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Living under the dome: Individual strategies against air pollution in Beijing

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ABSTRACT

Although poor air quality has been a fact of life for millions of Chinese citizens for at least two decades, individual actions to alleviate the impact of air pollution are a more recent phenomenon. Anecdotal evidence suggests that individualized responses to environmental risks and threats, which Andrew Szasz (2007) termed "inverted quarantine," are becoming increasingly common in China. However, there is little indication about how far inverted quarantine prevails. To address this gap, in 2015 we surveyed over 1000 Beijing residents into strategies for coping with air pollution. The results are partly consistent with other findings in relation to food safety, providing further evidence of the prevalence of inverted quarantine in response to public health risks in contemporary China. Our empirical evidence also shows public skepticism about the efficacy of individualized solutions to ambient air pollution. Without a serious preventive alternative, inverted quarantine is, at best, a temporary expedient.

1. Introduction

Ambient air pollution remains a serious problem for Chinese cities (Chen, Barros, & Gil-Alana, 2016). In February 2015, Greenpeace and Peking University's School of Public Health jointly released the report *Dangerous Breathing 2: A Study on the Health Effects of Atmospheric PM2.5 in Urban China* (Greenpeace and Peking University School of Public Health, 2015). It calculated that, in 2013, 257,000 people across China's 31 provincial capital cities died prematurely due to $PM_{2.5}$ pollution. In the same month, former journalist Chai Jing's documentary about the country's air pollution problems *Under the Dome* made headlines across the world. In China it went viral—over 100 million views were recorded within 24 hours of its release, suggesting strong public resonance with Chai Jing's message (Fu, 2015). Reporting on the film's success, *Foreign Policy* commentator Fu Yiqin announced that, "China's National Conversation on Pollution Has Finally Begun" (Fu, 2015). But not much later, censors removed the film from the Chinese Internet.

In contrast, air pollution has proven much more difficult to remove. Poor air quality has been a fact of life for millions of Chinese citizens for at least two decades. Studies by the World Bank, World Health Organization (WHO) and the Chinese Academy of Environmental Planning attributed between 350,000 and 500,000 premature deaths per year in China to outdoor air pollution (Chen, Wang, Ma, & Zhang, 2013). And a 2012 report by the Asian Development Bank revealed that, even before $PM_{2.5}$ became a mandatory indicator of urban air quality, fewer than 1% of the 500 largest cities in China met the air quality standards recommended by the WHO, with seven of these cities ranking among the 10 most polluted cities in the world (Zhang & Crooks, 2012). More recently, a WHO report that modelled annual median $PM_{2.5}$ concentration showed that, in China, only parts of Tibet met its air quality guidelines (WHO, 2016).

Air quality in Beijing has come under particular scrutiny due to its capital city status and through its hosting of major international events such as the 2008 Olympic Games and the 2014 Asia-Pacific Economic Cooperation (APEC) Summit. Air quality improved dramatically for both of these events thanks to stringent short-term administrative measures that included the temporary closure of polluting factories in neighboring Hebei Province and restrictions on private car use (Mol, 2010). However, these improvements were short-lived. For example, after enjoying the "APEC blue" effect during the 2014 Summit, Beijing residents were once again

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condemned to living “under the dome” after delegates returned home. To extend Premier Li Keqiang's metaphor (in 2014 his government “declared war” on pollution), Beijing residents have become accustomed to waging an “anti-haze war” on an almost daily basis. In December of 2015, Beijing authorities issued the city's first ever “red alert,” the highest warning level emergency response measure to control heavy air pollution, which resulted in school closures and limits on construction work (The Independent, 2015).

Air pollution has become deeply embedded in the public consciousness. For example, Beijing's air pollution unexpectedly became a key talking point of President Xi Jinping's apparently impromptu stroll in the Beijing neighborhood of Nanluoguxiang in February 2014. Public and media discussion focused on Xi's decision not to wear a facemask, even though the air quality index exceeded 500, thus indicating severe pollution. For some commentators, this represented his solidarity with common people who face poor air quality on an almost daily basis. For example, state-owned media outlet Xinhua reported the story under the headline “Xi Jinping visits Beijing's Nanluoguxiang amid the smog: Breathing together, sharing the fate.” Although some netizens echoed this sentiment, others were more cynical—many perceived Xi's actions as an attempt to play down the severity of air pollution and the government's failure to address it (Lora-Wainwright, 2014).

Regardless of how one interpreted Xi's stroll, the interest in his facemask (or lack thereof) points to a highly noticeable recent development in Beijing and other Chinese cities, namely the upsurge in individual responses to environmental and health risks. In many countries, widely felt threats to common goods often result in collective action. In China, opportunities for the public to engage in collective action are tightly controlled (King, Pan, & Roberts, 2013). The government is worried that protests against air pollution could spread to encompass wider grievances against the one-party system. This was reportedly the main reason why *Under the Dome* was censored, with the authorities apparently taken back by its popularity (Mufson, 2015). This appears to heighten the attractiveness of individualized behavioral and consumption-based strategies to avoid risk. While there is growing anecdotal evidence, up till now little systematic evidence has been collected on how Chinese urban citizens react individually to the deterioration of their quality of life. With this study we aim to provide more systematic information and understanding concerning to what extent and how Chinese urban residents individually change their behavior when collective action is restricted and governments fail to safeguard the quality of public goods. This article focuses on individual responses to ambient air pollution, and ignores exposure to indoor air pollution, which can also result in serious health problems (Smith & Mehta, 2003). In addition, our survey focused on “problem-based” coping mechanisms, whilst acknowledging that these are often interwoven with emotional responses, which “do not involve changing objective situations” (Gallina & Williams, 2014, p. 68). The article is organized as follows. After briefly reviewing the literature on collective and individualized strategies to environmental and health risks and conceptualizing inverted quarantine, we report on a survey of over 1000 urban residents conducted in April 2015 in Beijing about how they cope with continuing high levels of ambient air pollution. Subsequently, we interpret the findings and their implications for contemporary air pollution coping and mitigation practices and policies in China.

1.1. Collective goods, individualized responses

The conventional idea over five decades of studies in environmental politics and governance is that common goods such as ambient environmental quality can best be safeguarded and even provided through collective arrangements. Initially, state provision was believed to be the preferential arrangement for providing collective goods. More recent discussions (and practices) have pointed to the potential and actual role of a more diverse set of coordinating arrangements in safeguarding environmental goods: market arrangements, community arrangements and various public-private combinations. Different labels have been used in distinct research and theoretical traditions to highlight how conventional (nation)state institutions have lost their monopoly in collective good provisioning, and are complemented and sometimes replaced by a more diverse set of actors and coordinating mechanisms at a variety of levels. Under the notion of “bringing the environmental state back in” there has been a revival in reflections on the role of state arrangements in environmental goods provisioning (Meadowcroft et al., 2016; Mol, 2007, 2016). Yet this does not diminish the diversity of arrangements designed to safeguard collective goods provision.

Failure to safeguard collective goods has often invoked collective actions and protests, and a wide literature has studied the different forms, strategies and effects of new social movements and collective environmental action (Beierle & Cayford, 2002). At the same time, suboptimal or failing collective arrangements in providing collective environmental goods have often stimulated individualized action. We can expect individual responses to environmental and health risk to prevail massively in situations where collective arrangements fail and collective actions against such failure are deemed unsuccessful or impossible.

In North America a wide literature has emerged on individualized actions against environmental risks and threats. Carrier (2008, p. 46) defines such individual citizen-consumer action an “anti-politics machine” and Josée Johnston (2008) interprets it as self-interested and therefore anti-collective. Andrew Szasz has termed such individualized responses to environmental dangers and threats “inverted quarantine” (Szasz, 2007), a strategy where individual consumers and citizens protect themselves against dangers and threats from the external environment. Inverted quarantine can take a variety of forms. Sometimes individuals avoid pollution by behavioral changes such as staying indoors. As Chai Jing herself said, “half of the days in 2014, I had to confine my daughter to my home like a prisoner because the air quality in Beijing was so poor … One morning I saw my daughter banging on the window … The day will come when she asks me, ‘Why do you keep me here? What is going to hurt me when I go outside?’” (Fu, 2015). Consumption of goods and services designed to help individuals ameliorate public threats is another aspect of inverted quarantine. A new “haze economy” has started to emerge in China. Sales of equipment such as air purifiers, air monitoring equipment and anti-pollution masks have surged. For example, during a recent bout of smog in Beijing approximately 217,000 facemasks were sold within one week (Duggan, 2014), and state media reported panic buying of facemasks during the December 2015 red alert (The Independent, 2015). Other examples include holidays to smog-free destinations—in a marketing strategy implemented in 2014, major Chinese travel agency Ctrip put away 360 million Yuan to subsidize “haze-escape-trips” for tourists from seven cities including Beijing, Tianjin, and Taiyuan—and the huge popularity of mobile phone apps that provide data on air quality. A quintessential example of emerging individualization occurred when Li Guixin, a resident from Shijiazhuang in northern Hebei Province, attempted to sue his local government for failing to curb air pollution. As Anna Lora-Wainwright (2014) observed, “interestingly, he demanded 10,000 *Yuan* (about £1000) in compensation—for what he spent on face masks, an air purifier and a treadmill to exercise indoors.” At face value, this example echoes Szasz's concern that, rather than being a relatively innocuous phenomenon, inverted quarantine is highly problematic because it is based on individual solutions to