

THE ENVIRONMENT AND CLIMATE CHANGE

Findings

- China remained the world’s leading emitter of greenhouse gases, including coal mine methane emissions, and is constructing 169 new coal mines and at least 5 new coal-fired power plants. China’s high levels of air pollutants contribute to negative health effects including premature death.
- At the UN Climate Change Conference of the Parties (COP26) in November 2021, China and the United States, the world’s two largest emitters of carbon dioxide, together pledged to cut greenhouse gases and take other actions in the “U.S.-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s.” In April 2022, U.S. Special Presidential Envoy for Climate John Kerry said that cooperation with China on climate change had become more difficult after Chinese authorities linked cooperation on climate change with U.S. behavior on unrelated matters, a position they reiterated in August 2022.
- During this reporting year, People’s Republic of China (PRC) citizens continued to face the problems of water pollution and water scarcity. The Ministry of Ecology and Environment (MEE) reported that 84.9 percent of tested surface water and 22.7 percent of tested groundwater in China was fit for human consumption. In addition, the construction of dams along major rivers in China and outside China as part of its Belt and Road Initiative (BRI) was reported to have negative impact on the 11 countries downstream and elsewhere in the world.
- Authorities prosecuted and sentenced some citizens who raised concerns about the environment through protests and other forms of public advocacy. A court in the Ningxia Hui Autonomous Region sentenced environmental advocates **Li Genshan, Zhang Baoqi, and Niu Haibo**, to prison in connection with their efforts to protect local endangered species. In another case, a court in Jiangxi province sentenced three individuals, **Xiong Yugen, Yang Fengying, and Yi Lianxiang**, to one year in prison, suspended for two years, in connection with their protests against a polluting factory near their village.
- A group consisting of 1 U.S.-based and 15 China-based environmental scientists concluded that climate change amplified extreme rainfalls in China in the summer of 2020. Heavy summer rains in July 2021 caused the deaths of 25 persons in Henan province, including 12 who were trapped in a subway. Observers noted that despite years of warnings from scientists, Chinese officials and scientists scarcely mentioned climate change as a contributing factor to increases in rainfall.

Recommendations

Members of the U.S. Congress and Administration officials are encouraged to:

- Call on the PRC government to cease harassment of environmental advocates and censorship of environmental reporting,

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and to follow international standards on freedom of speech, association, and assembly, including those contained in the International Covenant on Civil and Political Rights, the Universal Declaration of Human Rights, and China's Constitution. Highlight to PRC officials the important role that civil society and an independent media, including foreign media, can play in strengthening environmental monitoring and improving the environment.

- In meetings with Chinese officials, raise the detentions of environmental researcher and former Xinjiang University President **Tashpolat Teyip** and environmental protection advocates **Li Genshan, Zhang Baoqi, and Niu Haibo**.

- In meetings with international counterparts, develop a coordinated response to reports of forced labor in the solar power supply chain, and to PRC government sanctions placed on research institutes and individual scholars, including those that do important environmental work.

- Call on the PRC government to cooperate with the United States and other countries to implement the goals spelled out in the "U.S.-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s" and the Glasgow Climate Pact.

- Support efforts by Chinese and U.S. groups working to use satellite analysis and remote sensing to monitor environmental problems and supply chains in China.

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Introduction

In October 2021, the UN Human Rights Council for the first time recognized “the right to a safe, clean, healthy and sustainable environment as a human right that is important for the enjoyment of human rights.”¹ The Council, moreover, reaffirmed this past year that the exercise of human rights—including the rights to information, participation, and remedy—is “vital to the protection of the environment.”² The current Special Rapporteur on human rights and the environment, David R. Boyd, also identified “a non-toxic environment as one of the substantive elements of the right to a safe, clean, healthy and sustainable environment” in a report to the Human Rights Council.³

While many environmental organizations worldwide have advocated for environmental protection aimed at achieving a “safe, clean, healthy and sustainable environment,” the PRC government has curtailed the work of environmental non-governmental organizations (NGOs) in China. Chinese officials have detained many environmental advocates in recent years, causing others to fear criticizing the government or raising environmental concerns.⁴ Environmental NGOs have helped to collect evidence and pressure local officials through public interest lawsuits and public calls for action,⁵ but their efforts to file environmental public interest cases—by which civil society organizations such as NGOs can sue the government—continue to be obstructed by the prohibitive costs associated with such cases as well as legal hurdles in establishing standing.⁶ Furthermore, one expert said the PRC government’s “top-down” environmental governance model favors participation by large NGOs over small ones, increasingly constrains NGOs by requiring “explicit government collaboration,” and limits them to participating at the local level.⁷

Senior leaders of the Chinese Communist Party and government have recognized the need to mitigate the negative environmental impact of the past decades of fast economic growth through protection of natural resources and remediation of water, air, and other forms of pollution.⁸ At least one observer has argued that Party legitimacy is linked with the government’s ability to stop further environmental degradation.⁹ Despite the PRC government’s recognition that environmental policy and governance are crucial, the implementation of top-down policies is counterbalanced by pressure to sustain economic growth, particularly China’s need for energy and other resources, which has led to developments and initiatives from various ministries and provinces that run contrary to and even undermine the central government’s pledges regarding carbon neutrality and other goals.¹⁰ In addition, as researcher Yaqiu Wang of Human Rights Watch observed, “[T]he Chinese government has been exploiting environmental causes to consolidate political control and expand its power at the expense of human rights inside—and increasingly outside—its borders.”¹¹ The following subsections describe developments this past year in water pollution, air pollution, and climate change vis-à-vis the right to health and the obstacles protesters faced in obtaining justice.

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Pollution

WATER POLLUTION AND DAMS

PRC citizens continue to face the problems of water pollution and water scarcity.¹² According to a report from the Center for Strategic and International Studies, the majority of China's drinking water supply comes from surface water, followed by groundwater sources.¹³ The Ministry of Ecology and Environment (MEE) reported in May 2022 that the percentage of tested surface water fit for human consumption increased to 84.9 percent in 2021, up 1.5 percent from 2020.¹⁴ China's vice minister of water resources said in November 2021 that 22.7 percent of tested groundwater in China was fit for human consumption.¹⁵ Studies published in 2021 and 2022 indicate that some water sources in China had been contaminated by unsafe amounts of toxic heavy metals that can threaten the health of large numbers of people, especially in areas where groundwater is used as drinking water.¹⁶ Research shows that water pollution causes disease and premature death.¹⁷

In China, water pollution, as well as climate change and industrialization, all exacerbate the problem of water scarcity, i.e., when the supply of freshwater does not meet the demand.¹⁸ Sources in the past two years indicate that at least nine provinces and municipalities suffer from water scarcity, including severe water shortages in southeastern China due to a drought in 2021.¹⁹

The PRC government has built dams both in China and abroad (including in Cambodia and Argentina) that have contributed to environmental damage and rights violations, such as flooding, drought, disruption of glacial movement and wildlife habitat, low water levels, lack of access to freshwater, destruction of fish populations, loss of sediment, and loss of livelihood, possibly impacting tens of millions of people.²⁰ As part of China's Belt and Road Initiative (BRI), the construction of two hydroelectric dams on the Santa Cruz River in Argentina has proceeded despite protests, lawsuits, and court orders to pause construction until accurate and credible environmental impact studies can be completed.²¹ Conservationists say the dams would destroy breeding grounds for birds and habitat for endemic terrestrial flora, and may "flood vital wetlands, disrupt the trajectory of some of the world's largest glaciers found outside of the poles, and destroy ancestral Mapuche land."²² In Cambodia, the Chinese government financed a dam as a BRI project that "has undermined the lives and livelihoods of thousands of indigenous and ethnic minority people by flooding sections of two tributaries of the Mekong River."²³

AIR POLLUTION

China continues to experience high levels of air pollution, contributing to negative health effects including premature death.²⁴ For example, environmental researchers estimate that exposure to air pollution in Beijing and Shanghai municipalities resulted in approximately 49,000 premature deaths in the first half of 2020,²⁵ and one 2022 scientific study estimates that approximately 100 daily excess deaths occurred because of the combination of high temperatures and severe ozone pollution in a northeast China re-

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gion that includes Beijing and Tianjin municipalities and neighboring provinces.²⁶

In its 2021 report on pollution and the environment in China, the MEE wrote that 218 out of 339 prefecture-level or higher jurisdictions met the 2021 targeted air quality standard for fine particulate matter pollution.²⁷ It further reported that the percentage of good air quality days in these cities in 2021 was 87.5 percent, up 0.5 percentage points from 2020.²⁸

The Beijing Municipal Ecology and Environment Bureau and the Beijing Daily, a news outlet, reported that Beijing successfully met its air quality goals, reaching them for the first time in 2021.²⁹ Observers had attributed the previously worsening air quality in areas around Beijing in 2020 and 2021 to multiple factors, including heavy industrial activity, in particular cement and steel production,³⁰ and dust storms caused by land degradation.³¹ One climate observer said in January 2022 that in Beijing, concentrations of fine particulate matter have decreased by two-thirds since 2012, but still remain far above guidelines set by the World Health Organization.³² Another observer noted that public “outrage” over the return of heavy pollution in the years following the 2008 Olympics, informed by air quality data published by the U.S. Embassy in Beijing, drove the Chinese government to take nationwide action to reduce pollution.³³

Climate Change and COP26

The UN Human Rights Council, in its 2021 recognition of the right to a safe, clean, healthy, and sustainable environment as a human right, noted that the impact of climate change is among the factors that interfere with the enjoyment of these rights.³⁴ This reaffirms earlier comments made by UN Special Rapporteur David Boyd, who also wrote about the importance of human rights in addressing climate change.³⁵

In October 2021, in advance of the UN Climate Change Conference of the Parties (COP26) in Glasgow, the PRC government submitted its updated nationally determined contributions (NDC) and its new long-term strategy to the UN Framework Convention on Climate Change, and state media agency Xinhua referred to these as “concrete action” toward implementing the Paris Agreement,³⁶ which China ratified in 2016.³⁷ The Paris Agreement obliges participating countries to set their own goals and publicly report their progress, but lacks concrete enforcement mechanisms.³⁸ The submission reaffirms Xi Jinping’s pledge at the UN General Assembly in September 2020 to have China’s carbon dioxide emissions peak before 2030, and to achieve carbon neutrality (net-zero emissions) before 2060.³⁹ China’s updated NDC submission did not give a specific date for peak emissions, and some observers expressed disappointment that the submission did not contain more aggressive targets.⁴⁰ While China is achieving its climate commitments, experts said it needs to establish and meet more aggressive targets to fulfill its pledge.⁴¹ Some observers have noted that China in recent years has made progress in implementing its domestic climate goals,⁴² although they and others also said that this progress is insufficient.⁴³ As an example of progress, the Bei-

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jing municipal government reported that Beijing reached its air quality targets for the first time in 2021.⁴⁴ A human rights observer, however, commented that this achievement came at the cost of a crackdown on coal usage for home heating.⁴⁵ This crackdown, an example of top-down governance, violated the right to adequate housing and used surveillance technology to tighten state control.⁴⁶

Despite a pledge to reduce carbon dioxide emissions in the coming decades and its record increase in renewable energy production in 2021,⁴⁷ the PRC led a rebound in global carbon dioxide emissions that exceeded pre-pandemic levels.⁴⁸ The rebound was driven by a record 10-percent increase in demand for electricity that was largely met by coal power, given limited supplies of low-emission energy sources.⁴⁹ China's 2021 carbon dioxide emissions exceeded 11.9 billion tons, amounting to about 33 percent of the worldwide total and offsetting declines in 2020 due to the COVID-19 pandemic.⁵⁰ China's carbon dioxide emissions in 2021 grew by 350 Mt, more than double the annual increase of around 160 Mt seen in recent years.⁵¹ China also remains the world's largest emitter of greenhouse gases⁵² and the biggest producer of coal, responsible for 73 percent of the world's coal mine methane emissions, which are 25 times more potent than carbon dioxide as a greenhouse gas.⁵³ China's biggest coal-producing province, Shanxi, emits approximately 13.1 million tons (Mt) of coal mine methane per year, nearly equivalent to the rest of the world combined.⁵⁴ One report said that methane gas, in addition to being a "super pollutant" that can accelerate climate change, poses health and safety risks to nearby residents, as it is highly explosive and contains poisonous chemicals that can cause illness or death.⁵⁵ As of March 2022, China was constructing 169 new coal mines, which are expected to increase methane emissions by 6 Mt per year.⁵⁶ According to one international monitoring group, an energy crisis in late 2021 prompted the Chinese government to increase coal output by 270 Mt in the high-producing Shanxi and Shaanxi provinces and the Inner Mongolia Autonomous Region; this surge in output was expected to have an "immediate climate impact, even before burning the coal at power plants."⁵⁷ In early 2022, the government approved the construction of five coal-fired power plants in several provinces.⁵⁸ New mapping research found that Chinese steel and power companies continued to build coal-based plants, with new projects surpassing the annual average capacity additions of the rest of the world by as much as 15 times.⁵⁹

Observers said that climate change exacerbated the negative effects of natural occurrences.⁶⁰ A study on the harmful combination of ozone pollution and seasonal heat waves found that "[w]ith global warming, extreme high temperatures and heat events have become natural hazards in China in recent decades, with substantial effect on socioeconomics, ecosystems, and human health," and that such events "have intensified in the past 60 years and are expected to become more frequent and severe in the coming decades."⁶¹ Another report suggested that climate change amplified extreme rainfalls in China in the summer of 2020.⁶² Heavy summer rains in July 2021 caused the deaths of 25 persons in Henan province,⁶³ including 12 who were trapped in a subway.⁶⁴ Researchers attributed such deadly extreme weather events around the globe to cli-

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mate change.⁶⁵ Observers noted that despite warnings from scientists over many years, Chinese officials and scientists scarcely mentioned climate change as a contributing factor to increases in rainfall.⁶⁶

COP26 “Glasgow Declaration” between China and the United States

At the UN Climate Change Conference of the Parties (COP26) held in Glasgow in November 2021, the United States and China, the world’s two largest emitters of carbon dioxide, together pledged to cut greenhouse gases in the “U.S.-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s.”⁶⁷ The two sides agreed to cooperate on methane emissions, carbon dioxide emissions, greenhouse gases, transition to a global net-zero economy, the Paris Agreement, global illegal deforestation, international thermal coal power generation, and agreed to establish a “Working Group on Enhancing Climate Action in the 2020s.”⁶⁸ The PRC pledged to (1) “phase down” coal for the duration of the 15th Five-Year Plan, starting in 2026; and (2) reach peak carbon emissions by 2030.⁶⁹ Additionally, China joined the United States and more than 100 countries in a pledge to end deforestation by 2030.⁷⁰ Currently, China remains a global leader in the destruction of forests associated with international trade.⁷¹

Scientists and other observers said that the Glasgow Climate Pact, signed by all 197 countries present at the summit, marks an important step toward reducing greenhouse gas emissions, but many said the pact will not achieve the necessary goal of keeping global temperatures within 1.5 degrees Celsius above pre-industrial levels.⁷² In April 2022, U.S. Special Presidential Envoy for Climate John Kerry said that cooperation with the PRC on climate change had become more difficult after Chinese authorities linked cooperation on climate change with U.S. behavior on unrelated matters, a position they reiterated in August 2022.⁷³

Illegal Fishing

A report by the Environmental Justice Foundation found that illegal fishing is widespread in China’s distant-water fishing operations, and some Chinese vessels target endangered and protected marine life.⁷⁴ The report said, “China’s State subsidies have allowed the grossly overcapacity fleet to exploit the waters of developing nations that rely on marine resources for livelihoods and food security.”⁷⁵ Over 95 percent of interviewed crew members of Chinese distant-water fishing vessels reported witnessing illegal fishing, including killing sharks (for their fins), dolphins, and protected turtles and seals.⁷⁶ The report also found that these fishing operations used front companies to hide their illegal activities, and that senior Chinese crew members on the vessels committed “gross human rights abuses” against migrant crew members on Chinese-owned vessels.⁷⁷

Access to Justice for Environmental Advocates

During the 2022 reporting year, PRC citizens continued to raise concerns related to the environment through various forms of

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public advocacy, at the risk of being harassed or detained. China's Constitution provides for freedom of speech, assembly, and association,⁷⁸ as do the International Covenant on Civil and Political Rights (ICCPR)⁷⁹ and the Universal Declaration of Human Rights.⁸⁰ According to the Principles on Human Rights and the Environment, "States should provide a safe and enabling environment in which individuals, groups and organs of society that work on human rights or environmental issues can operate free from threats, harassment, intimidation and violence."⁸¹

• **Ningxia Hui Autonomous Region.** On August 31, 2021, the Shapotou District People's Court in Zhongwei municipality, Ningxia Hui Autonomous Region, sentenced volunteers from a local wildlife conservation association who worked to protect endangered wildlife from poachers, for alleged participation in the endangerment of wildlife and disturbing social order.⁸² **Li Genshan** and **Niu Haibo** were sentenced to four years and six months, and three years and eight months in prison, respectively, on the charges of "picking quarrels and provoking trouble"⁸³ and "harming rare and endangered wild animals."⁸⁴ Both were fined 10,000 yuan (US\$1,500).⁸⁵ A third individual, **Zhang Baoqi**, was sentenced to one year and two months for "picking quarrels and provoking trouble" and owning an illegal gun, after he had turned in hunting guns seized from poachers.⁸⁶ On appeal, the Zhongwei Intermediate People's Court vacated the first-instance decision on November 3, 2021, because of a procedural error, and remanded the case for retrial.⁸⁷ The Shapotou People's Court retried the defendants from January 25 through January 29, 2022, but sentenced all three to the same prison terms and fines.⁸⁸ During the retrial, defense lawyers said at least one of the confessions was obtained through "fatigue interrogation" (*pilao shenxun*).⁸⁹ Before being detained in 2020, Li and other environmental protection volunteers also reportedly alleged that local forestry officials had sheltered poachers.⁹⁰ Sources attributed Li's detention to retaliation by officials for his prior efforts to expose heavy pollution in the Tengger Desert in the Inner Mongolia Autonomous Region,⁹¹ for which two local officials and executives of the polluting company were punished.⁹²

• **Jiangxi province.** Five years after **Xiong Yugen, Yang Fengying**, and **Yi Lianxiang** from Dinglong village, Le'an county, Fuzhou municipality, blocked a road several times to prevent the transport of unidentified waste from a nearby polluting factory and demanded its closure, a court sentenced them to serve one year in prison, suspended for two years, for the crime of "gathering a crowd to disturb social order."⁹³ Eight months later, **Xiong Zhichao**, a representative of the rights-defending villagers, was also found guilty of "gathering a crowd to disturb social order," but was exempted from criminal punishment.⁹⁴ After the first-instance verdict was pronounced, Xiong Zhichao appealed, but the second-instance court upheld the original verdict.⁹⁵ Subsequently, Xiong Zhichao and the other three continued to file complaints with the Le'an County People's Court and the Fuzhou Municipal Intermediate People's Court.⁹⁶

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Monitoring and Data Transparency

According to the Framework Principles on Human Rights and the Environment, issued by the UN Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, states should be transparent in providing the public with environmental information and should ensure that their environmental standards are effectively enforced.⁹⁷ In November 2021, China's Central Political and Legal Affairs Commission (PLAC) said that an environmental monitoring NGO, Shanghai-based Rendu Ocean NPO Development Centre, had published sensitive data that could threaten national security.⁹⁸ The PLAC issued the NGO a warning and shut down 22 monitoring stations that it said were close to military installations and ordered the "confiscation of illegal gains."⁹⁹ Rendu Ocean had previously received positive coverage in state-run media for organizing volunteer cleanup efforts.¹⁰⁰ At a hearing on environmental challenges convened in 2021 by the Congressional-Executive Commission on China, a civil society expert commented that the Chinese government wants transparency on environmental information within the various levels of government, but it does not necessarily want that information shared with the public.¹⁰¹

Notes to Section VIII—The Environment and Climate Change

¹ UN Human Rights Council, “The Human Right to a Safe, Clean, Healthy and Sustainable Environment,” A/HRC/48/L.23/Rev.1, October 5, 2021, 2–3; UN Human Rights Council, Report of the Special Rapporteur on Human Rights and the Environment, The Right to a Clean, Healthy, and Sustainable Environment: Non-Toxic Environment, David R. Boyd, A/HRC/49/53, January 12, 2022, Summary, para. 1; “Access to a Healthy Environment, Declared a Human Right by UN Rights Council,” *UN News*, October 8, 2021. See also UN General Assembly, Report of the Special Rapporteur on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment, John H. Knox, A/73/188, July 19, 2018, para. 12.

² UN Human Rights Council, The Human Right to a Safe, Clean, Healthy and Sustainable Environment, A/HRC/48/L.23/Rev.1, October 5, 2021, 2. See also UN Human Rights Council, Report of the Special Rapporteur on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment, John H. Knox, A/HRC/37/59, January 24, 2018, para 2.

³ UN Human Rights Council, Report of the Special Rapporteur on Human Rights and the Environment, The Right to a Clean, Healthy, and Sustainable Environment: Non-Toxic Environment, David R. Boyd, A/HRC/49/53, January 12, 2022, Summary.

⁴ Helen Davidson, “You Follow the Government’s Agenda’: China’s Climate Activists Walk a Tightrope,” *Guardian*, August 16, 2021; *China’s Environmental Challenges and U.S. Responses, Hearing of the Congressional-Executive Commission on China*, 117th Cong. (2021) (testimony of Dr. Jessica C. Teets, Associate Professor, Middlebury College).

⁵ *China’s Environmental Challenges and U.S. Responses, Hearing of the Congressional-Executive Commission on China*, 117th Cong. (2021) (testimony of Dr. Jessica C. Teets, Associate Professor, Middlebury College).

⁶ Sasha Kong, “China’s Climate Litigation Policy Must Change,” FairPlanet, February 3, 2022; Yu Zhuang, “The Challenge of Litigation Costs and Damage Assessment Fees in Environmental Public Interest Litigation in China,” *Comparative Jurist: William & Mary Law School’s International and Comparative Law Blog*, May 13, 2017.

⁷ *China’s Environmental Challenges and U.S. Responses, Hearing of the Congressional-Executive Commission on China*, 117th Cong. (2021) (testimony of Dr. Jessica C. Teets, Associate Professor, Middlebury College).

⁸ Yifei Li and Judith Shapiro, *China Goes Green: Coercive Environmentalism for a Troubled Planet* (Cambridge, UK; Medford, MA: Polity, 2020), 4. See also David Stanway, “China’s Giant State-Owned Companies Struggle to Align Climate Rhetoric with Reality,” *Reuters*, November 1, 2021; Lindsay Maizland, “China’s Fight Against Climate Change and Environmental Degradation,” Council on Foreign Relations, May 19, 2021.

⁹ See, e.g., Yanzhong Huang, *Toxic Politics: China’s Environmental Health Crisis and Its Challenge to the Chinese State* (Cambridge: Cambridge University Press, 2020), 4, 187.

¹⁰ David Stanway, “China’s Giant State-Owned Companies Struggle to Align Climate Rhetoric with Reality,” *Reuters*, November 1, 2021; Jianqiang Liu, “Analysis: Nine Key Moments That Changed China’s Mind about Climate Change,” Carbon Brief, October 25, 2021.

¹¹ Yaqiu Wang, “Beijing’s Green Fist,” Breakthrough Institute, March 29, 2022. See also Yifei Li and Judith Shapiro, *China Goes Green: Coercive Environmentalism for a Troubled Planet* (Cambridge, UK; Medford, MA: Polity, 2020), 16–19.

¹² UN Water, “The United Nations World Water Development Report 2022: Groundwater: Making the Invisible Visible,” March 21, 2022. See also “How Does Water Security Affect China’s Development?,” Center for Strategic and International Studies (China Power), August 26, 2020; UN Human Rights Council, Human Rights and the Global Water Crisis: Water Pollution, Water Scarcity and Water-Related Disasters, A/HRC/46/28, January 19, 2021, para. 25. According to a 2021 UN Human Rights Council report on human rights and the global water crisis, “Water pollution, water scarcity and water-related disasters have major impacts on a wide range of human rights, including the rights to life, health, water, sanitation, food, a healthy environment, education, an adequate standard of living, development and culture, and on the rights of the child.”

¹³ “How Does Water Security Affect China’s Development?,” Center for Strategic and International Studies (China Power), August 26, 2020.

¹⁴ Ministry of Ecology and Environment, “Huang Runqiu zai Quanguo Renda Changweihui shang zuo baogao” [Huang Runqiu gave a report to the Standing Committee of the National People’s Congress], April 21, 2022.

¹⁵ “China Aims to Safeguard Groundwater with New Rule,” *China Daily*, November 23, 2021; Ministry of Ecology and Environment, “Shengtai Huanjing bu 2021 nian Zhengfu Xinxi Gongkai Gongzuo Niandu Baogao” [Ministry of Ecology and Environment’s 2021 Annual Report on Government Information Disclosure], 2021.

¹⁶ Hanjiang Pan et al., “Heavy Metals and As in Groundwater, Surface Water, and Sediments of Dexing Giant Cu-Polymetallic Ore Cluster, East China,” *Water* 14, no. 3:352, January 2022, 352–53; Zhifeng Huang et al., “Distribution, Toxicity Load, and Risk Assessment of Dissolved Metal in Surface and Overlying Water at the Xiangjiang River in Southern China,” *Scientific Reports* 11, no. 109 (2021), 2, 10.

¹⁷ Mark T. Buntaine et al., “Citizen Monitoring of Waterways Decreases Pollution in China by Supporting Government Action and Oversight,” *Proceedings of the National Academy of Sciences* 118, no. 29 (July 12, 2021): 1; UN Human Rights Council, Human Rights and the Global Water Crisis: Water Pollution, Water Scarcity and Water-related Disasters, A/HRC/46/28, January 19, 2021, paras. 27, 28; Zhifeng Huang et al., “Distribution, Toxicity Load, and Risk Assessment of Dissolved Metal in Surface and Overlying Water at the Xiangjiang River in Southern China,” *Scientific Reports* 11:109 (2021), 10.

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¹⁸David Kirton, “China’s Southern Megacities Warn of Water Shortages during East River Drought,” *Reuters*, December 9, 2021; Hal Brands, “China Is Running Out of Water and That’s Scary for Asia,” *Bloomberg*, December 29, 2021; Xingcai Liu et al., “Global Agricultural Water Scarcity Assessment Incorporating Blue and Green Water Availability Under Future Climate Change,” *Earth’s Future* 10, no. 4 (2022), 14; “How Does Water Security Affect China’s Development?,” Center for Strategic and International Studies (China Power), August 26, 2020.

¹⁹David Kirton, “China’s Southern Megacities Warn of Water Shortages during East River Drought,” *Reuters*, December 9, 2021; Genevieve Donnellon-May and Guangtao Fu, “Are ‘Sponge Cities’ the Answer to Shenzhen’s Water Scarcity?,” *The Diplomat*, January 5, 2022; “How Does Water Security Affect China’s Development?,” Center for Strategic and International Studies (China Power), August 26, 2020.

²⁰Tyler Roney, “What Are the Impacts of Dams on the Mekong River?,” *The Third Pole*, July 1, 2021; Maxwell Radwin, “China-Funded Dam Could Disrupt Key Argentine Glaciers and Biodiversity,” *Mongabay Environmental News*, May 12, 2022. See also Jack Silvers, “Water Is China’s Greatest Weapon and Its Achilles Heel,” *Harvard Political Review*, October 16, 2020; Jagannath P. Panda, “Beijing Boosts Its Position as a ‘Himalayan Hegemon’ Through Hydropower,” *China Brief*, Jamestown Foundation, June 7, 2021; Brian Eyster, “Science Shows Chinese Dams Are Devastating the Mekong,” *Foreign Policy*, April 22, 2020; Alan Basist and Claude Williams, “Monitoring the Quantity of Water Flowing Through the Upper Mekong Basin Under Natural (Unimpeded) Conditions,” *Sustainable Infrastructure Partnership, Lower Mekong Initiative, and Pact*, April 10, 2020, 12, 18. See also Conn Hallinan, “The World Needs a Water Treaty,” *Common Dreams*, July 11, 2019. Despite sharing over 40 waterways that cross boundaries with 14 neighboring countries, China did not sign the UN Watercourses Convention, a global treaty effective since 2014, which aims to protect multinational water sources by multiple means including reducing pollution, and by bringing countries that share important water sources into multilateral collaborative management agreements. See UN Watercourses Convention, “UN Watercourses Convention,” 2022, arts. 21, 24.

²¹Maxwell Radwin, “China-Funded Dam Could Disrupt Key Argentine Glaciers and Biodiversity,” *Mongabay Environmental News*, May 12, 2022.

²²Maxwell Radwin, “China-Funded Dam Could Disrupt Key Argentine Glaciers and Biodiversity,” *Mongabay Environmental News*, May 12, 2022.

²³Human Rights Watch, “Cambodia: China’s ‘Belt and Road’ Dam Is a Rights Disaster,” August 10, 2021; Human Rights Watch, “Underwater: Human Rights Impacts of a China Belt and Road Project in Cambodia,” August 10, 2021.

²⁴Peng Yin et al., “The Effect of Air Pollution on Deaths, Disease Burden, and Life Expectancy Across China and Its Provinces, 1990–2017: An Analysis for the Global Burden of Disease Study 2017,” *Lancet Planetary Health* 4, no. 9, September 1, 2020: e387. See also Pinya Wang et al., “North China Plain as a Hot Spot of Ozone Pollution Exacerbated by Extreme High Temperatures,” *Atmospheric Chemistry and Physics* 22, no. 7 (April 11, 2022): 4710; UN Human Rights Council, Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment: Report of the Special Rapporteur, A/HRC/40/55, January 8, 2019, para. 26.

²⁵David Stanway, “CORRECTED—Smog Causes an Estimated 49,000 Deaths in Beijing, Shanghai in 2020—Tracker,” *Reuters*, July 9, 2020. An October 2020 journal article found that up to 30.8 million people in China had died prematurely from 2000 to 2016 as a result of air pollution. See Fengchao Liang et al., “The 17-y Spatiotemporal Trend of PM_{2.5} and Its Mortality Burden in China,” *Proceedings of the National Academy of Sciences* 117, no. 41, October 13, 2020: 25601.

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