



ICAS BLUE CARBON & CLIMATE CHANGE PROGRAM

QUARTERLY

Quarter 1 - 2024



ICAS BLUE CARBON & CLIMATE CHANGE PROGRAM

The ICAS Blue Carbon and Climate Change (BCCC) Program explores new policy pathways for sustainably developing the blue carbon economy and combating climate change.

The goal of this program is to establish a platform for academic exchange between experts around the world to produce tangible policy recommendations for countries to follow together. Most prominently, the program endeavors to find new pathways for multilateral engagement and mediation in areas of competition to promote mutually beneficial cooperation on climate change where possible.

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ICAS BLUE CARBON & CLIMATE CHANGE QUARTERLY

January - March 2024

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Theme of the Quarter: Renewable Energy Storage

News Stories on Renewable Energy Storage

The Lithium Battery Industry is Facing a Bright but Volatile Future

Development in renewable energy requires the support of advanced energy storage technology, and in this rapidly developing field, batteries—especially lithium batteries—have come to represent the world's most sustainable, cutting-edge energy storage technology. Recent technological achievements, private investments, and policy support all indicate that the battery industry, in its role as an energy storage technology, still has a bright future and will continue to play a critical role in the global transition to renewable energy.

Chinese scientists have recently made major breakthroughs in battery technology. By developing a more powerful winter-proof lithium battery that can charge and operate at temperatures as low as minus 80 degrees Celsius, they have paved the way for high-capacity batteries capable of operating in extreme conditions. Such technological advances offer the opportunity to significantly increase the potential and reliability of batteries for electric vehicles and aviation, and also represent a leap in the ability to store and utilize energy more efficiently under extreme environmental conditions. Investors in other countries have also increased their investment in lithium battery materials in new ways, such as Massachusetts-based Ascend Elements that decided to invest an additional US\$162 million to build a new battery factory in the United States. The factory aims to fundamentally change the production of battery materials, aiming to make lithium batteries more environmentally sustainable through the use of new engineering materials. It hopes to significantly reduce the recycling costs and carbon emissions of lithium batteries. In addition,

some scholars predict that U.S. battery storage capacity will nearly double by the end of 2024. This expansion is mainly to cope with the excess power generated by the growing installed capacity of renewable energy sources such as wind and solar energy. The simultaneous growth of battery storage capacity provides a guarantee for the expansion of renewable energy, further boosting the development of renewable energy while ensuring a stable and reliable relationship between energy suppliers and energy consumers.¹



Affected by geopolitical tensions and strategic competitions, the landscape of the battery market and the development policies of different countries and companies are also constantly evolving. Nevertheless, the overall objective of accelerating the development of battery storage technology and capacity remains unchanged for all players. Despite the rising geopolitical tensions and increasingly complex and

¹ Employees working on a lithium batteries production line at a workshop in Nantong, China on February 29, 2024. (Source: Photo by STR/AFP via Getty Images, Royalty-Free)

unpredictable situations, the world's largest battery manufacturer Contemporary Amperex Technology Co., Limited (CATL) said it will continue to expand its market in the United States. CATL will be licensing its electric vehicle technologies to leading local manufacturers such as Tesla and Ford. It plans to gradually make itself an irreplaceable player in the United States while promoting the development of electric vehicles in the United States. However, future prospects for cross-border markets are affected by international relationships and ongoing industry trends. Disruptions including geopolitical tensions, supply chain vulnerabilities and rapid technological change could lead to significant changes in market dynamics, affecting the availability, cost and adoption of lithium battery technology worldwide. This highlights the importance of adaptability and own development to secure future lithium battery supply. Thus, European countries that once lagged behind in battery energy storage are gradually expanding their battery installed capacity with governmental assistance. According to research by Aurora Energy, the governments of Great Britain, Ireland, and Italy are leading Europe's booming battery power storage market by offering attractive investment incentives to companies. Under the current trend, the European battery power storage capacity is expected to increase by seven times by 2030, presenting an investment opportunity worth over 30 billion euros.

Main Relevant Sources:

- [US battery storage capacity to nearly double in 2024 - EIA](#), Reuters, January 9, 2024
- [World's most advanced battery energy storage system comes online, speeding Hawaii's transition to 100% renewable energy](#), PR Newswire, January 11, 2024
- [EnerSys to develop lithium battery plant in South Carolina](#), Reuters, February 14, 2024
- [Ascend Elements Raises Additional \\$162 Million to Build Sustainable Lithium-Ion Battery Materials in United States](#), PR Newswire, February 20, 2024
- [Sustainable batteries get a boost from new lithium-ion conductor](#), Advanced Science News, February 23, 2024
- [Chinese scientists produce a powerful winter-proof lithium battery](#), South China Morning Post, March 2, 2024
- [UK and Italy among Europe's hottest battery power storage markets, Aurora says](#), Reuters, March 6, 2024
- [Volvo invests in, taps Breathe Battery tech for 30% faster EV charging](#), South China Morning Post, March 11, 2024
- [Across the US, batteries and green energies like wind and solar combine for major climate solution](#), AP News, March 15, 2024
- [China's Battery Champion Says Geopolitical Tensions Won't Derail U.S. Expansion](#), The Wall Street Journal, March 26, 2024
- [Top China Lithium Firms Look Past Profit Slump and Vow Expansion](#), Bloomberg, March 31, 2024

Lesser-Known Energy Storage Technologies Have Made Considerable Progress

Although lithium batteries are currently the most important energy storage technology and have been widely used in all kinds of ways from smartphones to electric vehicles, the risks and uncertainties regarding its safety and reliability are still salient. There remains strong motivation for countries and companies alike to seek out more advanced power storage technologies and potential alternatives. Recent incidents have proven the potential dangers of lithium-ion batteries: the Fire Department of Woodbury, New York blames lithium batteries for causing five house fires within the last four months. Similar situations are also occurring in other countries, emphasizing that current technology cannot fully solve the potential safety concerns of lithium batteries. There are also other problems worth noticing. Lithium mining has a negative impact on the environment, which contradicts the original goal of using lithium batteries for sustainable development. Moreover, and arguably the most important problem, lithium is a relatively scarce element on Earth. Due to these and other factors, current lithium battery technology is gradually becoming insufficient to meet the growing demand for energy storage. Consequently, other feasible solutions are urgently needed to

supplement lithium batteries.

Different solutions have emerged in an attempt to address these challenges. Scientists and researchers are looking for alternative battery solutions that can replace lithium-ion with other elements. These technologies aim not only to mitigate the risks associated with lithium-ion batteries but also to play a positive role in reducing costs, improving performance, and enhancing sustainability. One notable breakthrough comes from Chinese scientists at Fudan University, who have developed a rechargeable calcium-based battery that can be charged and discharged fully 700 times



at room temperature without any degradation in performance. This innovation is significant because calcium is 2,500 times more naturally abundant than lithium, potentially providing a cheaper and safer alternative while maintaining comparable energy density. Another promising direction is the development of sodium-ion batteries. U.S.-based Acculon Energy recently introduced its sodium-ion battery modules and battery packs. This technology stands out for its environmental credentials, enhanced safety features and potential to reduce raw material costs compared to lithium-ion batteries. Although the value of this product in large-scale applications has yet to be verified, Acculon Energy plans to first start 2 gigawatt hour (GWh) scale production in mid-2024.²

In addition to exploring new battery elemental bases, there is also growing interest in different energy storage methods. Technologies like sand-based thermal batteries, introduced by Finnish start-up Polar Night Energy, offer an innovative approach to energy storage. These batteries store energy in the form of heat by using readily available and environmentally friendly materials such as sand. This technology is already capable of releasing heat on demand, ensuring power for industrial and other operations while avoiding waste of energy. South Africa has brought attention for its recent expansions in energy storage projects, with four out of their five top projects utilizing molten salt thermal storage technology. Additionally, India's GRIDCO is investing in the pumped hydro system to enhance its energy storage capabilities. This method does not demand for technological level and is suitable for countries that are currently encountering difficulties in making technological breakthroughs.

Main Relevant Sources:

[Acculon launches production of sodium-ion battery modules, packs](#), *PV Magazine*, January 11, 2024

[A Huge Underground Battery Is Coming to a Tiny Utah Town](#), *The New York Times*, January 12, 2024

[Chinese scientists say new calcium-based battery offers 'cheaper, safer' alternative to lithium-ion cells](#), *South China Morning Post*, February 12, 2024

[Woodbury Fire Dept.: Lithium-ion batteries to blame for 5 house fires in past 4 months](#), *CBS News*, February 16, 2024

[The New Hot Climate Investment Is Heat Itself](#), *The Wall Street Journal*, February 22, 2024

² An aerial view of the Kruonis Pumped Storage Plant in Kaunas county, Lithuania. (Source: Getty Images, Royalty-Free)

[Top five energy storage projects in South Africa](#), *Power Technology*, February 22, 2024

[Polar Night Energy to build 1 MW sand-based heat storage battery in Finland](#), *PV Magazine*, March 7, 2024

[We rely heavily on lithium batteries – but there's a growing array of alternatives](#), *BBC*, March 21, 2024

[State power company seeks 2,500MWh BESS, pumped hydro consultant in Odisha, India](#), *Energy Storage*, March 28, 2024

Government Statements & Actions on Renewable Energy Storage

In the first quarter of 2024, governments of various countries have shown a high degree of attention to renewable energy storage technology. Some have gone a step further, directly emphasizing the importance of relevant technologies at the policy level and providing some directional policy guides. A few, having openly acknowledged the need for renewable energy storage, have even begun to provide more specific policy and financial support for those energy storage projects.

- The Rocky Mountain Institute (RMI) and the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) has introduced publicly- accessible tools for advancing renewable energy, including a detailed guide on operating and maintaining battery energy storage systems (BESS).
- The government of the United Kingdom (UK) aims to enable an investment in long-duration electricity storage (LDES). It is a crucial policy for achieving a more efficient energy storage system capable of integrating large volumes of low-carbon power. It enhances the energy storage system's flexibility to store excess electricity for periods of high demand, minimizing waste and potentially reducing costs by a significant level.
- China pointed out in the *Report on The Work of The Government* of its annual Two Sessions meeting that, in terms of energy storage technology, China needs to focus on the development of ultra-long-life lithium-ion batteries, promote the research, development, and application of solid-state batteries, and accelerate the development of the hydrogen energy industry.
- The Science and Technology Committee of the UK Parliament suggested in a report on long-duration energy storage that the government must act fast to ensure that energy storage technologies can scale up in time in decarbonizing the electricity system and ensuring energy security by 2035.
- According to an expert in South Africa, the Government of South Africa "has identified battery storage as an alternative to support renewable energy expansion in South Africa and is taking the necessary steps to ensure its successful implementation."
- The Biden-Harris Administration announced a US\$62 million investment to lower battery recycling costs. This initiative seeks to make electric vehicles more affordable and enhance the U.S. domestic supply chains by fostering a sustainable, reduced-cost recycling ecosystem for consumer batteries.

Despite increased focus and investment in renewable energy storage technologies by state governments and the private sector, discussions about renewable energy storage remained mostly absent on the international stage in the first quarter of 2024. Considering that the development of energy storage technology is no longer an immature topic and its significance is widely recognized, the lack of discourse from international organizations may indicate a lack of willingness among nations to communicate and cooperate in this field; or at least a strong intent to establish their own mark domestically before bringing the issue to the international discussion stage.

Main Relevant sources:

[Enabling Renewable Energy with Data-Driven Power Systems and Battery Energy Storage](#), Rocky Mountain Institute, February 19, 2024

[Long duration electricity storage consultation](#), UK Department for Energy Security & Net Zero, March 5, 2024

[Report on The Work of The Government](#), Central Government of the People's Republic of China, March 5, 2024

[Government must 'act now' on energy storage or risk energy security and Net Zero](#), UK Parliament, March 13, 2024
[Tapping into new ways of storing energy](#), Republic of South Africa, March 26, 2024
[Biden-Harris Administration Announces \\$62 Million to Lower Battery Recycling Costs Across the Nation](#), U.S. Department of Energy, March 28, 2024

Third-Party Analyses & Data on Renewable Energy Storage

Besides statements made on the official level, people including scholars, practitioners, and former government officials also expressed their opinions on issues related to renewable energy storage technologies in the first quarter of 2024. Some of them directly analyzed the advantages, disadvantages and feasibility of different energy storage technologies from a technical perspective, while sharing their views and plans for the future direction of energy storage technology. Others explored the development of energy storage technology from a policy-forward or strategic viewpoint, and then further emphasized the key issues and strategic concerns that need to be addressed.

- In a *Hackaday* article about energy storage solutions, the author suggests that an innovative “sun in a box” technology that utilizes liquid tin to store energy in the form of heat within large graphite blocks is offering a potential breakthrough in cost-effective grid storage.
- In an article for *Financial Times*, Barney Jopson explores the potential of ‘water batteries’ as a solution to the energy storage challenge, suggesting that the Tâmega pumped storage plant in Portugal could be a key example of how pumping water up a mountain can serve as a commercially viable energy storage component of a renewable power-driven energy system.
- An early-January commentary on the battery revolution argues that California’s transition toward 100% renewable energy is strongly supported by a surge in battery storage capacity, which allows the state to manage solar energy surpluses and reduce reliance on carbon-emitting gas plants.
- Two experts at the International Renewable Energy Agency say in a January analysis that “one thing has become clear: our ability to tap into renewable power has outstripped our ability to store it.”
- An analysis published on *Climate Home News* suggests that China’s demand and investment are the key driving forces to facilitate Zimbabwe’s ambition to become a significant player in the global electric vehicle (EV) battery supply chain.
- Vanessa Witte, Senior Research Analyst on Energy Storage at analytical firm Wood Mackenzie, lays out five trends to stay alert about in 2024 regarding global energy storage, emphasizing how the “landscape for energy storage is poised for significant installation growth and technological advancements.”
- As part of a Special Issue of *Sustainability* focused on “Advances in Renewable Energy Production and Storage,” six experts review the current state of energy storage systems of non-interconnected European islands to understand its predominant core technologies and the current status of storage solutions.
- Christoph Birkl and Damien Frost, co-founders of Brill Power, a battery intelligence platform from the United Kingdom, argue that sodium-ion batteries are a sustainable alternative to lithium-ion batteries with lower costs, reduced reliance on scarce materials, and improved safety.
- An article published on *MIT News* describes how Form Energy and MIT researchers have worked together and developed iron-air batteries to address the storage needs for solar and wind energy during long periods of low production.
- A commentary published on *Power Technology* argues that the global demand for battery energy storage systems will continue to be high as the world seeks to enhance grid stability and integrate renewable energy and it is important for countries to develop energy storage capabilities for energy independence and sustainability.
- Amos Zeeberg from *The New York Times* explores the work being done by Energy Dome, a technology start-up based in Milan, “which uses carbon dioxide held in a huge balloon...as a kind of battery.”
- A global energy and climate reporter at *Forbes* points out how renewable energy storage is trending yet

- costly, explaining that figuring out long-duration storage is vital to tripling renewables by 2030.
- Former People's Bank of China governor Zhou Xiaochuan said at the Boao Forum for Asia in March that China's clean energy overcapacity and shortage in energy storage facilities are only temporary as global demand for green transitions stays strong.

Relevant sources:

[Liquid Tin Could Be The Key To Cheap, Plentiful Grid Storage](#), *Hackaday*, January 8, 2024

[Can 'water batteries' solve the energy storage conundrum?](#), *Financial Times*, January 9, 2024

[California's Great Battery Revolution Allows Closure of Peaker Gas Plants and move to 100% Wind, Solar, Water](#), *Informed Comment*, January 10, 2024

[The 360 Gigawatts Reason to Boost Finance for Energy Storage Now](#), International Renewable Energy Agency, January 14, 2024

[Lithium boom: Zimbabwe looks to China to secure a place in the EV battery supply chain](#), *Climate Home News*, January 23, 2024

[Global energy storage: five trends to look for in 2024](#), Wood Mackenzie, January 29, 2024

[A Review of the Energy Storage Systems of Non-Interconnected European Islands](#), *Sustainability* Vol. 16, No. 4 (January 2024)

[Comment: Unlocking the power of sustainable battery chemistries](#), *The Engineer*, February 15, 2024

[Power when the sun doesn't shine](#), *MIT News*, February 29, 2024

[Battery energy storage: the challenge of playing catch up](#), *Power Technologies*, March 13, 2024

[Storing Renewable Energy. One Balloon at a Time](#), *The New York Times*, March 18, 2024

[Long-Duration Energy Storage Is Core To Tripling Renewables By 2030](#), *Forbes*, March 25, 2024

[China's excess clean energy production is 'likely only temporary'. former central bank chief says](#), *South China Morning Post*, March 29, 2024

ICAS Commentary

The dynamic transition to clean hydrogen requires temporary compromises

By Zhangchen Wang

March 29, 2024

As the lightest and most abundant element in the universe, hydrogen plays a crucial role across a wide range of applications. According to the [U.S. Energy Information Administration](#) (EIA), hydrogen serves various industrial purposes, including in the production of fertilizers, serving as a fuel in metal smelting and electricity generation, and functioning as a reactant or catalyst in the manufacture of various chemicals. For sustainable development purposes, the biggest significance and advantages of hydrogen include its roles as a clean energy source and an efficient energy storage carrier.

Nevertheless, according to [2021 data](#), the global production of hydrogen is still limited with only about 75 million tons per year. This level of production is sufficient just for existing industrial demands and falls short of making a significant impact in carbon reduction efforts. The primary reasons are that much of the current hydrogen production has faced criticism for being too expensive to produce and not truly zero-carbon, as the methods used to produce it are very complex and still emit carbon dioxide. For example, the European Union's [Carbon Border Adjustment Mechanism](#) (CBAM)—a carbon program that imposes tax on certain goods imported from outside the European Union—has even placed hydrogen on its initial list of goods that are subject to carbon tariffs for its carbon emission. However, the reluctance to embrace hydrogen, considering its potential for sustainable development, is essentially abandoning an effective route to green transition. Green development heavily relies on economic incentives, which are,

in turn, closely tied to governmental policies and attitudes. Governments and the public should be patient with the gradual pace of green hydrogen development, and expect it to play a bigger role in clean energy transition over the long term.

Currently, only about [1%](#) of global hydrogen production is produced entirely from renewable energy sources. [Steam-methane reforming](#) is now the most widely used method for commercial hydrogen production. This non-clean method requires the reaction between high-temperature steam and high-pressure methane to generate hydrogen, yet it also results in significant carbon dioxide emission. The hydrogen product can be classified as either [black or blue hydrogen](#) depending on whether the carbon emitted is captured or not. [Electrolysis](#), which directly splits water into hydrogen and oxygen using electricity, is the renewable technique for hydrogen production. Hydrogen produced in this way is also known as [green hydrogen](#).

Although hydrogen is far from being easily renewable, it has already shown enormous potential as an alternative energy source and just needs more attention and investment from stakeholders. Firstly, as a flammable gas, hydrogen's [combustion efficiency far exceeds](#) that of fossil fuel energy. For instance, the energy that can be released by 1 kilogram of hydrogen is about the same as the energy of 3 kilograms of gasoline. Indeed, critics often [argue](#) that utilizing hydrogen as a power source for cars or planes is impractical due to the technical limitations of hydrogen-powered engines and the extremely unstable nature of hydrogen, but one has to realize that cars are not the only things in the world that need energy. Activities like smelting, residential heating, and power generation also all rely on fuel combustion to produce heat. Hydrogen energy can already serve as a cleaner alternative to fossil fuels in these areas. Additionally, with the advancement in production, existing application, market attention, there is a greater likelihood for technological breakthroughs in hydrogen engines and other hydrogen energy applications.³



Secondly, hydrogen energy is also an effective means of energy storage. Renewable energy sources such as solar and wind have always had [problems with storing](#) their excess energy produced during strong production periods. Existing methods like pumped hydroelectric, thermal energy storage, and lithium batteries all have their unique limitations and are gradually falling short of meeting the growing installed capacity of renewable energy. Electricity generated from renewable sources can now be directly stored in the form of hydrogen through electrolysis. Although there is never a perfect option, utilizing hydrogen at least offers an additional energy storage option; especially for countries with less developed lithium battery technologies. For example, some energy companies have already started the [construction of hydrogen storage facilities](#) to store excessive electricity for later use, and this model should be promoted worldwide.

³ Digital generated image of H2 hydrogen icon made out of green sustainable city with wind turbines and solar panels on blue background. (Source: Getty Images, Royalty-free)

Although the majority of the current hydrogen production techniques still result in carbon emissions, no one should deny the fact that hydrogen is still a clean energy source. Governments should encourage more companies to use hydrogen to replace original fossil energy under the right conditions.

In fact, the skepticism and challenges surrounding hydrogen energy development today are similar to the [doubts](#) faced by electric vehicle developers during their early stages. Critics have argued that electric vehicles are not better for the climate than gasoline cars because of power plant emissions. However, the reality is that, even though the majority of electricity originates from fossil fuels, the portion generated from renewable sources still significantly reduces the carbon emissions of electric vehicles, and they will continue to be cleaner as the installed capacity of renewable energy increases. Also with the continuous development and popularization of electric vehicles, the originally expensive technology, production, and maintenance costs are becoming lower as well. The same model is also applicable to hydrogen.

Thus, for the development of hydrogen, one of the most important aspects is to expand its application fields and lower production costs. Governments have the power through establishing compensation policies, for instance, to incentivize companies to use hydrogen as fuel in situations where they normally burn fossil fuels like coal or natural gas. Once such a shift is sufficiently initiated and bolstered, supply and demand will mutually stimulate each other, creating greater profit opportunities for both parties. On the contrary, CBAM's decision to include hydrogen in its first list of goods subject to carbon tariffs might not be the best choice. Tariffs not only directly increase the price of hydrogen in the European market, but also diminish the enthusiasm of hydrogen manufacturers worldwide, which will hamper the market expansion of hydrogen from both the supply and demand sides.

It is also necessary to ensure that hydrogen is actually becoming cleaner, because there will always be critics who would argue that it is meaningless to replace coal and natural gas with hydrogen that is originally generated from natural gas. Fortunately there are already means to achieve this objective. On the one hand, as the scope of hydrogen applications expands, more renewable electricity will be used to produce hydrogen, especially those that are originally intended to be stored in batteries. This will gradually reduce hydrogen's carbon emissions. On the other hand, as mentioned at the beginning, there is a commonly used hydrogen production method that captures and stores the carbon dioxide generated while producing hydrogen, known as blue hydrogen. This production model is much more efficient than directly using fossil energy and trying to capture carbon dioxide from the air. As long as the demand and incentive for hydrogen remains strong, hydrogen will almost certainly become cleaner in the foreseeable future.

All in all, the promotion of hydrogen will undoubtedly aid the development of clean energy in the future, and it is essential for all stakeholders—including governments, industries, and communities—to work collaboratively to enhance the production, utilization, and public awareness of hydrogen as both a cleaner energy and an alternative energy storage carrier. Hydrogen should take its rightful place as an indispensable component to the pursuit of a cleaner future.

This commentary was [originally](#) released on the ICAS website on March 29, 2024 as part of the ICAS Blue Carbon & Climate Change (BCCC) Program.

This season's Theme of the Quarter on Renewable Energy Storage was researched and written by Zhangchen Wang, Part-Time Research Assistant at the Institute for China-America Studies.

This Season's Global Climate Affairs

Issues & Updates on Blue Carbon

Rising seas and warming weather threaten vulnerable native flora and fauna in Singapore

Friday, January 12

Source: [Channel News Asia](#)

[Singapore]

A climate study warns that rising sea levels and hotter temperatures in Singapore are placing significant pressure on wildlife, flora, and fauna, especially in vulnerable ecosystems like wetlands and mangroves. These environmental changes threaten to disrupt delicate ecological balances, therefore further exacerbating the challenges posed by climate change in the region.

Japan Plans to Report 360,000 Tons of 'Blue Carbon' to U.N.; First Such Calculation in the World

Wednesday, January 17

Source: [Tech Explorist](#)

[Japan, Global]

In a study aimed to create explicit historical reference points and understand drivers of changes in California's kelp forests, scientists found that the growth of kelp forests in central California has nearly offset the loss of mainland coastlines to the north and south. It was also discovered that the presence of sea otters facilitates kelp forest growth by increasing canopy resilience.

Sea otters may be key drivers of changes in California's kelp forests

Tuesday, January 23

Source: [Tech Explorist](#)

[North America, Global]

In a study aimed to create explicit historical reference points and understand drivers of changes in California's kelp forests, scientists found that the growth of kelp forests in central California has nearly offset the loss of mainland coastlines to the north and south. It was also discovered that the presence of sea otters facilitates kelp forest growth by increasing canopy resilience.

Carbon capture focus now on mangroves

Sunday, January 28

Source: [The Times of India](#)

[India]

From January 24-25, the UN Global Ocean Decade Programme for Blue Carbon organized a workshop at Ahmedabad University in India, supported by Gujarat Institute of Desert Ecology (GUIDE) and University of St. Andrews, which focused on local blue carbon ecosystem restoration.

Pakistan bucks global trend with 30-year mangrove expansion

Monday, February 5

Source: [Mongabay](#)

[Pakistan]

The mangrove forests in Pakistan have experienced a remarkable expansion, nearly tripling in size between 1986 and the early 2020s, which is attributed to coordinated conservation efforts, community engagement, and massive mangrove planting initiatives. The projects led by foreign stakeholders such as the Chinese Academy of Science also played an important role in this three-decades mangrove expansion.

Scientists point the way to advance conservation and restoration of seagrass meadows

Friday, February 9

Source: [Phys.org](#)

[Europe]

Scientists in Europe have made significant progress in understanding how seagrass meadows function and their role in coastal ecosystems. Their findings will help advance the conservation and restoration of seagrass meadows across Western Europe.

A new map shows how much carbon dioxide is stored in Oregon's Coos Bay estuary

Thursday, February 15

Source: [Oregon Public Broadcasting](#)

[United States]

Pew Charitable Trusts and a group of local researchers in the U.S. State of Oregon have released a new map “to help people understand” how much carbon dioxide is potentially stored in the soil and vegetation of the Coos Bay estuary, one of the state’s largest ‘blue carbon’ ecosystems.

Taiwan targets 700,000-ton blue carbon reserve by 2030

Tuesday, February 27

Source: [DIGITIMES Asia](#)

[Taiwan]

Taiwan initiated a blue carbon research focusing on evaluating the carbon sequestration potential of blue carbon ecosystems such as mangrove forests. The research started before the official implementation of a carbon fee, aiming to standardize the measurement for blue carbon credit trading, and will also monitor marine species and enhance understanding of Taiwan’s blue carbon ecosystems. Taiwan aims to double its blue carbon reserves by 2030.

Cornwall researchers discover huge ancient seaweed bed

Saturday, March 2

Source: [BBC](#)

[The United Kingdom]

During a research commissioned by the Cornwall Council to study blue carbon in the local region, researchers

found significant presence of maerl, a rare and ancient seaweed. Researchers said that the maerl bed could play an important role in the local blue carbon ecosystem.

Brazil's mangrove forests represent untapped blue carbon banks, says new study from National Geographic Explorers

Monday, March 4

Source: [National Geographic](#)

[Brazil]

A recent study completed by National Geographic Explorers describes Brazil's mangrove forests as untapped blue carbon banks storing vast amounts of carbon and offering significant potential for climate change mitigation. The findings show that it is necessary to conserve mangroves to sequester carbon and protect coastal ecosystems.

Nigerian Oil-Producing Region Eyes Carbon Deals From Mangroves

Friday, March 8

Source: [Bloomberg](#)

[Nigeria]

Delta State, Nigeria's oil-rich region, has granted Serendib Capital, a United Kingdom-based company, rights to develop projects on 9% of its land for carbon credit generation through mangrove restoration. The project aims to sequester 5.32 million tons of carbon annually, prevent deforestation of 250,000 hectares of land, and replant 20,000 hectares of mangroves.

Scientists Quantify Blue Carbon in Bahamas Seagrass

Thursday, March 14

Source: [Eos](#)

[The Bahamas]

A team of scientists have quantified the blue carbon stored within seagrass ecosystems in the Caribbean island nation of The Bahamas, revealing significant carbon reserves and their criticality in climate change mitigation. Their study highlights that the conservation efforts for these seagrass meadows are crucial for preserving their carbon storage potential and safeguarding marine ecosystems.

Thai scientists breed coral in labs to restore degraded reefs

Friday, March 22

Source: [Reuters](#)

[Thailand]

In a once-a-year opportunity to help restore degraded coral reefs around Thailand, scientists from Thailand's Department of Marine and Coastal Resources were able to gather rare samples released from coral off the southern Man Nai Island, which houses over 98 species of coral. The coral only spawn once a year and can take up to five years to grow in a lab before being returned to the sea.

Multilateral Affairs & Climate Diplomacy

The Global Drought Crisis of Early 2024

The Short Story: Drought swept across several regions around the world in the first quarter of 2024, in many cases leading to serious consequences in water resourcing, agriculture, the economy, and ecosystem balancing.

Why It Matters: These droughts, even when successfully predicted, pose significant economic, environmental and social challenges. Considering that human-induced climate change is the main driver of the current droughts, there is an urgent need for countries around the world to take action to address climate change and improve water governance through innovative solutions and international cooperation.

The Full Feature Story: At the beginning of 2024, extreme drought was already affecting many areas worldwide. Countries in parts of South America, North America, Africa, and Europe all suffered from the consequences of drought to varying degrees. This phenomenon once again demonstrates that the environmental crisis caused by climate change is increasingly impacting human life in various, unavoidable ways. In an attempt to understand the uptick in drought cases, scientists believe that, while El Niño is a factor in the drought, climate change is largely to blame. Not only do these droughts directly threaten the livelihoods of millions of people and cause serious economic losses, they also expose the vulnerability of many countries' infrastructure to environmental stresses.

In January, drought first hit many areas in southern Europe, with research suggesting that the Iberian Peninsula is facing its worst drought in 1,200 years. As a result of the drought, the availability of agricultural irrigation water in Portugal decreased by 25% compared to the same period last year, and in some of the hardest-hit areas, like the Algarve where the severe drought almost emptied reservoirs, it fell by 50%. This situation will undoubtedly negatively affect Portugal's agricultural output in 2024. An unprecedented drought also swept through Catalonia, Spain, forcing the authorities in the greater Barcelona to reduce water pressure in some towns' supply systems to preserve water.

During the same period, drought also continued to affect the Central American country of Panama. The Panama Canal, a cornerstone of global trade connecting the Atlantic and Pacific Oceans, faced a significant decrease in its operational capacity directly due to this drought. In late January, the local authorities announced that the efficiency of ship crossings through the Panama Canal had decreased by 36% due to the high amounts of fresh water needed for each ship's passage. This substantial reduction in ship crossings by over a third not only results in an immediate economic loss of between US\$500 million and US\$700 million annually for Panama but also signals the far-reaching broader impacts of climate-induced water scarcity on international trade and economic stability as the Panama Canal serves as a key channel for international trade. Somewhat ironically, analysts suspect the U.S. State of California, notorious for its years of 'megadrought' and located not far north of Panama, will be drought-free through 2025 after two years of major winter storms.

Additionally, some countries in the Global South have been disproportionately affected by drought as the lives of people in these countries are already directly and indirectly threatened by drought. Prolonged periods of drought and high temperatures have drained forests of moisture, virtually transforming them into fuel tanks and leading to unusually severe wildfires in Chile, which already killed at least 123 people

in February. Meanwhile, Zambia declares national disaster after drought devastates its agriculture. According to President Hakainde Hichilema in late February, the drought has already affected 84 of the country's 116 districts and Zambia has lost almost half of its planted crops. Without certain precautions, the country is likely to face famine. Meanwhile, the Amazon rainforest faced its worst drought in fifty years; a worrying trend that highlights concerns about wider ecological and climate consequences of the global drought. Since the Amazon rainforest serves as a biodiversity hotspot and plays a key role in the global effort of combating climate change, there is an even stronger demand to protect it from extreme conditions. If the rainforest incur significant damage from drought, its capacity to combat climate change could be further reduced, potentially leading the planet into an increasingly perilous vicious cycle.

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[How climate change contributes to wildfires like Chile's](#), *AP News*, February 5, 2024
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[South African city copes with climate change by chopping down trees](#), *The Washington Post*, February 28, 2024
[Zambia declares national disaster after drought devastates agriculture](#), *Al Jazeera*, February 29, 2024
[California Could Stave Off Drought Through 2025—Reversing Years Of 'Megadrought.' Forecasters Say](#), *Forbes*, March 4, 2024
[As droughts and water scarcity intensify, UN Water Convention pushes forward cooperation in shared basins](#), United Nations Economic Commission for Europe, March 12, 2024

The Electric Vehicle Battle: China, the United States and the European Union

The Short Story: The rising strength of China's electric vehicles market is causing concerns and instigating counter-measurements in the United States and the European Union.

Why It Matters: Electric vehicles (EVs) offer a way to protect the environment while taking into account economic development and are a critical component of the future global sustainable development strategy. The country that takes the lead in the global electric vehicle market will undoubtedly play a significant role in setting standards for sustainable development in the future. Thus, the competition among relevant parties in China, the United States, and the European Union is inevitable in the way forward for the global transition to carbon-free electrification.

The Full Feature Story: With leading technology and competitive prices, Chinese EV manufacturers are expanding rapidly to control and shape the global electric vehicle market. This rapid, single-handed expansion seemingly aimed at achieving market monopolization has led the United States and European Union to attempt blocks against Chinese car companies on the grounds of national security issues, unfair market competition and sustainable development. BYD, China's biggest EV manufacturer, and other Chinese automakers have achieved great success in the global EV market, with sales exceeding U.S.-based Tesla, the non-Chinese giant in the EV industry, while threatening a large number of traditional car manufacturers. Car companies including Nissan and Volvo argue that the rapid development of Chinese EV in Europe has posed an existential threat to traditional car manufacturers. They argue this trend could limit growth opportunities for local European EVs and might even pressure them to reconsider their original EV strategies. The success of China's EVs in the international market can be attributed to strong support from the Chinese government, rapid technological advancements, and significant

reductions in EV production costs.

Although there is no official action against Chinese car companies in Europe yet, it is widely acknowledged in European countries that they are at least five years behind Chinese companies like BYD in terms of EV technologies. Considering how the EU is committed to promoting EVs for environmental reasons while also worrying about Chinese companies dominating the European market, the EU is preparing to start investigating Chinese car companies for unfair competition practices.

Meanwhile, the U.S. auto industry already views Chinese EVs as an existential threat due to their growing influence. The Biden administration has retained the tariffs imposed on Chinese EVs during the Trump administration, which has prevented Chinese car companies from entering the U.S. market due to high costs. More recently, in February 2024, the U.S. Department of Commerce initiated new investigations on Chinese EVs for “national security” concerns born from the belief that internet-connected Chinese cars could use this capability to transmit sensitive information from the U.S. back to China, posing a potential threat to US national security. At present, even though the United States has no true evidence to substantiate this accusation, this investigation marks the beginning of another round of measures to curb the import of Chinese EVs into the U.S. market.

Despite official skepticism and challenges, consumer interest in Chinese electric vehicles continues to be high, fueled by environmental benefits and more affordable pricing. Therefore, U.S. and European automakers are continually being compelled to find ways to reduce the cost and improve the quality of their own EVs to win consumer preference. Looking at the larger implications, competition promotes innovation in battery technology, vehicle design, and manufacturing processes, all of which have positive implications for providing consumers with affordable and efficient electric vehicles.

Sources:

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- [Chinese carmakers flood the European market with electric vehicles](#), *NPR*, January 7, 2024
- [Why China poses a growing threat to the U.S. auto industry](#), *CNBC*, January 22, 2024
- [China's EVs could turbocharge recovery – but trade curbs threaten to stall growth at the starting line](#), *South China Morning Post*, February 3, 2024
- [BYD And Chinese EV Win In Europe Might Be Delayed](#), *Forbes*, February 9, 2024
- [European, US carmakers race to lower EVs costs as China competition heats up](#), *Reuters*, February 15, 2024
- [Biden Calls Chinese Electric Vehicles a Security Threat](#), *The New York Times*, February 29, 2024
- [Chinese Electric Vehicles Pose an “Existential Threat”](#), Institute for Energy Research, March 4, 2024
- [European EV Sales Pause. Waiting For Cheap Mass Market Vehicles](#), *Forbes*, March 18, 2024

More on Multilateral Affairs & Climate Diplomacy:

- A group of UK lawmakers are pushing the U.S. Securities and Exchange Commission to block JBS—the world’s largest meat supplier—from entering the New York Stock Exchange because the company’s practices pose threat to global climate regulation and biodiversity conservation. ([Bloomberg](#), January 9)
- The European Commission is aiming to propose a plan that would aim for a 90% reduction in emissions by 2040, marking a significant step towards meeting climate targets and addressing the urgent need to combat global warming. ([Politico](#), January 18)
- Fossil fuel CO2 emissions in the European Union have reached a 60-year low, reflecting a significant progress made by EU member countries in transitioning towards cleaner energy sources. ([The Guardian](#),

January 24)

- On January 24, China signed a memorandum of understanding with Antigua and Barbuda on climate change projects as a part of South-South cooperation. China will provide Antigua and Barbuda with 200 sets of 3-kilowatt household-used photovoltaic power generation systems and 1,500 sets of 60-watt solar street lights to improve their capacity to cope with climate change. ([ECNS](#), January 30)
- Norway and China reaffirmed commitments to deepen bilateral cooperation on climate change, protect free trade, and address international challenges in a meeting between their foreign ministers in Beijing. ([CGTN](#), February 6)
- The European Union's climate change monitoring service announced that January 2024 is the warmest January on record, completing the first 12-month period where temperatures averaged over 1.5 degrees Celsius above preindustrial levels, highlighting the urgency of addressing human-induced climate change to meet the Paris Agreement's targets. ([The Japan Times](#), February 9)
- The head of the International Seabed Authority suggests that, given the rising global interest and the potential for economical mineral production, deep-sea mining appears increasingly inevitable despite environmental concerns. ([CNBC](#), February 21)
- China said it opposes the EU's carbon border tax, arguing it is unfairly imposing additional costs to poorer nations. Instead, China advocates for a global carbon market collaboration and is also planning to expand its domestic carbon trading system. ([Bloomberg](#), February 26)
- As a part of its draft document for upcoming UN climate negotiations, the European Union proposes that the fossil fuel industry should contribute financially to the global effort against climate change, specifically for supporting poorer countries facing the severe impacts of climate change. ([Reuters](#), March 4)
- The U.S. National Oceanic and Atmospheric Administration (NOAA) warned that the world is on the edge of a fourth mass coral bleaching event following months of record-breaking ocean temperature due to climate change. ([Reuters](#), March 5)
- Mongolia and the European Union signed an Agreement on the "Aimag and Soum Centres Green and Resilient Regional Development Investment Program" to enhance partnership in regional green development. ([Mongolian National News Agency](#), March 12)
- The UN has emphasized the disproportionate impact of drought—mainly due to climate change, pollution, and overuse—on women and girls in poor and rural areas as its world water development report calls for cooperation over water to mitigate conflicts and improve the lives of women and girls. ([The Guardian](#), March 21)
- At the China Development Forum, Apple CEO Tim Cook said that artificial intelligence (AI) is a crucial tool for businesses to reduce their carbon footprint. Apple is committed to its environmental goals and needs innovation in AI to achieve carbon neutrality and reduce emissions. ([Bloomberg](#), March 24)
- Japanese and Chinese experts held a dialogue in Dalian, China on March 30 to "exchange views on technical matters surrounding the treated water" of Tokyo Electric Power Company Holdings' Fukushima No.1 nuclear power plant and its discharge into the ocean starting last fall, marking the first public announcement of such a meeting on an issue that quickly became a point of bilateral tension. ([The Japan Times](#), March 31)

Domestic Activity & Climate Affairs

China Vocally Steps Up its Climate Commitments

Country/Region: China

The Short Story: In the first few months of 2024, China launched a series of new measures to address climate change, aiming to adhere to ecological protection while stimulating economic growth.

Why It Matters: China defines 2024 as a critical year for green development. It is determined to build itself into a standard-bearer for green and low-carbon development. At the same time, China is also working hard to balance the relationship between economic development and green development to guarantee the sustainability of emission reduction efforts. The country has reaffirmed its determination to combat climate change by implementing strategies such as building a “Beautiful China,” rebooting the voluntary carbon-credit market, and emphasizing “new productive forces.”

The Full Feature Story: China’s first action this year is the plan to build a “Beautiful China.” According to the guidelines issued by the Chinese Central Committee and the State Council in January, China plans to complete the comprehensive improvement of ecological civilization construction, achieve green development, and realize deep decarbonization in key areas. China is setting these goals not just because it needs to combat climate change itself, but because it also considers itself a key player in the international efforts to tackle climate change and promote low-carbon projects. Furthermore, China aims to build upon this foundation and become a world leader in setting environmental protection standards and rules.

Another milestone achievement for China is the reopening of its voluntary carbon credit market, which has been closed since 2017, indicating a renewed commitment to environmental protection and emissions reduction. The voluntary carbon credit market will serve as a supplement to China’s compulsory Emissions Trading Scheme (ETS), assisting China to realize its broader strategy in carbon neutrality. It was previously closed because of the small volume of transactions and insufficient standardization of projects. Its restart indicates that China has strengthened its management of carbon emissions by enterprises and improved its carbon trading mechanism. It also encourages more people to participate in environmental protection actions such as blue carbon that can generate profitable carbon credits. Additionally, given China’s stance against the protective nature of EU’s carbon border tax, this move is also seen as China’s proactive effort to overcome EU restrictions and create a new set of carbon accounting rules. This approach will help in opposing unilateralism in the future and supporting the global climate cooperation that China has consistently promoted.

One of the most important core issues that China has emphasized recently is the idea of “new productive forces;” a concept proposed by President Xi Jinping that emphasizes innovation in electric vehicles, photovoltaics, and other emerging technologies. The concept is not only designed to address economic challenges, but also align with China’s environmental commitments. Considering the fact that China’s recent state of economic development has continuously bred doubts and concerns, achieving economic development and ecological management at the same time could be an ideal solution to China’s long-term future development.

Sources:

[Development of a "Beautiful China" to be promoted comprehensively](#), *Xinhua*, January 11, 2024

[Climate change: China's voluntary carbon-credit market reboots in 'milestone' for emissions goals](#), *South China Morning Post*, January 22, 2024

[First carbon credits deal completed on China's voluntary carbon market](#), *CGTN*, January 23, 2024

[China Objects to EU's Border Carbon Tax, Backs Global Market](#), *Bloomberg*, February 26, 2024

[Clear targets bring 'Beautiful China' within reach](#), *China Daily*, February 28, 2024

[China's Xi Jinping summons 'new productive forces', but old questions linger](#), *Reuters*, March 5, 2024

[Tougher Penalties for Polluters Push China Carbon to New Record](#), *Bloomberg*, March 7, 2024

[China a key player in global climate change governance with green and low-carbon efforts](#), *Global Times*, March 12, 2024

[Two Sessions: What it means for China's climate policy in 2024](#), *China Dialogue*, March 14, 2024

President Biden's Controversial Plan on Offshore Drilling has Drawn Ire from Both Oil Companies and Environmental Groups

Country/Region: The United States

The Short Story: U.S. President Joe Biden proposed a domestic policy on offshore drilling in February that seems to satisfy no one and has drawn criticism from both oil industry stakeholders and environmental advocates, two groups typically at odds with each other.

Why It Matters: President Biden's proposed plan for restrictive offshore drilling is consistent with broader efforts to combat climate change and protect marine ecosystems while also balancing energy security and considering the interests of oil companies. The opposition from diverse stakeholders underscores the ongoing battle for influence. This event could be a crucial juncture shaping the future balance between energy development and environmental conservation, potentially influencing global energy supply and environmental protection strategies.

The Full Feature Story: Two recent legal challenges against the Biden administration in the United States have sparked widespread discussion about offshore drilling. On February 12, the U.S. oil and gas industry and environmental groups—two organizations with clearly opposing objectives—filed two separate lawsuits against the Biden administration almost simultaneously on the same issue: the Biden administrations' controversial plan to offer three new oil and gas drilling lease sales in federal waters over the next five years in the Gulf of Mexico. The three sales are currently scheduled for 2025, 2027 and 2029, with the decision also ruling out the possibility of a lease sale in Cook Inlet, Alaska.

According to the U.S. Submerged Lands Act (SLA) of 1953, state jurisdiction over territorial sea extends from the coastline to no more than 3 nautical miles beyond the coastline. Beyond that, most of the space in the U.S. exclusive economic zone (EEZ), which typically extends up to 200 nautical miles from any nation's coastline, is under federal jurisdiction. For offshore drilling, this means that oil and gas companies need to lease sea areas from the government before drilling for oil and gas resources in these zones. In other words, the rate of offshore oil and gas production is directly related to the number of new drilling lease sales approved by the federal government. The American Petroleum Institute (API), an oil and gas trade group, filed a lawsuit on behalf of the industry in February 2024, arguing that the Biden administration's policies limit the country's access to affordable and reliable energy and put Americans at risk of becoming dependent on foreign energy.

In fact, President Biden is taking significant steps towards reducing offshore drilling; at least when compared to former President Donald Trump who initially proposed 47 new drilling lease sales during the same period. However, environmental groups still insist the Biden administration has broken its campaign promise to halt all new offshore drilling. Environmental law group Earthjustice filed a separate petition on behalf of eight Gulf environmental groups calling for the Interior Department to be "held accountable" for the potential climate, public health, and other consequences associated with offshore drilling. They also believe the Biden administration has reneged on a campaign promise to halt all new offshore drilling and say the administration should support the development of offshore renewable energy such as offshore wind.

Thus, the Biden administration finds itself in a quandary, particularly with e 2024 being an election year. It is clear that balancing the interests of both parties is crucial, but appeasing one side is likely only to further strain relations with the other, so the administration's response from this point on will be critical.

Sources:

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- [Oil firms and green groups challenge Biden plan for offshore drilling leases](#), *The Guardian*, February 12, 2024
- [Biden admin hit with legal challenge over historic restrictions on offshore oil drilling](#), Fox News, February 13, 2024
- [Oil industry, green groups challenge Biden offshore drilling plan](#), *Reuters*, February 13, 2024
- [US: Joe Biden's offshore drilling curbs hit by lawsuits from both industry and green groups](#), *Carbon Brief*, February 13, 2024
- [Green groups to petition Biden for cleanup rules for offshore oil infrastructure](#), *The Hill*, February 28, 2024
- [Biden isn't advertising America's record oil boom](#), *Vox*, March 13, 2024

More on Domestic Activity & Climate Affairs:

- **China:** China's long-serving climate envoy, Xie Zhenhua, stepped down from his position due to health reasons in early January, with career diplomat Liu Zhenmin assuming the role, subsequently bringing more climate diplomacy and International Organization related experience to the position. ([South China Morning Post](#), January 12)
- **The United States:** Shortly after the announcement of Xie Zhenhua's departure, John Kerry also stepped down from his role as the U.S. climate envoy under the Biden administration, marking the end of his tenure focused on advancing climate policies and international cooperation. ([Politico](#), January 13)
- **Indonesia:** Environmental experts warn that Indonesia's ambitious land-clearance operations for farming are releasing massive amounts of stored carbon, endangering ecosystems and exacerbating climate change concerns. ([The Washington Post](#), January 19)
- **India:** The International Energy Agency (IEA) forecasts that India's rapid economic development and expanding population will lead to a substantial increase in oil demand and thus suggesting that India will become the major driving force of oil by 2030. ([Reuters](#), February 7)
- **Germany:** According to the German Federal Network Agency, German households significantly reduced their electricity and gas consumption in 2023 due to surging prices, with these savings resulting in households paying over €4.3bn less to their utility companies. ([Spiegel](#), February 16)

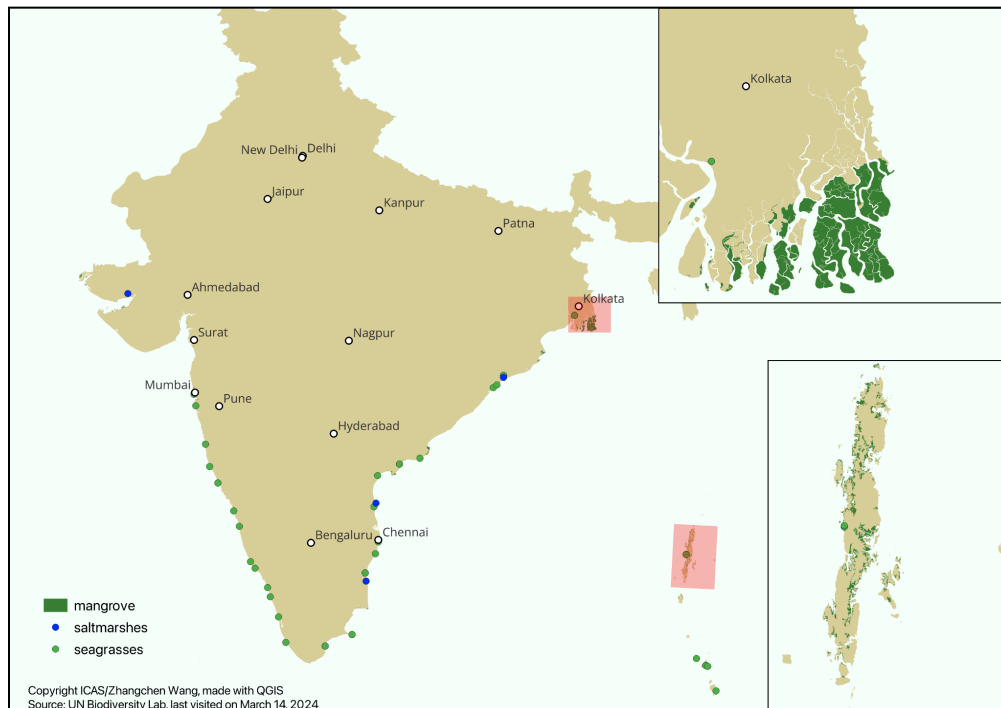
- **Japan:** Japan has launched the world's first sovereign climate transition bonds to finance activities that help create a decarbonized society, with 800 billion yen in five-year transition bonds already having been sold. Despite the successful sale, experts suggest that attracting foreign investment remains a challenge. ([Nikkei Asia](#), February 27)
- **South Africa:** Cape Town is addressing climate change and its impact on water scarcity by removing invasive tree species that consume excessive amounts of groundwater, significantly increasing water availability for the city. ([The Washington Post](#), February 28)
- **China:** During the Two Sessions gathering, the State Council of China released a work report that focuses on green development, suggesting that China needs to coordinate to reduce carbon emissions and pollution and expand green development to build a beautiful China with humans and nature coexisting in harmony. ([Global Times](#), March 4)
- **India:** India has submitted a proposal to the UNFCCC for the new climate finance goals for 2025-2035, also urging developed countries to provide a minimum of US\$1 trillion annually in climate finance to developing nations starting from 2025 to address global warming challenges. ([The Times of India](#), March 6)
- **The United Kingdom:** The UK's recent budget has been criticized for not investing enough in the rapidly growing green economy, potentially causing the country to miss opportunities to boost the economy and enhance energy security compared to aggressive actions by the U.S. and EU. ([The Guardian](#), March 7)
- **The United States:** Critics argue that the United States' ambition to become a major global lithium producer is held back by a confusing mix of state regulations on developers, making it harder for the United States to reduce its reliance on foreign—especially Chinese—mineral supplies. ([Reuters](#), March 25)
- **The Netherlands:** The Simply Blue Group cooperated with the North Sea Farm 1 Project to develop the world's first commercial-scale seaweed farm within an offshore wind farm to use seaweed's potential for carbon sequestration. ([The Fish Site](#), March 25)
- **Mongolia:** An unusually severe winter event in the pastoral and agricultural nation of Mongolia—known to locals as 'dzud'—has brought the most snow in 49 years, leaving the worst death toll in livestock since 2010 and leading the UN to warn that the "worst is yet to come." ([The New York Times](#), March 29)

Blue Carbon Country Profile: India

A. Potential of India in Blue Carbon Affairs

India's vast and diverse marine and coastal ecosystems provide the necessary conditions for the growth of blue carbon ecosystems along the country's coast. Blue carbon is also making significant contributions to India's goals of mitigating climate change and improving coastal resilience through carbon sequestration and ecological protection. At present, India's blue carbon is all found in traditional blue carbon ecosystems, mainly including mangroves, seagrasses, tidal marshes, and salt marshes, and are spread across its lengthy coastline of over 7,500 kilometers. The importance of blue carbon ecosystems also extends beyond their carbon capture capabilities. Blue carbon protects fishery and tourism resources and prevents coastlines from being damaged by natural disasters, playing an important role in supporting the livelihoods of coastal residents along the coastline of India. Moreover, blue carbon has effectively pushed forward India's progress towards achieving its commitment to net-zero emissions in 2070. The total carbon sequestration potential of India's coastal ecosystems is estimated to be around 700 million tonnes of carbon dioxide, accounting for approximately 22% of India's annual carbon emissions, with blue carbon accounting for a major portion of it.

- Amount of seagrass: 517 km² (2023)
- Amount of mangroves: 4991 km² (2023)
- Amount of salt and tidal marshes: 290–1398 km² (due to contradictions in estimates)
- Key Institutions of study on blue carbon: Advanced Centre for Biotechnology and Mangrove Forests of the Institute of Forest Biodiversity
- Key regions of interest: Sundarbans Mangrove Forest, Pichavaram Mangrove Forest, Andaman and Nicobar Islands⁴



⁴ Point and polygon data of blue carbon ecosystems in India. Copyright ICAS/Zhangchen Wang, 2024, made with QGIS. (Source: UN Biodiversity Lab)

Often due to India's large population and extreme population density, India's blue carbon ecosystems are increasingly threatened by urbanization, industrial development, aquaculture expansion and pollution. For instance, the Sundarbans, the world's largest mangrove forest located at the delta of the Ganges, Brahmaputra, and Meghna rivers on the Bay of Bengal, is facing continuous threats from both natural and human-induced changes and losing its mangrove forests every year. A research published in 2021 estimates that an approximate 6,313,944 mg of carbon has been released due to the blue carbon losses at Sundarbans between 1975 and 2020. The degradation of these ecosystems not only exacerbates the effects of climate change, but also harms the livelihoods of millions of coastal residents and erodes the region's natural heritage. Restoration and conservation efforts are urgently needed to reverse these trends and preserve the many benefits blue carbon ecosystems provide.

India's academia and research institutions have been the first groups to openly recognize and acknowledge the importance of blue carbon ecosystems. Comparatively, the central government and the private sector entities have yet to take much action in the field of 'blue carbon' itself, with any related efforts largely being limited to mangrove preservation and restoration. Environmental scientists and policy researchers have conducted critical studies of mangroves, seagrasses and salt marshes, gathering information and data about their distribution and carbon sequestration capabilities. There are also cases of these scientists offering policy advice to the government and relevant stakeholders. These efforts are important in raising awareness of the value of blue carbon and laying the foundation for policy and strategies discussions. Nevertheless, Indian academia is still awaiting responses from the government and other sectors to step up and support this rich domestic opportunity.

B. Domestic Government Actions and Activities on Blue Carbon in the United States

National Legislations

Currently, despite their significant potential for carbon sequestration and climate change mitigation, India does not have specific national legislation that addresses blue carbon ecosystems. Fortunately, many scholars and experts have recognized the need for such legislation. They believe that it is a wasted opportunity for India's climate strategy to lack targeted legislation and policy frameworks for blue carbon protection and management. They urge government leaders in India to establish a national-level strategy to develop and harness the potential of blue carbon as it could also enhance biodiversity and food security while combating climate change.

National Agencies and Government Actions

Currently, there is no government agency specifically responsible for blue carbon in India. The responsibility for blue carbon ecosystems management falls under the jurisdiction of several government agencies and ministries, depending on the specific aspect of conservation, management, or research being conducted.

- **Ministry of Environment, Forest and Climate Change (MoEFCC):** MoEFCC is the central agency responsible for the conservation and management of mangroves in India. This ministry implements biodiversity conservation and coastal ecosystems management projects that cover the protection of mangrove. It also provides financial assistance to coastal states for conservation and management of mangroves across identified sites in nine coastal states, and has initiated the 'Mangrove Initiative for

Shoreline Habitats & Tangible Incomes (MISHTI)' programme to enhance mangrove ecosystems and improve the livelihoods of coastal communities.

- **Ministry of Earth Sciences (MoES):** MoES is responsible for the management strategies for India's marine living resources. Thus, as part of its work MoES monitors and models the coastal and marine resources, including wetlands, mangroves, and coral reefs.

Local Government Actions

Local and regional governments—who are generally the main authorities for coastal management—are paying more attention than the central authority and working alongside public-private partnerships and playing an important role in the conservation of blue carbon ecosystems in India. For instance, some have adopted blue carbon-specific protection measures that are most suitable for their local area and make significant contributions in protecting and restoring local blue carbon ecosystems. Nevertheless, existing conservation actions are mainly aimed at protecting mangroves, which is largely due to the large reserves of mangroves in India.

- In **Karnataka**, a state in southwest India, indigenous communities in the coastal cities of Karwar and Honnavar collaborate with the local government and create strategic mangrove conservation plans. These plans include establishing protection zones, setting fishing quotas, and restricting tourism within mangrove forests to ensure their protection and sustainable use. They also planted over 14 species of fast-growing mangrove trees to reforest damaged areas.
- In **Maharashtra**, a state in India's western peninsular region, the Municipal Corporation of Greater Mumbai has partnered with engineering company Godrej & Boyce to actively work on mangrove conservation in Mumbai for over three decades. Their efforts have led to successful large-scale mangrove plantations. Their partnership is notably becoming a model for cooperation between private companies and regional governments on mangrove protection and restoration.

C. *Private, Commercial Third-Party Research & Projects*

Private Corporations and Investment Groups

In India, private corporations and investment groups are actively engaged in blue carbon ecosystem restoration and conservation projects, particularly those related to mangroves. These initiatives are spread across various states and aim to address the critical challenges facing blue carbon ecosystems while also offering economic benefits and carbon sequestration opportunities.

- **VNV Advisory Services** is a Karnataka-based firm that primarily works on mangrove afforestation and restoration projects in Karnataka, Andhra Pradesh, Odisha, Maharashtra, and Kerala. Their works focus on creating a sustainably managed mangrove ecosystem that serves multiple purposes: carbon sequestration, natural disaster risk reduction, poverty alleviation, and the provision of sustainable livelihoods for coastal communities. Besides environmental benefits, they also work to offer livelihood opportunities through mangrove-based aquaculture and the sale of carbon credits generated from the mangrove plantations.
- As mentioned earlier, Mumbai-based **Godrej & Boyce** has been working with the Municipal Corporation of Greater Mumbai on mangrove conservation in Mumbai. Its efforts have already led to the mangroves extending from Vikhroli to the western Thane creek, leading to the additional plantation of approximately 80 acres at the southern border of Mumbai.

Universities and Research Institutes

Indian academia pays more attention to studies and conservation efforts related to blue carbon ecosystems than the Indian government. While advocating for more attention from the government on blue carbon, several universities and research institutes are already actively engaged in blue carbon projects and related environmental and sustainability research.

- Located in Hyderabad, Telangana, the **Institute of Forest Biodiversity** was initially established as the “Advanced Centre for Biotechnology and Mangrove Forests.” It has always prioritized the conservation and sustainable utilization of forest biodiversity, with a particular emphasis on Eastern Ghats, Mangroves, and Coastal Ecology. Their mission includes focused research on forest biodiversity to develop strategies for the conservation and sustainable utilization of mangrove forest resources.
- The **Indian Institute of Sustainable Development (IISD)** engages in various environmental conservation efforts, including one with a special focus on blue carbon ecosystems and their conservation, plantation, and eco-tourism. This New Delhi-based institute also conducts consultancy services related to the blue economy and ocean resources conservation and development.
- The **Vellore Institute of Technology (VIT)** is a university involved in blue carbon and related environmental research through its CO2 Research and Green Technologies Centre. This center, based in the southern coastal state of Tamil Nadu, is dedicated to researching carbon capturing and utilization (CCU) with an emphasis on green energy technologies development.

NGOs and Non-Profit Organizations

There are several environmental NGOs in India working towards generalized biodiversity protection and forest conservation, and the protection of blue carbon ecosystems is likely to be included in these efforts. Although no NGO from India focuses specifically on blue carbon ecosystems, with the growing attention on blue carbon from the government and other sectors, NGOs should be expected to participate more exclusively in blue carbon protection work in the future.

D. Public, Governmental International Engagements on Blue Carbon

Treaties & Agreements

- At COP27 in November 2022, India joined the **Mangrove Alliance for Climate (MAC)**. This international initiative, led by the United Arab Emirates and Indonesia, emphasized the role of mangroves in climate change mitigation. India’s participation is a positive move towards engaging more actively in blue carbon conservation, which aligns with its Nationally Determined Contributions (NDCs) to create an additional carbon sink through forest and tree cover by 2030.

Statements at International Conferences

- According to the Paris Agreement, which India ratified on October 2, 2016, India has committed to creating additional carbon sinks of 2.5-3 billion tons of CO2 equivalent through forest and tree cover as a part of its Nationally Determined Contributions (NDCs). This commitment is part of India’s broader strategy to utilize natural solutions for carbon sequestration, which directly supports the conservation and enhancement of blue carbon ecosystems, especially mangroves which thrive across much of India.

Cross-Border Joint Projects & Partnerships

Considering the Indian government's relatively insufficient attention to blue carbon at present, there are currently no bilateral or multinational partnerships signed between the Indian government and foreign governments or organizations regarding blue carbon. Additionally, no organizations from other countries have sought to participate with India in blue carbon protection.

E. Keeping An Eye On...

In spite of minimal relevant legislation or formal recognition of 'blue carbon' in the government, India's blue carbon resources are already playing a positive role in mitigating regional climate change. Blue carbon and its natural ecosystems—especially mangroves—are playing a vital role in assisting the Indian government to achieve its carbon sequestration goals, and many civil society organizations and scholars have come to openly recognize the importance of protecting blue carbon ecosystems. Nevertheless, India still has much room for improvement in protecting and managing blue carbon, especially at the national level. India's coastal and marine ecosystems are constantly threatened by urbanization, pollution and unsustainable fishing practices, and these problems are further exacerbated due to the lack of a dedicated national framework to protect and enhance blue carbon ecosystems. Additionally, gaps in research and data on the carbon sequestration potential and current situation of these ecosystems are hampering the development and implementation of effective policies that can protect blue carbon ecosystems and the benefits that they can bring.

To address these challenges, India needs to adopt a multi-faceted approach, including the establishment of more state and local government agencies, bodies, or groups specifically dedicated to the protection of marine and coastal ecosystems. These entities would be responsible for developing and implementing policies aimed at protecting, restoring and sustainably managing blue carbon ecosystems. To be most effective, their efforts should include comprehensive monitoring and accessing programs to accurately understand the current health and carbon sequestration capabilities of these ecosystems. In addition, the legal framework needs to be strengthened to provide the necessary protection against overexploitation and degradation of these important resources. Public awareness campaigns and local community involvement in conservation efforts—which could also create job opportunities and support local economic stability—are also critical to ensuring the long-term sustainability of blue carbon ecosystems.

Furthermore, international cooperation and engagement regarding blue carbon are critical to the success of India's efforts in blue carbon protection, which appears largely absent in India. Partnering with global organizations and other countries is a proven method to combine technical expertise, funding and innovative conservation practices for the common good. International cooperation can also develop harmonized standards and methodologies for assessing and reporting blue carbon stocks, which is critical to integrating these ecosystems into global carbon markets. Ultimately, international cooperations can help to ensure a more resilient future for the blue carbon ecosystems in India, of which there are already many, and simultaneously allow India to make more contributions to global efforts to mitigate climate change. With more outright, lasting support and clear planning from the government, India could become another leader in global blue carbon affairs.

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This season's Blue Carbon Country Profile on India was researched and written by Zhangchen Wang, Part-Time Research Assistant at the Institute for China-America Studies.

Note: This study was conducted primarily in the English language rather than in the native language(s) of India.

Scientific Research and Beyond

Scientific Research Results & Releases

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- Paper: [Unlocking Climate Finance in Asia-Pacific: Transitioning to a Sustainable Future](#), International Monetary Fund (January 29, 2024)

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Major Government Statements & Actions

Key Government Speeches on Climate Issues

- January 26, The White House: [Press Briefing by Press Secretary Karine Jean-Pierre, NSC Coordinator for Strategic Communications John Kirby, and National Climate Advisor Ali Zaidi](#)
- January 27, Minister of Ecology and Environment of China Huang Runqiu: [In-depth study and implementation of the spirit of the National Ecological Environmental Protection Conference; comprehensively promote the modernization of harmonious coexistence between man and nature through the construction of Beautiful China](#)
- February 29, Chair of Intergovernmental Panel on Climate Change Jim Skea: [IPCC Chair's remarks at the United Nations Environmental Assembly – Leadership Dialogue 1](#)
- March 12, Australian Assistant Minister for Climate Change and Energy Jenny McAllister: [Op Ed: Planning for changing climate doesn't mean giving up on emissions](#)
- March 28, South African Minister of Local Government, Environmental Affairs and Development Planning Anton Bredell: [Western Cape Environmental Affairs and Development Planning Budget Vote 2024/25](#)

Government Reports & Regulations on Climate Issues

- On January 5, the State Council of the People's Republic of China [adopted](#) National Order No. 775 "Interim Regulations on Carbon Emissions Trading Management" which will come into effect on May 1.
- On January 20, the Intergovernmental Panel on Climate Change—involving more than 300 delegates from 120 governments—[agreed](#) on the scientific structure of work for the new cycle and on key issues.
- On January 26, the Biden-Harris Administration [announced](#) a "temporary pause on pending decisions on exports of Liquefied Natural Gas (LNG) to non-FTA countries" until authorizations can be updated.
- On January 26, the ASEAN Climate Change and Energy Project (ACCEPT II) [published](#) ASEAN at COP 28: *Affirming the Net-Zero Commitment*, an insight report on ASEAN's current climate commitments.
- In February, the European Commission [published](#) *The next frontier for climate change science: Insights from the authors of the IPCC 6th assessment report on knowledge gaps and priorities for research*.
- On February 6, the European Commission [released](#) an official communication, "Towards an ambitious Industrial Carbon Management for the EU," to lay out the current state of the EU's carbon strategy.
- On February 20, the European Commission [opened up](#) a provisional agreement on the first EU-wide voluntary framework for the certification of high-quality carbon removals, which covers certification rules for carbon farming, industrial carbon removals, and binding carbon in long-lasting forms.
- On February 22, the European Commission [announced](#) over €233 million in new investments in twelve new Strategic Projects across Europe under the LIFE programme to support the European Green Deal.
- On March 6, the Department of Climate Change, Energy, the Environment and Water of Australia [declared](#) an area in the Southern Ocean, off western Victoria, as suitable for offshore wind development.
- On March 18, the Republic of Korea [released](#) the 2024 Ministry of Oceans and Fisheries Major Policy Implementation Plan which will work to stabilize Korea's economic growth by transforming the marine and fisheries sector through measures that include adopting green and smart logistics.

- On March 20, the U.S. Environmental Protection Agency [announced](#) a Final Rule that sets “new, more protective standards to further reduce harmful air pollutant emissions” from certain vehicles.

Cross-National Meetings & Engagements on Climate Issues

- January 16-19, Intergovernmental Panel on Climate Change: Sixtieth Session of the IPCC <https://www.ipcc.ch/meeting-doc/ipcc-60/> in Istanbul, Turkey ...in which they adopted [10 decisions](#)...
- On January 26, the Ministries of the Environment and Climate Change and Foreign Affairs of Brazil [held](#) a virtual session of the G20 Environment and Climate Sustainability Working Group.
- On March 15, the Government of the United States and the European Union [signed](#) a joint statement on the 11th United States-European Union Energy Council.
- On March 26, the presidents of Brazil, Luiz Inácio Lula da Silva, and France, Emmanuel Macron, [signed](#) two declarations in the environmental area: *Brazil-France call for climate ambition from Paris to Belém and beyond* and *Action plan on the bioeconomy and the protection of tropical forests*.

Third-Party Analyses & Commentaries

Resetting Expectations on Climate Limits

- Opinion: [The 1.5-degree climate goal is out of reach. Here's what to do now.](#) (*The Washington Post*, January 18, 2024)
- Commentary: [Climate change: Polar bears face starvation threat as ice melts](#) by Matt McGrath (*BBC*, February 13, 2024)
- Commentary: [World risks missing climate targets because of surging Asian gas demand](#) by Jonathan Leake (*The Telegraph*, February 14, 2024)
- Opinion: [A Collapse of the Amazon Could Be Coming 'Faster Than We Thought'](#) by Manuela Andreoni (*The New York Times*, February 14, 2024)
- Analysis: [What are the long-term effects of marine heatwaves?](#) by Jeremy Wilks (*Euronews*, February 19, 2024)
- Analysis: [Antarctica. Earth's largest refrigerator is defrosting](#) (*The Economist*, March 27, 2024)

Judging Government Actions and Apparent Plans

- Opinion: [Throttling Australia's coking coal exports won't help world decarbonise](#) by Stuart Love (*The Strategist*, January 10, 2024)
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- Opinion: [It's time MPs were honest about the true cost of net zero](#) (*The Sunday Times*, January 21, 2024)
- Analysis: [Is Spain legally ready to address climate change?](#) (IIDMA, January 29, 2024)
- Analysis: [How green are Pakistan's political manifestoes?](#) by P M Baigal (*The Third Pole*, February 3, 2024)
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- Opinion: [Why is India weakening the Global Plastics Treaty?](#) by Satyarupa Shekhar (*The Third Pole*, February 8, 2024)
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- Opinion: [Is China a climate saint or villain?](#) (*The Economist*, March 12, 2024)

Sudden Shifts in Diplomatic Representatives Hint at Structural and Strategy Shifts

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- Analysis: [Flush With Investment, New U.S. Factories Face a Familiar Challenge](#) by Ana Swanson and Jim Tankersley (The New York Times, January 15, 2024)
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- Analysis: [Can the U.S. Break China's Grip on Solar?](#) by Phred Dvorak and Andrew Mollica (*The Wall Street Journal*, February 12, 2024)
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- Analysis: [Tailored Water Sampling](#) by Karly McMullen (*Sea Technology*, February 2024)
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- Analysis: [Acting Now for Tomorrow: Addressing Climate Mobility Challenges in Southeast Asia](#) by Sarah Lou Ysmael Arriola (*The Asean*, February 1, 2024)
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- Opinion: [Japan sits at the forefront of climate resilient infrastructure in Southeast Asia](#) by Anton Delgado (*The Japan Times*, March 31, 2024)

Debates on Electric Vehicles Aren't Over Yet, Especially in China and the U.S.

- Opinion: [Why America's Car Buyers Are Rethinking EVs](#) by Keith Naughton (*Bloomberg*, January 4, 2024)
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- Commentary: [China wants us to buy its electric cars. Should you hit the road in one?](#) by Shane Hickey (*The Guardian*, February 12, 2024)
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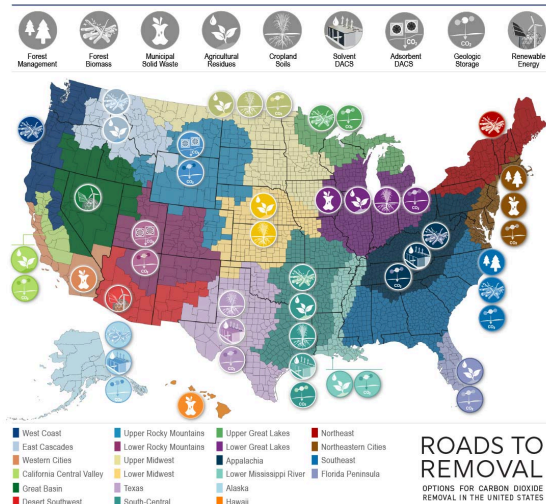
China's Climate Eye is Also Focused on Maintaining and Solidifying its Economic Strength

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- Opinion: [China is all in on green tech. The U.S. and Europe fear unfair competition.](#) by Christian Shepherd (*The Washington Post*, March 29, 2024)

The Intersection of Military Security and Climate Concerns Exists

- Commentary: [The Joint Chiefs of Staff Look North: Security Implications and Military Consequences of Climate Change in the Arctic](#) by Will D. Spoon and Tobias Etzold (Wilson Center, January 26, 2024)
- Analysis: [Green barracks: decarbonising the defence estate](#) by Raelene Lockhorst and Nicholas Meatheringham (*The Strategist*, February 7, 2024)

Images of the Month



January 2024

A descriptive map that shows options for Carbon Dioxide Removal in the United States.

Behind the Image: Leading scientists at the U.S. Department of Energy found that the United States has sufficient capacity to remove carbon dioxide at the scale needed to achieve net-zero emissions, while also providing economic opportunity, ecological benefits, and public health benefits.

Source: [U.S. Department of Energy, Public Domain](#)



February 2024

An aerial view of the aftermath of a fire at the hills in Viña del Mar, Chile on February 3, 2024.

Behind the Image: With the reinforcement of climate change, the impacts of this year's El Niño season has been further amplified, causing many areas to suffer from more extreme weather conditions such as prolonged wildfire.

Source: [Photo by Javier Torres/AFP via Getty Images, Royalty-Free](#)



March 2024

Inger Andersen, Executive Director of UNEP, and Leila Benali, President of UNEA-6, during the Closing Plenary at the sixth session of UN Environment Assembly (UNEA-6) in Nairobi, Kenya.

Behind the Image: The sixth session of the UN Environment Assembly (UNEA-6) was held from February 26 to March 1, 2024. Through its resolutions and calls to action, the Assembly provides leadership and catalyzes intergovernmental action on environmental issues.

Source: [UNEP / Kiara Worth via flickr, CC BY-NC-SA 2.0 Deed](#)

Climate-Focused Quotes of the Quarter

“Poverty alleviation and pandemics, poverty alleviation and climate challenges, poverty alleviation and fragility, conflict, violence—the fact that people thought that you can disconnect each of these challenges from each other is essentially one of the first things we have tried to tackle.”

- Ajay Banga, President of the World Bank Group,
[speaking](#) during a panel session at the World Economic Forum in Davos, Switzerland on January 17, 2024

“The marketplace is going to support this transition and it’s irrevocable now—we’re going to get there...The only question is if we’re going to get there in time to not be ravaged by the worst consequences of the climate crisis.”

- John Kerry, Special Presidential Envoy for Climate of the United States,
[addressing](#) the transition to a lower carbon economy in a Bloomberg TV interview at the World Economic Forum in Davos, Switzerland on January 17, 2024

“In order to build resilient health systems, we need to conceive systems that focus on equality and that are going to be developed and implemented hand-in-hand with government, civil society and the private sector so that we can have plans that reduce carbon emissions, that implement sustainable measures in the health system itself.”

- Nisia Trindade Lima, Minister of Health of Brazil,
[talking](#) about the necessity to mitigate the health impact of the climate crisis at the World Economic Forum in Davos, Switzerland on January 17, 2024

“The establishment of the National Blue Carbon Action Partnership (NBCAP) in the Philippines through the DENR will facilitate the inclusive, whole-of-society approach to developing a shared ambition for blue carbon, community resilience and inclusive development.”

- Maria Antonia Yulo Loyzaga, Environment Secretary of the Philippines,
[commenting](#) on the US\$278 million worth of foreign-funded projects for biodiversity, climate change, and environment programs on January 21, 2024

“Despite the fact that we know these disasters will continue, despite the fact that we all expect them to get much worse, the world is still not investing in preparing our communities for these disasters at anywhere near the scale that we need. Climate shocks have thrown millions into hunger and reversed progress in combating diseases—from malaria to dengue fever to cholera in Africa..”

- Samantha Power, the 19th administrator of the U.S. Agency of International Development,
[addressing](#) the Johns Hopkins University Bloomberg Center in Washington, D.C. on January 30, 2024

“We think that fundamentally this energy transition will mean a higher price of energy...We cannot ask African countries just to avoid developing the resources because we have developed their resources for our own comfort for 20 years.”

- Patrick Pouyanné, Chief Executive Officer of France’s TotalEnergies,
[commenting](#) in an interview defending the pursuing of new oil and gas projects on February 12, 2024

“It’s one of the pieces of the supply chain that we’re very concerned about in the United States. We do not want to be over-reliant on countries whose values we may not share.”

- Jennifer Granholm, Energy Secretary of the United States,
[talking](#) about China’s dominance as a critical minerals supplier on February 14, 2024

“If we start saying that basically we cannot afford to invest for survival then I believe that we need to have a discussion with more serious people. Europe should engage full-on in the green transition to me cannot be questioned. It’s a matter of environmental and economic survival.”

- Philippe Lamberts, co-president of the EFA European Parliamentary Group,
[rebuking](#) the warnings that the green transition will make Europe poorer on February 14, 2024

“The only legitimate response to peaceful environmental activism and civil disobedience at this point is that the authorities, the media and the public realise how essential it is for us all to listen to what environmental defenders have to say.”

- Michel Forst, United Nations special rapporteur on environmental defenders,
[talking](#) about the repression faced by peaceful environmental activists on February 28, 2024

“I see a future where we save the planet from the climate crisis. We are also making history by confronting the climate crisis, not denying it.”

- Joe Biden, President of the United States,
[contrasting](#) his record on addressing climate change with that of former President Donald J. Trump in his State of the Union speech to Congress on March 14, 2024

“China is the largest emitter (of greenhouse gases) in the world... They still have online in my view more coal than they need, and more coal than is good for the health of the world.”

- John Podesta, Senior Advisor to the United States President for International Climate Policy,
[asking](#) China to take responsibility on reducing its emissions while speaking in Tokyo on March 14, 2024

“Never have we been so close—albeit on a temporary basis at the moment—to the 1.5° C lower limit of the Paris agreement on climate change. The WMO community is sounding the red alert to the world.”

- Celeste Saulo, Secretary General of the World Meteorological Organization,
[sounding](#) a “red alert” about global warming on March 19, 2024

“Europe is far from being prepared for the economic and social impacts of climate change...And Europe is the fastest warming continent in the world.”

- Teresa Ribera, Third Deputy Prime Minister and Minister for the Ecological Transition of Spain,
[speaking](#) in Brussels ahead of the EU Environment Council meeting on March 25, 2024

“The future of conservation is one in which local economies, nature, and people—the soul of these landscapes—can flourish.”

- Kerllen Costa, Country Director of Angola of National Geographic Okavango Wilderness Project,
[writing](#) to emphasize the importance of people to climate change on March 29, 2024

Climate-Focused Conferences & Events

Multinational Conferences & Global Forums

Sixth session of the UN Environment Assembly (UNEA-6)

United Nations Environment Programme

February 26-March 1

Nairobi, Kenya

- From the Organizer: “The session focused on how multilateralism can help tackle the triple planetary crisis of climate change, nature and biodiversity loss, and pollution and waste. Backed by strong science, political resolve and engagement with society, the Assembly was an opportunity for world governments, civil society groups, the scientific community and the private sector to shape the global environmental policy.”
- [UNEA-6 Ministerial Declaration \(Eng\)](https://documents.un.org/doc/undoc/ltd/k24/005/53/pdf/k2400553.pdf): documents.un.org/doc/undoc/ltd/k24/005/53/pdf/k2400553.pdf
- [Explore ALL UNEA-6 Outcomes](https://www.unep.org/environmentassembly/unea6/outcomes): https://www.unep.org/environmentassembly/unea6/outcomes
- [View Recordings of Official Meetings](https://webtv.un.org/en/search/categories/meetings-events/conferences/united-nations-environment-assembly/sixth-session): https://webtv.un.org/en/search/categories/meetings-events/conferences/united-nations-environment-assembly/sixth-session

1st & 2nd Expert Committee Meetings on Climate-Resilient Agriculture and Low-Carbon Food Systems in the ASEAN Region

Asian Development Bank & Ministry of Agriculture, Forestry, and Fisheries, Japan

January 31 & March 12

Tokyo, Japan

- From the Organizer: “The Asian Development Bank (ADB), in collaboration with the Government of Japan’s Ministry of Agriculture, Forestry and Fisheries (JMAFF), has established the Expert Committee (EC), together with ASEAN participating countries such as the Philippines and Viet Nam and well-established research institutes, in order to share Japan’s knowledge and experiences in paddy field management to increase food production while reducing greenhouse gas emissions in the agriculture sector of the ASEAN region and contribute to sustainable agricultural practices and climate change mitigation.”
- [Learn More](#)

Copenhagen Climate Ministerial

UN Climate Change Conference (COP) 28/29

March 21-22

Copenhagen, Denmark

- From the Organizer: “The Copenhagen Climate Ministerial will gather around 40 climate leaders and ministers from around the world to push for climate action and an ambitious COP29 result. It will focus on implementation of the groundbreaking commitments from COP28 while setting the course for COP29 in Azerbaijan in November.”
- [Speech delivered by UN Climate Change Executive Secretary Simon Stiell](#):
 - “On climate action - we’re now in the race to the top. Every country has a choice: plan for a better economy and fix finance for a better world or miss out on the opportunities others are reaping.”

Public Events & Panel Discussions

Upcoming Events

The Lay of the Land for Sustaining Climate-Smart Agriculture in the US and China: A China Town Hall Conversation

Event by Wilson Center China Environment Forum & National Committee on U.S.-China Relations
April 8 - Online

This is Climate Summit: Tipping Points

Event by The Washington Post
April 11 - Online

The Race to Decarbonize: Manufacturing

Event by The Washington Post
April 17 - Online

FP Climate Summit 2024

Event by Foreign Policy
April 18 - TBD

Innovations in Climate Resilience Conference 2024 (ICR24)

Event by Wilson Center
April 22-24 - In Person, Washington D.C.

Past Events

Symbiosis or Standoff: U.S.-China relations and climate action

Event by CERAWeek by S&P Global
March 20 - Online

Environmental Protection

Event by Institute of Marine Engineering, Science and Technology
March 14 - In Person, London, The United Kingdom

The Global Climate Change Nexus: The Impact of U.S. Initiatives and Japan-U.S. Cooperation

Event by Sasakawa Peace Foundation & U.S. Embassy in Japan
March 13 - In Person, Japan

Water and Energy in MENA After COP28

Event by Wilson Center
March 5 - Hybrid ([Event Recording Available](#))

Meeting climate goals through tax reform

Event by The Hamilton Project
February 27 - Hybrid ([Event Recording Available](#))

Transatlantic Trade and Climate: A Strategic Roadmap for 2024

Event by Center for Strategic & International Studies

February 26 - Hybrid ([Event Recording Available](#))

The Promise and Pitfalls of Climate Policy

Event by Foreign Policy

February 22 - Hybrid ([Event Recording Available](#))

2024 FIU Environment Forum - Climate Tech and Coastal Resilience

Event by Florida International University

February 22 - Hybrid ([Event Recording Available](#))

The Sea is Rising: Risk Perceptions and Policy Preferences Among Hawaii's Elected Officials

Event by East-West Center

February 21 - Hybrid ([Event Recording Available](#))

Is China Hungry for Low-Carbon Beef?: A Green Tea Chat on Deforestation and Agricultural Commodities with André Vasconcelos and Ren Peng

Event by Wilson Center

February 20 - Hybrid ([Event Recording Available](#))

Outlook for 2024 Global and Japanese Energy

Event by Center for Strategic & International Studies

February 8 - Hybrid ([Event Recording Available](#))

Temperatures rising: Illegal and unregulated fisheries, climate change, and armed conflict at sea

Event by Brookings

February 1 - Hybrid ([Event Recording Available](#))

The Global Role of U.S. LNG

Event by Center for Strategic & International Studies

January 31 - Hybrid ([Event Recording Available](#))

Pathways to 1.5 Degrees—An Exploration of Climate Policies with MIT Sloan School of Management

Event by Asia Society

January 25 - Hybrid

Voices for Change: Empowering Climate Change Communicators

Event by University of Pennsylvania

January 18 - Hybrid

Putting Food Waste on the Climate Action Table in the US and China

Event by Wilson Center

January 16 - Online ([Event Recording Available](#))

Panel: Climate Change and the Free Market

Event by University of Chicago

January 5 - Hybrid ([Event Recording Available](#))

ICAS BCCC Program Updates

Upcoming ICAS Maritime Affairs Program Event

ICAS
Institute for China-America Studies

THE CHINA INSTITUTE
阿尔伯特大学中国学院

Thursday, April 18, 2024
10:00am - 11:30am EDT
In-Person (Washington, DC) & Online (Zoom)

The United States and China's Global Maritime Relations: Inevitable Competition or Feasible Collaboration?

~Hybrid Book Talk & Panel Discussion~

The United States and China are increasingly focusing their attention on global maritime domains. In her new book *US-China Global Maritime Relations*, Dr. Nong Hong explores the U.S.-China maritime relationship within the global context and investigates six key maritime regions.

This event will feature the author of *US-China Global Maritime Relations*, who will discuss the evolution and execution of maritime strategies pursued by both the United States and China. Moreover, three panelists will provide their insights on this subject, representing perspectives from the United States, China, and a third-party viewpoint.

Moderator
Philippe RHEAULT
Director
The China Institute,
University of Alberta

Book Talk by
Nong HONG
Executive Director & Senior Fellow
Institute for China-America Studies

Panelists

Gregory POLING
Director, Asia Maritime
Transparency Initiative
Center for Strategic and
International Studies

Dingli SHEN
Professor Emeritus and Former
Executive Dean, Institute of
International Studies
Fudan University

Gilang KEMBARA
Research Fellow,
S. Rajaratnam School of
International Studies
Nanyang Technological University

[Learn More & RSVP](#)

The United States and China's Global Maritime Relations: Inevitable Competition or Feasible Collaboration?

Thursday, April 18, 2024

10:00am - 11:30am EDT (UTC-5)

In-Person (Washington, DC) & Online (Zoom)

As science and technology continue to advance, the ocean, covering 71% of the Earth's surface, is undeniably assuming an increasingly vital role for humanity. Consequently, nations are diligently pursuing their respective maritime interests, revealing both commonalities and distinctions. The United States and China, widely recognized as major powers in contemporary international politics and prominent maritime nations, are increasingly focusing their attention on global maritime domains.

How do the maritime policies of China and the United States differ in terms of strategic objectives and priorities? What are the primary areas of competition between China and the United States in global maritime affairs? How do the maritime disputes, such as those in the South China Sea, impact the overall relations between China and the United States? Are there any ongoing cooperative efforts between China and the United States in global maritime security or environmental protection? What role do international law and institutions play in shaping the interactions between China and the United States in global maritime relations? How do the military doctrines and strategies of China and the United States intersect or diverge in the maritime domain?

In her new book *US-China Global Maritime Relations*, Dr. Nong Hong explores the U.S.-China maritime relationship

within the global context and investigates six key maritime regions: the South China Sea, the Northeast Asia waters, the Indian Ocean, the South Pacific Ocean, as well as the Arctic and Antarctic regions. Through detailed observations, this book offers a comprehensive exploration of these regions and their significance in shaping the dynamics between the two nations. This event will feature the author of *US-China Global Maritime Relations*, who will discuss the evolution and execution of maritime strategies pursued by both the United States and China. Moreover, three panelists will provide their insights on this subject, representing perspectives from the United States, China, and a third-party viewpoint.

Online RSVP: us06web.zoom.us/webinar/register/WN_FcxUS5heTIC9ncjkMZACeQ#/registration

In-Person RSVP: chinaus-icas.org/events-2/in-person-icas-event-registration/?c

Learn More:

chinaus-icas.org/event/the-united-states-and-chinas-global-maritime-relations-inevitable-competition-or-feasible-collaboration/

View & Share the Program: chinaus-icas.org/wp-content/uploads/2024/03/4-18-2024-MAP-Event-Book-Talk-Program-Full.pdf

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BCCC/MAP Commentary

Emission Control Areas in the Mediterranean and their implications for the South China Sea

By Nong Hong

January 11, 2024

Globally, the implementation of Emission Control Areas (ECAs) has become widespread as a means to regulate and mitigate air pollution resulting from maritime activities. ECAs are specifically designated maritime zones where stringent regulations are in place to control sulfur oxide (SOx), nitrogen oxide (NOx), and particulate matter emissions from ships.



The primary current application of ECAs involves the International Maritime Organization's (IMO) regulations, particularly the MARPOL Annex VI regulations which sets limits on the sulfur content in ship fuel oil and establishes emission control requirements for vessels operating in specific areas to reduce air pollutants.

Several ECAs have been established to address air pollution from maritime activities...

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MAP Spotlight

Deep-Sea Mining

By Amanda Jin

January 29, 2024

Deep-sea mining commonly refers to the extraction or retrieval of mineral deposits from ocean floor at or below 200 meters (656 feet)—an area believed to contain rich resources of valuable and critical minerals including copper, cobalt, nickel, manganese, platinum, zinc, lead, iron, silver and gold. Although scientific exploration into the deep sea began as early as the 1870s, serious discussions about the commercial potentials of deep sea minerals only started to emerge in the 1960s, and the industry remains in an early, experimental stage. As of 2023, no large-scale commercial extraction operations—or “exploitation”—have occurred in the deep sea...

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MAP Spotlight

Offshore Drilling

By Zhangchen Wang

February 22, 2024

Offshore drilling refers to the process of extracting oil and gas reserves that lie underneath the Earth's seabed. In short, it involves building an offshore oil rig structure from which a well is then drilled into the ocean floor to facilitate extraction. Typically, modern offshore drilling rigs are capable of conducting drilling operations up to 250 miles from the coastline, and can reach depths of 2 miles (10,560 feet) below the ocean's surface. Once they reach the bottom of the ocean, they are capable of drilling down to 28,000 feet beneath the seabed...

Despite its economic and energy importance, offshore drilling still raises environmental and economic concerns in various ways. One of the major environmental risks associated with offshore drilling is the potential for oil spills and gas leaks, which could contaminate marine ecosystems, harm marine life, and damage coastal habitats for years...

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MAP Commentary

How Ukraine war and sanctions on Russia put Arctic cooperation on ice

By Nong Hong

March 17, 2024

Last month, the Arctic Council broke the ice by agreeing to reconvene its working group meetings virtually, nearly two years after seven of its eight members, including the US, halted participation in protest against the invasion of Ukraine by Russia, which held the council chairmanship then. The working groups had been relying on "written procedures" for the last six months, after Norway took over the chairmanship and found ways to resume project work. The latest development will hopefully pave the way for increased interaction and engagement between council members...

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ICAS Annual Publication

ICAS 2023 Annual Report

Now approaching the 10-year anniversary of its founding, ICAS has established itself as a fresh voice in the Washington, D.C. think tank community. The team at ICAS is delighted to provide you with a concise overview of our achievements throughout 2023, produced while committedly observing the intricate and dynamic bilateral relationship between the United States and China.

ICAS is committed to maintaining our ongoing engagement with the global community, dedicated to conducting timely and relevant analyses of the U.S.-China relationship. We are excited about the potential achievements that lie ahead and sincerely appreciate your continued support.

[Explore the Full Release](#):

chinaus-icas.org/wp-content/uploads/2024/01/ICAS-2023-Annual-Report-Final.pdf

[Learn About ICAS & Stay Informed](https://chinaus-icas.org/about-icas/): chinaus-icas.org/about-icas/



The Institute for China-America Studies (ICAS) is an independent think tank in Washington D.C. ICAS focuses on the evolving dynamics in the U.S.-China relationship to promote greater collaboration and mutual understanding through sincere exchanges of fresh ideas, objective policy-oriented research, and fair assessments of this critical bilateral relationship.

We aim to provide a window into the worldviews of both the United States and China, and thereby serve as a vehicle to promote greater understanding between these two countries and societies.

ICAS is a 501(c)3 nonprofit organization

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