCO2

3.854,3 t black carbon

Beneficiaries:

Direct – officials in four countries (national and subnational)

Indirect – population in cities

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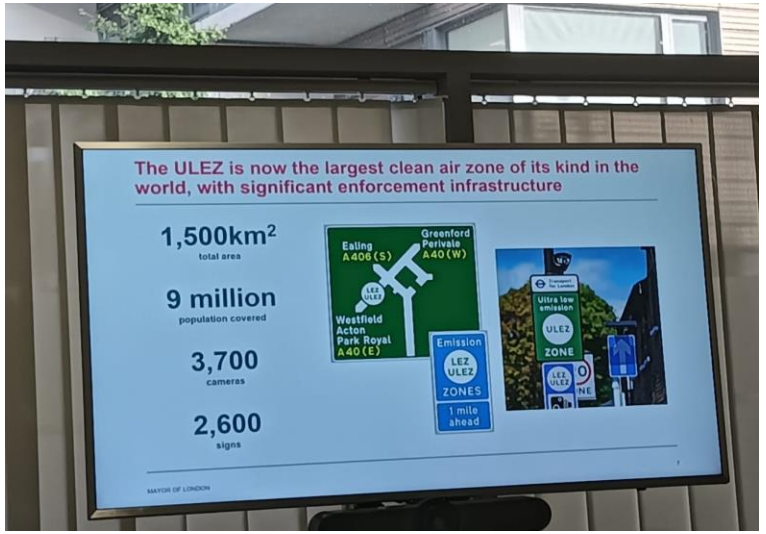
Issues to address

- *Energy matrix – fuel*
- *Emissions standard / control*
- *Incentives*
- *What do we do with old technology?*



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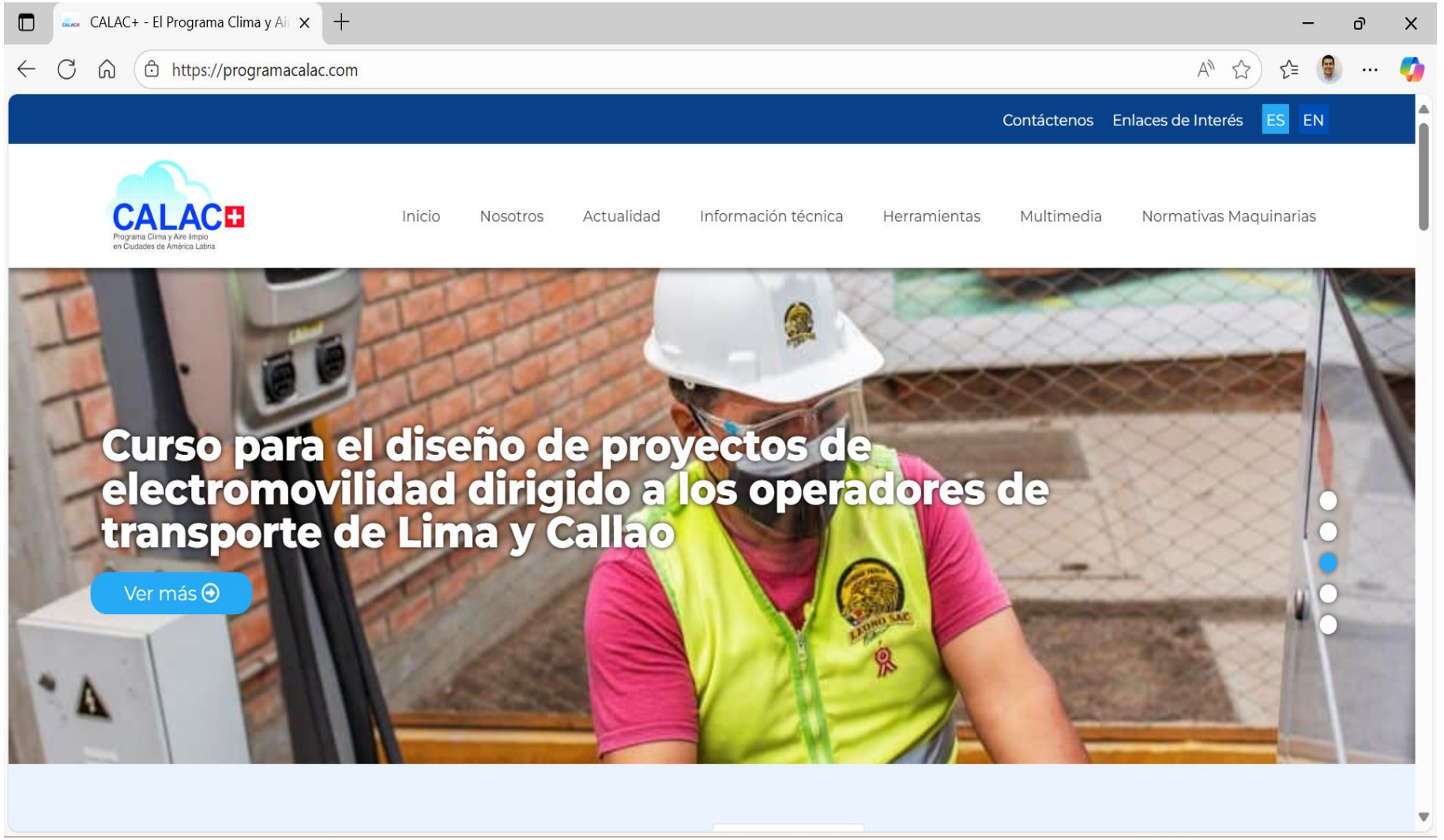

Visit: https://programacalac.com/

CALAC
Programa Clima y Aire limpio
en Ciudades de América Latina

Q&A

Clean Air, Climate and Health
Learning Journey

Activities
MEKONG

Clean Air, Climate and Health
Learning Journey

Patrick Büker
Project Lead - SEACAI Project,
Environment Competence Centre,
Division Climate, Rural Development and Infrastructure,
GIZ

SEACAI: Southeast Asia Climate & Clean Air Initiative

(Integrated approaches to climate protection and air quality improvement in Southeast Asia / Mekong riparian states)

Dr. Patrick Büker, Alvaro Zurita, Ekachai Lojanaphiwat, Monnapa Poosomboonwattana

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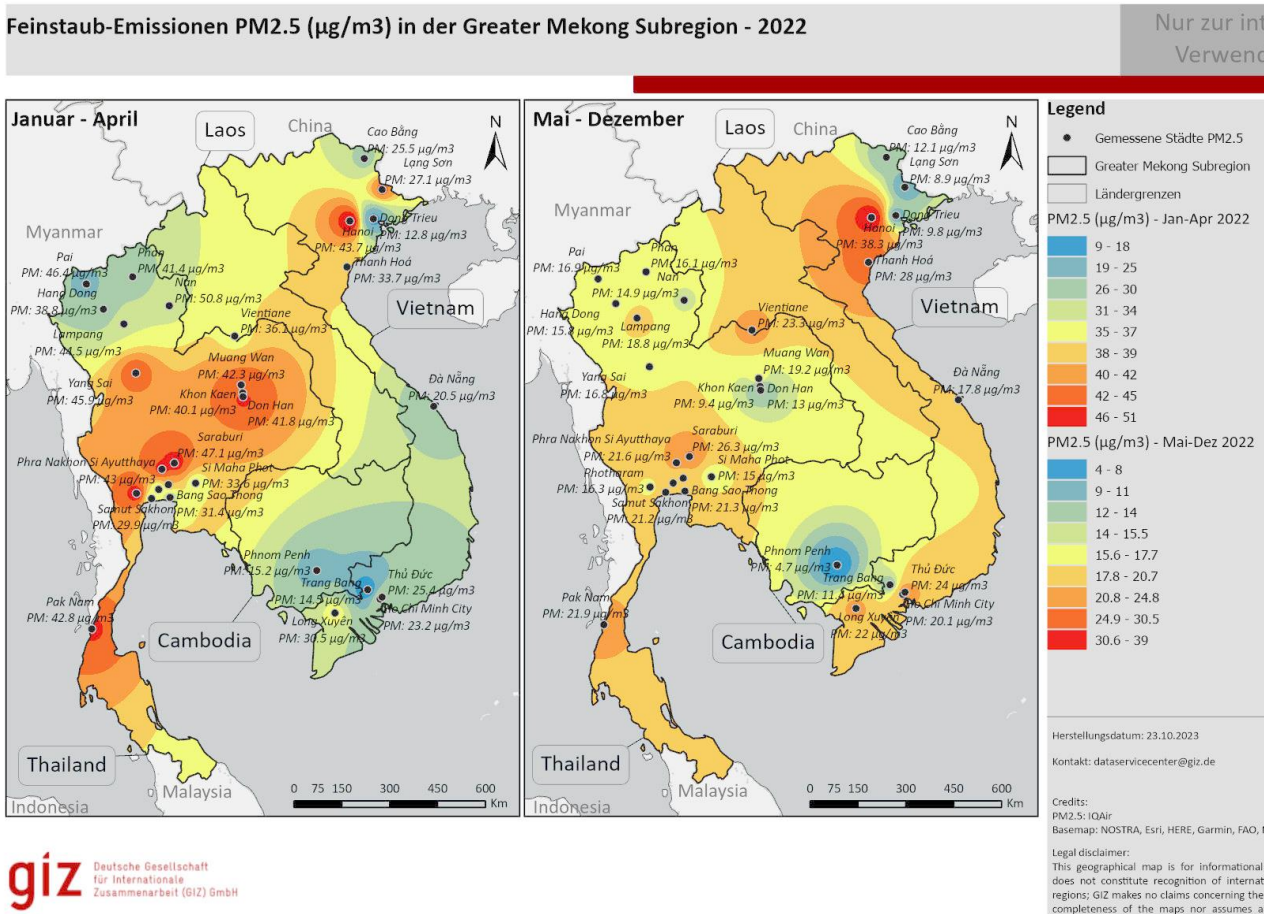
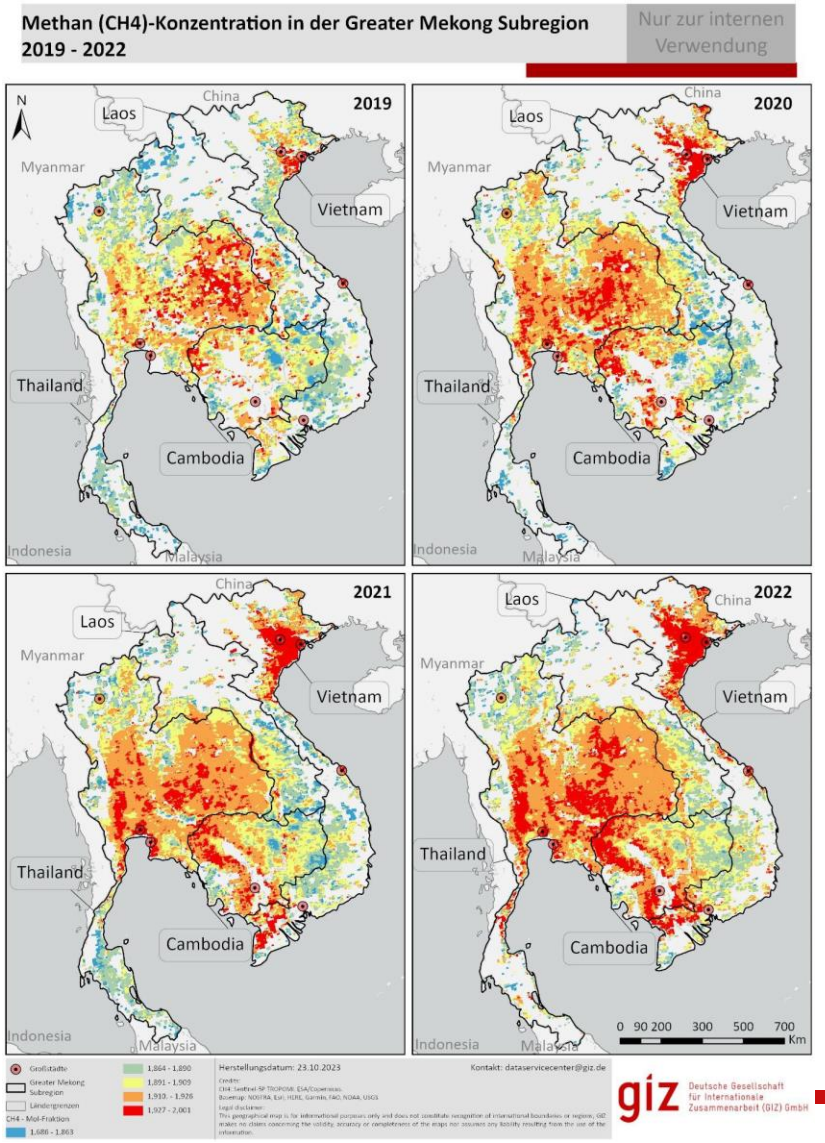
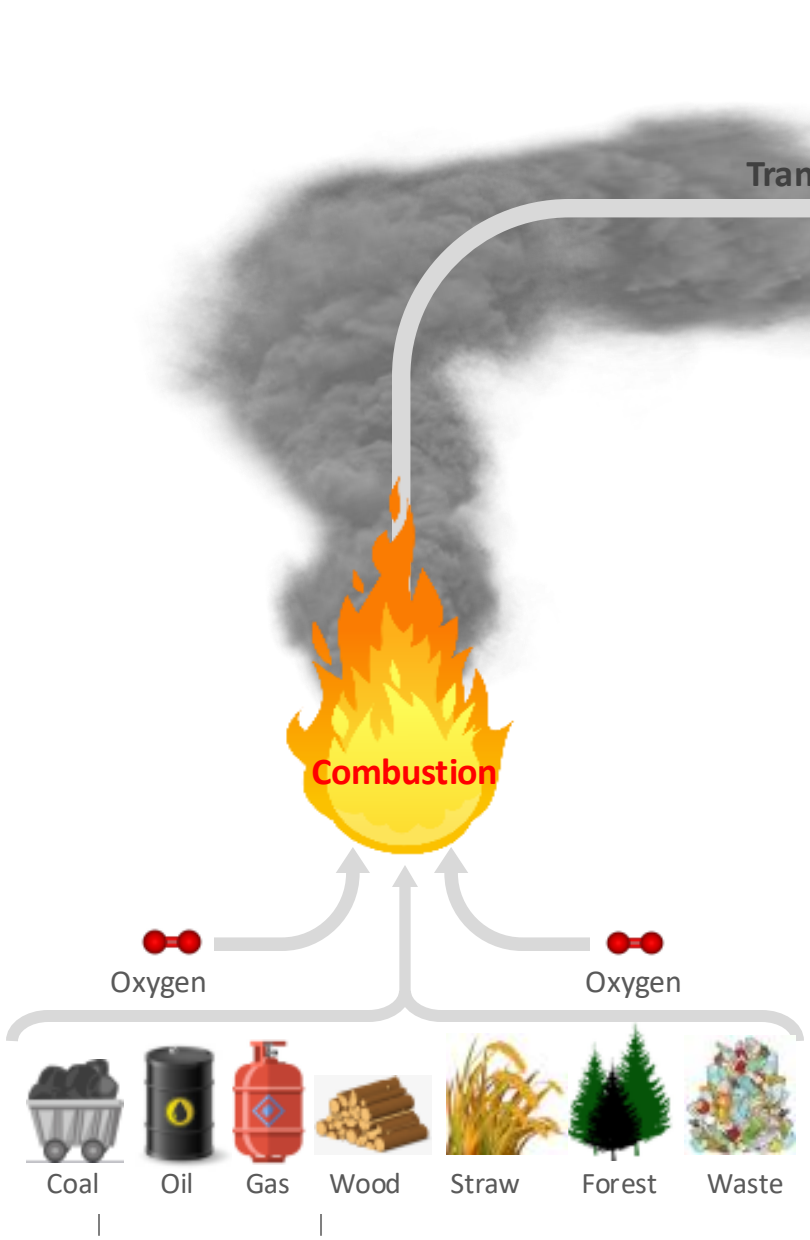
Swiss Agency for Development and Cooperation SDC

Status Quo of the air quality in the Greater Mekong Subregion

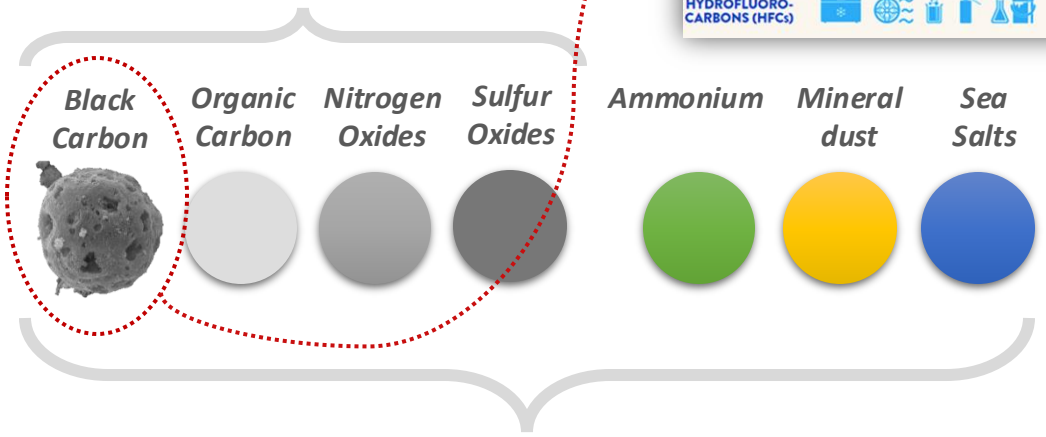




Sources of air pollution in the GMS



Short Live Climate Pollutants (SLCPs)
Ref: CCAC



PM2.5

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SEACAI: Southeast Asia Climate & Clean Air Initiative
(Integrated approaches to climate protection and air quality improvement in Southeast Asia / Mekong riparian states)

Countries:
ASEAN Countries

Strategic partners:
- ASEAN
- Implementation support from the Ministries of Environment and other relevant authorities in the selected countries.

Timeframe:
2026 – 2028

Overall Budget:
BMZ 4.0 million EUR + SDC 2.0 million EUR

Objectives:
The project aims to improve the conditions for ASEAN-wide mitigation of Short-Lived Climate Pollutants (SLCP), with a special focus on the Greater Mekong Subregion (GMS).

Approaches:
- **Regional: Policy support to ASEAN-wide SLCP cooperation**
  - Strategic inputs for implementing ASEAN Haze Free Roadmap.
  - Knowledge inputs for an ASEAN SLCP mitigation process.
- **Sub-regional: Promotion of SLCP mitigation at GMS level**
  - Support for regional committee on air quality management
  - Guidelines for cross-sector cooperation on SLCP mitigation
  - Concept for cross-country (emission) data management
- **National: Support packages at country level**
  - Lessons learnt from demonstration pilots for region-wide knowledge exchange.
  - Up-scaling strategies for successful SLCP mitigation approaches.
  - Applied capacity development packages.



german cooperation
DEUTSCHE ZUSAMMENARBEIT

implemented by:
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Swiss Agency for Development and Cooperation SDC

asean

SEACAI

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Potential scalable pilot activities at national level

- **Combating haze pollution through no-burn forest, land and waste management**

    - Integrate **no-burn strategies** into village forest management plans
    - Improve **waste management** incl. (organic) waste separation at source
    - Test **new technical approaches** (biogas, biochar, compost, construction materials, bioplastic, residue incorporation into soils etc.)
    - Provide **incentives** for local communities not to burn residues, forests and waste
    - Improve **law enforcement**
    - Improve **monitoring of air quality**, incl. forecasting (link to Lower Mekong Emission Watch)
    - Support **public-private partnerships**
    - **Raise awareness** of the problem and solution
    - Create (cross-border) **networks of good practitioners**

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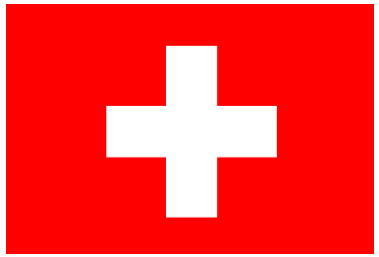
GIZ SEACAI (€ 4M)
(endorsed by COM AATHP)

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Federal Ministry for Economic Cooperation and Development

Co-financing (€ 2M)
(Approved)



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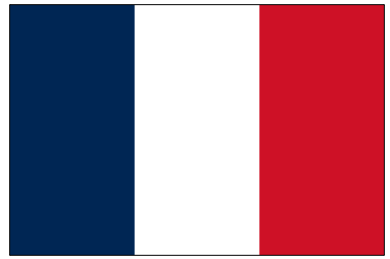
IRD SEACAI (€ 2.7M)
(under commission)



IRD Institut de Recherche pour le Développement FRANCE
French National Research Institute for Sustainable Development

FFEM FONDS FRANÇAIS POUR L'ENVIRONNEMENT MONDIAL

AFD AGENCE FRANÇAISE DE DÉVELOPPEMENT

Sponsoring ASEAN Body
Sectoral Committee/Main Body: Committee under the Conference of the Parties to the ASEAN Agreement on Transboundary Haze Pollution (COM AATHP)
Meeting Number/Date: 10.03.2025 (ad-referendum)

Working Group/Sub-Committee: The relevant sectoral bodies namely: AWGCC, AWGESC, will be consulted for support, as appropriate.

Please contact us at

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Q&A

Clean Air, Climate and Health
Learning Journey

Activities
CHINA

Clean Air, Climate and Health
Learning Journey

Dr. Jay Slowik
Senior Scientist
Paul Scherrer Institute PSI

PSI Center for Energy and Environmental Sciences

Clean Air China Programme

J. G. Slowik[1], Y. Han[2], M. Manousakas[1,3], K. R. Daellenbach[1], J. Wang[4], J. Cao[2,5], A. S. H. Prevot[1]

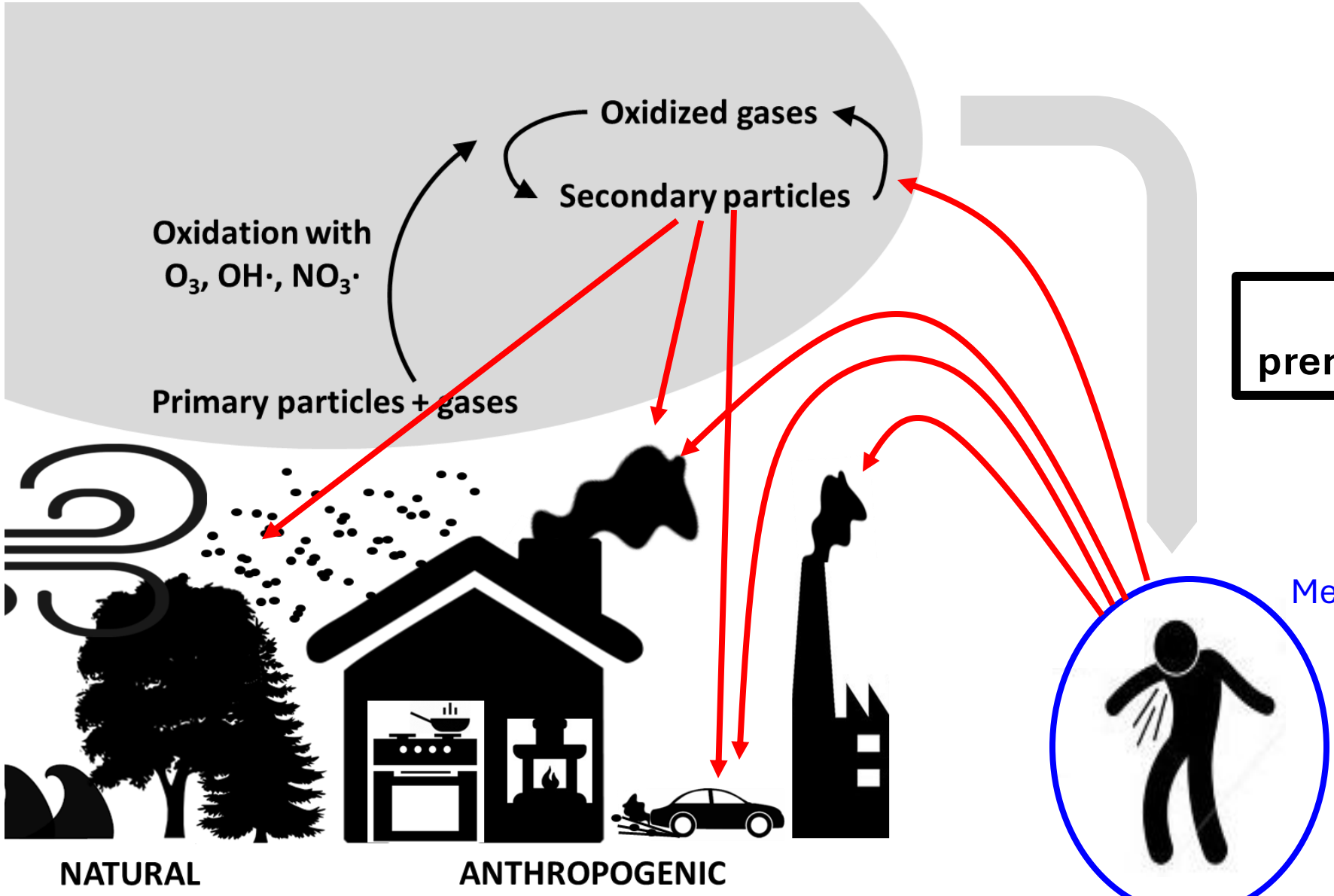
...and the Clean Air China project team

SDC Liasons: Nadia Benani, Tingting Qi, Liyan Wang

[1]PSI Center for Energy and Environmental Sciences, Villigen PSI, Switzerland
[2]Institute of Earth Environment, Chinese Academy of Sciences, Xi'an, China
[3]National Centre of Scientific Research "Demokritos", Ag. Paraskevi, Greece
[4]ETH Zurich, Institute for Environmental Engineering, Zurich, Switzerland
[5]Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

LJ Clean Air / Climate and Health Webinar
October 15, 2025

Aerosol sources and health risks



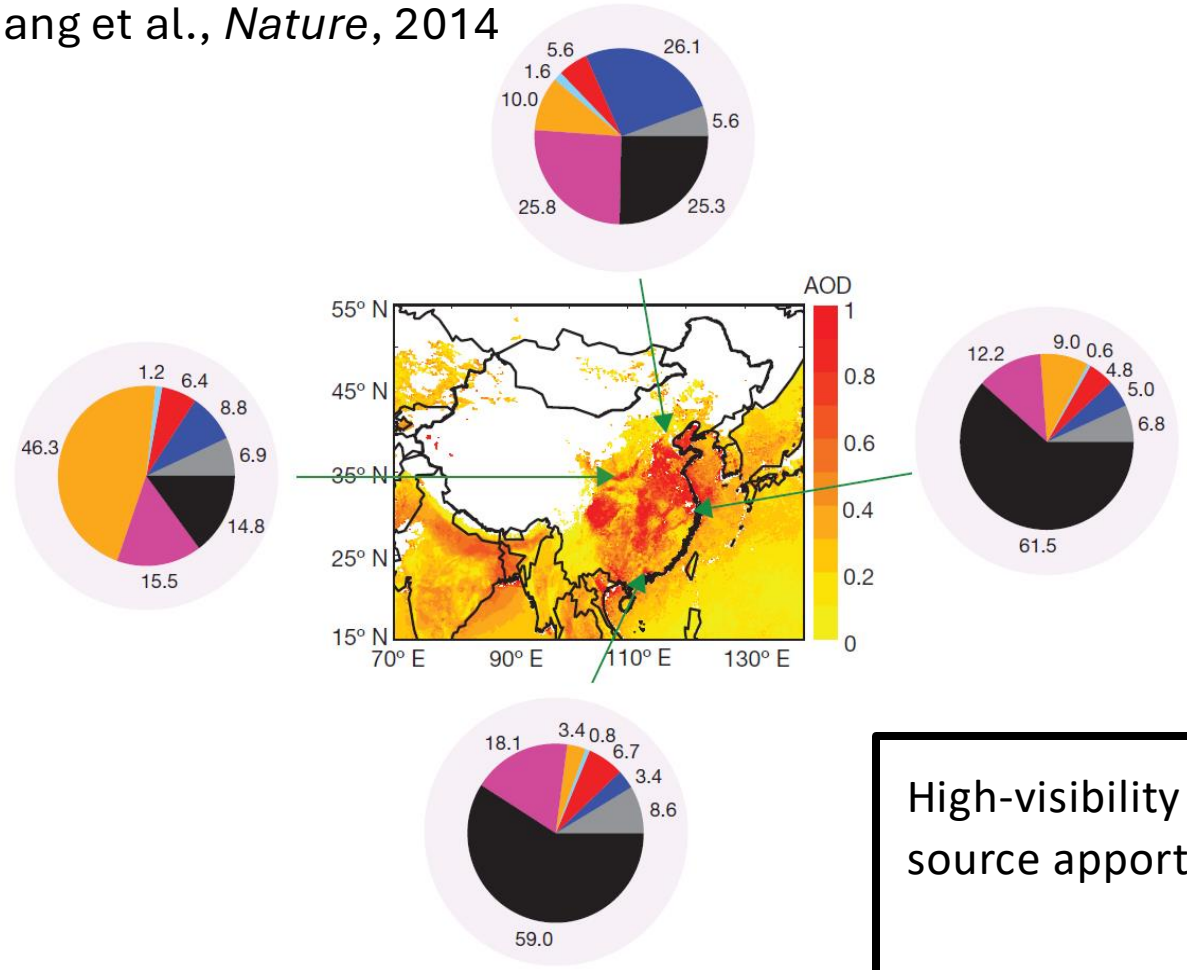
globally ~9 million premature deaths per year.

Measure particle composition

Source apportionment

Shortcomings in source apportionment

Huang et al., *Nature*, 2014



Sources/factors (%)

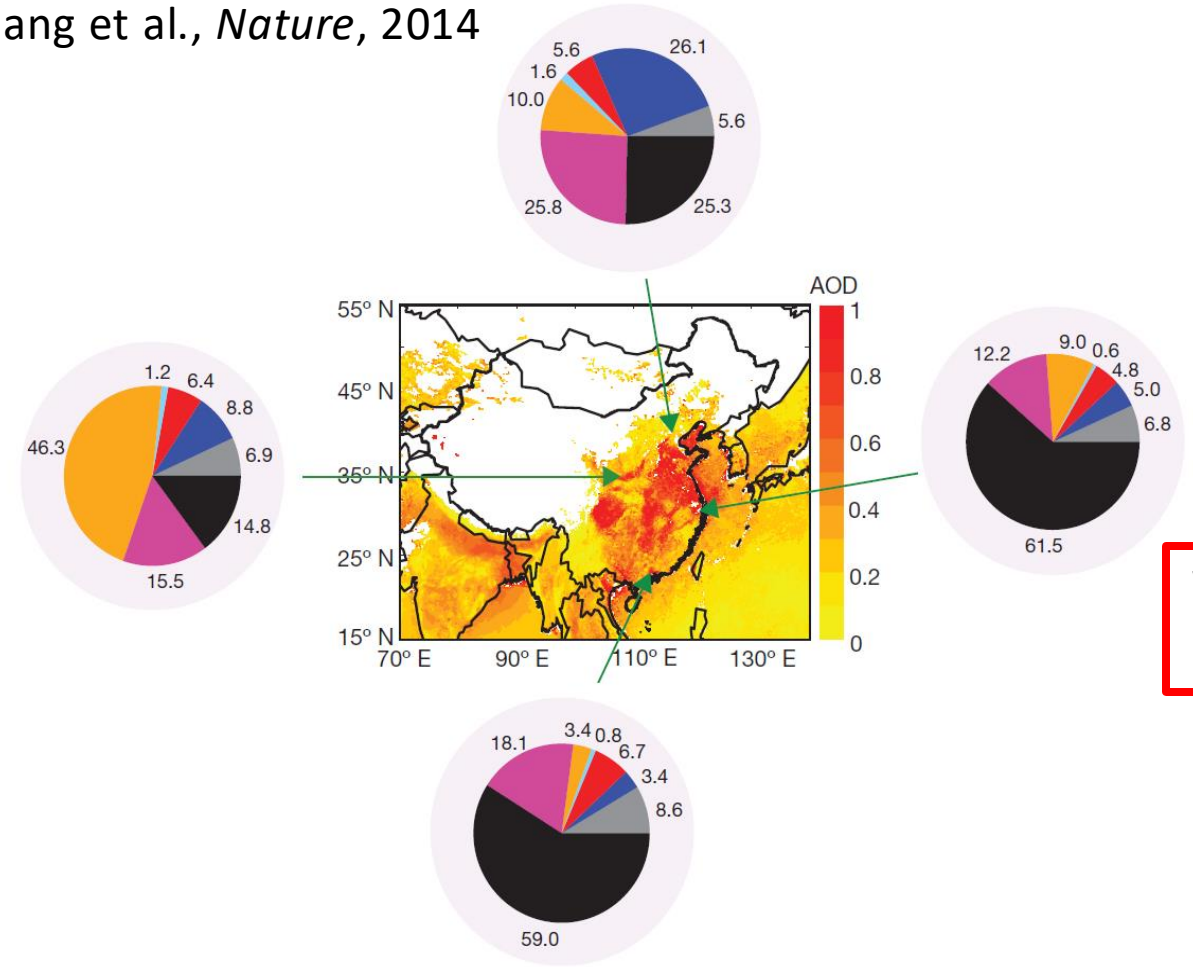
- Traffic
- Coal burning
- Biomass burning
- Cooking
- Dust related
- Secondary organic-rich
- Secondary inorganic-rich

High-visibility study (>3500 citations) of extreme haze in China via source apportionment of collected filter samples

Highlighted role of secondary species in extreme haze

Shortcomings in source apportionment

Huang et al., *Nature*, 2014



Sources/factors (%)

- Traffic
- Coal burning
- Biomass burning
- Cooking
- Dust related
- Secondary organic-rich
- Secondary inorganic-rich

Which source(s) control health risks?

What do these names mean?
How to relate to sources/processes?

Clean Air in China Project

- Advanced source apportionment of organic aerosol
- Link sources to reactive oxygen species (ROS)
- Develop real-time source apportionment model (DEZA PMF)

Intense effort by leading researchers → results **1 YEAR** after measurement

Too slow!
- Fast response to acute events
- Policy motivation, design, implementation

Real-time source apportionment workflow

Information on particulate air pollution sources available within minutes of the measurement.

Continuous measurement → Automated → Quantitative source apportionment

Air quality monitoring

Black carbon (BC)

trace elements

Organics, nitrate, sulphate, ammonium, Chloride

Data compilation

Station PC

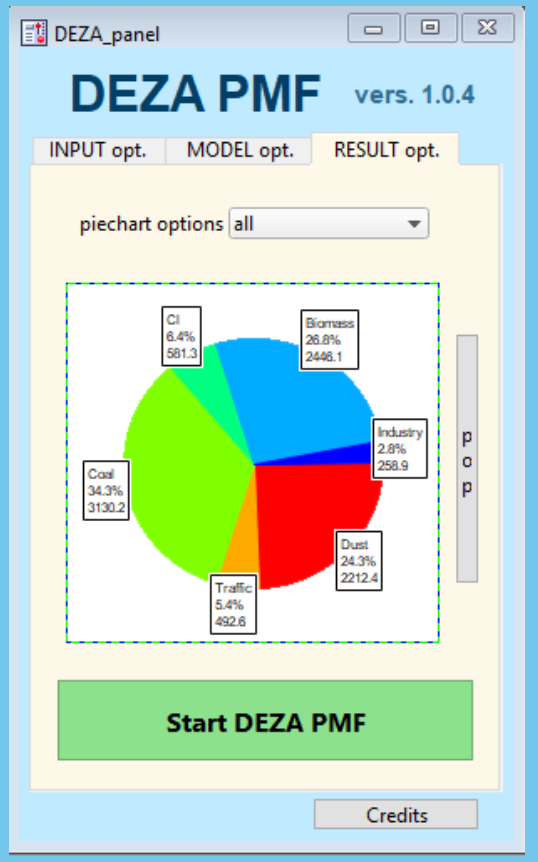
Data transmission

Back up every 30mins (or less)

Cloud Service

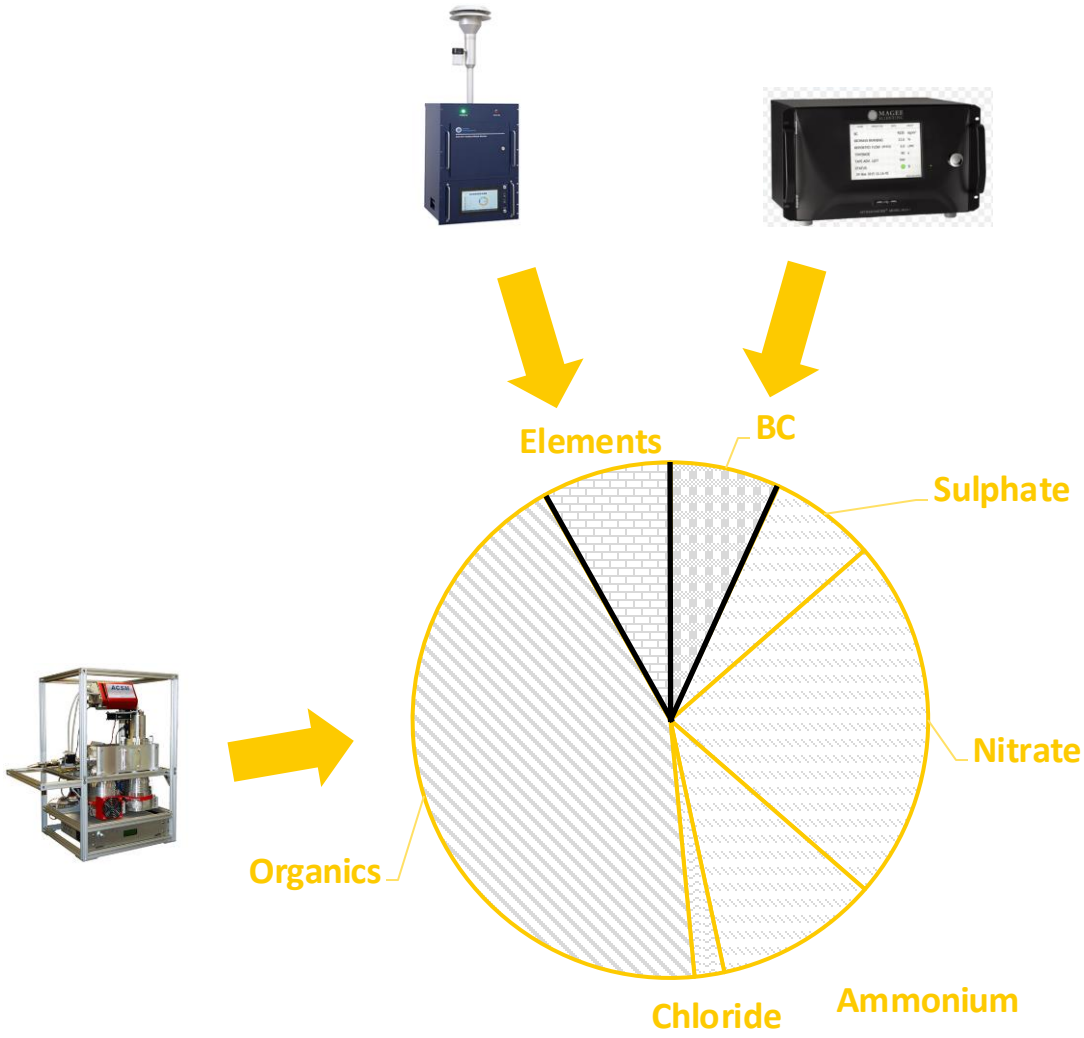
Source apportionment

RT Software (open source)



Developed for the DEZA China project – not available anywhere else in the world.

DEZA PMF: real-time source contributions



Step 1:

Measurements & standard analysis

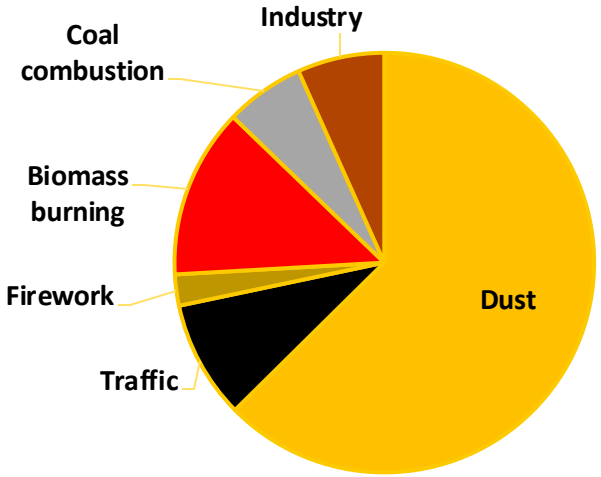
Automated data processing

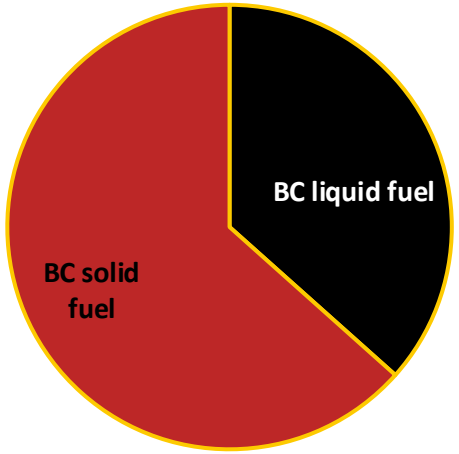
↓

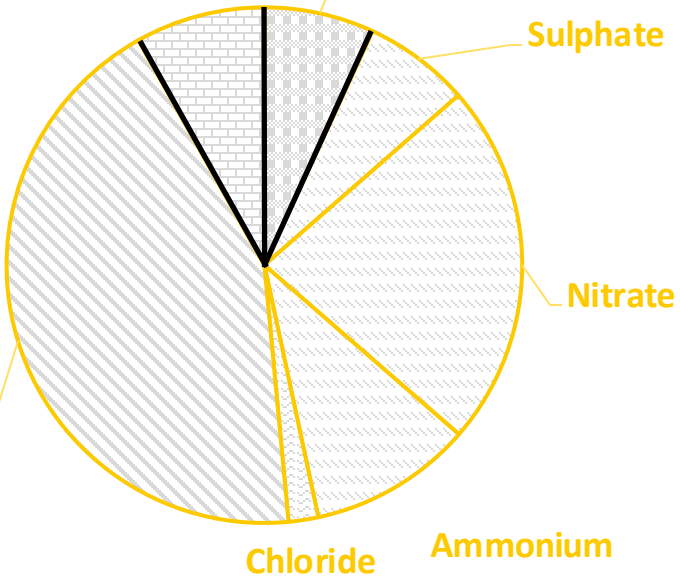
Chemical composition (no sources)

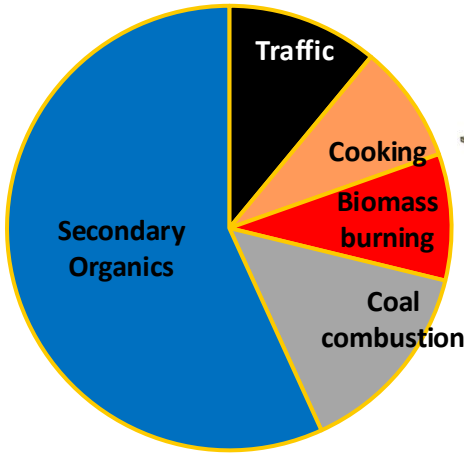
Manousakas et al., in prep

DEZA PMF: real-time source contributions









Step 2:

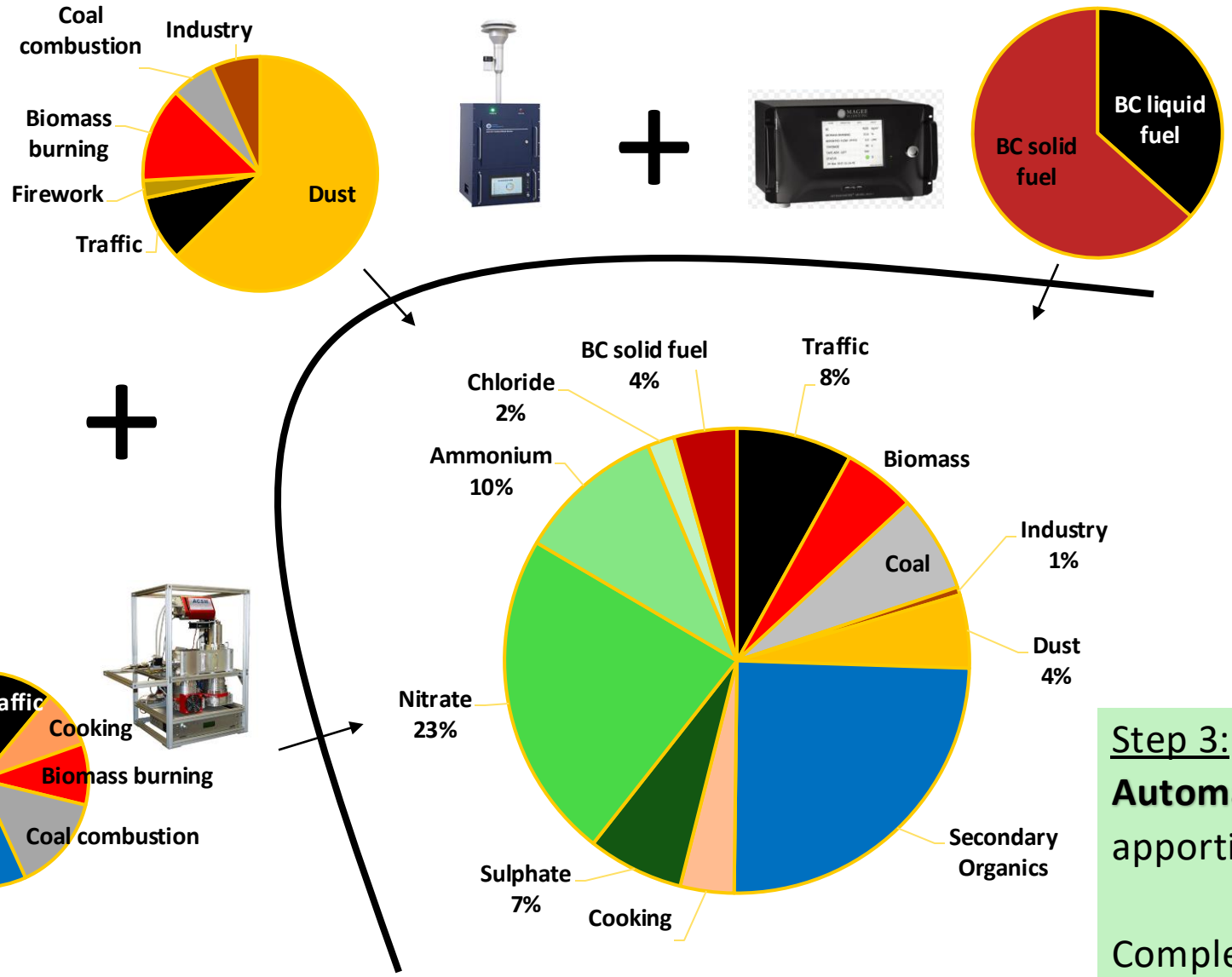
Automated source apportionment of individual instruments

↓

Instrument-specific sources

Manousakas et al., in prep

DEZA PMF: real-time source contributions



Step 3:

Automated recombination of apportionment results

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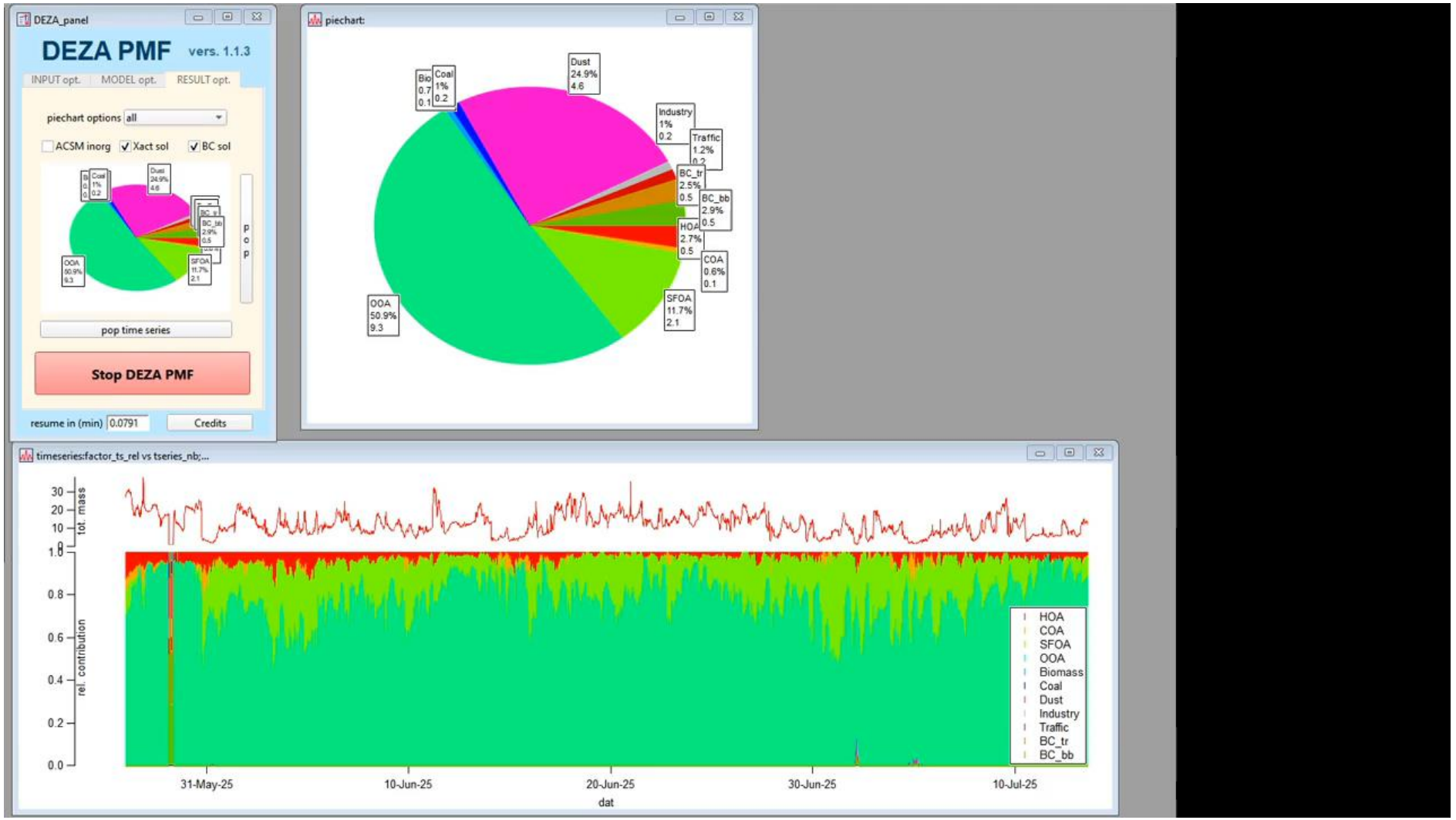
Complete source apportionment

Manousakas et al., in prep

DEZA PMF in action: Xi'an station



Status/prognosis

- Fully integrated in pilot cities (Xi'an, Wuhan, Chongqing).
- Tested in Beijing by local EEB
- Wuhan EEB plans to expand use across Hubei province
- End 2025: Full handover to local partners (long-term autonomous operation by EEBs/researchers).

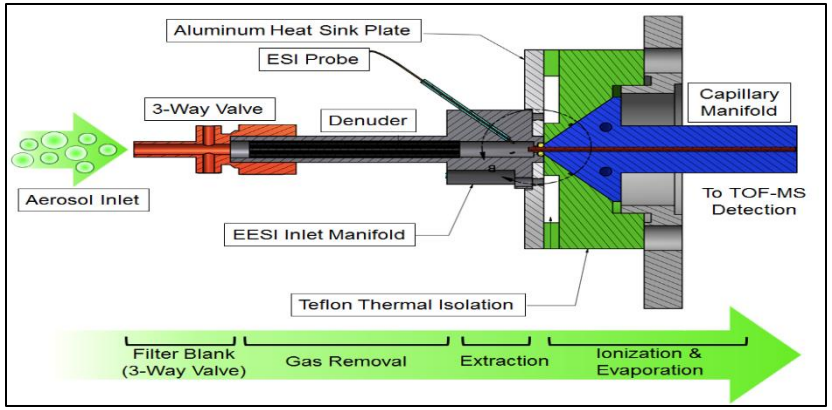
Advanced source apportionment of secondary organic aerosol

PSI

EESI-TOF:

PSI-developed instrument

Molecular composition of organics

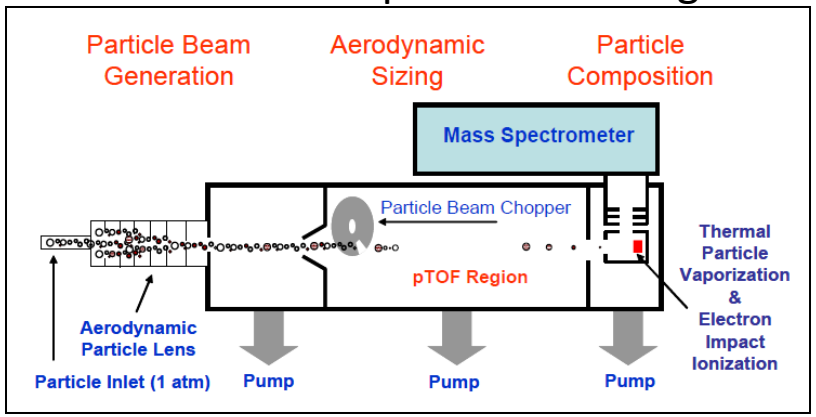


+

AMS:

Quantification of aerosol components

Limited chemical speciation of organics



Better chemical resolution → improved source apportionment

Online method (continuous field measurements)

Advantages:

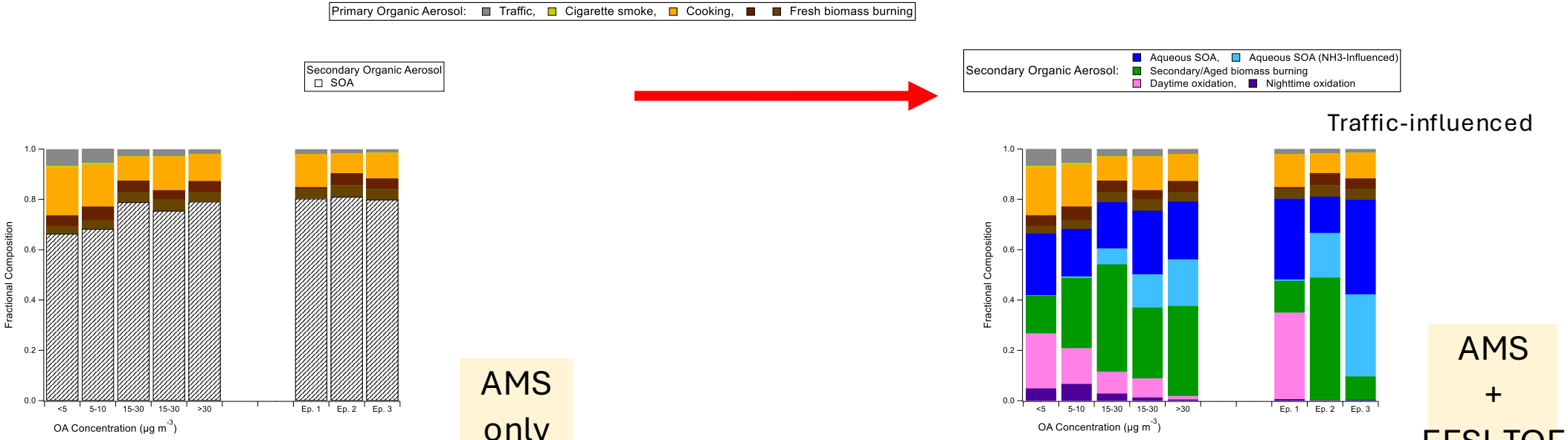
- Fast time resolution (matches human activity)
- Daily cycles
- Avoid collection/storage artifacts

Offline method (bring filter extracts to lab)

Advantages:

- Long (year or more) time series
- Spatial coverage
- Can analyze historical samples

Advanced source apportionment – added value



AMS only

Traffic-influenced

AMS + EESI-TOF

High pollution episodes

High pollution episodes

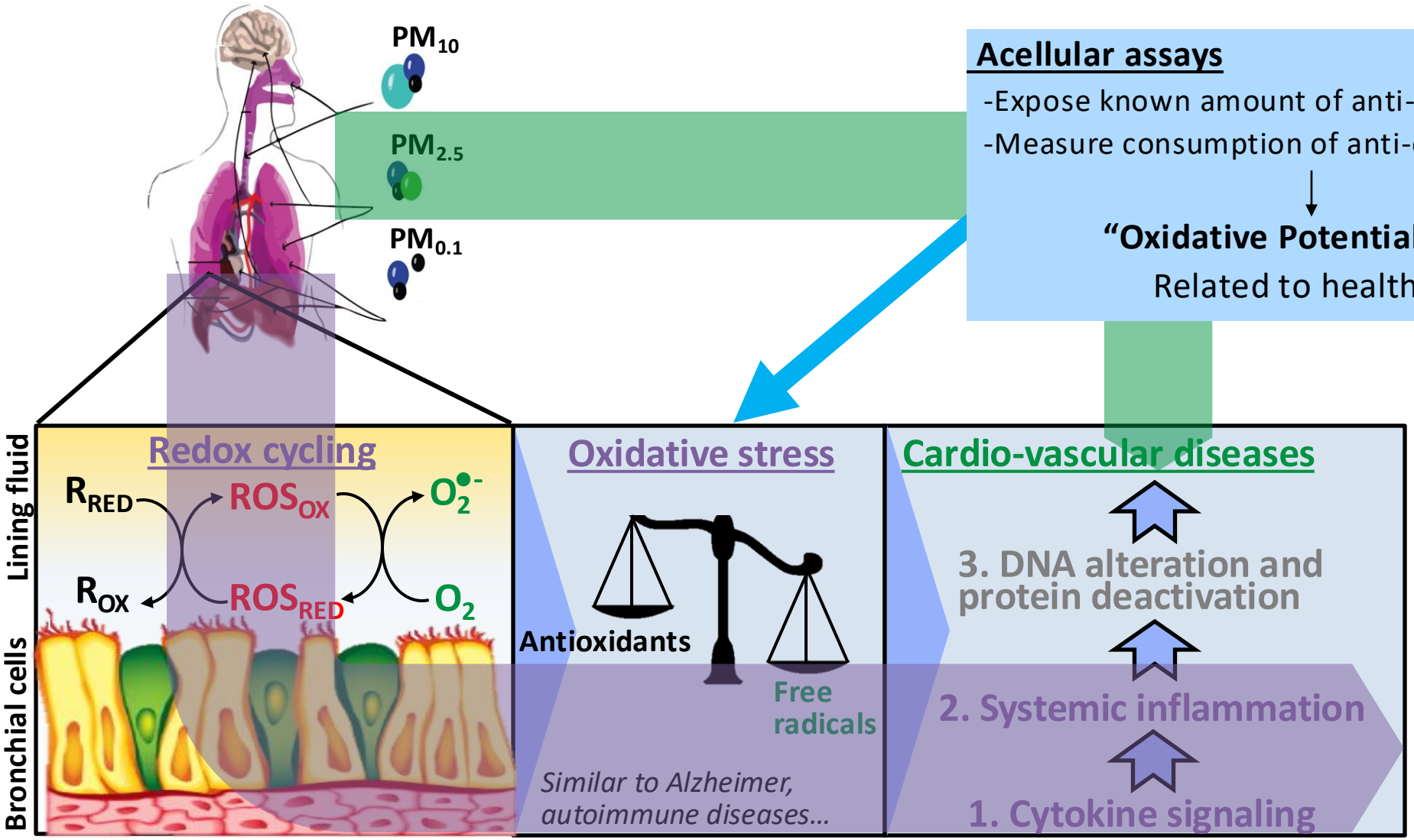
SOA dominates… progressively more so as pollution increases

Aqueous SOA and aged/secondary biomass burning are important

Traffic-derived SOA not dominant but does matter, especially under less polluted conditions.

Qi et al., in prep

Oxidative Potential (OP) – approximation of health risk

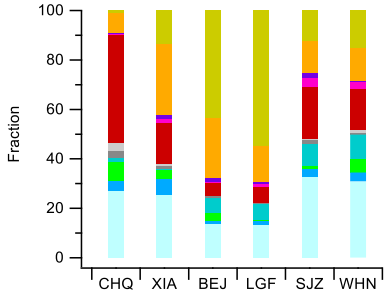


ROS = reactive oxygen species

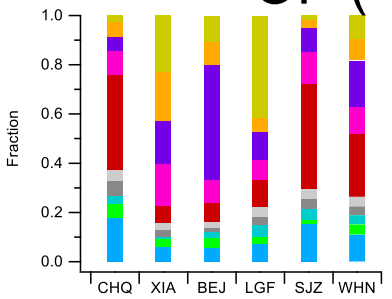
Mass and health risks driven by different sources

Seasonal snapshots:
- February – May: Chongqing (CHQ), Xi'an (XIA)
- March – June: Beijing (BEJ), Langfang (LGF)
- November – January: Shijiazhuang (SJZ), Wuhan (WHN)

$PM_{2.5}$ mass



OP (~health risk)



OP-dominating sources differ by city (and by season):

- Dust: low toxicity but high mass → still the largest OP contributor in Xi'an (XIA) and Langfang (LGF).
- Non-exhaust traffic (e.g., brake wear) is important in Beijing (BEJ).
- Secondary organics ("OOAs") and solid fuels are important at all sites.

Conclusions and closing thoughts

Real-time source apportionment (DEZA PMF): major success with potential for widespread uptake.

- Involvement of Chinese academic scientists (only communication route to local authorities)
- Effective outreach: in-person visits to local environmental boards, in-person workshops
- Maximize added utility; minimize added work

Critically important: 3-way interactions between PSI /Chinese research partners / SDC

- Active engagement of SDC is very helpful, especially in unlocking interest outside academia
- SDC's level of engagement an unusual experience for us. Project might have benefitted from a more intense early focus on achieving a united understanding ("internal outreach").

Advanced source apportionment and health work important to local/global research community …but not incorporated into monitoring-level infrastructure

- Pathways made visible, but need additional time and/or project stage to actualize uptake
- Clear positive influence on design of subsequent projects (science + outreach)

Thanks again to the SDC and the entire project team!

Q&A

Clean Air, Climate and Health
Learning Journey

Activities
INDIA

Clean Air, Climate and Health
Learning Journey

Anju Goel
Senior Fellow at TERI - The Energy and Resources Institute
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Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

CAP India
Clean Air Project in India

"Support India's efforts to improve people's health and well-being through better air quality, while contributing to environment and climate change mitigation."

Implementation Consortium

teri ARAI® Progress through Research EPFL ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE IIASA International Institute for Applied Systems Analysis

नीरी NEERI

Research Network

PAUL SCHERRER INSTITUT PSI u b UNIVERSITÄT BERN

नीरी NEERI

CAP India Project – an overview

- **Clean Air Project in India (CAP India)** with the aim to *Support India's efforts to improve people's health and well-being through better air quality while contributing to environment and climate change mitigation*.
- Implementation consortium led by TERI includes EPFL, IIASA, IIT Kanpur, ARAI and NEERI, while the research network led by PSI includes the University of Bern, IIT Kanpur and NEERI.
- Duration of the project: 4.5 years (2019-2024)

Outcome 1: Improved data measurement and analysis on clean air.

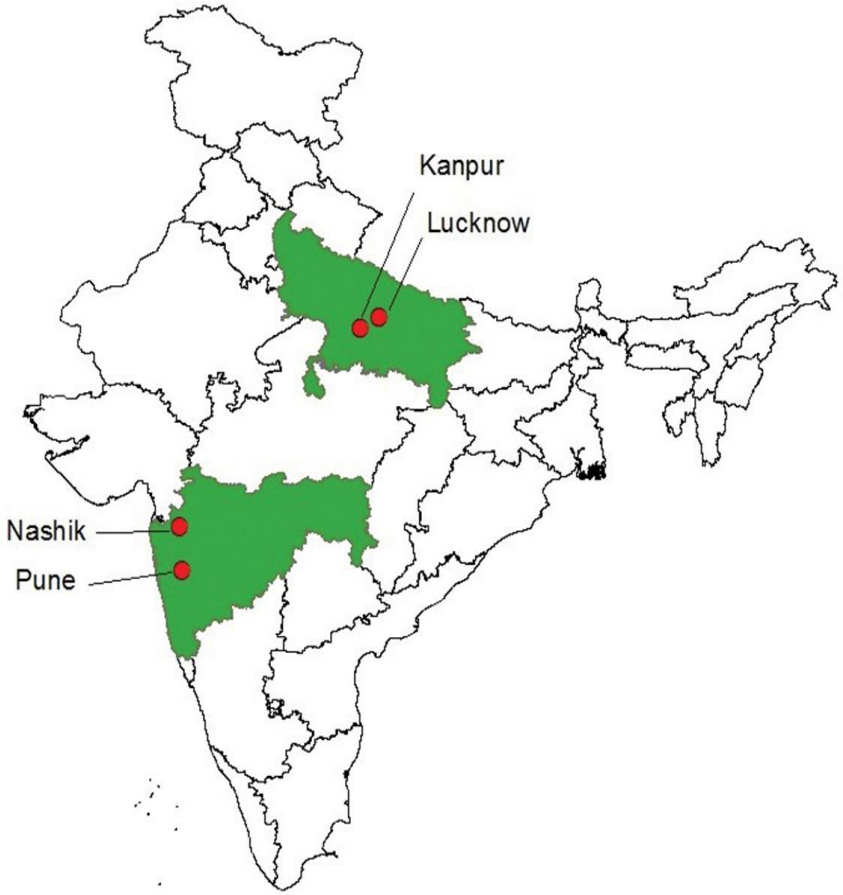
- Estimate city-wide source contributions of pollutants using air quality dispersion model.
- Measurement and analysis of sources of PM and its specific health-relevant components using advanced source apportionment methods
- Develop revised methodologies/protocols for source apportionment, data collection and design of monitoring networks.
- Capacity building of city authorities and local stakeholders to formulate or modify the clean air action plans.

Outcome 2: Enhance capacities of city and state authorities to implement clean air policies and action plans.

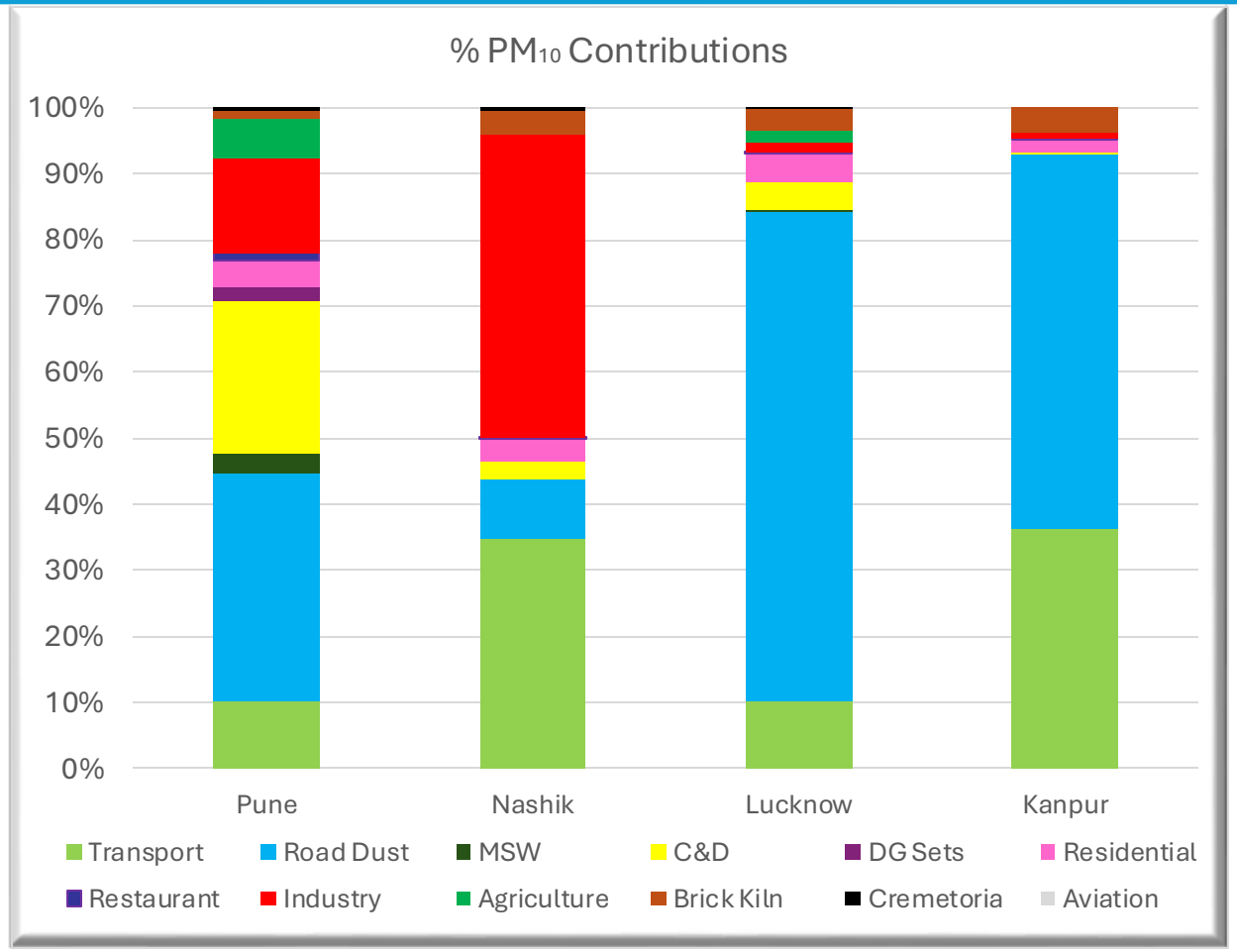
- Strengthening of clean air action plans of the focus cities based on scientific assessment.
- Development of monitoring, review, and verification (MRV) systems for clean air action plans.
- Commissioning of pilot projects in selected sectors with high mitigation potential in each of the four cities.
- Capacity building of local authorities to implement sector-specific air pollution mitigation strategies.

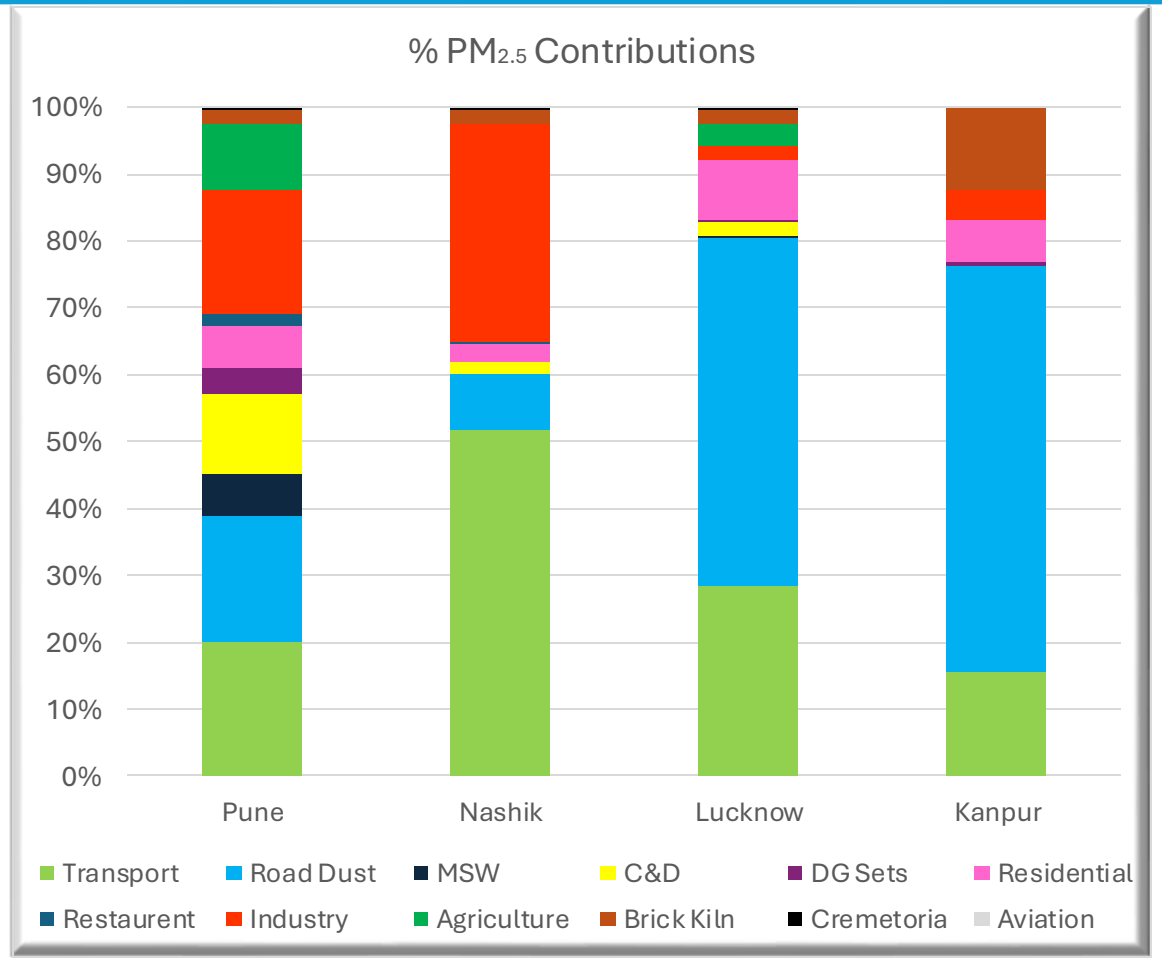
Outcome 3: Awareness generation for clean air action

- Raising awareness about air pollution among School/college students
- Sensitization of the general public about Air pollution through various open events
- Sensitization of NGO/Media personnel about Air pollution
- National and international exposure visits of officials to share the existing knowledge on best practices being followed in air quality management.



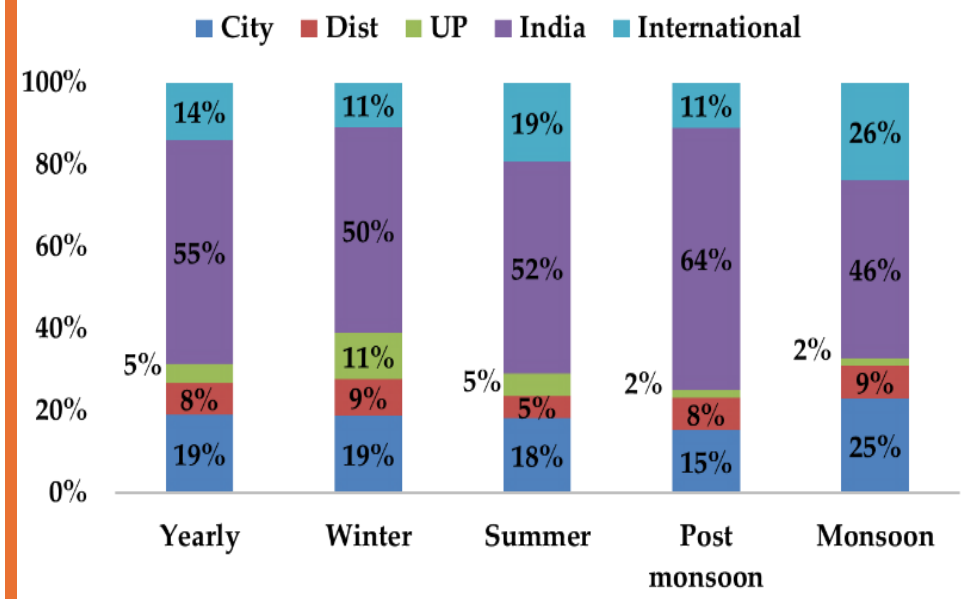
Outcome 1: Emission Inventory of Four Cities

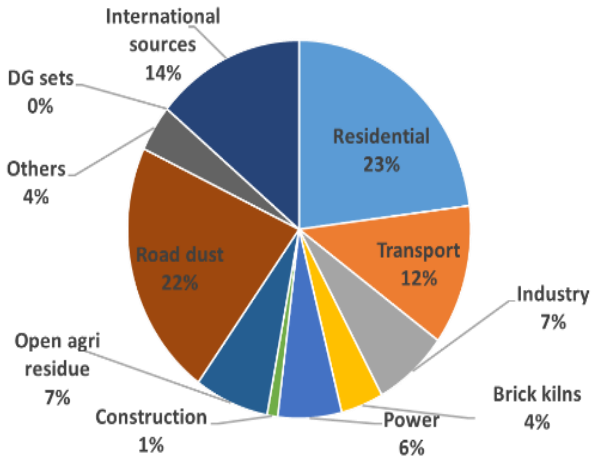




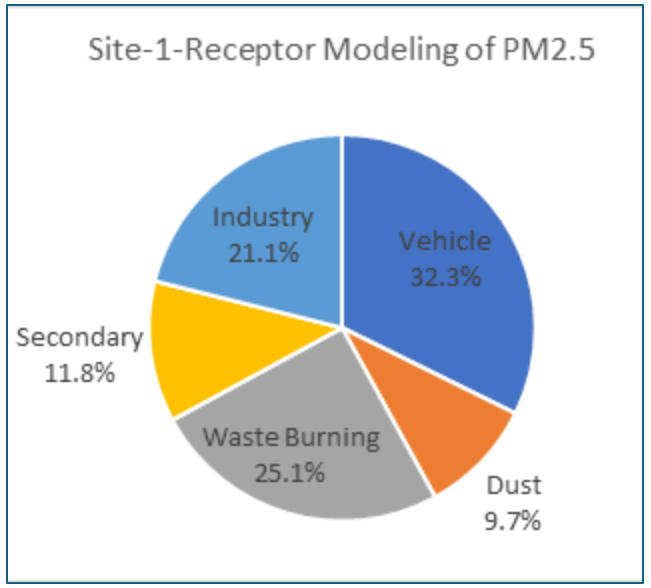
- Four cities have different sources of emissions.
- Need to customize solutions as per local conditions.
- Other Indian cities having similar source contributions can learn from these four cities.

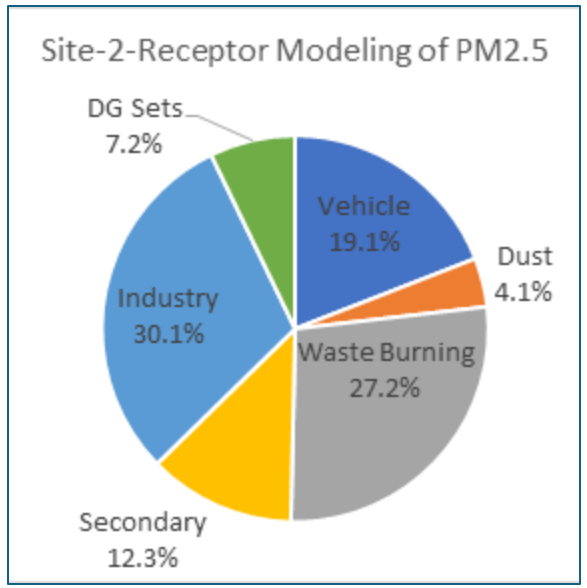
Source Apportionment of Lucknow ($PM_{2.5}$)



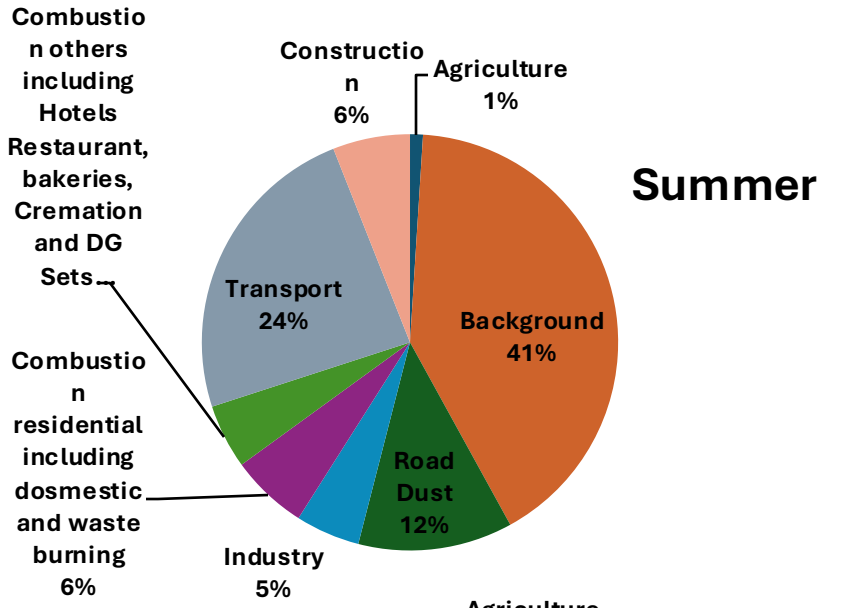


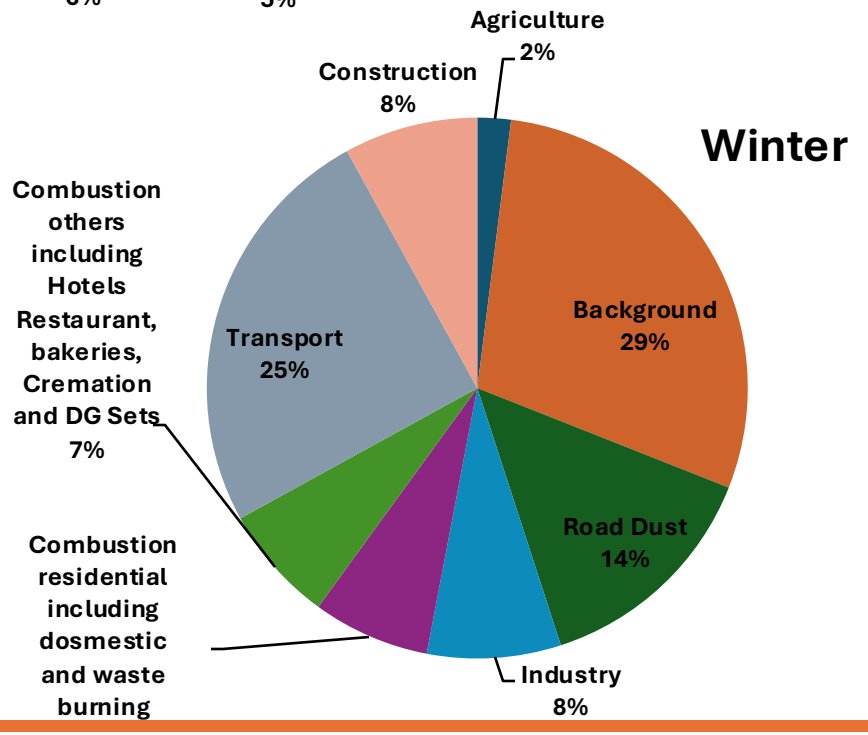
Source Apportionment of Nashik ($PM_{2.5}$)





Source Apportionment of Pune (PM2.5)

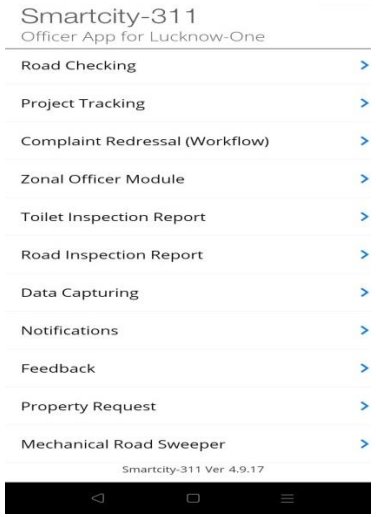




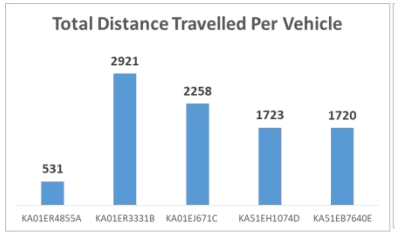
Outcome 2: Enhanced capacities of city and state authorities to implement clean air policies and action plans

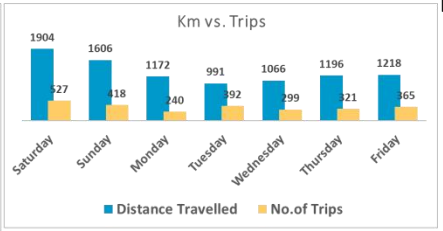
- Action plans are being formulated in consultation with local authorities based on the results of SA studies.
- Pilot projects in selected sectors with high mitigation potential in each of the four cities are demonstrated and supported for up-scaling
- Capacity to prepare and implement action plan strengthened

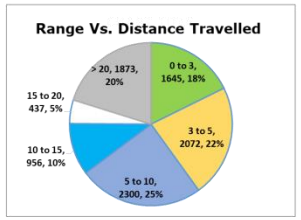
1. Development of Performance-based payment system for MRS on Smart City 311 App has been completed and operationalized for testing.



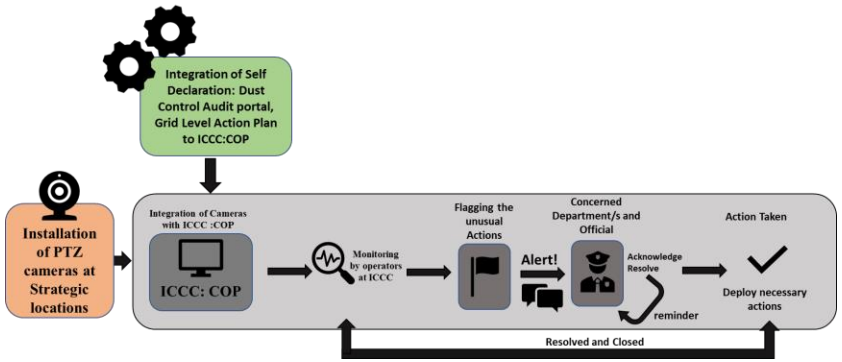
2. Retro-fitment of old 2W IC with electric drive in Pune



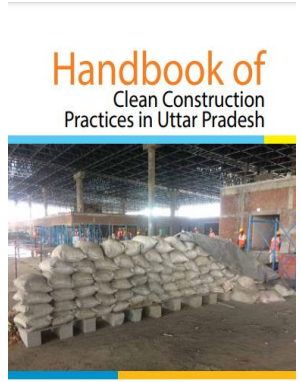




3. Monitoring of 32 air pollution hotspots through camera in Lucknow



4. Handbook on clean construction practices in UP has been developed and implemented on few sites in Lucknow and Kanpur

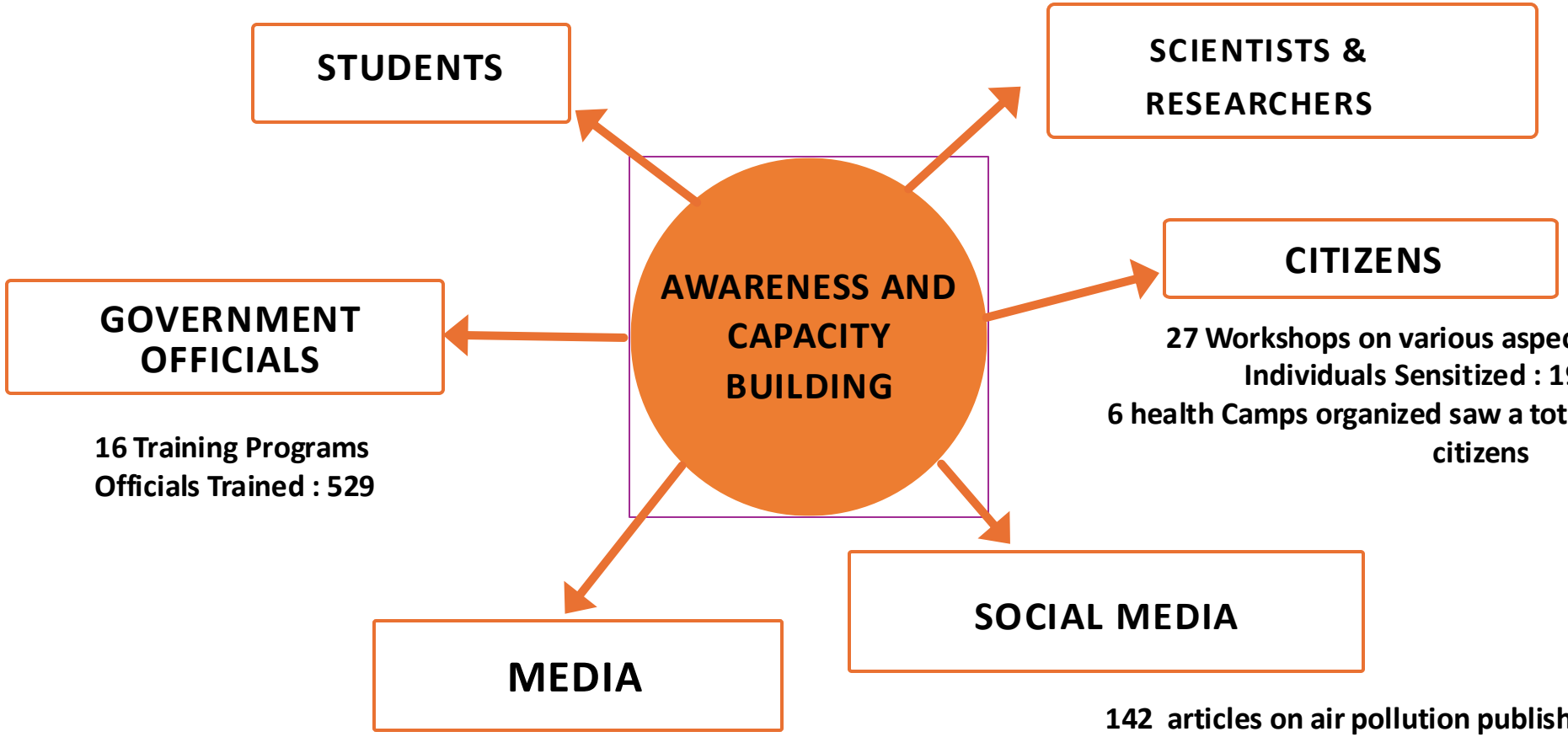


5. Conversion of conventional tandoors to gas-based

Outcome 3: Capacity building and Awareness Initiatives

7 events and 10 competitions school level events organized
Students Sensitized – approximately around 6k

Training on Advance SA methodology and Source Finder (SoFi)
Attendees trained : 25



16 Training Programs
Officials Trained : 529

27 Workshops on various aspects of Air Pollution
Individuals Sensitized : 19 thousand,
6 health Camps organized saw a total participation of 356 citizens

142 articles on air pollution published in local newspaper
(Collective readership : 14 million)

4 Media Sensitization Workshop
Sensitized local media personnel– 400

SAMANWAYA – Environmental Awareness Campaign

Free Health Camp (Lung Function Test and General Respiratory Health Check –up)

- 6 Health Camps organized
- Total participation of 356 citizens across the focus cities

Media Coverage

142 articles published in local newspaper about the events conducted in four cities with a collective readership of around **14 million people.**

पुढारी

मनपातर्फे पर्यावरण रक्षणासाठी सायकल रॅली

नाशिक : पुढारी वृत्तसेवा

महापालिका, महाराष्ट्र प्रदूषण नियंत्रण मंडळ आणि स्विस एजन्सी फॉर डेव्हलपमेंट अँड को-ऑपरेशन यांच्या संयुक्त विद्यमाने सीएसआयआर - निरीद्वारा पर्यावरणाच्या दृष्टीने उपाययोजना म्हणून सायकल रॅली आणि पथनाट्याचे आयोजन शनिवारी (दि.२१) करण्यात आले होते.

टेरी (द एनर्जी अँड रिसोर्सेस इन्स्टिट्यूट) या संस्थेने त्यासाठी पुढाकार घेतला. टेरीच्या 'फक्त एकच पृथ्वी' आणि 'समन्वय - शाश्वत, सुसंवादात्मक जीवनपद्धती आणि निसर्ग' या उपक्रमांतर्गत हा कार्यक्रम पार पडला. यावेळी 'फक्त एकच पृथ्वी' या विषयावर पथनाट्यही सादर झाले. सायकल रॅलीत एकूण १५० सायकलस्वारांनी सहभागी घेतला होता. त्यांनी शहरातील १० किमी अंतर सायकल चालवत संदेश दिला. उपआयुक्त विजयकुमार मुंडे यांनी गोल्फ क्लब मैदान येथे रॅलीला हिरवा झेंडा दाखवला.

नाशिक : मनपा, महाराष्ट्र प्रदूषण नियंत्रण मंडळ, स्विस एजन्सी फॉर डेव्हलपमेंट अँड को-ऑपरेशन यांच्

प्रदूषित शहरांम

महाराष्ट्रातील सर्वाधिक इंडिया प्रकल्पाची सुरुवा फॉर डेव्हलपमेंट अँड के नाशिक, पुणे, लखनऊ केंद्रित केले आहे. हवाम हवा गुणवत्ता मूल्यांकन, होतो. 'टेरी' सोबत 'निरी

नाशिक सायकलिस्ट अध्यक्ष किशोर माने यांनी

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Jan 22, 2023 Page
newspaper.pudhari

पुढारी

नाशिकच्या हवेला ट्रॉ

नीरी व टेरीतर्फे 'वायू प्रदूषण व प्रसारमाध्य

नाशिक : पुढारी वृत्तसेवा

आल्हाददायक हवामानासाठी प्रसिद्ध असलेली नाशिकच्या हवेची गुणवत्ता खालावण्यात १२ वेगे कारणीभूत ठरत आहेत. त्यामध्ये वाहनांची वर्दळ आणि रस्त्यावरील धूलिकण सर्वाधिक कारणीभूत ठरत असून, त्याकरीता ठोस उपाययोजनांची गरज आहे. नाशिकचे आल्हाददायक वातावरण कायम टिकण्यासाठी प्रशासनासह, प्रसारमाध्यमे तसेच नागरिकांची भूमिका महत्त्वाची असल्याचा सूर 'वायू प्रदूषण व प्रसारमाध्यमे संवेदीकरण' कार्यशाळेत व्यक्त करण्यात आला.

राष्ट्रीय पर्यावरण अभियांत्रिकी अनुसंधान केंद्र (नीरी), नागपूर व द एनर्जी अँण्ड रिसोर्सेस इन्स्टिट्यूट, नवी दिल्ली यांच्या संयुक्त विद्यमाने तसेच नाशिक महानगरपालिका व स्विस एजन्सी फॉर डेव्हलपमेंट एण्ड कॉपरेशन यांच्या अंतर्गत 'वायू प्रदूषण : प्रसारमाध्यम संवेदीकरण' कार्यशाळेचे आयोजन करण्यात आले. यावेळी 'वायू प्रदूषणाचा सामना करण्यासाठी माध्यमांचे सहकार्य मिळावे' या विषयावर केलेल्या सखोल चर्चेत प्रामुख्याने वाहनांची वर्दळ आणि धूलिकण वायू प्रदूषणास सर्वाधिक कारणीभूत ठरत असल्याचा सूर व्यक्त करण्यात आला. त्याचबरोबर नाशिकच्या हवेची गुणवत्ता खालावण्यास उद्योग, वाहतूक, रस्त्यावरील धूळ, निवासी वीटभट्ट्या, बांधकाम, स्मशानभूमी, स्टोनक्रशर, बेकरी, ओपन इट आउट, हॉटेल्स आणि रेस्टॉरंट हे ११ क्षेत्रे कारणीभूत असल्याचा निर्वाळा

नाशिक : उत्सर्जन घटीबाबतचा अहवाल ! करताना मनपा आयुक्त डॉ. चंद्रकांत पुलकुं समवेत डावीकडून आर. सुरेश व राहुल व्य

चर्चेदरम्यान व्यक्त करण्यात आला.

यावेळी टेरीचे वरिष्ठ फेलो आर. सुरेश नीरीचे वैज्ञानिक राहुल विजय व्यवहारे प्रसारमाध्यम प्रतिनिधींसमवेत उत्सर्जन तांत्रिक तपशील सादर केले. आर. सुरेश म्हणा 'वायू प्रदूषणाचे स्रोत ओळखणे ही वायू प्रदूष करण्याचीपहिलीपायरी आहे. सामान्यजनांग जागरूकता निर्माण करण्यासाठी प्रदूषणासंबं माहिती लोकांपर्यंत पोहोचवण्याची गरज अस त्यांनी सांगितले. यावेळी पत्रकार राहुल रा मिलिंद कुलकर्णी, वैशाली बालाजीवाले, मनोज, सौरभ बेंडाळे यांनीदेखील वायू प्रदू आपले मत व्यक्त करताना माध्यमांची येथली रघ केली. राहुल व्यवहारे यांनी आभार मान

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...वर्षांत दीड कोटी खर्च ...धिम्या गतीने

...धुलीकणांमुळे 'स्वच्छ नाशिक' अडचणीत

शिल्पकार विकासाचा...
देशदूत

दिव्य नाशिक सिटी 19-01-2023

नीरी-टेरी-एसडीसी अभ्यासातील

शहरातील हवेच्या शुद्धतेला वाहतकीची बाधा

लोकमत

११ उद्योग घटकांमुळे नाशिक प्रदूष

सर्वेक्षणातील निष्कर्ष : महापालिका आयुक्त पुलकुंडवार यांना सोपविला अ

लोकमत न्यूज नेटवर्क

नाशिक : उत्तम आणि आल्हाददायक हवामान ही नाशिकची जमेची बाजू असली तरी हीच हवा आता प्रदूषित झाली असून लहान-मोठ्या तब्बल ११ उद्योगघटकांमुळे शहरात मोठे प्रदूषण वाढत असून त्यामुळेच धोकादायक शहरांच्या यादीत नाशिक सतराव्या स्थानावर पोहोचले आहे.

विशेषत: हवेत धूळ, माती, धातू वा तत्सम सूक्ष्म व अतिसूक्ष्म कण मोठ्या प्रमाणात असून हे कण श्वसनातून मानवी शरीरात जाऊ शकतात आणि मानवी आरोग्याला अपायकारक ठरू शकतात, असा धक्कादायक निष्कर्ष निरी, टेरी आणि महाराष्ट्र प्रदूषण नियंत्रण मंडळाने केलेल्या सर्वेक्षणात आढळला आहे. त्यामुळे नाशिकला रेट अलर्ट देत तातडीने उपाययोजना करण्याची शिफारसदेखील करण्यात आली आहे. राष्ट्रीय पर्यावरण अभियांत्रिकी संशोधन संस्था (निरी), ऊर्जा व संसाधन संस्था (टेरी) आणि महाराष्ट्र प्रदूषण नियंत्रण मंडळ (एमपीसीबी) यांनी संयुक्तरीत्या तयार केलेल्या सर्वेक्षणाचा अहवाल बुधवारी (दि. १८) कोर्ट यार्ड येथील कार्यशाळेत महापालिका आयुक्त डॉ. चंद्रकांत पुलकुंडवार यांना सादर करण्यात आला. यात हा निष्कर्ष नमूद करण्यात आला आहे.

संबंधित संस्था तसेच स्विस एजन्सी फॉर डेव्हलपमेंट अँण्ड को-ऑपरेशन आणि (एसडीसी) महानगरपालिका यांच्या वतीने 'वायू प्रदूषणासंदर्भात प्रसारमाध्यमांचे सहकार्य' या विषयावरील कार्यशाळा पार पडली. यात महापालिका आयुक्त डॉ. चंद्रकांत पुलकुंडवार, टेरी या संस्थेचे शास्त्रज्ञ आर. सुरेश, निरीचे शास्त्रज्ञ राहुल व्यवहारे हे सहभागी झाले होते; तर ऑटोमोटिव्ह रिसर्च असोसिएशनचे महाव्यवस्थापक डॉ. मोक्तिक बवासे हे दूरदृष्य प्रणालीद्वारे सहभागी झाले होते.

'नाशिकची स्वच्छ हवा अन् वायू प्रदूषणाचे आव्हान' या विषयावर झालेल्या राज्यस्तरीय कार्यशाळेत 'नीरी', 'टेरी' या पर्यावरणीय संशोधन करणाऱ्या संस्थांकडून नाशिकच्या वायू प्रदूषणाशी संबंधित उत्सर्जन यादीचा अहवाल महापालिका आयुक्त डॉ. चंद्रकांत पुलकुंडवार यांना सादर करण्यात आला. समवेत डावीकडून एनर्जी रिसोर्स इन्स्टिट्यूटचे आर. सुरेश, नीरीचे शास्त्रज्ञ राहुल व्यवहारे.

सिडको, सातपूर, मुंबई नाका

१ नाशिक शहर आणि जिल्ह्यात २०२१ सर्वेक्षण करण्यात आले होते. सूक्ष्म ध मोठ्या कारखान्यांचा ४० टक्के वाटा आहे. ३० टक्के वाटा आहे.

२ अतिसूक्ष्म धुलिकणांत मात्र, वाहतूक (२८ टक्के) योगदान आहे. वाहनांमुळे ऑक्साईड्स (एनओएक्स) वायू मिसळतो. जिल्ह्यात ९३, तर शहरात ८२ टक्के इतका सिडको, सातपूर, मुंबई नाका आणि कोणार्क हॉट स्पॉट ठरले आहेत.

वायुप्रदूषण टाळण्यासाठी महापालिके इलेक्ट्रिक वाहनांसाठी चार्जिंगसाठी र विद्युतदाहिनी तसेच पाथर्डी शिवारात निरुपद विल्हेवाट प्रकल्प साकारण्यात येणार आहे.

- डॉ. चंद्रकांत पुलकुंडवार, आ

Nashik Main
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सकाळ

वायुप्रदूषण नियंत्रणासाठी हवी नागरिकांची साथ

आयुक्त डॉ. पुलकुंडवार : कार्यशाळेत विविध सत्रांतून संवाद

सकाळ वृत्तसेवा

नाशिक, ता. १८ : केंद्र शासन, राज्य शासनापासून महापालिकेच्या स्तरावर वायुप्रदूषण घटविण्यासाठी विविध योजना राबविल्या जाता आहेत. नीरी, टेरी, आआयटी पवई यांच्या सहकार्याने प्रदूषण नियंत्रणासाठी विविध उपाययोजना सुरू आहेत. वायू प्रदूषणावर नियंत्रण मिळविण्यासाठी नागरिकांनीही साथ द्यावी, असे आवाहन महापालिका आयुक्त तथा प्रशासक डॉ. चंद्रकांत पुलकुंडवार यांनी बुधवारी (ता. १८) केले.

दी एनर्जी अॅन्ड रिसोर्सेस इन्स्टिट्यूट (टेरी) यांच्यातर्फे व नॅशनल एन्व्हायर्नमेंटल इंजिनिअरिंग रिसर्च इन्स्टिट्यूट (नेरी), महाराष्ट्र प्रदूषण नियंत्रण मंडळ, नाशिक महापालिकेतर्फे आयोजित कार्यशाळेप्रसंगी ते बोलत होते. 'वायुप्रदूषण नियंत्रणासाठी माध्यमांची भूमिका' असा कार्यशाळेचा विषय होता. याप्रसंगी टेरीचे वरिष्ठ अधिकारी आर. सुरेश, नीरीचे वैज्ञानिक राहुल व्यवहारे सहभागी झाले होते.

आयुक्त डॉ. पुलकुंडवार म्हणाले, की वायू प्रदूषणावर नियंत्रणासाठी दोनशे सिटी बस सीएनजीवर कार्यान्वित असून, लवकरच इलेक्ट्रिक बस अवगत केल्या जात आहेत. अंत्यविधीसाठी तीन विद्युत शवदाहिनी बसविल्या असून, सीएसआर निधीतून ही संख्या वाढविली जाणार आहे. शंभर ठिकाणी इलेक्ट्रिक वाहनांसाठी चार्जिंग स्टेशन उभारणीबाबत जागा निश्चित केल्या आहेत. मेकॅनिकल झाडूचा वापर केला जाणार आहे. एस. सुरेश म्हणाले, की जगातील सर्वाधिक वायू प्रदूषण असलेल्या पन्नास शहरांपैकी दहा भारतातील आहेत. आरोग्याचा प्रश्न निर्माण होण्यासह कृषी उत्पादनांत ३० टक्क्यांपर्यंत घट, अर्थव्यवस्था प्रभावित होणे असे गंभीर परिणाम उद्भवू शकतात. त्यामुळे वायुप्रदूषण घटविण्यासाठी प्रयत्न व्हावे. संयुक्त सर्वेक्षणातून वायू प्रदूषणासाठी कारणीभूत स्त्रोतांचा शोध घेण्याचा प्रयत्न केला असून, यामुळे प्रदूषण नियंत्रणास मदत होईल. श्री. व्यवहारे म्हणाले, की वाहतूक, हॉटेल, रेस्टॉरंट, बेकरी, उद्योग अशा विविध घटकांतून उत्सर्जित होणाऱ्या घटकांमुळे वायुप्रदूषण वाढते आहे. प्रदूषण घटविण्यासाठी नागरिकांची भूमिका महत्त्वाची असून, त्यांच्या जबाबदारीची जाणीव व्हावी, यासाठी जनजागृती केली जाते आहे. या अंतर्गत शनिवारी (ता.२१) सायकल रॅली काढली जाणार असून, पथनाट्यातून जनजागृती केली जाणार आहे. कार्यक्रमाचे समन्वय गरिमा कपूर यांनी केले.

उत्सर्जन घटविण्याचे प्रयत्न सुरू : बवासे

■ हकश्राव्य माध्यमातून संवाद साधताना ऑटोमोटिव्ह रिसर्च असोसिएशन ऑफ इंडियाचे सरव्यवस्थापक डॉ. मोक्तिक बवासे म्हणाले, की बीएस-६ स्तरावरील वाहनांमुळे उत्सर्जित विषारी घटकांवर नियंत्रण मिळविण्यात काही प्रमाणात यश येते आहे. इंधनातील इथेनॉलचे प्रमाण सध्या दहा टक्के असून, वाढत व २०२५ पर्यंत २० टक्क्यांपर्यंत नेण्याचे निर्धारित आहे. इलेक्ट्रिक वाहनांचे प्रमाण वाढविणे व अन्य विविध माध्यमातून वायुप्रदूषण घटविण्याचे प्रयत्न सुरू असल्याचे नमूद केले.

माध्यम क्षेत्रास माहिती, डेटा उपलब्ध व्हावा

■ समूह चर्चेसाठी झालेल्या सत्रात 'सकाळ' उत्तर महाराष्ट्र आवृत्तीचे संपादक डॉ. राहुल रनाळकर, देशदूतच्या संपादिका वैशाली बालाजीवाले, लोकमतचे संपादक मिलिंद कुलकर्णी, लोकमत टाईम्सचे संपादक रिकिन मर्चंट यांच्यासह महाराष्ट्र टाईम्स'चे सौरभ बेंडाळे यांनी सरात सहभाग नोंदविला. विविध शासकीय आस्थापनांकडून अचूक व सविस्तर माहिती, डेटा उपलब्ध व्हावा, अशी अपेक्षा या वेळी व्यक्त केली. प्रदूषण नियंत्रणासाठी प्रशासकीय यंत्रणेच्या प्रयत्नांना माध्यम क्षेत्राकडून नेहमीच पाठबळ दिले जाईल, अशी ग्वाही या वेळी दिली. व्यापक जनजागृतीसाठी शाळकरी मुलांपासून ज्येष्ठ नागरिकांपर्यंत स्वयंसेवकांची फळी निर्माण करण्याची गरज डॉ. रनाळकर यांनी व्यक्त केली.

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...वेधी मुद्दे...

...धूळ, निवासी, वीटभट्ट्या, बांधकाम, ...करी, हॉटेल्स-रेस्टॉरंट ठिकाणी हवा

...सार प्राथमिक सर्वेक्षणानुसार नोंदी

...ग, प्रवासी वाहनांमुळे धूलिकण सर्वाधिक

...र्जन आणि वाहनांमधून निघणारा धूर

...पतः सिग्नलजवळ हवेची गुणवत्ता मापन केंद्र

...वाढण्याची अपेक्षा

...र्यान्वित होणार

...चा वापर वाढणार

...गुणवत्ता त्वरित समजणार

प्रदूषणाची टक्केवारी (जिल्हा/शहर)

- क्षेत्र : सूक्ष्म धूलिकण (पीएम १०) : अतिसूक्ष्म धूलिकणांचे (पीएम २.५) : नायट्रोजन ऑक्साइड
- वाहतूक : ३०/३० : ४६/४५ : ८२/९४
- उद्योग : ४०/८ : २८/९ : १६/--

...आणखी धावणार बस

- यूनएडीपीअंतर्गत शहरात शंभर ई-चार्जिंग स्टेशन होणार
- रस्ते सफाईसाठी यांत्रिक झाडू घेणार.

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THANK YOU

Q&A

Clean Air, Climate and Health
Learning Journey

Activities
MONGOLIA

Clean Air, Climate and Health
Learning Journey

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SDC Network Climate Change, Disaster Risk Reduction and Environment (CDE)

Learning Journey on Clean Air, Climate and Health
15.10.2025

SDC Experiences in Mongolia:

- Project 7F-08828: **Public Investment in Energy Efficiency (PIE)**, 2014 – 2021, CHF 9 million, Partner: GiZ
  Co-funder: BMZ, "Energy Efficient Building Refurbishment in Mongolia Project" (EEP)"

- Project 7F-10127: **Air Pollution Impact on Health**, 2018-2023, CHF 4,9 million, Partner: UNICEF
  Co-funders: UNICEF, National Government & provinces, capital city, other internationals

Smog impedes mountain view. Mongolia, 2010.
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Benoît Meyer-Bisch (MEYBE)

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Public Investment in Energy Efficiency (PIE) - 7F-08828
2014 – 2021, CHF 9 million, Partner: GiZ

Outcomes/Impacts of retrofitting 22 school and kindergarten buildings (1/2):

- Energy Efficiency and Mitigation of Climate Change:
  - Reduced energy consumption by 40% - 60%
  - Reduced coal consumption by 115,5 - 278,8 tons/year
  - CO2 savings for 22 buildings: 5'296.5 tons/year

- Social and Health (inside temperature from 15°C to 22 °C):
  - 48% reduction of sick children
  - 78% reduction of teachers' sick leave
  - Children learning activities/interests increased by 13% (schools) to 20% (kindergarten)
  - WASH also improved with retrofitting

- Public Investment Management (Governance):
  - Buildings with longer lifetime: 10%/year of savings of city's budget
  - Increased capacity of public servants on procurement processes & improved regulations
  - Empowered citizens (parents, teachers, administrators) with social accountability tools

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Public Investment in Energy Efficiency (PIE) - 7F-08828
2014 – 2021, CHF 9 million, Partner: GiZ

Outcomes/Impacts of retrofitting 22 school and kindergarten buildings (2/2):

- Private sector:
  - Financing schemes for energy efficient houses established with the Mongolian Bankers' Association
  - Mongolian Xac Bank selected by the global Green Climate Fund (GCF) for a subsequent project on its own.

- Gender and Poverty Reduction:
  - Increase parent's employability, since do not need to stay at home to attend sick children
  - Savings on family's health budget
  - Integration of Gender aspects in public investment management

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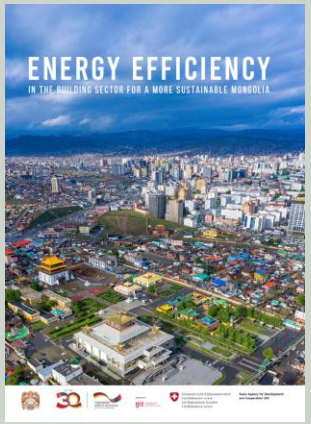
Public Investment in Energy Efficiency (PIE) - 7F-08828
2014 – 2021, CHF 9 million, Partner: GiZ

Lessons Learnt:

- Investing in energy efficiency through the termo-retrofitting of buildings in Mongolia = significant results in reduction of CO2 emissions and energy saving/efficiency, but also tremendous and unexpected health and social impacts.

- Synergies with other SDC-funded projects have proved vital: WB Social Accountability Project, TAF Urban Governance Project, UNICEF Air Pollution project.

- Capitalise and diffuse it !
  https://www.sdc-cde.ch/en/reduction-pollution (bottom of page)
  https://www.sdc-regions.ch/en/experiences-mongolia-other-topics

Capitalisation Brochure	Capitalisation Videos
Link 	https://www.youtube.com/@swisscooperationmongolia4876/search?query=energy

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Air Pollution Impact on Health - 7F-10127

2018-2023, CHF 4,9 million, Partner: UNICEF

Outcomes/Impacts (1/2) of reducing air pollution for the health of mothers and children:

- Social & Health:
  - Improved **indoor air quality** thanks to **new ventilation systems**: 28'800 children (< 5 years) and 17'730 pregnant in health facilities of 1 province + 1'520 children (3-5 years) in the kindergarten of 2 provinces.
  - Increased knowledge and awareness has led to changed behaviours.

- Governance:
  - Project's findings/recommendations led to 3 consultations at National Parliament, 18 recommendations to the Government's Cabinet, 5 national **policies** and 3 provincial "Clean Air Action Plans", all three then **co-funded by the provincial governments.**
  - **Knowledge sharing platform developed:** https://www.agaarneg.mn/), handed over to the Mongolian national Government.

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Confédération suisse
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Confederaziun svizra

Air Pollution Impact on Health - 7F-10127

2018-2023, CHF 4,9 million, Partner: UNICEF

Outcomes/Impacts (2/2) of reducing air pollution for the health of mothers and children:

- Economy:
  - **New green technical solution introduced**: *Cooking, Heating and Insulation Package (CHIP)*. Increased access to affordable energy efficient technology solutions for families living in yurts + **annual reduction of 9.9 kg. of CO2 and 16.8 kg. of PM10 per household's stove in a yurt.** CHIP owned by the Mongolian stakeholders and financially sustainable thanks to the green loans.
  - Revision of the "*State Green Loan Procedure*": **interest rate reduced from 8% to 3%** for green products/solutions. **Loans provided by private financial institutions**, sometimes further subsidised by the local/central governments
  - During the project period, the **national Government approved CHF 1.8 million** for the project activities: green loan interest subsidies, air quality monitoring stations, research and communication.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Air Pollution Impact on Health - 7F-10127

2018-2023, CHF 4,9 million, Partner: UNICEF

Lessons Learnt:

- Efficient synergies with the other SDC-funded project Public Investment in Energy Efficiency (PIE).

- 50% of air pollution in the capital city Ulaanbaatar produced by traditional coal-based stove/heating systems of yurts: CHIP has huge potential, however limited by costly task to extend the electric grid of the capital, to be progressively powered by renewable energy.
- Research: coordination with the National Research Agenda suboptimal.

- Capitalise and diffuse it !
  https://www.sdc-cde.ch/en/reduction-pollution (bottom of page)
  https://www.sdc-regions.ch/en/experiences-mongolia-other-topics

Capitalisation Magazine	Capitalisation Videos
Link 	https://www.youtube.com/@swisscooperationmongolia4876/search?query=pollution

Q&A

Clean Air, Climate and Health
Learning Journey

Let’s continue the journey together…

CDE KNOWLEGE PLATFORM

Don’t miss the Knowledge Platform

www.sdc-cde.ch/en/reduction-pollution

To find resources like:
💡 Air Pollution Brochure-
📌 Thematic Integration Briefs-
👓 And much more...

SDC KNOWLEDGE on the topic

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Join at menti.com | use code 4134 4798

Mentimeter

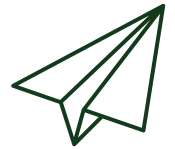
In a word, what do you think about the Learning Journey?

Before we finish, let us know what do you think today

WRAP UP

THANK YOU

To all participants, speakers and co-organizers for making this Learning Journey happen!



STAY IN TOUCH

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Organizers and speakers are kindly requested to stay online after meeting ends.