

## INTERNATIONAL

### Summary of Climate Action at COP 28

Under the leadership of the COP 28 Presidency and the multilateral process of the United Nations Framework Convention on Climate Change (UNFCCC), considerable progress has been observed under the Global Climate Action Agenda. Some of the key developments were:

- To accelerate the energy transition, the COP 28 Presidency took a leading role in launching the **Global Renewables and Energy Efficiency Pledge**. With the endorsement of 130 national governments (as of December 11, 2023 including the European Union (EU)), the Pledge stipulates that signatories commit to work together to triple the world's installed renewable energy generation capacity to at least 11,000 GW by 2030 and to collectively double the global average annual rate of energy efficiency improvements from around two percent to over four percent every year until 2030.
- The Presidency also led the **Global Cooling Pledge** for COP 28, which includes 66 national government signatories committed to working together with the aim of reducing cooling-related emissions, relative to 2022 levels, by at least 68 percent globally, across all sectors, by 2050.
- The **Powering Past Coal Alliance** of new national and subnational governments is working to advance the transition from unabated coal power generation to clean energy. Coinciding with this progress, France, together with other countries and organizations, launched the Coal Transition Accelerator, which aims to share expertise, design new policies through best practices and lessons learned, and unlock new sources of public and private financing to facilitate just transitions from coal to clean energy.

- A **Declaration to Triple Nuclear Energy**, with a goal of tripling nuclear energy capacity globally by 2050 and inviting shareholders of international financial institutions to encourage the inclusion of nuclear energy in energy lending policies, was endorsed by 22 national governments.
- The **Utilities for Zero Alliance** has 31 partners, including 25 global utilities and power companies, united for a joint commitment to advance electrification, renewables-ready grids, and clean energy deployment.
- The Joint Declaration and Task Force on Credit Enhancement of Sustainability-Linked Sovereign Financing for Nature and Climate: The Declaration, and its subsequent establishment of a Task Force, aims to respond to the needs of developing countries, multilateral development banks, and international financial institutions.
- The launch of the **Nature Solutions Hub for Asia and the Pacific** by the Asia Development Bank to proactively scale up the flow of public and private finance into conserving nature and biodiversity loss in Asia and the Pacific.
- The **COP 28 UAE Declaration on Climate and Health**, which commits to the advancement of climate-resilient development, the strengthening of health systems, and the building of resilient and thriving communities for the benefit of present and future generations. A total of 141 national governments joined the initiative.
- In this regard, the COP 28 Presidency also launched the **UAE Declaration on Sustainable Agriculture, Resilient Food Systems, and Climate Action**. The 153 national government (including the EU) signatories have committed to several actions, including scaling up adaptation and resilience to reduce the vulnerability of all farmers, fisherfolk, and other food producers, mitigating

the impacts of climate change, and promoting food security and nutrition.

This is not an exclusive or complete list of outcomes of the global climate action agenda. The accountable implementation of these myriad actions involves a collaboration between multiple actors across the global climate action agenda. This could significantly contribute towards achieving climate action targets in this decisive decade.

<https://unfccc.int>

### First Global Stocktake on Climate Action

The Conference of the Parties under the United Nations Framework Convention on Climate Change (UNFCCC), serving as the meeting of the Parties to the Paris Agreement, shared the first global stocktake of climate action; some of the highlights of the stocktake are:

There is recognition that limiting global warming to 1.5 °C with limited or no overshoot requires deep, rapid, and sustained reductions in global greenhouse gas emissions of 43 percent by 2030 and 60 percent by 2035, relative to the 2019 level, and reaching net zero carbon dioxide emissions by 2050.

All Parties are called to contribute to the following global efforts in a nationally determined manner, taking into account the Paris Agreement and their national circumstances, pathways, and approaches:

- a) Tripling renewable energy capacity globally and doubling the global average;
- b) Annual rate of energy efficiency improvements by 2030;
- c) Accelerating efforts towards the phase-down of unabated coal power;
- d) Accelerating efforts towards net zero emission energy systems and utilizing zero- and low-carbon fuels well before or by around mid-century globally;

- e) Transitioning away from fossil fuels in energy systems in a just, orderly, and equitable manner, accelerating action in this critical decade so as to achieve net zero by 2050 as advocated by science;
- f) Accelerating zero- and low-emission technologies, including, inter alia, renewables, nuclear, abatement, and removal technologies such as carbon capture and utilization and storage, particularly in hard-to-abate sectors and low-carbon hydrogen production;
- g) Accelerating and substantially reducing non-carbon-dioxide emissions globally, methane emissions in particular, by 2030;
- h) Accelerating the reduction of emissions from road transport on a range of pathways through the development of infrastructure and rapid deployment of zero and low-emission vehicles;
- i) Phasing out inefficient fossil fuel subsidies that do not address energy poverty or just transitions as soon as possible;

There is an urge for Parties and Non-Party stakeholders to foster ambition and enhance adaptation action and support for:

- a) Significantly reducing climate-induced water scarcity and enhancing climate resilience to water-related hazards for climate-resilient water supply, climate-resilient sanitation, and access to safe and affordable potable water for all.
- b) Attaining climate-resilient food and agricultural production, supply and distribution of food, as well as increasing sustainable and regenerative production and equitable access to adequate food and nutrition for all.
- c) Attaining resilience against climate change-related health impacts, promoting climate-resilient health services, and significantly reducing climate-related morbidity and mortality, particularly in the most vulnerable communities.
- d) Reducing climate impacts on ecosystems and biodiversity and accelerating

the use of ecosystem-based adaptation and nature-based solutions, including through their management, enhancement, restoration, and conservation and the protection of terrestrial, inland water, mountain, marine, and coastal ecosystems.

- e) Increasing the resilience of infrastructure and human settlements to climate change impacts to ensure basic and continuous essential services for all and minimize climate-related impacts on infrastructure and human settlements.
- f) Substantially reducing the adverse effects of climate change on poverty eradication and livelihoods, in particular by promoting the use of adaptive social protection measures for all;
- g) Protecting cultural heritage from the impacts of climate-related risks by developing adaptive strategies for preserving cultural practices and heritage sites and designing climate-resilient infrastructure guided by traditional knowledge, the knowledge of indigenous people, and local knowledge systems.

It is highlighted that there is currently an estimated requirement of USD 5.8–5.9 trillion for the pre-2030 period. The adaptation finance needs of developing countries are estimated at USD 215–387 billion annually up until 2030, and about USD 4.3 trillion per year needs to be invested in clean energy up until 2030, increasing thereafter to USD 5 trillion per year up until 2050, and to reach net zero emissions by 2050;

A decision was also taken to strengthen support for the implementation of technology priorities identified by developing countries and to address the challenges identified in the first periodic assessment of the Technology Mechanism.

<https://unfccc.int>

### Cooling Pledge

The UN Environment Programme (UNEP) estimates that more than 1 billion people – the vast majority living in Africa and

Asia – are at high risk from extreme heat due to a lack of cooling access. Moreover, nearly one-third of the world's population is exposed to deadly heat waves more than 20 days a year.

The cooling brings relief to people and is also essential for several other critical areas and services, such as global food security and vaccine delivery through refrigeration.

But at the same time, conventional cooling, such as air conditioning, is a major driver of climate change, responsible for over seven percent of global greenhouse gas emissions. If not managed properly, energy needs for space cooling will triple by 2050, together with associated emissions.

Therefore, the more we try to keep cool, the more we heat the planet. If current growth trends continue, cooling equipment represents 20 percent of total electricity consumption today and is expected to more than double by 2050.

Today's cooling systems, such as air-conditioners (ACs) and refrigerators, consume a massive amount of energy and often use refrigerants that warm the planet. The latest UNEP report shows that taking measures to reduce the power consumption of cooling equipment can lead to a reduction of at least 60 percent of predicted sectoral emissions by 2050.

The report was released in support of the Global Cooling Pledge, a joint initiative between the United Arab Emirates as host of COP28 and the UNEP-led Cool Coalition.

It outlines actions to take for passive cooling strategies, such as insulation, natural shading, ventilation, and reflective surfaces, higher energy efficiency standards, and a rapid phase-down of climate-warming hydrofluorocarbon (HFC) refrigerants.

Following the report's recommendations can reduce the projected 2050 emissions from business-as-usual cooling by around 3.8 billion tons of CO2 equivalent.

Allow an additional 3.5 billion people to benefit from refrigerators, air conditioners, or passive cooling by 2050: Reduce

electricity bills for end users by US\$1 trillion in 2050 and by US\$17 trillion cumulatively between 2022 – 2050; reduce peak power requirements between 1.5 and 2 terawatts (TW), which is almost double the EU's total generation capacity today; and a void power generation investments to the order of \$4 to \$5 trillion.

<https://news.un.org/en/story/2023/12/1144382>

<https://coolcoalition.org/global-cooling-pledge/>

## UAE Climate and Health Declaration

The COP28 Presidency, in partnership with the World Health Organization and UAE Ministry of Health and Prevention, unveiled the COP28 UAE Declaration on Climate and Health to place health at the heart of climate action and accelerate the development of climate-resilient, sustainable, and equitable health systems.

A set of new finance commitments on climate and health were announced to back up these political commitments, including the provision of USD 300 million by the Global Fund to prepare health systems, USD 100 million by the Rockefeller Foundation to scale up climate and health solutions, and an announcement by the UK Government of pledging up to GBP 54 million.

Endorsed by 123 countries, the Declaration marks the world's first in governments acknowledging the growing health impacts of climate change on communities and countries. It also acknowledges the large benefits of stronger climate action for people's health, which can be conferred by reducing air pollution and lowering healthcare costs.

The announcement comes as annual deaths from polluted air hit almost 9 million, heat-related illnesses and deaths are on the rise, and 189 million people are exposed to extreme weather-related events each year.

Signed by 123 countries, the Declaration is announced one day ahead of the first-ever Health Day at a COP and marks the world's

first acknowledgement of the need for governments to protect communities and prepare healthcare systems to cope with climate-related health impacts, such as extreme heat, air pollution, and infectious diseases.

The Declaration was developed with the support of a number of "country champions," including Brazil, Malawi, the UK, the US, the Netherlands, Kenya, Fiji, India, Egypt, Sierra Leone, and Germany. This joint action comes as annual deaths from polluted air hit almost 9 million, and 189 million people are exposed to extreme weather-related events each year.

The Declaration covers a range of action areas at the nexus of climate and health, including building more climate-resilient health systems, strengthening cross-sectoral collaboration to reduce emissions, maximizing the health benefits of climate action, and increasing finance for climate and health solutions. Signatories have also committed to incorporating health targets in their national climate plans and improving international collaboration to address the health risks of climate change, including at future COPs. It is also recognized that finance will be a significant driver of the Declaration's success.

Endorsed by over 40 financing partners and civil society organizations, the COP28 Guiding Principles for Financing Climate and Health Solutions signal the growing collaboration across funders and the momentum to support climate and health solutions in a sustainable manner.

It also welcomed the finance announcements made by a wide range of stakeholders, including governments, development banks, multilateral institutions, philanthropies, and NGOs, to expand their investments in climate and health solutions. Collectively, these partners have committed to dedicate USD 1 billion to address the growing needs of the climate health crisis.

The COP28 Presidency recognizes that reducing the health impacts of climate change will require action across society, including rapid and large-scale action to

decarbonize energy systems to reduce emissions by at least 43% over the next seven years.

To this end, the announcement of the Declaration at the World Climate Action Summit on December 2nd was just one of a number of announcements from the COP28 Presidency that recognized the need to reduce the health impacts of climate change beyond the health sector; it included new initiatives to drive rapid decarbonization to reduce emissions by at least 43% over the next seven years to keep 1.5C within reach.

December 3rd, COP28's Health Day, will see the first-ever climate and health Ministerial at a COP. Ministers of Health and senior health delegations from over 100 countries are expected to attend. The COP28 Presidency will also gather climate and global health financiers, development banks, countries, philanthropies, and the private sector to respond to the country priorities and needs raised at COP28 and scale up finance interventions to protect and promote human health.

<https://www.cop28.com>

## Advanced Negotiations on Global Plastic Treaty

The third session of the Intergovernmental Negotiating Committee to develop an international legally binding instrument on plastic pollution, including the marine environment (INC-3), concluded in Nairobi, Kenya, with the agreement on a starting point for negotiations at the fourth session (INC-4).

More than 1,900 delegates participated in INC-3, representing 161 Members, including the European Union and over 318 observer organizations – UN entities, intergovernmental organizations, and non-governmental organizations. The third session follows INC-1 in Punta del Este, Uruguay, in November 2022 and INC-2 in Paris, France, in May/June 2023.

Over the course of INC-3, Members discussed the Chair's Zero Draft, went through a compilation of text to include all the views of the Members, prepared a

validated, co-facilitator-merged text, and found a way forward on issues not discussed yet.

The negotiations lasted ten days and were a significant step forward toward the achievement of our objective to develop an international legally binding instrument to end plastic pollution. But more work needs to be done.

INC Members also agreed on the dates of both INC-4, to take place in Ottawa, Canada, in April 2024, and INC-5, which is scheduled for November/December 2024 in the Republic of Korea.

<https://www.unep.org>

## CHINA

### China reshuffles its Research and Development

At the 20th National Congress of the Communist Party of China held in March 2023, China decided to overhaul its technology governance system completely. The Ministry of Science and Technology lost its central position, replaced by the newly formed Central Science and Technology Commission. The Ministry of Science and Technology was relegated to the Commission's daily office.

The Ministry of Science and Technology's responsibility to promote the application of advanced technology was allocated to various other ministries, including the Ministry of Industry and Information Technology, the National Health Commission, the Ministry of Ecology and Environment, and the Ministry of Agriculture.

It is worth emphasizing that while the Ministry of Science and Technology's functions have been reduced during the reforms, the Ministry has been marginalized within the government. As the standing operator of China's Central Science and Technology Commission, the Ministry's capacity to shape the national scientific system has likely been strengthened, as it is tasked with guiding other ministries and organizations.

China believes that it is still underperforming in fundamental research and disruptive

innovation — or at least not as well as its output of papers would suggest. More importantly, the Chinese central government is concerned that its control over the country's overall technological development has not been as effective as expected. China's reform agenda in March explicitly called for the strengthening of the Communist Party of China Central Committee's centralized and unified leadership in the field of science and technology.

The newly formed Central Science and Technology Commission ranks higher than all government ministries. It has the highest decision-making power over China's science and technology priorities and strategies. The Ministry of Science and Technology has been reorganized into an implementation office with narrower responsibilities. The reform clearly signaled the leadership's aim to tighten its grip on China's innovation agenda and accelerate progress in strategic technologies.

The new role of the Ministry of Science and Technology, according to the reform plan, reflects China's conflicting views on technological development. On the one hand, China's leaders recognize the importance of market forces for technological innovation. The restructured Ministry of Science and Technology is tasked with promoting technology transfer and commercialization. However, compared to before, the Ministry has significantly less power to allocate resources directly and will instead focus on developing fair and reasonable allocation rules.

The Ministry of Science and Technology is also tasked with promoting international scientific cooperation. On the other hand, China has a stronger desire to harness science and technology for national strategic priorities. The Ministry remains responsible for advancing China's New Nationwide System for science and technology. Chinese leaders frequently cite the examples of "two bombs and one satellite" — missiles, nuclear weapons, and satellites — as successes of China's militarized science and technology system in the 1960s and 1970s. They believe that

this model can also help China to overcome current US restrictions on high-tech products.

Though there are still many uncertainties in the ongoing reform, China clearly has the ambition to construct an optimal science and technology system. China believes that science, knowledge, and information are crucial to prevailing in great power competition.

Consistent with this view, China's reform plan in March elevated the China National Intellectual Property Administration in the government hierarchy and established a new National Data Office. These bodies will play an increasingly significant role in China's national development and security strategy.

<https://www.eastasiaforum.org>

### Regulatory Technology for Financial Institutes

Last year, banks and other global financial institutions published more than 61,000 regulatory alerts concerning new trade policies and rules or 234 updates on business regulations per workday. Complying with new regulations has been a laborious process.

However, adopting technology in regulations compliance — which is also known as regulatory technology (regtech) — as part of efforts to facilitate business and fight financial fraud has emerged as a game changer worldwide.

The Hong Kong Special Administrative Region, as an international financial technology center, has made significant strides in embracing regtech, particularly in the financial sector.

According to the Hong Kong Monetary Authority (HKMA), the city's de facto central bank, more than 80 percent of banks surveyed have adopted regtech as a standard procedure. It is expected that, by 2025, regtech's adoption rate will have reached 89 percent, and it will be one of the top three most commonly used tools in financial technology.

The HKMA developed a two-year roadmap in 2020 to promote the adoption of

regtech in the local banking sector. As part of the roadmap, it has launched a “regtech knowledge hub” to encourage greater sharing of regtech adoption experience and expertise within the city’s regtech ecosystem.

In addition, various initiatives have been launched to promote regtech’s adoption, including the “global regtech challenge,” “regtech adoption practice guide” series, a “regtech skills framework,” and a “regtech use case video” series.

### Benefits for end-users

Regtech is not limited to government compliance requirements aimed at anti-money laundering. Its application, in fact, is closely intertwined with people’s daily lives. “Know Your Customer” is also a mandatory responsibility for banks. When a new customer opens an account with a bank, a background check is required to ensure the client’s legitimacy. The process has to be repeated when the same client opens an account with another lender, which makes for unnecessary effort. Banks and other financial institutions need to spend a significant amount of time and effort to comply with these regulations, and this raises transaction costs.

Detecting fraudulent transactions in real time is another formidable task. Transaction abnormalities characterized by mismatched transaction patterns and profiles of the transacting parties need to be swiftly identified. The sheer volume of transactions and the myriad suspicious patterns have made manual monitoring unfeasible. Regtech can be precise in identifying potentially fraudulent transactions and reducing false alarms that may inconvenience clients.

Since Hong Kong’s new licensing regime for virtual asset service providers came into force in June, there has been a greater focus on regulatory compliance requirements, including anti-money laundering and on-chain transaction monitoring. Consequently, technological products tailored to meet these demands are gradually entering the market.

Hong Kong has emerged as a pioneer in developing a regulatory framework for

new financial technology solutions, such as blockchain, Web3, and virtual assets. The new products are technology-based. So, regulations also need to be revised to become relevant.

In view of the sharp increase in financial crime globally, especially digital fraud, there is an increasing concern about the potential harm to victims and consumer confidence in new digital financial services, as well as its wider possible impact on the banking system’s integrity and stability.

The authority says it will continue to promote the adoption of technology, data, and network analytics to boost the innovative capability of banks in combating fraud and financial crime. It will promote adopting a consistent and coordinated approach to real-time fraud monitoring by all retail banks before the end of September.

The HKMA will also expand its pilot bank-to-bank information-sharing platform and the financial intelligence evaluation-sharing tool, which was rolled out in June, covering more retail banks and personal accounts.

The HKMA hosted the fourth Anti-Money Laundering Regtech Lab (AMLab) in June, bringing together retail banks, technology companies, and industry experts to innovate and develop a sector-wide approach to real-time fraud monitoring. The AMLab series covered solutions, including experiments with network diagrams, for identifying suspected money mules and learning how to integrate alternative data into more traditional data sets for analysis.

With enhanced information-sharing and data analytics, lenders have so far identified more than 21,000 previously unknown accounts, according to the HKMA. As a result, the number of intelligence-led suspicious transaction reports climbed by 319 percent last year, compared with 2021, leading to an increase of 113 percent in criminal proceeds restrained or confiscated.

<https://chinadaily.com>

## Industry-Academia Alliance launches 10 Programs

An eco-environment industry-academia alliance under the China Association for Science and Technology has unveiled the top 10 programs that represent the scientific and technological progress China made last year in the environmental protection sector.

One of them, for instance, is a research program on technologies and management systems for the conservation and remediation of the Yangtze River, Asia’s longest watercourse.

For Yangtze conservation, the Ministry of Ecology and Environment launched the National Joint Research Center for Yangtze River Conservation in 2018. Then, over 5,000 researchers from 269 research institutions across the country were dispatched to 58 cities along the trunk of the Yangtze for joint research.

Since it was implemented, the joint research has not only identified the causes of the outstanding water environmental problems in the Yangtze basin but also managed to introduce a series of solutions, which have been applied in 58 cities, and supported continuous water quality improvement in the river.

Another selected program is about noise pollution management, which the alliance stressed as being closely related to people’s daily lives.

A team mainly supported by members of the China National Environmental Monitoring Center has established an institutional system for noise pollution control, it said. The system can offer technical support for the enactment of a legal system, standard system, and policy measures for noise pollution governance.

The other 10 programs include the control of heavy metal pollution in soil, nitrogen and phosphorus management in lakes, remote sensing for atmospheric aerosol detection, and synergizing air pollutants and greenhouse gas emissions in the steel sector.

<https://www.chinadaily.com>

## REPUBLIC OF KOREA

### Sustainable Aviation Fuel Program

South Korea's largest airline, Korean Air, has launched a new sustainable program to encourage its air cargo customers to pay more towards the purchase of sustainable aviation fuel (SAF).

The Korean Air Cargo SAF program will allow customers and forwarders to make a customized contribution to "reduce their carbon footprint," which will then be used by the airline to buy additional SAF and communicate with customers about their carbon emissions reduction.

According to Korean Air, the program continues its action at the "forefront" of paving the foundation for SAF use in Korea, including its role in the government's eco-friendly biofuel activation alliance since October.

SAF has become one of the aviation industry's main focuses in the fight to create more sustainable practices for a historically high-polluting industry, with the International Air Transport Association (IATA) saying that it expects the fuel to account for 65% of the carbon reductions needed to reach net zero by 2050.

The push towards biofuel has seen significant investment from companies such as Google and Shell, International Airlines Group, Microsoft, and Virgin Atlantic, which is expected to run the first transatlantic SAF flight in November.

<https://www.airport-technology.com/news/korean-air-saf-program-cargo-customers/>

### Nature-Based Solutions

In March 2023, during the UN Water Conference in New York, the International Union for the Conservation of Nature (IUCN) signed a Memorandum of Understanding (MoU) with the Ministry of Environment, Republic of Korea (MoE) and the Korea Water Resources Corporation (K-Water).

IUCN and Korea have strengthened cooperation to support Nature-based Solutions for water management in the Mekong region.

The MoU establishes a framework for cooperation on resolving water issues in Asia-Pacific, with a focus on the implementation of Nature-based Solutions (NbS) in the Lower Mekong Region. The agreement supports the goals of each of the partners' plans, including the Republic of Korea's Indo-Pacific Strategy, IUCN's Nature 2030 Program, and K-Water's Korea-Mekong Water Management Collaboration Research Center (KMCRC).

Moreover, the agreement formalizes the partnership between the three institutions and builds on previous collaborative work. The Republic of Korea has been an IUCN State Member since 2006, a Framework Partner to IUCN, and has recently hosted the IUCN Leader's Forum in Jeju in October 2022.

The cooperation would conduct planning and research for a trilateral cooperation project that will commence this year and expand it to a green-grey infrastructure project for the Mekong region as part of MoE's official development assistance program.

The role of water was emphasized for societies and economies. It is important to manage water and its ecosystems so that they can deliver benefits to society and the environment. Nature-based Solutions support the achievement of these results. NbS will provide an optimal solution to support the conservation of ecosystems and biodiversity of Mekong countries while effectively addressing water issues in the region.

The MoU will help the three signatories achieve their common goal of promoting effective water resources management in the region by fostering exchanges between the public and private sectors and pooling technical resources and experts to increase effectiveness.

<https://www.iucn.org>

## PAKISTAN

### AI-Based Horticulture in Pakistan

Agriculture is an indispensable component of economic growth, food security,

job creation, and poverty reduction in developing countries like Pakistan. It accounts for almost a quarter of Pakistan's GDP and employs over one-third of its population.

A member institution of the United Nations Academic Impact (UNAI) in Pakistan, the Iqra University, has helped the South Asian country with an impending food crisis predicted within two years.

The team of Dr. Mansoor Ebrahim, Dr. Kamran Raza, and Dr. Hasan Adil at the university's Faculty of Engineering, Sciences, and Technology has developed Smart Farming, an innovative urban farming solution of its own.

The project's primary goal is to create a test bed based on the hydroponics technique that integrates the so-called Internet of Things (IoT) and systems with artificial intelligence (AI) to create an effective, controlled, and autonomous environment for plant growth.

Smart Farming is the adoption of Web 5.0 technologies in agriculture, with hydroponics being a notable example. This process involves cultivating plants without soil in nutrient-rich water. Despite the various projects underway around the globe, there is yet to be a comprehensive solution providing all related elements in one package.

This project strives to provide an innovative solution to various agricultural problems in Pakistan, combining both physical and digital technologies for maximum sustainability and adaptability.

In addition to designing a completely monitored hydroponic farming system, the team has also incorporated an IoT interface in order to measure Total dissolved solids (TDS), PH, humidity levels, and temperature and perform automated operations to ensure optimal crop health. The sensors are employed to ensure a steady state for plants. Data collected from the IoT sensors is then processed and analyzed by an AI-based system trained on both images of plant stages as well as live pictures of crop yield provided by drone cameras set to collect information at regular intervals.

The overall system can be managed and reset conveniently using a user-friendly, mobile-based application. Its pioneering framework promotes a number of advantages, such as superlative water savings of nearly 90 percent, a 25 percent reduction in fertilizers, and low area utilization, leading to substantial cost savings on transportation and carbon emissions.

As a result, Smart Farming has been praised at the national level and awarded funding by the Higher Education Commission of Pakistan.

With many vegetables successfully grown and initial targets achieved, favorable results in the first phase are already visible. They have been able to perfect the nutrient solution that has yielded excellent outcomes. This remarkable crop output clearly illustrates that Smart Farming is a promising and environmentally friendly method of cultivation. Moreover, its automated system reduces labor efforts, cost, and area needed for cultivation, thereby making it suitable for urban settings.

Perfecting the algorithm still requires vast amounts of data sets to be fed into the system, training it, and enabling it to make accurate decisions and craft flawless communication for its eventual purpose—automating the agricultural process altogether. Until that is achieved, this project will need to continue being a collaborative effort between machines and people.

The initiative has tremendous potential for replication on a large scale, which could both sustain and strengthen the current labor market of the farming world.

Until now, production has been interfered with due to numerous socio-economic issues, such as depletion of farmland, climate variation, migration from rural areas to cities, and, most significantly, water scarcity and salinization. Irrigation also plays an indispensable role since farming relies on it greatly.

Nearly 90 percent of water usage is for irrigation. Also, Pakistan loses a vast majority of its supply due to inadequate management. In order to combat the demand,

farmers turn to low-grade groundwater that results in the salination of valuable land.

<https://indepthealthnews.net>

## PHILIPPINES

### Draft Natural Gas Rules

Natural gas-fired power plants could be a quick starting reserve that could complement the variability of renewable energy technologies, such as solar and wind. It is seen as a suitable transition fuel by which the private sector investments in this technology will be facilitated to enable the viability of large renewable energy capacity additions and ensure the reliability and security of the power system.

The Department of Energy (DOE) has come out with a draft circular prescribing the policy framework for the development of natural gas power generation facilities in the Luzon grid in support of the energy transition.

With the cost of imported liquefied natural gas (LNG) slightly higher than the indigenous Malampaya, the DOE said the draft policy supports a gas aggregation scheme that would allow Luzon distribution utilities to benefit from a relatively lower price of blended imported LNG and natural gas from Malampaya.

The agency has come out with a draft circular prescribing the policy framework for the development of natural gas power generation facilities in the Luzon grid in support of the energy transition.

The agency has said that flexible power plants, such as the availability of natural gas-fueled power facilities, are crucial in attaining the country's energy security goals and renewable energy targets. It said transitioning to clean energy would require a transition fuel capable of providing baseload generation that would fill in the gap when existing coal-fired power plants start to retire.

According to the agency, getting a minimum percentage of power supply from natural gas would give the distribution utilities an advantage of taking a competitive price without going through a competitive selection process.

LNG is considered by the government an important source for fuel diversification, capable of increasing the diversity and security of the country's energy needs. It is seen as providing the country with fuel and technology that allows flexibility in supporting the various grid demands, from baseload to reliable mid-merit to peaking power supply. Though it is understood that LNG is transitory and not an end in itself, the ultimate trajectory is to transition LNG plants to non-fossil-based fuels once the latter are mature.

<https://ieefa.org>

PH, S Korea sign an agreement for air quality monitoring through space

The Korean government, through the Korea International Cooperation Agency (KOICA) and the Philippine Space Agency (PhilSA), signed a partnership agreement to strengthen national capacity to monitor the condition of air quality and improve air quality plans and policies in the Philippines on August 2, 2023.

The Pan-Asia Partnership for Geospatial Air Pollution Information and the Pandora Asia Network (PAPGAPI-PAN) project is a technology transfer, data-sharing, and capacity-building initiative on air pollution, using data from the Geostationary Environment Monitoring Spectrometer (GEMS) aboard Korea's GEO-KOMPSAT-2B satellite and complemented by the ground-based remote sensing instruments called Pandora. Launched by the Republic of Korea in February 2020, GEMS is the world's first geostationary satellite sensor for air quality monitoring. This technology enables hourly monitoring of air pollution levels in almost twenty (20) countries in Asia, including the Philippines.

The project will give PhilSA the capability to combine satellite and ground measurements for a comprehensive overview of air quality in the Philippines. The Pandora instruments, expected to be installed and operated in the country within the year, will be a part of the Pandora Global Network (PGN), which collects Pandora data around the world and provides real-time standardized, calibrated, and verified air

quality data. It is expected that this will fill information gaps to help build more evidence-based policymaking to address air quality issues in the country. KOICA and PhilSA will jointly provide technical and operational support to implement the project in the identified sites.

Selected Pandora sites in the country include Puerto Princesa in Palawan and Manila Observatory in Quezon City, Metro Manila. These sites were identified based on existing infrastructure, logistics, and scientific merit. In particular, the proposed Pandora sites are selected to cover different concentrations of air pollutants (such as nitrogen dioxide and particulate matter) across the country based on historical records both from ground and satellite observations. Meteorological parameters such as rainfall and cloud cover are also considered in the selection process. Other candidate sites for potential additional Pandora instruments include Ilocos Norte and Cebu City.

The ground vertical column measurement of air pollutants from Pandora will be used in conjunction with the GEMS observation for comprehensive and improved monitoring of air quality across the country and the Asia-Pacific region. With its hyperspectral sensor and geostationary orbit, GEMS will provide measurements of different air pollutants such as nitrogen dioxide, sulfur dioxide, ozone, formaldehyde, and particulate matter at an hourly rate during the daytime.

With the 12.6 million (\$230,000) partnership aiming to monitor the condition of the Philippines' air quality using data from the GEMS and Pandora instruments, this will further enhance national capacity as well as fill in the data gap in the country for better understanding of air pollution and air quality monitoring.

The project is a collaboration among various agencies, including KOICA, PhilSA, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Korea National Institute of Environmental Research (NIER), and Korea Environment Corporation (KECO).

It is expected to contribute to further enhancing the strong and dynamic

relationship between the Philippines and Korea through the sharing of satellite air quality data, best practices of GEMS data application and technology, joint research, and successful project implementation.

The project is a collaboration among various agencies, including KOICA, PhilSA, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Korea National Institute of Environmental Research (NIER), and Korea Environment Corporation (KECO).

It is expected to contribute to further enhancing the strong and dynamic relationship between the Philippines and Korea through the sharing of satellite air quality data, best practices of GEMS data application and technology, joint research, and successful project implementation.

<https://www.manilatimes.net>

## KYRGYZSTAN

### SCO Council Meeting in Bishkek: Outcomes and Implications

Dr S Jaishankar, India's peripatetic Minister of External Affairs, visited Bishkek, the capital of Kyrgyzstan, from October 25 to 26. He was there to represent India at the 22nd meeting of the Shanghai Cooperation Organization (SCO) Council of Heads of Government (CHG), held under the Chairmanship of Kyrgyzstan. The visit received only limited attention in India. It is difficult to believe that the 23rd SCO Summit was hosted by New Delhi in virtual format just over three months back amid heightened media attention and some controversy. But so much has happened since then, including the G20 New Delhi Summit and the outbreak of the Israel-Hamas war.

SCO is undoubtedly on the radar of India's strategic community as a key multilateral grouping. This is a nine-member club of two major Asian states (China and India), one Eurasian state (Russia), the four 'stan' nations (Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan) as well as Pakistan and Iran. Established in 1996 as the Shanghai Five, it became SCO, with the

inclusion of Uzbekistan in 2001. Later, it began to expand with the entry of India and Pakistan, and subsequently Iran. Belarus will be its 10th member. SCO has two observers (Mongolia and Afghanistan) and 14 dialogue partners, many of whom would like to become its members. A grouping committed to greater security and political and economic cooperation, it has secured slow progress because of its internal contradictions and persisting tensions.

The importance of SCO may be gauged by the fact that it represents 42% of the world population and about one-third of the global Gross Domestic Product (GDP). It grapples with its anti-Western impulses to carve out its role as a non-Western organization. It also copes with the ever-present competition between China and Russia in a region where the latter was once the dominant partner. SCO also struggles to cope with the adversarial relations between India and Pakistan and the strained ties between China and India. The return to power of the Taliban in Afghanistan threw up its challenges for the SCO.

India's one-year-long presidency of the SCO summit ran quite well from September 2022. But the government's sudden decision to host the 23rd meeting of SCO's Council of Heads of State, the highest body, in a virtual format (on 4 July) rather than with the physical presence of the leaders caused surprise and disappointment. New Delhi, of course, had compelling reasons to do so, with no confirmation forthcoming about the participation of Russia's President Vladimir Putin and China's President Xi Jinping. Besides, it probably had little interest in welcoming the Prime Minister of Pakistan after the controversy created by Foreign Minister Bilawal Bhutto Zardari at the SCO foreign ministers meeting in Goa in May on the issues of cross-border terrorism and Jammu and Kashmir. SCO's double-speak on terrorism has been a matter of concern in India.

### India at Bishkek

Although the Council of Heads of Government (CHG), the second highest organ, is



composed of prime ministers/premiers/ vice presidents, two nations, i.e., India and Pakistan, were represented by their foreign ministers. External Affairs Minister Jaishankar highlighted four key points in his address at the conference.

First, he suggested that SCO should focus on promoting the region's stability and prosperity by adhering to international law, respecting the sovereignty and territorial integrity of the member-states, and encouraging economic cooperation among them. This was a pointed message to China and Pakistan and veiled criticism of the way the Belt and Road Initiative (BRI) has evolved during the past decade.

Second, the minister stressed India's deep civilizational and cultural ties through history with the region's people. "These historical relationships should now create a template for greater economic cooperation," he added. Third, he reiterated that high priority should be accorded to expanding connectivity between India and the region, especially given the centrality of Central Asian states. He spoke of the International North-South Transport Corridor (INSTC), along with the recently launched vision of the India-Middle East-Europe Economic Corridor (IMEC), as potential "prosperity enablers."

Finally, he recalled how, with much interest and careful preparations, the Indian presidency of the SCO had focused attention on five new verticals of cooperation: Startups and Innovation, Traditional Medicine, Science and Technology, Youth Empowerment, and Shared Buddhist Heritage.

### **Bishkek Outcomes**

A total of 14 documents were approved by the CHG meeting at Bishkek, which shouldered an array of administrative, budgetary, and financial responsibilities of the grouping. The documents signed were related to diverse matters, such as regulations on the salary of staff of the permanent SCO bodies and organizational charts of the Secretariat and the Regional Anti-Terrorist Structure (RATS) of the SCO.

To appreciate where the SCO stands today on the larger issues of political and economic cooperation, a brief look at the 11-page joint communiqué issued on 26 October should be helpful. This document places on record the high praise of the member-states for India's leadership of the SCO in 2022–23 and advocates "active, practical implementation of the decisions by the summit held in July 2023."

It projects the SCO as "an influential and responsible participant" in the system of today's international relations, which is committed to "strict compliance with the generally recognized principles of international law as enshrined in the UN Charter." It favors efforts to upgrade and overhaul the global economic governance framework as well as an equitable multi-lateral trade system.

The joint communiqué also refers to "deep and large changes" taking place in the world that indicate the emergence of "a more just and multipolar world order" as well as the escalation of multi-dimensional challenges "aggravated by geopolitical tensions and conflicts." The participating delegates agreed on the need to expand cooperation in diverse fields such as politics and security, trade, economics, finance and investment, and cultural and humanitarian ties.

The governments encouraged business leaders to deepen their mutual contacts in specific areas like investment, digital transformation, and the creation of a regional startup ecosystem. These match fully with India's priorities.

However, on China's BRI, India's isolation in the SCO continued as the other seven countries once again "reaffirmed support" for it, noting the ongoing work to implement the project jointly. In particular, they supported the efforts to align the development of the Eurasian Economic Union (EEU) and BRI.

The Council meeting reviewed the earlier meetings of the ministers for energy, finance, railways, health and transport, etc., and guided the follow-up actions. The issues of climate change,

the development of mountain regions, and glacier conservation drew special attention.

### **Conclusion**

Despite its limited achievements, SCO continues to be a consequential grouping for India due to strategic, economic, and cultural factors. The nation's engagement with its future deliberations and work will no doubt be ensured in an appropriate manner. Media and think tanks can perhaps help by closely following all relevant developments as they impact India's national interest.

This matter will now assume greater significance as the Chairmanship of the SCO Council of Heads of Government is transferred to Pakistan, which will run from 2023 to 24. This development could pose a special challenge for India's diplomacy next year. South Block will need to keep a sharp eye on the Pakistan-China axis while doing its best to strengthen the SCO, especially India's relations with the four Central Asian states.

<https://www.wionews.com>

## **INDIA**

### **National Circular Economy Roadmap**

India released a document, the "National Circular Economy Roadmap for Reduction of Plastic Waste in India," a collaborative exercise between leading research institutions from India and Australia.

The document aims to foster research and industry partnerships between the two countries and co-develop a roadmap for India's transition to a circular economy in the Plastics sector.

India and Australia are active participants in the negotiations for the formulation of a Global Plastics Treaty to be finalized next year. Both countries aim to leverage their respective strengths in waste management, recycling policies, and environmental initiatives to foster a circular economy that prioritizes resource efficiency and environmental protection.

The present research commenced in July 2020 as part of the India-Australia Comprehensive Strategic Partnership announced by the Indian and Australian Prime Ministers in June 2020. India's Council of Scientific & Industrial Research (CSIR) is developing various technologies for reducing India's Carbon footprint and recycling.

Dr. Jitendra Singh, the Union Minister of State (Independent Charge) Science & Technology, MoS PMO, Personnel, Public Grievances, Pensions, Space and Atomic Energy, said that the Government has earned a total revenue of Rs.11,000 crore just by disposing of electronic scrap in the last three years. "Swachhata campaign, inspired by PM Modi, has generated awareness about 'waste to wealth' concept. There is now also better mass understanding about the application of innovation and technology for Recycling and Reuse of Waste materials for productive means," he said.

Some other initiatives launched at the event were the Recycling on Wheels bus, which can generate Waste to Wealth at different spots due to its mobility, a Repurposed Used Cooking Oil (RUCO) van that collects used cooking oil and converts it into biofuel by Dehradun-based Indian Institute of Petroleum (CSIR-IIP), a revolutionary Steel slag road technology which facilitates the large-scale utilization of waste steel slag of steel plants in road construction, pioneered by CSIR- Central Road Research Institute (CRRI), New Delhi.

India remains committed to addressing the plastic waste challenges and its consequences on human health and ecological impact. Reducing plastic waste in India will help drive the transformation of the plastic waste economy into a circular economy. The introduction of the Plastic Waste Management Rules in 2016 for India has led to a raft of measures directed at municipal, industry, residential, and commercial actors.

<https://pib.gov.in>

## National Framework for Energy Storage Systems

The Union Minister for Power and New & Renewable Energy has informed that the Government has issued a National Framework for Promoting Energy Storage Systems in August 2023 for the development and deployment of Energy Storage Systems to facilitate energy transition in the country.

As per the updated Nationally Determined Contributions (NDCs) submitted to the United Nations Framework Convention for Climate Change (UNFCCC), India has committed to achieve 50 percent of cumulative installed electric power capacity from non-fossil fuel-based energy resources by 2030. As of October 31, 2023, a total of 186.46 GW (43.8%) of non-fossil fuel-based capacity has been installed in the country out of an overall installed electricity capacity of 425.5 GW.

India's energy mix is set to undergo a transition from fossil fuel sources to non-fossil fuel-based sources dominated by Renewable Energy (RE) in the future. However, solar and wind energy are not available around the clock. To facilitate the transition from fossil fuel-based sources to RE sources, it is crucial to make RE dispatchable and available around the clock. Energy Storage Systems (ESS) play a key role in achieving this objective by storing energy generated from RE sources when the sun is not shining or the wind is not blowing. They also help address RE variability, enhance grid stability, facilitate energy/peak shifting, provide ancillary support services, and foster greater integration of RE. The National Framework for promoting Energy Storage Systems will encourage and create an ecosystem for the development of Energy Storage based on requirements and financial feasibility to guarantee affordable, clean, reliable, and environmentally sustainable power for everyone.

<https://pib.gov.in>

## Digital Public Infrastructure for Climate Finance

India is at the forefront of a groundbreaking initiative poised to merge the forces of technology and ecology. The government, in collaboration with Niti Aayog, is developing a Digital Public Infrastructure (DPI) for climate finance. This endeavor is more than an advancement in environmental strategy; it is a blueprint for sustainable growth, signaling India's role as a pioneer in the global narrative of digital-led environmental sustainability.

The DPI addresses a persistent challenge: the misdirection of climate finance due to information asymmetry. By building and deploying DPI, which facilitates data exchange, the government can receive data from members of the community who are most affected by climate change, as well as climatic and weather data from various agencies. This framework aims to ensure that funds are allocated effectively, prioritizing the needs of regions and communities most vulnerable to the effects of a changing climate and facilitating direct aid in the wake of disasters. In the aftermath of climate-induced disasters, the DPI is envisioned to play a critical role in providing immediate financial relief to those affected. DPIs that enable direct digital payments can assist those persons affected by extreme weather events and who may not have ready access to banks and other physical infrastructure.

Niti Aayog's strategic involvement Niti Aayog is not merely a facilitator but a strategic collaborator in this initiative. Their role extends to policy integration and active stakeholder engagement. This involves a series of workshops and discussions aiming to calibrate India's policies toward a sustainable and low-carbon future. Immediate and future horizons. The DPI is more than an infrastructural project; it's a vision for India's future. In the near term, it is expected to prioritize funding for projects that reduce carbon emissions, like promoting electric vehicles and

developing green hydrogen. Looking further ahead, the DPI aspires to provide the government with actionable climate and weather data, supporting India's ambitious goal to achieve net-zero emissions by 2070, in line with its commitments under the Paris Agreement.

India's DPI for climate initiatives represents a fusion of digital innovation with environmental responsibility. It is a blueprint for a sustainable future, one that promises a more resilient infrastructure capable of withstanding and responding to the climate challenges ahead. This initiative by India, in collaboration with Niti Aayog, is a testament to the country's commitment to leading the way in climate-smart governance and sustainable development.

<https://energy.economictimes.indiatimes.com/news/renewable/india-developing-digital-public-infrastructure-for-climate-finance-a-historic-clean-growth-initiative/105083581>

<https://www.business-standard.com>

## Centre to Monitor and Enhance Air Quality

The Indian Institute of Kanpur (IIT-K) has established a Centre of Excellence (CoE) named ATMAN (Advanced Technologies for Monitoring Air-quality Indicators). The CoE will focus on building indigenous low-cost sensor manufacturing and Artificial Intelligence/Machine Learning (AI/ML) capabilities to enhance air quality across urban and rural areas.

The CoE ATMAN aligns with the vision of the principal scientific advisor of India, aiming to translate sustainable technologies and business models into practical products and services accessible globally.

IIT Kanpur has taken significant strides in the battle against air pollution. Through ATMAN, IIT-Kanpur is dedicated to the meticulous evaluation of health risks associated with air pollutants, as well as a comprehensive review of air quality standards. Several projects are currently underway at the ATMAN. The Ambient Air Quality Monitoring of Rural Areas using Indigenous Technology (AMRIT) is a flagship project that will deploy a dense Sensor Ambient

Air Quality Monitor (SAAQM) network with 1,400 nodes across rural areas in the states of Bihar and Uttar Pradesh.

This initiative is the first of its kind to monitor air quality comprehensively in these regions, where data has been limited to cities and towns. The CoE team will be working with the State Pollution Control Board of Bihar and the Department of Environment, Forests & Climate Change, Uttar Pradesh, on AMRIT to enhance air quality action in these states.

The Dynamic Hyper-local Source Apportionment (DHSA) is a cost-effective approach to source apportionment that is currently being pioneered in Lucknow and Kanpur in Uttar Pradesh. The data from DHSA will enable city authorities to make informed decisions in air quality action planning.

The CoE is at the forefront of indigenous air quality sensor fabrication, combining it with artificial intelligence and machine learning models to ensure precise and reliable results.

It is reported that Bihar took the initiative to collaborate with IIT-Kanpur toward the installation of sensor-based air quality monitors in all its 534 administrative blocks. The measured air quality data will help formulate an action plan for safeguarding the rural population in the state.

<https://timesofindia.com>

## India Carbon Market

The government plans to develop the Indian Carbon Market (ICM), where a national framework will be established to decarbonize the Indian economy by pricing the greenhouse gas (GHG) emissions through trading the carbon credit certificates. The Bureau of Energy Efficiency, Ministry of Power, along with the Ministry of Environment, Forest & Climate Change, is developing the Carbon Credit Trading Scheme for this purpose.

As India currently has an energy savings-based market mechanism, the new Carbon Credit Trading Scheme will enhance the energy transition efforts by increasing its scope to cover the potential energy sectors in India. For these sectors,

GHG emissions intensity benchmarks and targets will be developed, which will be aligned with India's emissions trajectory as per climate goals. The trading of carbon credits will take place based on the performance against these sectoral trajectories. Further, it is envisaged that a voluntary mechanism will be developed concurrently to encourage GHG reduction from non-obligated sectors.

The ICM will develop methodologies for the estimation of carbon emissions reductions and removals from various registered projects and stipulate the required validation, registration, verification, and issuance processes to operationalize the scheme. A comprehensive institutional governance structure will be set up with specific roles of each party involved in the execution of ICM. Capacity building of all entities will be undertaken to improve upskilling in the subject matter.

<https://pib.gov.in>

## THAILAND Draft Clean Air Act

The Ministry of Natural Resource and Environment (MNRE) will press for a draft Clean Air Act for cabinet consideration to prevent air pollution from spinning out of control. The bill has been put up for public opinion on the Ministry's website until Nov 13. The bill will then be passed to the cabinet secretariat office to gather opinions from state agencies.

The bill focuses on measures to prevent pollution as well as cutting back on government red tape in executing actions to combat pollution. Once enacted, the law will remove hindrances to tackling the causes of smoke from forest fires -- a long-standing trans-border issue -- and allow for an integration of efforts by all sides via the Public-Private-People Partnership approach in easing air pollution.

With the creation of the Pollution Mitigation [CAPM], reports of PM2.5 pollution will be delivered at 8.30 am daily on its Facebook page. The center also will sound the alarm in cases when the level of PM2.5 exceeds the safe threshold. A

national committee on wildfire, smog, and haze pollution prevention would also be set up. The committee will look into the national management of wildfires in agricultural areas and transborder air pollution issues and work with neighboring countries to end pollution affecting the region. Next year, MNRE will establish operation centers in 17 northern provinces, to be chaired by the provincial governors who will execute national agendas at the provincial level.

<https://www.bangkokpost.com>

## New Environment Legislations

In recent years, environmental issues have been increasingly prioritized, leading to positive results in the development of national policies in Thailand. Many draft environmental legislations, which were previously stalled, are now regaining momentum as key enablers to drive Thailand towards a more sustainable future.

Some key environmental bills that have been made available to the public so far include a draft amendment to the Enhancement and Conservation of National Environment Quality Act, B.E. 2535 (1992) (NEQA) (Draft New NEQA), Draft Sustainable Packaging Management Act (Draft Packaging Act), Draft Waste Electrical and Electronic Equipment Management Act (Draft WEEE Act).

Additionally, with the development of these bills, a study is underway to introduce a new draft law, namely the Draft Act on Sustainable Waste Management and Promotion of Circular Economy (Draft CE Act). The Draft CE Act is intended to be the main governing law for the management and utilization of all types of waste, maximizing them as resources in a sustainable way and facilitating the transition to a circular economy with more responsible consumption. The Draft CE Act is expected to involve various governmental agencies, academic institutes, and the private sector in the drafting process.

### The Draft New NEQA

The NEQA is a primary environmental legislation designed to take precedence

over other laws regarding environmental issues. The provisions in the NEQA can be deemed as an umbrella framework law. It sets out an administrative framework and basis regarding various environmental issues and provides a basis for claims of environmental damage caused by pollutants. The NEQA sets out quality standard levels for water, air, noise levels, and soil, with benchmarks for desirable environmental conditions.

The Draft New NEQA, which was already approved in principle by the Cabinet and recently was deliberated upon by the Council of State, contains noteworthy points as outlined below:

Major environmental principles – Major environmental principles, including the prevention principle, precautionary principle, and polluter pays principle, are taken into consideration.

Extended applicability – To include continental shelf and high seas.

Revised pollution control mechanism – The Minister of Natural Resources and Environment, under the advisory of the Pollution Control Committee, is empowered to determine and issue “pollution control standards at source” and criteria to categorize “pollution generating sources” with specific requirements, including preparation of directory on pollution emission and movement and public disclosure of the directory.

Pollution control standards as licensing conditions – Once the pollution control standards at source are issued, the standards will be deemed as conditions of issuance and renewal of relevant licenses under the applicable laws. Violation of the standards may be subject to suspension, revocation, or rejection of the renewal of the licenses.

Environmental collateral requirement – The Draft New NEQA includes a new requirement on placing collateral for damages on certain types of businesses or projects (to be determined by the Minister of Natural Resources and Environment) that use harmful substances or have a nature that may significantly pollute or affect the natural environment, national

environmental quality, human lives, public health or well-being.

Extended and more clarified civil liability – The criteria for calculating compensation are clearer, where damages will be calculated by considering the total affected area, other environmental effects, and the remedial period. Any person – not only the government – who helps contain a source of damage or limits the spread of pollution will also be entitled to compensation. The courts have the discretion to impose punitive damages of up to four times the actual damages. They may order a polluter to place a security for any possible future damages that it is unable to determine at the time of the judgment or order. The owner or possessor of the pollution-generating sources will also be liable to the injured for the consequences of the actions of its employee or any third person who acts for its benefit.

It should also be noted that the existing concepts under the current NEQA, such as the environmental fund and the requirements in connection with the EIA (environment impact assessment) and EHIA (environmental and health impact assessment), will be inherited in the Draft New NEQA.

The Parliament will further consider the Draft New NEQA. If enacted, the existing NEQA will be repealed and replaced by this new piece of legislation with an expectation of more effective pollution prevention and rectification of damages against the environment.

<https://www.globalcompliance.com>

## Revised Air Quality Standards

Thailand has decided to implement a new PM2.5 standard level, reduced from 50 microns (microgram/cubic meter) to 37.5 microns, and a new air quality index (AQI) standard, reduced from 91 to 75.1, from June 1st, to bring them in line with the World Health Organization's standards.

Under the new standard, the AQI will be divided into five levels, each color-coded.

- The AQI 0-25 (Blue) level means that the air quality is very good and suitable for all outdoor and tourism activities.

- The AQI 26-50 (Green) level means air quality is good enough for people to undertake general activities as normal.
- The AQI 51-100 (Yellow) level means moderate air quality, in which healthy people can perform outdoor activities as normal. Those who have to take special care of their health, however, should reduce outdoor activity if they develop a cough or experience breathing difficulties.
- The AQI 101-200 (Orange) level means that air quality is starting to affect people in general. With a cough, breathing difficulties, or eye irritation, people should reduce outdoor activity or wear face masks, and anyone experiencing chest pain, headache, fatigue, nausea, or irregular heartbeat should see a doctor.
- An AQI of more than 200 (Red) means that air quality has become so bad that people should avoid outdoor activities, wear face masks, and see a doctor if they feel ill.

The Ministry has asked all state agencies to be prepared to address the PM2.5 problem in line with the new standard, while the Department of Pollution Control and the Thai Health Promotion Foundation should inform and educate the general public about the changes.

<https://www.thaipbsworld.com>

## Cutting-Edge Air Purification Tower

Thailand's Electricity Generating Authority (EGAT) recently unveiled the prototype of an air purification tower designed to tackle the issue of PM2.5 air pollution. This initiative is a result of collaboration between EGAT researchers and inventors who intend to implement this technology in communities across the country.

The innovative tower stands six meters high and weighs six tons, employing plasma generation techniques to generate an electric charge capable of capturing PM2.5. PM2.5 refers to particulate matter less than 2.5 micrometers in diameter, which can cause severe health issues

if inhaled over a long period. This tower can capture more than 80% of PM2.5 and purify up to 30,000 cubic meters of air per hour, effectively covering an area within 250 meters.

The air purification towers were initially installed in EGAT areas to improve efficiency before expanding to other parts of the country. Northern Thailand is a region of concern where these machines are expected to be deployed in the future. Furthermore, the knowledge gained from this research can be applied to enhance the efficiency of dust filters in other protective devices, such as facemasks and home air purifiers.

The air purification tower prototype is a step towards addressing the significant environmental and health challenges posed by PM2.5 pollution in Thailand. Long-term exposure to PM2.5 can cause damage to respiratory systems and blood vessels and, in some cases, even be fatal.

The Thai and Chinese initiatives demonstrate innovative approaches to tackling air pollution by implementing large-scale air purification systems. These structures can potentially save tens of thousands of lives each year by reducing air pollution levels in metropolitan areas. However, some experts argue that it is essential to consider the energy costs involved in building and operating these towers, as well as the effectiveness of the filtration systems. Ultimately, solving outdoor air pollution issues will require reducing emissions from major sources such as heavy industry, coal-burning power plants, motor vehicles, and residential cooking and heating.

<https://www.envirotech-online.com>

## TURKEY Green Initiatives

Türkiye is one of the countries most affected by the adverse consequences of climate change. As efforts to curb emissions have topped the global agenda, Ankara's vision for a green transformation of the country was discussed by President Recep Tayyip Erdoğan.

Türkiye intends to increase the proportion of renewable energy to 69% by 2053 and achieve the net zero emissions target by the same year. Türkiye has committed to meeting the net zero emissions target by 2053; the country has since engaged in several steps to address the issue. It renamed its relevant ministry "Ministry of Environment, Urbanization and Climate Change" as a sign to show the emphasis on climate. Türkiye also signed an agreement with the World Bank, France, Germany, the U.N., the International Finance Corporation (IFC), and the European Bank for Reconstruction and Development (EBRD) to support Ankara's climate policies.

Türkiye has started to take action on a multilateral scale. A climate law is expected to be approved by the Parliament in the upcoming period; a National Strategy Document will be prepared by 2024 for the gradual reduction of hydrofluorocarbon emissions; work is ongoing for an Emissions Trading System, and decarbonization road maps for the vital steel, aluminum, cement and fertilizer industries have been finalized.

The "zero waste" program launched in 2017 has resulted in a 35% waste recycling rate and generated an income of TL 96 billion. Today, it has become a global Turkish brand, with the U.N. declaring March 30 as International Day of Zero Waste. The rate of recycling is expected to reach 60% in 2035.

Türkiye's recently introduced electric car as part of the country's green transformation endeavors. In terms of sustainable transportation, the country aims to reduce the share of road freight transportation from 72% to 57% while increasing the share of railway freight transportation from 5% to 22% by 2053. Sustainable and smart transportation, green navigation and ports, and developing railway freight while decreasing emissions are points of focus. Türkiye's first national electric train began operating this year. A project for carbon-free airports has also been launched and will be implemented in more airports. Within the scope of the Airports Council International's (ACI) Airport Carbon Accreditation

(ACA) program, 50 Turkish airports have received certificates, considering 557 airports in 90 countries are involved.

The Energy Ministry has also set its goals to reduce emissions by 100 million tons within the scope of the Second Energy Efficiency Action Plan, covering the years 2024-2030. The share of renewable energy reached 55%, ranking Türkiye fifth in Europe and 12th in the world in terms of sustainable energy solutions.

According to a report of the Istanbul Policy Center of Sabancı University, it is predicted that Türkiye will be able to provide 91% of its electricity production from renewable sources in 2050, and the share of electric vehicles in the passenger vehicle market may increase to 66% with the acceleration of clean energy transformation in the transportation sector. The report also calculated that Türkiye can decommission all its lignite coal power plants by 2035 and all its coal power plants, including imported coal power plants, before 2040.

Türkiye has already begun discussions with the World Bank, which has committed to support the scale-up plan with financial and technical assistance, partnering with the ministry and key private sector actors. Ankara has to position and brand itself as a destination for green investment. Investors have to be attracted through incentives, clear regulations, and policies. Considering Türkiye has a huge potential in this regard, investors' risks are highly likely to pay off.

<https://www.dailysabah.com>

## UZBEKISTAN

### Cutting Subsidies to Support Transition

During the 2023 World Bank Group and International Monetary Fund Annual Meetings in Marrakech, Morocco, the

government of Uzbekistan and the World Bank signed an agreement to allocate \$46.25 million for financing the Innovative Carbon Resource Application for Energy Transition Project (iCRAFT).

These funds will help implement a project supporting the country's clean energy transition, energy efficiency, and energy subsidy reforms, the World Bank indicated in a press release.

The iCRAFT Project, funded by the World Bank's Transformative Carbon Asset Facility (TCAF), is the Bank's first global initiative to support policy reforms through payments for emission reductions. It expands the focus of carbon finance operations to fundamental reform measures that will help Uzbekistan achieve its international climate commitments and improve the efficient use of energy resources. Thus, the project will serve as a model for similar future operations across the globe.

Uzbekistan is one of the most energy and emissions-intensive countries in the world. High subsidies keep electricity and natural gas prices low, resulting in low revenue generation that is insufficient for recovering its costs of production and delivery. Low prices discourage households and businesses from pursuing energy efficiency and conservation efforts, and they limit the capacity of the sector to improve service delivery. To change the situation in the sector, the government has launched energy subsidy reforms, which gradually adjust tariffs to bring prices in line with costs.

The government has committed to using a portion of the project funds to protect vulnerable households from energy tariff adjustments. The project funds will also further finance the national green transition agenda and broader energy sector reform initiatives.

The new project is a critical first step in the gradual elimination of energy subsidies, which encourage waste and divert government resources from other priorities, such as health, education, and social protection. Effective policy reforms in the energy sector would strengthen Uzbekistan's economy while substantially reducing greenhouse gas emissions.

The iCRAFT Project is the first climate and carbon finance transaction in Central Asia under the Paris Agreement, an international treaty that aims to limit global temperature increases by lowering global greenhouse gas emissions. It will purchase – annually until 2027 – emission reductions achieved through efficient use of energy resources and incentivized by energy subsidy reforms.

The project will also help Uzbekistan access international carbon markets through the pilot international carbon trade transaction, providing further incentives for the country to pursue its green transition.

The government of Uzbekistan is proud to implement this innovative project. The project-supported activities are expected to reduce emissions of around 60 million metric tons of CO<sub>2</sub> over the project's lifetime. Under the project, approximately 2-2.5 million tons of CO<sub>2</sub> will be purchased, and the country will be able to sell the remaining emissions reductions on international carbon markets using the systems, infrastructure, and processes established and tested through this project.

The World Bank and the TCAF assist developing countries in meeting their international commitments to reduce emissions and adapt to the effects of climate change. The project implemented in Uzbekistan will potentially serve as proof of concept for other member countries of the World Bank in the future.

<https://kun.uz>