Lancet Countdown for Health and Climate Change

Policy brief for China

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LANCET COUNTDOWN: TRACKING PROGRESS ON HEALTH AND CLIMATE CHANGE

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Introduction

Climate change presents a growing threat to public health in China and worldwide. This policy brief presents data from the 2019 global Lancet Countdown report across three areas: the health impacts of heat, air quality and energy supply, and media coverage of health and climate change.

Key messages and recommendations

1. Conduct vulnerability mapping to understand which populations are most at risk, and implement interventions to safeguard against the acute effects of extreme heat on human health. Curb greenhouse gas emissions to avoid intensification of heatwaves in the longer term.

2. Incorporate the close linkages between climate change, current and future air quality and human health into coal phase-out policymaking. Further enhance the ambition of coal phase-out policy to prevent climate change-driven meteorological conditions that might worsen air pollution.

3. Health professionals are trusted by the public and should engage with media to further raise awareness of the linkages between health and climate change and of actionable ways to bring about positive change.

4. With updated Nationally Determined Contributions under the Paris Agreement due to be submitted by 2020, health considerations should be integrated throughout proposed interventions, with particular consideration of heat adaptation measures, coal and energy policy, and health sector engagement where relevant.

Health impacts of heat

Vulnerability to extremes of heat is rising in China due to a range of factors including the ageing population, growing rates of urbanisation and increasing prevalence of cardiovascular, renal, and chronic respiratory disease. According to the 2019 global Lancet Countdown report[1] (see Figure 1), 31% of the Chinese population older than 65 years were particularly vulnerable to heat exposure in 2017, a 25% increase compared with 1990. Although heat vulnerability in China is relatively low compared to countries of comparable income, the difference is decreasing rapidly.

These vulnerable people would be exposed to rising heat leading to increased morbidity and mortality. In China, the number of heatwave exposure events affecting vulnerable populations over 65 years (with each "exposure event" being one heatwave experienced by one person) has been increasing (Figure 2),[1] with an additional 52.1 million heatwave exposure events occurring in 2018 compared to a climatological baseline.

This trend of intensified heat extremes is projected to continue, and the persistence of summer weather will systematically increase with future global warming.[2] Annual heat-related mortality in 27 densely populated Chinese cities is projected to increase from 32 per million inhabitants in 1986-2005 to 49-67 per million for the 1.5°C warming and to 59-81 per million for the 2°C warming, even considering improved adaptation capacity.[3] These elevated mortality rates are roughly comparable to current rates of death due to all infectious and parasitic conditions.[4] With even greater warming inevitable without further mitigation efforts (RCP 8.5, or the "worst-case pathway") the resulting heatwaves in the North China Plain would exceed the safe threshold for outdoor working.[5]

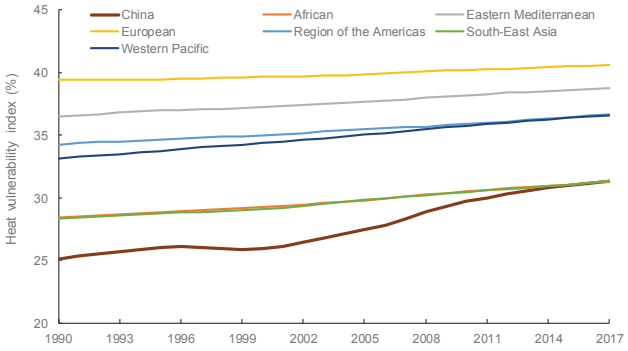

Figure 1: Trends of heat vulnerability index (1990-2017)

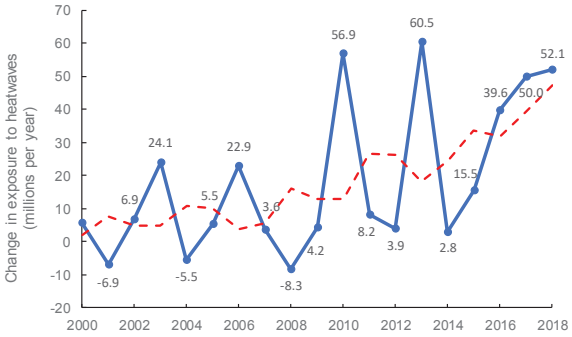

Figure 2: Change in the number of heatwave exposure events and its five-year moving average (dashed line) compared with the historical average number of events (1986–2005 average)

Coal phase-out

To address severe air pollution, China has implemented stringent air quality protection policies since 2013. Phase-out of highly polluting coal capacity is a central component of the landmark Air Pollution Prevention and Control Action Plan (APPCAP).[6] Aligned with its objectives, coal consumption in China declined for three consecutive years after 2013. The interim air quality target set by APPCAP has been met mainly through closure of high polluting coal capacity. The focus of subsequent Three-Year Action Plan for Winning the Blue Sky Defense Battle[7] is shifting towards economic restructuring, energy mix adjustment and end-of-pipe control of coal-fired power plants and industrial boilers. Despite strict coal use reduction targets in hotspot regions of air pollution, only a coal cap that limits growth of coal use and a relative reduction target of coal proportion in total primary energy supply (TPES) is set nationwide.

Concerningly, the downward trend of coal use reversed in China in 2017 and 2018,[1,8] although overall coal share in China's energy mix continued to decline due to increases in energy use from all sources (see Figure 3)[8]. In part, this may be due to shifting and competing policy priorities, with a rapid expansion in electricity demand seen in 2018. Coal use for electricity generation also increased notably in 2018, as a result of a rapid growth in electricity demand.[9] In the absence of enhanced commitment to coal phase-out, warming will further increase and improvements made in air pollution reduction will be threatened.

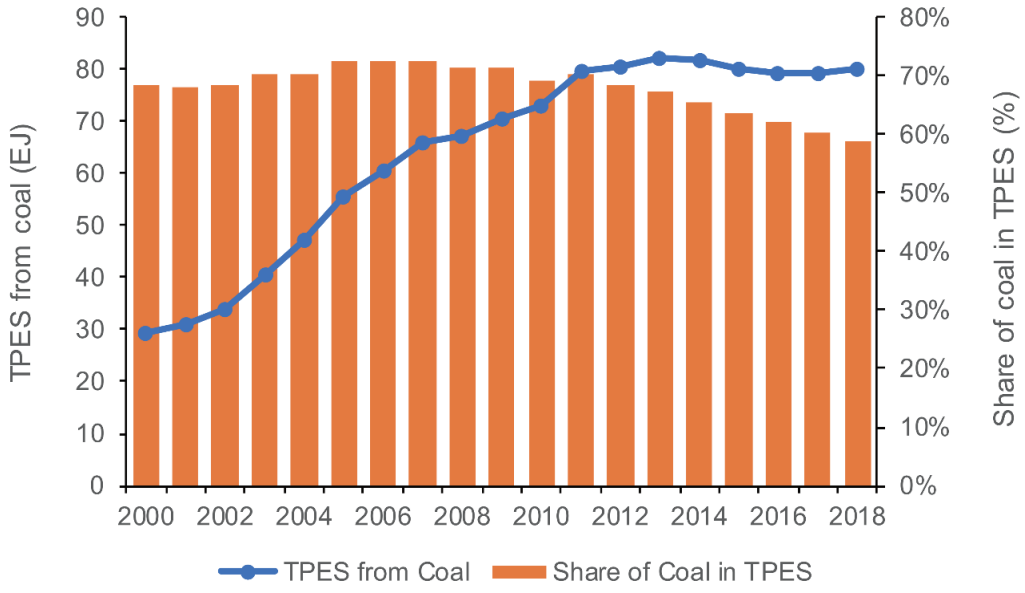

Figure 3: Total Primary Energy Supply (TPES) from coal in China (2000-2018)

Regional air quality is closely related to climate change mitigation efforts, as the major sectoral contributors to greenhouse gas emissions are also often the major contributors to fine particulate (PM2.5) air pollution, which the 2019 global Lancet Countdown report estimates caused over 900,000 premature deaths in China in 2016. Combustion of coal for use in power generation, industry and in households was responsible for around 22% of these deaths. Additionally, future climate change may exacerbate air pollution by increasing both the frequency and persistence of weather conditions that enhance accumulation of pollutants.[10,11] Even assuming pollution emissions are held constant, over 85% of China's population may still be exposed to worsening air quality as a result of atmospheric stagnation under the moderate warming (RCP 4.5) by 2050.[12]

The adverse impacts of climate change on future air quality and hence human health are not currently well recognised or considered in China. The links between climate change, air quality and human health underscore the importance of development and adoption of more rigorous policies for coal phase-out. Such measures could prevent future climate change from undermining efforts to reduce air pollution.

Media coverage of health and climate change

The 2019 global Lancet Countdown report tracks coverage of health and climate change in the People's Daily, the most influential newspaper in China in the past 10 years, based on its online archive.[13] Between 2008 and 2018 an average of 2519 articles per year covered climate change issues. However, only a very small proportion of these articles (less than 0.6%) focused on the human health implications of climate change.

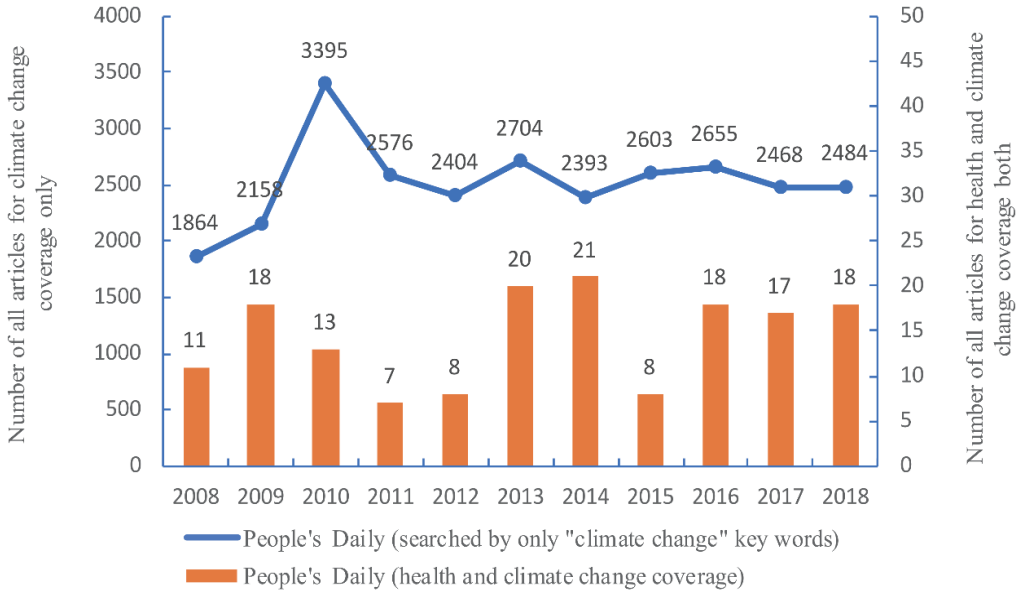

Figure 3: Total Primary Energy Supply (TPES) from coal in China (2000-2018)

Of this small number of articles covering the interactions between health and climate change, two-thirds focused on the health impacts of climate change. The impacts discussed included direct effects of climate change (e.g. heat stress, floods, drought, storms, wildfire) and the indirect effects through mediators (e.g. vector-borne disease, food insecurity and under-nutrition, displacement). Heat-related health impacts were the most frequently mentioned aspect, especially during summer when heatwaves occurred. Adaptation to climate change was featured in 44% of articles. The majority of these articles referred to short-term measures to reduce the acute effects, while the remaining articles covered longer-term planning. The health co-benefits of climate change mitigation strategies were featured in 25% of articles. A particular emphasis was placed on the shared interventions which can simultaneously abate both air pollutants and greenhouse gas emissions, while only two articles discussed the health and climate co-benefits of active travel such as walking and cycling. In comparison to elite media in the U.S. and in India where the proportion of articles related to the health co-benefits of climate change mitigation reached 44%, the proportion in China is relatively low.[1] It is notable that one-third of the articles appear as comments and opinions authored by experts, thus helping to shape public perceptions of health and climate change connections, or offering recommendations to the reader of how to alleviate the adverse health impacts of climate change.

Media outlets present a key channel for the communication of health risks associated with climate change, spreading knowledge of adaptation measures to these adverse impacts, and shaping public perceptions of necessary interventions. Opinion polls around the world show that health professionals are among the most trusted individuals in society,[14] and as such, have a role to play in engaging with media to further raise awareness of the linkages between health and climate change and of implementable solutions to bring about positive change.

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Organisations and acknowledgements

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THE LANCET COUNTDOWN

The Lancet Countdown: Tracking Progress on Health and Climate Change is an international, multi-disciplinary collaboration that exists to monitor the links between public health and climate change. It brings together 35 academic institutions and UN agencies from every continent, drawing on the expertise of climate scientists, engineers, economists, political scientists, public health professionals and doctors. Each year, the Lancet Countdown publishes an annual assessment of the state of climate change and human health, seeking to provide decision-makers with access to high-quality evidence-based policy guidance. For the full 2019 assessment, visit www.lancetcountdown.org/2019-report/.

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