

Networks and Databases related to Air Pollution Control

Regional Emission inventory in ASia (REAS)

The Regional Emission inventory in ASia (REAS) is a data repository, which provides past emission data for the Asian region. The first version of REAS (REASv1.1) accounted for the actual emissions of SO₂, NO_x, CO, NMVOC, black carbon (BC), and organic carbon (OC) from fuel combustion and industrial sources between 1980 and 2003, and the projected ones in 2010 and 2020. The inventory was updated as the REASv2.1 for the period between 2000 and 2008 and the datasets of the Regional Emission inventory in Asia for Persistent Organic Pollutants (REAS-POP) 1.0 focusing on polycyclic aromatic hydrocarbons (PAHs) in the Northeast Asia were also developed. The current latest version, REASv3.2.1, provides a long historical emission inventory between 1950 and 2015 in the Asian region. It provides data for emissions of SO₂, NO_x, CO, NMVOC, PM₁₀, PM_{2.5}, BC, OC, NH₃, and CO₂ from 1950 to 2015 from the East, the Southeast, and South Asia. It includes the emission sources such as fuel combustions in power plants, industry, transport, and domestic sectors; industrial process; and agricultural activities (fertilizer application and livestock).

<https://www.nies.go.jp/REAS/index.html#general%20info>

WHO Air Quality Database

The WHO air quality database compiles data on the ground measurements of annual mean concentrations of nitrogen dioxide (NO₂), particulate matter of a diameter equal or smaller than 10 µm (PM₁₀) or equal or smaller than 2.5 µm (PM_{2.5}), which aim at representing an average for a city or a town as a whole, rather than for individual stations. Both groups of pollutants originate mainly from human activities related to fossil fuel combustion. The WHO database is updated regularly every two to three years since 2011, and the fifth update was released in April 2022. It currently hosts data on air quality for over 6000 human settlements in more than 100 countries. The data

compiled in this database is used as an input to derive the Sustainable Development Goal Indicator 11.6.2, the air quality in cities, for which WHO is the custodial agency.

<https://www.who.int/data/gho/data/themes/air-pollution/who-air-quality-database>

Asia Pacific Clean Air Partnership

Air pollution is recognized as a public health and environment crisis. In the Asia Pacific, there have been several intergovernmental and voluntary cooperation frameworks and initiatives working on air pollution with varying focus, functions, and scope in terms of membership. There was also a growing body of evidence on the status, impacts, and solutions of air pollution generated by different scientific bodies and research institutes in the region. There was a need to set-up a co-ordination mechanism to bring together different frameworks and initiatives to maximize synergies and to consolidate available evidences to identify the most effective solutions to reduce emissions of pollutants and improve health and wellbeing. The Asia Pacific Clean Air Partnership (APCAP) was established in 2015 as a mechanism and platform to promote coordination and collaboration among various clean air initiatives in the Asia Pacific. The APCAP aims to serve as a mechanism for better coordination and collaboration of clean air programs in the region; provide a platform to generate and share knowledge on air pollution initiatives, policies, and technologies in the Asia Pacific region; and strengthen institutional capacity, provide technical assistance on air quality management; and support air quality assessments to identify solutions for clean air.

<https://www.unep.org/asia-and-pacific/asia-pacific-clean-air-partnership>

Acid Deposition Monitoring Network in East Asia (EANET)

Acid deposition can cause various effects on ecosystems through acidification of soil and water as well as damage to buildings

and cultural heritage through corrosion of metals, concrete, and stone. In order to assess the adverse effects of acid deposition on an ecosystem, it is necessary to identify the dose-effect relationship of acid and eutrophic substances in the environment. It is also important to quantify the effects on ecosystems, estimate the necessary amount of reduction of emissions of harmful gases that cause acid deposition, and consider the most cost-effective policy options. The determination of emission reduction target may require the identification of the threshold level of acidic and eutrophic substances that do not cause any adverse effect on ecosystems. Acid deposition is not limited by national boundaries and, therefore, co-operation at the regional and international levels is required to effectively address this problem. In Europe, it was successfully achieved through the activities under the Convention on Long-Range Transboundary Air Pollution (CLRTAP). The Acid Deposition Monitoring Network in East Asia (EANET) was established as a regional co-operative initiative to promote the efforts for environmental sustainability and the protection of human health in the East Asian region.

<https://www.eanet.asia/about/background/>

Clean Environment and Planetary Health in Asia (CEPHA) network

The Clean Environment and Planetary Health in Asia (CEPHA) network aims to enhance inter-sectoral interdisciplinary engagement to co-create lasting partnerships that will help instigate a clean environment transformation in Asia (India, China, Thailand, Malaysia, and neighbouring countries) through low-carbon development, focusing on innovative solutions that can provide multiple health, environmental, and socioeconomic benefits. The CEPHA network engages with researchers, citizens, policymakers, the health sector, industry, and other stakeholders through systems-based participatory methods to develop lasting partnerships to tackle environmental pollution. Another objective

of the CEPHA network is to identify “what works,” knowledge gaps, key challenges, and barriers/enablers in developing/prioritizing innovative solutions that can provide multiple benefits. The CEPHA network strengthens international co-operation and knowledge exchange on environmental pollution control and planetary health across Asia. The CEPHA network builds the capacity and the capability of the stakeholders in Asia and widens their participation across sectors and socioeconomic groups. The activities of the CEPHA network focus on generating resources and research income through joint research grant applications.

<http://cepha.in/>

Climate and Clean Air Pollution

The Climate and Clean Air Coalition is a voluntary partnership of governments, inter-governmental organizations, businesses, scientific institutions, and civil society organizations committed to improving air quality and protecting the climate through actions to reduce short-lived climate pollutants. The partners include states, IGOs, and NGOs. It also has a network of actors from civil societies carrying out actions on the ground. The global network includes hundreds of states and non-state partners, and hundreds of local actors carrying out activities across economic sectors. In 2012, the governments of Bangladesh,

Canada, Ghana, Mexico, Sweden, and the United States, along with the United Nations Environment Programme (UNEP), came together to initiate efforts to treat short-lived climate pollutants as an urgent and collective challenge. Together, they formed the Climate & Clean Air Coalition to support fast action and deliver benefits on several fronts at once, which include climate, public health, energy efficiency, and food security. Today, the Coalition brings together hundreds of experienced and influential stakeholders from around the world to leverage high-level engagement and catalyse concrete actions in both the public and private sectors.

<https://www.ccacoalition.org/en>