

# Microblogging-Based Civic Participation on Environment in China: A Case Study of the PM 2.5 Campaign

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**Abstract** Poor air quality has been affecting the Chinese people for many years due to the country's speedy industrialization and urbanization. However, very few initiatives had been taken by civil society until 2011. The air pollution campaign between October 2011 and March 2012 initiated on a Chinese microblogging website, mobilized millions of citizens and effected policy change. It is often seen as a milestone in the chronology of public participation in China. Using process tracing, participant observations, framing analysis and in-depth interviews, the article analyses this campaign by revealing its major actors and frames mobilizing issue entrepreneurs and environmental publics. Our analysis generates two findings: first, microblogging platforms can greatly expand the networks of Chinese environmental activists by involving public figures and governmental agencies; second, the frame which links air pollution to health and appreciates governmental efforts is critical to the success of civic participation in China's environmental governance.

**Résumé** La mauvaise qualité de l'air touche le peuple chinois depuis de nombreuses années en raison de l'industrialisation et de l'urbanisation rapides du pays. Cependant, très peu d'initiatives avaient été prises par la société civile jusqu'en 2011. La campagne sur la pollution de l'air menée entre octobre 2011 et mars 2012, lancée sur un site Internet de microblogage chinois, a mobilisé des millions de

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citoyens et apporté un changement de politique. Elle est souvent considérée comme une étape importante dans la chronologie de la participation du public en Chine. À l'aide d'un suivi de processus, d'observations de participants, d'une analyse des cadrages et d'entretiens approfondis, l'article analyse cette campagne en faisant connaître ses principaux acteurs et les cadres qui ont mobilisé les entrepreneurs de la question et les citoyens moyens s'intéressant à l'environnement. Notre analyse génère deux conclusions : tout d'abord, les plateformes de microblogage peuvent développer de manière considérable les réseaux des militants écologistes chinois en impliquant des personnalités publiques et des organismes gouvernementaux; deuxièmement, le cadre qui relie la pollution atmosphérique à la santé et qui apprécie les efforts gouvernementaux est essentiel pour la réussite de la participation citoyenne dans la gouvernance de l'environnement en Chine.

**Zusammenfassung** Die Menschen in China sind seit vielen Jahren von schlechter Luftqualität betroffen, welche auf die rapide Industrialisierung und Urbanisierung des Landes zurückzuführen ist. Allerdings wurden bis 2011 nur sehr wenige bürgergesellschaftliche Initiativen ergriffen. Die Luftverschmutzungskampagne zwischen Oktober 2011 und März 2012, die auf einer chinesischen Mikroblogging-Website begann, mobilisierte Millionen von Bürgern und führte zu einer Änderung der Politik. Sie wird oft als ein Meilenstein in der Chronologie der Bürgerbeteiligung in China betrachtet. Mithilfe der Prozessanalyse, der teilnehmenden Beobachtung, der Framing-Analyse und ausführlichen Befragungen analysiert dieser Beitrag die Kampagne und stellt ihre Hauptakteure und Perspektiven heraus, die Unternehmer und umweltbewusste Bürger mobilisieren. Unsere Analyse kommt zu den folgenden zwei Ergebnissen: Erstens, Mikroblogging-Plattformen können die Netzwerke chinesischer Umweltaktivisten durch die Einbeziehung öffentlicher Personen und Regierungsbehörden stark ausweiten; zweitens, Perspektiven, die die Luftverschmutzung mit der Gesundheit in Verbindung bringen und Regierungsmaßnahmen begrüßen, sind für den Erfolg der Bürgerbeteiligung an Chinas Umweltpolitik ausschlaggebend.

**Resumen** La pobre calidad del aire ha estado afectando al pueblo chino durante muchos años debido a la rápida industrialización y urbanización del país. Sin embargo, la sociedad civil había tomado muy pocas iniciativas hasta 2011. La campaña sobre la contaminación del aire entre octubre de 2011 y marzo de 2012 iniciada en un sitio Web chino de microblogging, movilizó a millones de ciudadanos y efectuó un cambio político. A menudo se ve como un hito en la cronología de la participación pública en China. Utilizando un seguimiento del proceso, observaciones de la participación, análisis de marcos y entrevistas en profundidad, el artículo analiza esta campaña revelando a sus principales actores y los marcos que movilizan a emprendedores de cuestiones y públicos medioambientales. Nuestro análisis genera dos hallazgos: en primer lugar, las plataformas de microblogging pueden expandir enormemente las redes de los activistas medioambientales chinos implicando a figuras públicas y a agencias gubernamentales; en segundo lugar, el marco que vincula la contaminación del aire a la salud y valora los esfuerzos

gubernamentales es crítico para el éxito de la participación cívica en la gobernanza medioambiental de China.

**Keywords** Public participation · Environmental campaigns · Social media · Air pollution · China

## Introduction

With rapid economic growth and transformation of the society, the number of protests—often called “collective actions” in China—caused by environmental problems has been booming in China since mid-1990s’, increasing by 29 %/year (Xinhuanet 2012). In recent years, several large-scale environmental campaigns originated in or mobilized through the Internet. Indeed, these campaigns demonstrate that environmental campaigns tend to occur more frequently and involve more people in China, though the government continues to control information in one way or another within the country’s boundaries. Moreover, in these campaigns, the government seemed to respond more openly to people’s concerns and sometimes make nontrivial concessions. With regard to these emerging trends, questions about the factors propelling environmental campaigns are raised: how environmental publics—lay people suffering from severe pollution—are mobilized? Which types of issues are able to harness government attention and resources?

To explain these questions about today’s Chinese civil society, one should take into account not only the role played by environmental activists—those who work for, or closely with, environmental civil society organizations, including NGOs’ staff, journalists and scholars; but also the rapid growth of new information technologies such as social networking websites which have changed the width and speed of information transmission.

These two factors have contributed to significant transformations in the contemporary Chinese civil society. The pace at which environmental organizations have been gradually developing since 1994 and have constituted a pivotal force in the Chinese civil society during last two decades is remarkable. Despite many restrictions and control by the government, environmental NGOs in China still have some free space to engage the public participation in the bottom-up reform by promoting environmental protection, monitoring and adjusting some governmental policies and so on.

In the meantime, the internet has been popularized since later 1990s in Chinese society (mostly in the urban areas) with surprising speed so that China has the biggest community of internet users—538 million by the end of June 2012 (China Internet Network Information Center 2012). While many observers emphasize the control or the entertainment on the Chinese Internet, Yang points out that in China, the Internet is an area of struggle where the “online activism” is generated everyday which means “Internet-based collective action that promotes, contests or resists change” (Yang 2009, pp. 1–3). As our analysis will show, the Internet has become a predominant public sphere where environmental activists play a pivotal role in producing and disseminating information to mobilize the public. To substantiate this

argument, we would underscore the social networking platform where more frequent interactions among users are able to be achieved.

Indeed, the development of environmental activism and the bloom of Internet in China are by no means separate; they are de facto embedded or mutual constitutive (Yang 2009, p. 154). Although existent literature has recognized many benefits brought by the Internet for environmental activists including expanding their networks and overcoming their resource limitations, very little research has examined empirically the emergence and process of online environmental advocacy in China.

Therefore, our research question is: How environmental publics are mobilized in the microblogging-based environmental campaign? Drawn upon social movement theory, this article aims at tackling two major puzzles—social actors and norms embedded in today’s environmental campaigns in China. While there should be very different environmental campaigns occurred in a big country like China, our analysis may shed light on a nascent type of civic engagement in environmental governance in today’s Chinese society. In order to capture the changing nature of such advocacy, we focus on a campaign across the country against air pollution based on a dominant Chinese microblogging website (Sina Weibo), which is usually seen as today’s most influential media in China for online protests.

The case of the air pollution campaign starting in fall 2011 is of crucial importance to understand the changing nature of social movements in China and civic participation in them. For decades, Beijing as well as many big cities in China have been infamous for its poor air quality and shady days, on which one cannot even see the trees or neighbouring buildings because of the smog. Although the government had made tremendous efforts to clean the air before the 2008 Beijing Olympic games in order to send a message to the world of being a strong prosperous power (Men 2012), the number of “blue sky days” has not drastically increased since then, and 105 were diagnosed daily with cancer in 2010 in Beijing, with the highest rates for lung and breast cancer, to which air pollution is very likely to have contributed (Chinadialogue October 2011 citing China Daily). In spite of a lack of progress, very few initiatives have been taken by Chinese civil society, until the very recent launch of the campaign for improved air quality. In this campaign, people were calling into question the government’s standard for monitoring air quality which ignore the index of particulate matter (so-called “PM 2.5”) fine enough to penetrate human lungs and blood tissues causing asthma, heart disease and cancer (Boyd 2012). Consequently, the notion of PM 2.5 has become a “matter of concern” for environmental publics (Latour 2004, p. 30) and propelled the resulting campaign with a truly global outreach that involved millions of Internet users nationwide, even worldwide (Boyd 2012). As a result of the PM 2.5 campaign just before the Spring Festival, the Chinese government released a statement that it would now monitor air quality and make efforts towards its improvement in 27 provinces. This case is often considered as a milestone and the biggest victory of civil society in the history of environmental campaigning in China.<sup>1</sup>

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<sup>1</sup> According to Jonathan Watts (keynote speech, Environmental Journalism Award, Beijing, 2012), five ENGO workers (interview, Beijing, 2012), environmental activist Ma Jun (interview with *Chinadialogue* 2012) and to the observers from *Chinadialogue*.

This article aims at establishing a debate in academia on China's microblogging-driven environmental campaigns and uncovering some successful techniques for environmental campaigning in countries with authoritarian regimes. Therefore, we rely on process tracing and frame analysis to examine the driving forces of the PM 2.5 campaign, including how the microblogging platform was helpful to the campaign's outbreak and developments and how important the role of framing in mobilizing related participants. Two findings can be drawn from the following analysis. First, microblogging platforms like Weibo can greatly expand the networks of Chinese environmental activists by involving influential public figures and governmental agencies. Second, NIMBYism (not in my backyard) frames linking air pollution to health and frames appreciating governmental efforts largely facilitated the success of civic participation in today's China.

The article proceeds as follows. In the next section, based on existing literature about civic participation in China, we will point out some propositions on new features of environmental campaigns in an information age. To demonstrate our proposition, we will trace the process of the campaign under investigation. The "[The Role of the Social Media in the PM 2.5 Campaign: Major Actors and Their Networks](#)" section analyses major actors leading the campaign and the role of the Weibo in facilitating the campaign. The frame analysis is in the "[Framing in the Campaign](#)" section to demonstrate major norms driving the campaign. The "[Conclusion](#)" section summarizes the results of our analysis and points out some lessons of online environmental activism in today's China.

In order to better understand motivations and strategies of environmental activists leading this campaign, we have also conducted eighteen in-depth interviews with environmental activists, holding decision-making positions in different Chinese ENGOs in Beijing during fieldwork between April 2012 and in London between May and August 2012. The first set of in-depth interviews has been conducted with key figures from various fields: environmental journalists, leaders of a climate change ENGO, a leader of a climate change education programme from the British Council, employees of Environmental Education NGO and the expert from an energy consultancy that works closely with the Government. A further part of the fieldwork involved working with ENGO community in Beijing and conducting participant observations of the meetings, discussions such as the Environmental Journalism Award. The second set of interviews was conducted during an internship at the NGO *Chinadialogue* in London.

## Chinese Environmental Activism in an Information Age

Social movement theories often conceptualize NGOs as a vital element to civil society formation (e.g. Busgen 2006; Salamon 1991; Cohen 1992). In China, environmental NGOs and related activists have largely contributed to the development of its civil society since the 1990s. This article views civil society as described by Busgen (2006)—as “space” or “arena” in which associations operate and relations form independently of the state and the market for the sake of public action and debate, based on public interests, values rights and needs. Chinese

environmental activists have some distinctive features because of the political and social context where these organizations and individuals undertake their activities.

Ho (2008) pointed out a notion of “embeddedness” which signifies that the semi-authoritarian political regime in China is at the same time restrictive and conducive to civil society. By underscoring the specificity of China’s context, he examined the constraints and opportunities to which the Chinese ENGOs face. According to him, the strategy of Chinese environmentalists is based on a blurred divide between state and society. Therefore, it is important to discern the informal or personal networks (*guanxi* in Chinese) behind ENGOs’ usual mild or non-confrontational actions. In line with this argument, Xie’s (2009) inter-regional research illustrated that the features of this strategy type are also determined by several contextual factors: political openness, level of economic development and cultural tradition etc. With respect to these interpretations, some scholars also pointed out that overestimating political opportunities may neglect some important aspects of the environmentalism in China; for instance, Yang (2010, p. 122) found that the Chinese environmentalists are also “free-floating and disembedding” by translating new cultures and consequently constructing new identities into China.

In general, existing literature studies indicate three major characteristics of Chinese environmental activists. First, while the top-down controls from the government exist, the government never closed all windows of opportunities to environmental activists. It can be argued that, because of the low political sensitivity of the environmental issues and increasingly serious pollution, the Chinese government welcomes environmentalists’ participation as long as they do not challenge the state’s authority (Chan et al. 2011; Economy 2005). Besides, some characteristics of the political regime provide also the space of actions to environmental activists: the heterogeneity of the Chinese bureaucracy implies tension between different governmental agencies (Xie 2009); the geographical size of the country generates central government’s motivation of limiting the misconducts at local level by environmentalists (Xie 2009); or the economic development and globalization can also influence the mindset of the Chinese government or its officials to incline towards political openness and freedom (Yang 2009).

Second, through a number of hardships, Chinese environmental activists have learnt how to steer such muddy waters in order to eke out their existence and development (Yang 2010). On the one hand, they are skillful by using informal networks to influence the policy, to participate in the decision-making process and to mobilize public campaigns through media (Ho 2008). On the other hand, most Chinese ENGOs are usually deliberative and non-disruptive so that the Chinese ENGO landscape is dominated by groups who are committed to environmental education as their primary activity, practice self-censorship and adopt a non-political stance in order to get more public space (Yang and Turner 2005; Yang 2009). Common practices include public lectures, workshops and conferences and new forms of “electronic action” such as online discussions, online mailing lists and Internet petitions. ENGO leaders also have allies in the mass media, international NGOs (INGOs) (e.g. Chen 2010; Wu 2011) and on the Internet.

Third, the actions of Chinese environmental activists do not only contain a pragmatic dimension, but also they have more implications to the societal and

cultural transformation which might catalyse some gradual political changes. With this respect, three features are crucial: the organizational base, a critical green discourse and the collective civic actions (Yang 2010). While the traditional culture emphasizes the responsibility of population towards the country, today's Chinese environmentalists highlight the rights of citizens and the rule of laws which are indeed rooted in the Western liberalism. In China, many laws or regulations about environmental protection have been well written on paper but faced difficulties when it came to the enforcement. Under these circumstances, environmentalists would call for the implementation of law when they submit petitions to the government or mobilize public campaigns. A well-known case concerns the campaign against developing hydropower plants in Nu River in the Southwest of China which invoked the Environment Impact Assessment.

These characteristics are helpful to understanding Chinese environmental activism, which is often far less aggressive than that in Western democracies (Ho 2008; Xie 2009, 2011). However, in order to understand the changing nature of environmental campaigns in China, it is necessary to capture a critical factor—new information and communication technologies, namely the Internet. While the Internet can provide public spheres to initiate environmental campaigns by activists, we lack empirical analysis about the mechanism through which the online activism is capable of being emerged and developed on these platforms.

At a glance, it seems obvious that the new ICTs can bring many opportunities to environmental activists. It is also the case in China where environmental activists “quickly embraced and learned to exploit these opportunities afforded by the internet” (Xie 2009, p. 46). By following the development of four web-based environmental groups in Beijing, Yang (2003, 2009) pointed out that they all have engaged in online activism which in turn facilitated these groups to build identity, mobilize resources and organize activities. To explain ENGOs' use of the internet, one may draw upon a hypothesis from organizational theories—as new organizations, ENGOs can more easily master the new technologies which help them to overcome some difficulties due to the lack of material or human resources. In addition, the internet is also a more efficient tool for ENGOs to establish direct contact with their potential members and also mobilize them more directly than the campaign through mass media. Another important contextual factor lies in the rules allowing for anonymous posting on the Internet in China, although the censorship always exists. Therefore, such anonymity is indeed conducive to online activism.

Nonetheless, the reasoning above does not indicate which role environmental activists play in their engagement in online activism. By focusing on the relationship between ENGOs and media, Yang and Calhoun argued that the media—including mass media, internet and unofficial publicity material—constitutes a green public sphere where the ENGOs are producers and disseminators of a greenspeak—environmental discourse—which promotes a public consciousness; in the meantime, the public not only is consumer but also can be the producer of this greenspeak (Yang and Calhoun 2008). This analytical framework can explain how ENGOs play a pivotal role in the movements supported by media and thereby is helpful to our research.

Indeed, it is possible to consider more specifically how environmental activists use the Internet. A survey shows that three internet services are often used by Chinese environmentalists: websites, mailing lists and Bulletin Board Systems (Yang 2006). Moreover, an inference based on several surveys indicates that the internet is mostly used by Chinese ENGOs for the information dissemination and networking with peer or/and international organizations, far less often for their communication with government agencies (Yang and Calhoun 2008; Yang 2009). Therefore, with respect to the online activism, the internet is most useful to enhance the interactions between different activists and between environmentalists and individuals by disseminating information.

This paper considers the internet as a public sphere where information is disseminated; at the same time, different actors interact including individual users, environmentalists, governmental agencies and so forth. In the following analysis, the research will focus on these three types of actors because such a model can fit well the case in China. Accordingly, the interactions between different environmentalists or between environmental activists and individual internet users can be seen as “horizontal”, while the interactions between environmental activists and public authorities as “vertical”.

However, as the internet is always changing, does the prevalence of horizontal interactions in online environmental advocacy still correspond with today’s situation? This question needs to be answered by taking into consideration the changing nature of the internet. Indeed, three recent changes of the internet in China seem to be fundamental. The first one is the prevalence of social networking websites in China, in particular a twitter like platform—weibo.com (368 million registered users by June 2012, according to Xinhuanet). Since 2010, contentious debates about different issues, such as corruption scandals, food safety problems, serious pollution, have occurred several times on Weibo. They indeed attracted the active participation of a great number of Internet users, thus, gained attention of the whole Chinese society. Because of its user number and the participation of many celebrities, Weibo is usually considered as the most important platform of online activism in China. Because of many debates on Weibo, traditional mass media often pays a great attention to this platform and has frequently commented on whether and how Weibo is changing Chinese society. However, existent literature has rarely discussed in depth the impacts of the microblog in China, although scholars have begun to acknowledge the importance of the changes driven by Weibo.<sup>2</sup> The second change is the access by mobile phone. According to the survey in 2012, the number of mobile-accessed users (388 million) has already exceeded that of computer-accessed users.<sup>3</sup> Besides, most social network websites’ users access frequently through their mobile phone. The third change is related to users’ demographics. Youth (20–30 year-old) consist of more than half internet users and they have grown up with China’s reforms and openness. Therefore, this generation might be more influenced by globalization but less antagonistic to the regime.

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<sup>2</sup> See an interview with Prof. Guobing Yang, available at <https://www.youtube.com/watch?v=eI3xVaX-w3Y>.

<sup>3</sup> CNNIC: The 30th survey report.



Taking these changes into account, we can make some inferences about today's environmental activists' engagement in the online activism. On the one hand, the concentration of online activism on one common platform generates more intensive horizontal interactions among environmental activists and engages more easily the wider public. On the other hand, in response to the pressure from web-based movements, many public agencies also participate in the public debate online, accordingly also increasing vertical interactions between the government, on one hand, and environmental activists or ordinary internet users, on the other.

Moreover, another important question is related to social norms embedded in environmental campaigns in China, which leads us to the body of knowledge on framing for related campaigns. Indeed, the framing analysis is helpful to uncovering the underlying causes which mobilized the public—ordinary people—in this campaign. Framing is the central process by which political actors, such as government officials, exercise political influence over each other and over the public. Studying frames involves investigating the relationships among these political exercises (Oksanen 2011). According to Mertha (2008), establishing the right frame is crucial for mobilizing the support for a cause, gaining people's attention and creating the conditions for policy entrepreneurs to appear. He also emphasizes that in order to bring any political change in China's semi-authoritarian context, environmentalism should frame itself as a non-political movement.

Drawing upon Benford and Snow's theorizing (2000) on the role of framing and discourse in public mobilization, we distinguish three types of framing: (1) *diagnostic framing*—the identification of victims and injustice, attributes blame to something(s) in order to direct action; (2) *prognostic framing*—articulating possible solutions or a strategy towards solutions; (3) *motivational framing*—the 'agency' component—giving people a reason to act collectively (Benford and Snow 2000; Goffman 1974; Creed et al. 2002). Our analysis will show that particular rhetoric and frames have been used for knowledge production in the air pollution campaign and played an important role in establishing PM 2.5 as a "matter of concern" that has become central to the formation of environmental publics under the direction of governmental agencies, ENGOs and with the help of various media outlets (Latour 2004). Hence, taken into account the authoritarian and special cultural contexts in China, it can be inferred that successful public mobilization in China needs a frame having wider resonance within society and employing personal concerns and values would not be critical towards the government and would provoke international attention and support, in particular for a large-scale campaign. More specifically, the link between air pollution and public health may be critical.

## The Process of the Campaign Against PM 2.5

Chinese cities have been suffering from severe air pollution for decades, although air quality has been greatly improved since the 1990s. In Beijing, in 1998, only 100 days of 365 were recorded above national air quality standards, and by 2004, this number more than doubled to 229, according to Beijing's Environmental Protection Bureau (EPB). However, everyday experience of people, who sometimes

could not even see the trees on the streets because of the smog made many Chinese unhappy with the city's air quality. In the meantime, government statistics excluded data of the fine-particulate matters with a diameter of 2.5 microns or less—known as PM 2.5 (Marshall 2013). Accordingly, most days were classified as “blue sky days” (days when an index of pollutants including sulphur dioxide and nitrogen oxide is under 100) when the reality was rather grey. Indeed, PM 2.5 is extremely hazardous to human health, because these particulates are small enough to penetrate human lung tissue, then cause asthma, lung cancer and cardiovascular disease (Marshall 2013). In most parts of China, PM 2.5 has been found to account for more than half of air particulate pollution. This implies that if China measures PM 2.5, the air quality level of most cities—previously good or qualified—will become “polluted” or “seriously polluted”. On 8th September 2011, the Chinese Ministry of Environmental Protection (MEP) has firstly ratified some standards about the measurement of this category of particulate. However, the ratification of these standards did not set up an implementation date.

Since October 2011, thick smog began to appear in several areas in China. For instance, in Beijing, sometimes the fog would not disappear for the whole day so that several highways and airports had to be temporarily closed. At the same time, the air quality published by the Bureau of Environmental Protection (BEP) of Beijing was “qualified” or just “mild polluted”. Therefore, at the beginning of October 2011, an increasing number of people discussed this problem online—mostly on Weibo. Hence, Weibo soon became a public sphere to discuss this topic. A number of internet users have begun to call the data of Beijing's BEP in question. Although the word “PM 2.5” had been discussed by some environmentalists several months before October, the word “PM2.5” has become popular for the first time to the general public because of these online discussions in October 2011.

Active online discussion was also promoted by discrepancies between China's Air Pollution Index (API) and a US Embassy air quality index (AQI) for Beijing. According to the Embassy's website, the U.S. Environmental Protection Agency (EPA) has developed a formula to convert PM 2.5 readings into a value that can help inform health-related decisions for the American community in China. Although it is clearly stated on the website that “citywide analysis cannot be done, however, on data from a single machine”, hourly updates from the embassy's roof monitoring station in Chaoyang district in Beijing started to appear via the Twitter account “@BeijingAir” in 2008 and gained enormous popularity in the Chinese online community. Despite the block of the Twitter, some weather applications on the mobile phone can still automatically download these data or people using VPN can still access to the data on twitter. The American index usually went far beyond the unpolluted level to indicate a level of being “dangerous” or “very dangerous” for human health. With this respect, by collecting many microblogs posted during this period, it can be observed that a large number of people questioned on Weibo the credibility of Chinese data. One government official having become well known during this period was the then deputy director of Beijing BEP who made several statements on Weibo in trying to justify Chinese data. Following his posts, the number of followers for the account of this official has remarkably increased.

At the same time, the consultations behind the closed doors were taking place. According to a non-profit international energy consultancy based in Beijing, they were called to the MEP office for an advice on better PM 2.5 measurement and standardisation. An employee of this consultancy told us: “Basically, we have developed the framework for the air quality improvement in Beijing, of course the Government will never acknowledge us, but we don’t care—this is a common goal”.<sup>4</sup>

The culmination was a mass online protest that directly impacted air pollution policy and has been hailed by many as a breakthrough for public environmental participation in China. One online poll during 6 and 13 November 2011, initiated by a well-known property developer Pan Shiyi, is often cited as the milestone of this online campaigning. The poll aimed at advocating the Chinese MEP to establish as soon as possible the compulsory standards of monitoring PM 2.5. The results showed that among 42,188 voters participating in this poll, 91.1 % wish that such standards come into existence this year (2011) (see Fig. 1).

On 16th November 2011, the MEP elaborated a new draft of *Ambient Air Quality Standards* including the monitoring of PM 2.5 and asked for comments from related stakeholders such as some industries, environmental NGOs and local governments. On 7th December, not only the MEP announced its final decision which requires the implementation of the new standards including PM 2.5 index by 2016, but it also allowed the local governments to begin voluntary implementation before that deadline. Although some cities have announced that they would start the monitoring as soon as possible, this result was obviously unsatisfactory for many participants of the movement, in particular environmental activists. They posted many microblogs on Weibo to express their puzzle about why we need to wait 4 years. For example, a NGO worker wrote on Weibo: “We firmly demand that Beijing’s environmental protection administration starts publishing PM 2.5 levels in 2012! Otherwise provide all Beijingers, including the transient population, with gas masks!” (Chinadialogue, Dec 12, 2011).

Therefore, although less individual citizens participated as actively as before, the protests did not stop and the ENGOs continued to disseminate the related information. For instance, some have begun to discuss the idea of monitoring PM 2.5 by the citizens, namely using portable machines. On 26th December 2011, during a conference, then the China’s environment minister announced that the state was planning to implement the new standards by differentiating the cities and the big cities and cities in the developed area will implement in 2012. This statement was later on confirmed by a decision on 29th February 2012. In March 2012, the Ministry of Environmental Protection (MEP) announced that PM 2.5 measurements would be conducted and related data of Beijing and 27 provincial capitals would be released. It was also stated that the standards would be tightened to be more in line with World Health Organization levels. In particular, Beijing planned to cut PM 2.5 levels by 15 percent by 2015 compared with 2010 levels and cut overall air pollution levels by 30 percent over the same period (China.org 2012).

<sup>4</sup> Interview with an employee of an international energy consultancy, Beijing, April 2012.



*“Experts said PM2.5 in the air is extremely dangerous to the human. Only if the compulsory standards can be imposed by the state, every city can implement them. Once people understand the seriousness of the problem, everyone can spontaneously prevent air pollution, change their unhealthy habits and lifestyles. Please vote and share this weibo. In one week, I will write a letter with the result of this vote to the environment minister.*

- This year
- Next year
- Never”

Source: <http://vote.weibo.com/vid=1127783>

**Fig. 1** Online poll on Weibo initiated by Pan Shiyi (translation provided by the authors)

Until the end of 2012, PM 2.5 is always an important topic of discussions on which a number of environmentalists disseminate many information and exchange their opinions on Weibo. In fact, the establishment of standards is only their first goal; the more important action should be to reduce PM 2.5 in order to improve the air quality. Therefore, their current focus is to look at whether each city can or cannot implement perfectly the new standards as the first round of implementation has been already started.

While air quality in China has not yet been improved, environmental activists have celebrated this achievement as proof that the public can directly influence environmental policy in China. Moreover, the government has also acknowledged the role that public pressure played in prompting the changes: announcing the new regulations; state media agency Xinhua praised the “stirring campaign” that played out on social network websites, which had gained a “satisfying response” from the policymakers (Hsu 2012). Therefore, this case established a precedent for civic participation in environmental policy making in China through online campaign, as the leader of a famous Chinese ENGO concluded—“This very vocal expression of public opinion helped to overcome this barrier against environmental transparency in China – helped the government to overcome its own barrier and change its original position. It’s quite an amazing example” (Boyd 2012).

## The Role of the Social Media in the PM 2.5 Campaign: Major Actors and Their Networks

The process tracing above demonstrates that the success of the PM 2.5 campaign should be mainly attributed to large-scale public participation in online discussions on Weibo. One can consider the PM 2.5 campaign as a breakthrough in the history

of Chinese civil society, and it succeeded because it involved a wider public—not only ENGOs, but also national and international media and the Internet users.<sup>5</sup> The message has spread and reached millions of people. Public opinion convinced the State for the first time to match the World Health Organization’s minimum standards. This campaign is usually seen as a symbolic success of Weibo in civic participation in China. In the outline of the chronology of public participation in Chinese sustainable development published by *Chinadialogue* in May 2012 in line with such events as the establishment of the Friends of Nature in 1994 and the Nu River anti-dam campaign in 2003, the launch of Sina Weibo is presented as a new “era of public participation via microblogs and other social media” (Chinadialogue 2012).

While the transboundary nature of air pollution across regions may be helpful to explain the large number of campaign participants and positive feedback of both the central and local governments to online criticisms, we should acknowledge the critical role of microblogs in initiating and expanding this campaign. In fact, the Weibo platform enabled environmental activists to establish a network of green discourse and knowledge among them and such a network has been formed even before the outbreak of the movement. The analysis of our interviews showed that the environmental community in China, in particular in Beijing where most Chinese ENGOs are located, communicates primarily via Weibo: discussions, gatherings, online campaigns and even such initiatives like weekly farmers’ markets are organized via the microblog. All the interviewees unanimously agreed that Weibo played a key role in spreading the PM 2.5 campaign after the term had been established and explained by conventional media by illustrating the size and impacts of particulate matter in accessible ways. Chinese environmental activists were very active in steering the discussion on air pollution online, and these collaborative efforts have created the discourse that penetrated the public sphere, creating it as a “matter of concern”. “When I saw my boyfriend, who doesn’t care a smallest bit about the environment, ordering PM 2.5 masks on the Internet, I knew that my work has brought the results”—an online editor of a Beijing-based ENGO shared with one of the authors.<sup>6</sup>

Moreover, this comparatively small network is not closed—once public attention has moved to a related issue, individual Internet users can quickly join this network. Since this is a network of information, the physical contacts between people are not necessary. Thus, this green network provides a good basis for the large-scale online protests not only in terms of knowledge, but also of strategies. On the one hand, individual Internet users who engage in online advocacy can draw on the information disseminated among environmentalists and make their own contributions to the movement, such as Pan Shiyi who was having seven millions followers on Weibo. In retrospect, some environmental activists indicated that the environmental community had almost lost hope that the PM 2.5 would be integrated into the standards early 2011, but at the end of the day, Weibo played a decisive role in promoting a better policy on PM 2.5 whereby some celebrities posted monitoring

<sup>5</sup> Interview with a Chinese environmental journalist, Beijing, April 2012.

<sup>6</sup> Interview with a Chinese ENGOs’ website manager, Beijing, April 2012.

data and information about health impacts and created a discussion forum (The Guardian 2012; The New York Times 2012). On the other hand, major environmentalists are always active by producing new information or setting new agenda. Hence, the public was mobilized because of information given by environmental activists.<sup>7</sup> In sum, Fig. 2 below illustrates the process of information dissemination in this online campaign, and it shows that the Weibo platform enabled more frequent and intensive horizontal interactions.

Due to the lack of the precise data which are confidential for Sina Weibo, it is hard to test our arguments in a quantitative way. Nonetheless, some rough evidence can be still uncovered. By focusing on some key figures of environmental activists, the analysis would highlight two points. First, many environmentalists discussed the PM 2.5 on Weibo before the problem moves under spotlight. Second, as the pivot of the campaign, major environmental activists are far more active than ordinary people in this process. These inferences can be illustrated by looking at a few critical activists in this campaign.

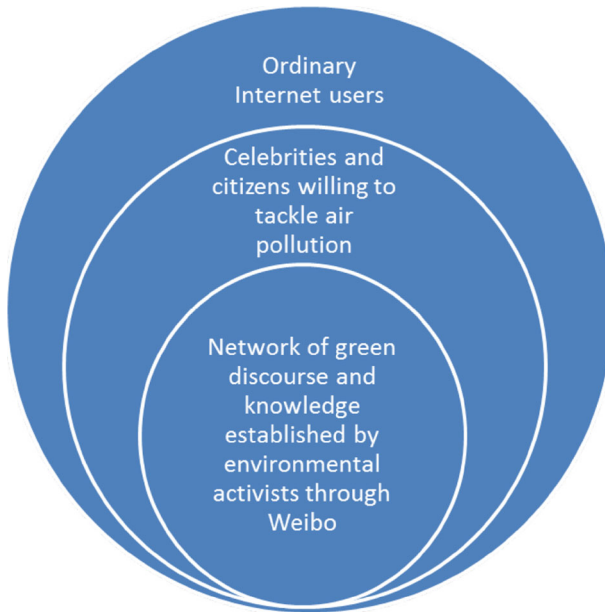
One example is Ma Jun, director of the Institute for Public & Environmental Affairs and Goldman Environmental Prize winner for his pioneering work on mapping pollution violations. He began to post information or opinions about PM 2.5 on Weibo since the 3rd of August 2011, and until mid-2012, he has posted 224 microblogs including the word “PM 2.5”. His importance in the campaign can be also evidenced by the dissemination of a world map (Fig. 3). This world map illustrating the quantity of PM 2.5 was very well known and shared on Weibo since the outbreak of the campaign in October 2011. According to our investigation, this map appeared for the first time on Weibo in an online discussion of air pollution initiated by Ma Jun on August 3.

Besides Ma Jun, there were also many other environmental activists who consistently share information on Weibo with the attempt to raise public awareness and persuade the government. For instance, Feng Yongfeng, another environmental activist who is the founder of a famous ENGO—Nature University, has posted 385 microblogs including the keyword “PM 2.5” on Weibo between the end of September 2011 and mid-2012. Therefore, it can be argued that the online network on Weibo among environmental activists constitutes a good basis of information and knowledge for the subsequent protests.

With this respect, we also found an interesting point that Chinese environmental activists participated in this online campaign as individual figures rather than on behalf of their organizations. In fact, if we look at the Weibo accounts of ENGOs in China during the period of the campaign, we will find that even prominent ENGOs seemed quite silent on Weibo compared to their activists. On the one hand, this phenomenon can be explained by the lack of human resources in ENGOs for online communication; on the other hand, it may be a strategic choice to keep at a distance from campaigning with the fear of being punished by the government. By contrast, as individuals, environmental activists have relatively more “free space” to voice their opinions, particularly those prominent figures having informal networks with the government.

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<sup>7</sup> Interview with a Beijing ENGO employee, Beijing, April 2012.

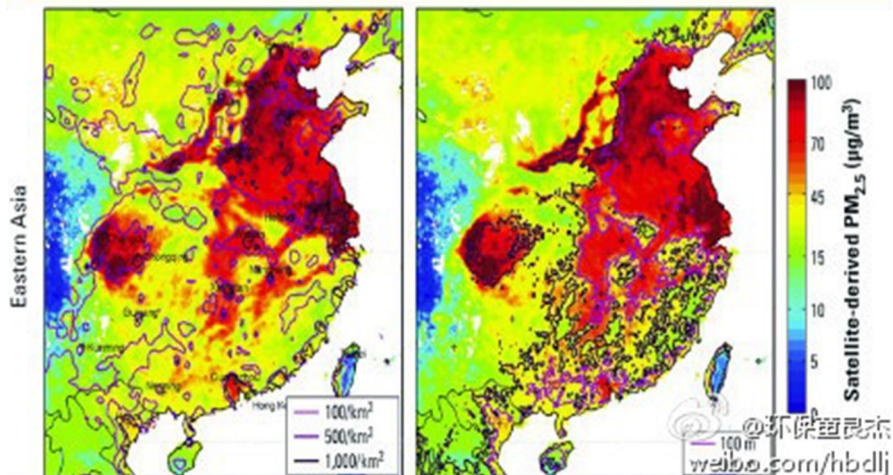
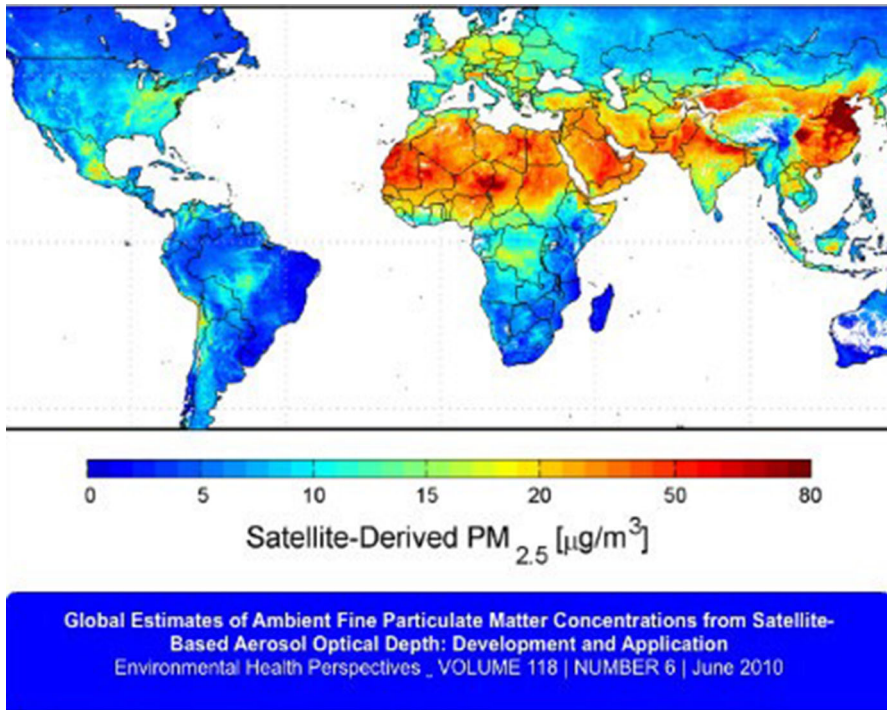


**Fig. 2** Process of information dissemination in the PM 2.5 campaign

In terms of vertical interactions, the communications between ordinary internet users or environmental activists and then the Deputy Director of Beijing BEP (Mr. Du) are a good example. During the online campaign, this governmental official, who was unknown by the public before, has suddenly become a star on Weibo and focus of media. Rather than remain tacit, Mr. Du was really proactive so he directly engaged in many discussions with environmentalists such as Ma Jun, also in a debate with Pan Shiyi. One could argue that this governmental official is only an exception, and since he is official of Beijing BEP, it is very possible that there are special personal relationships between these environmentalists and this official. While this reasoning may be partly true, this phenomenon still has an important implication for Weibo-based advocacy, because the interactions on Weibo show somehow overtly the relationships or networks between many Chinese environmental activists and governmental officials. More importantly, the very existence of many Weibo accounts of governmental agencies now enables the public to find a target to which they can express their opinions and exert their influence.

More importantly, the vertical interactions between Mr. Du and many environmental activists are not an exception in this PM 2.5 movement. Many local agencies also proactively responded to Internet users' questions and critiques. For instance, before the adoption of a draft on new standards provided by the MEP, Metrological Bureau of Nanjing has posted a microblog which said the city of Nanjing was prepared to monitor PM 2.5, and was always waiting the decision of the MEP. Interestingly, on 14th November 2011, the same account posted one microblog disclosing the PM 2.5 data in Nanjing. Although the relevant information





**Fig. 3** A world map of the PM<sub>2.5</sub> level frequently posted on Weibo during the campaign (retrieved from Weibo.com)

was soon deleted and the agency explained that it was an individual misconduct by an employer, we can still discern some effects of the vertical interaction. These anecdotes also show that some local governments were very proactive in this campaign by expressing their determination of adopting stringent standards whereas the central government seemed reluctant to implement new standards with the



concern of negative effects on economic growth. This situation is different from many other local pollution problems, as environmental activists often put pressure upon the central government when local governments often sacrifice natural environment for economic benefits.

In short, the vertical interaction not only can be seen as a new phenomenon advanced by the Weibo-based advocacy, but it is also more difficult to be examined than the horizontal one. In terms of the effects of the vertical interaction, one cannot be too optimistic because this type of interaction mainly based on personal networks seems still very infrequent and depends often on the governmental attitudes which are usually elusive. To summarize, Sina Weibo has provided an important platform for disseminating the “greenspeak” and establishing the PM 2.5 as a matter of concern for the public.

### **Framing in the Campaign**

From appealing to personal aspirations, health and fashion (e.g. reusable chopsticks and plastic bags or even electric cars) to emphasize culture or extreme poverty—Chinese environmental activists have to use different arguments and a wide spectrum of values in order to find a working strategy (Kingdon 2003). It is also very important to find the right arguments or frames that will resonate with society and lead to the emergence of policy entrepreneurs. They are more likely to appear at the time of the opening of “policy windows”, which are prompted by such events as crises, a change in indicators (for example worsening pollution) or a change in administration (Calhoun and Yang 2008). At the same time, in the current Chinese political climate, it might even be more important to make sure that the framing is acceptable by the Government and is not too controversial from the officials’ point of view.

In order to investigate the framing strategy of the campaign, we classify three types of frames for the issue of air pollution—diagnostic, prognostic and motivational framing (see Annexes I, II, III). This framework resonates with Van Rooj’s (2010) vision of Chinese mobilization: “naming-blaming-claiming”. We also follow Johnson’s work on “environmentalism” and “NIMBYism” values to see what arguments were used more often to motivate the public in the PM 2.5 case: environmentalism concerns “attitudes and behaviours that focus on protecting the natural environment from destruction or pollution” whereas NIMBYism refers to the selfish desire to protect individual interest (Johnson 2011).

Since it is feasible to analyse the frame of all microblogs posted during the campaign, we choose media reports of this campaign as a proxy sample for our frame analysis. Twenty-six articles with referencing to PM 2.5 have been analysed from newspapers (eight) and the *Chinadialogue* website (eighteen). The Internet search with key words was conducted to find the articles within the sampling period—from October 2011 to July 2012—that has been identified as the time frame of the campaign by key contacts. One of the authors has also asked the respondents to recall from which newspapers they had got the information about PM 2.5. The search of media websites was run according to their responses and the following

articles have been analysed: Global Times (1), CNN (1), Xinhua (1), China Daily (2) New York Times (2) and The Guardian (1).

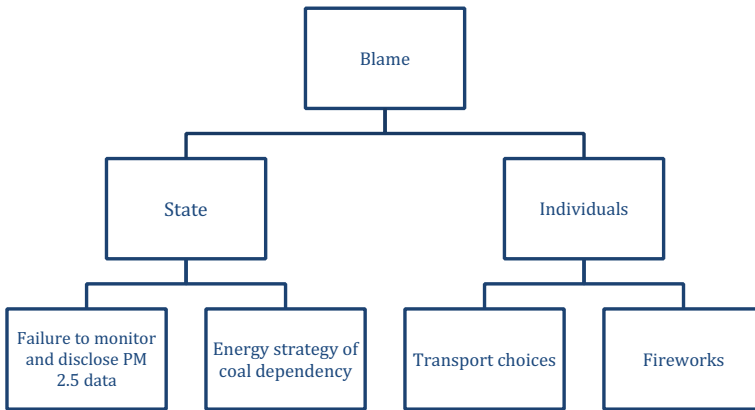
## Diagnostic Frames

Seven articles out of twenty-six contained the “blaming” frame. Five articles besides attributing blame to something also tried to explain to the public what air pollution actually is. The first frame was rather technical. Three *Chinadialogue* articles from December 2011 focus on technical explanations of “PM 2.5” and its possible threat to the health of ordinary people. They blame the official standards: “In the first analysis of US embassy ‘Twitter’ data on pollution, Steven Q Andrews finds major failures in Chinese air quality assessments”. This publication established the new language and discourse of air pollution, by introducing technical terms to wider publics. It also seemed that different media outlets were citing one another in order to not take responsibility for some of the statements: “Experts are worried, China Daily said, that particulate matter in the air may lead to more cardiovascular and respiratory disease” (Chinadialogue 2011) (Fig. 4).

*Chinadialogue* being a trendsetter blamed the Ministry of Environmental Protection (MEP) for not providing the correct data (Chinadialogue 2012), but this discourse was not followed up in other newspapers, although it did fuel the Weibo discussion and led to demands to disclose the data. Nevertheless most publications blamed individual choices. Foreign and national media mentioned cars as the primary reason of pollution: “vehicle exhaust contributes more than 70 % of the nitrogen oxides in central Beijing and are the dominant source of roadside PM 2.5 levels—and the biggest threat to health” (The Guardian 2012). The official line reflected in Xinhua publications attributed the causes of pollution to citizens’ actions such as transport choices, small-scale burning and the fireworks: “China’s new-year fireworks spree not only left tones of rubbish in Beijing but also drove up the city’s air pollution data to the ‘hazardous’ level until winds blew in on January 24” (China Daily 2012).

Interestingly, after the Government announced its decision to start monitoring PM 2.5, flashing the “green light” to this issue, *The Guardian’s* investigation concluded that air pollution is “a combination of these two sources — coal combustion and cars”. This statement has pushed the boundaries a little bit further attributing the responsibility to the State’s energy policy. The official response came on July 09, 2012, translated by *Chinadialogue*: “Beijing’s vice-mayor, has said that around 22 % of Beijing’s PM2.5 pollution comes from vehicles and 17 % from coal combustion in power plants and district boilers, and scattered, small-scale burning”. This statement was followed by the announcement of a new gasification plan for the Capital and by the praising of public opinion that has helped the shift away from coal.

Thus, diagnostic (or “blaming”) framing in the beginning was focusing primary on health impacts and technical terms and later shifted to attribute blame to individual behaviours and transport choices. It did not blame the government for coal dependency and prioritizing development over the natural environment—but



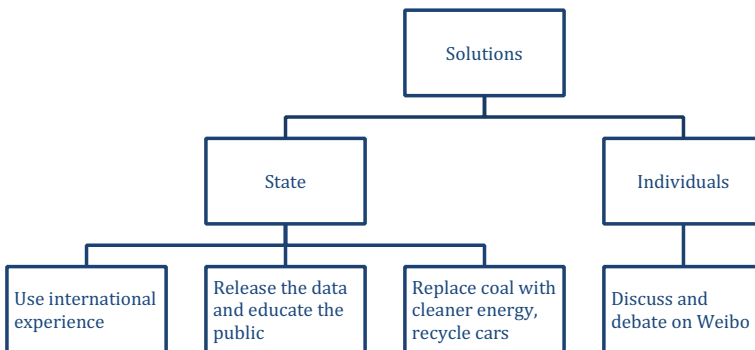
**Fig. 4** Diagnostic frames

only for the non-disclosure of the data. Most of the statements about the coal industry came in the same articles that praised the government for shifting to gas.

**Prognostic Frames**

Prognostic frames—that are to propose possible solutions—were only used by the *Chinadialogue*. We identified seven articles that employed prognostic framing to suggest solutions to the air pollution issue (Fig. 5).

One article from December 12 is a follow-up to the Andrews’ research and emphasizes the importance of Weibo and public debate. Therefore, the first step, according to the *Chinadialogue*, would be to set up public deliberations on the issue. Publications on the 6th and 7th of January ask for better public awareness and data disclosure from the government: “Wang said the capital should do more to teach the public about the dangers of PM 2.5 - especially the old and children”. However,



**Fig. 5** Prognostic frames

education alone is not considered to be the solution: “the important thing is not to simply publicize the figures, but also to reduce the amount of pollutants being released” (Chu 2012). Just a week after this critique, an article that marks governmental efforts came up: “Beijing also plans to reduce the density of major pollutants at construction sites by an average of 2 %, recycle 150,000 old cars and replace coal-fired boilers with clean energy for heating” (Ibid.).

On March 2nd, another pro-governmental publication has appeared, citing China News: “Pollution inspectors in Beijing stopped about 12,500 vehicles from entering the capital because of their excessive exhaust emissions” (Ibid.). After praising the State’s efforts, it was proposed to take an example from the West: “An advanced pollution-monitoring system developed by British scientists, which scans air quality across whole cities, is to be trialed in London during the Olympics in July” (Ibid.).

Finally, a publication from June 11 again emphasized the importance of correct data for the health of ordinary people: “To regain public trust, all that the Chinese government needs to do is push its existing systems of data disclosure further, and provide accurate information in a format the public can digest and use. Breathing air under the same piece of sky every day, ordinary Chinese people make their own judgments about the state of their environment” (Zhou 2012). In summary, every publication called for the release of the data and for the tightening of air quality standards to WHO levels. No solutions besides education and public discussion have been articulated, whereas each governmental effort has been acknowledged.

## Motivational Frames

The motivational framing sample found the most diverse range of frames. It includes 12 publications citing such sources as China Daily, Beijing Health Bureau, China.org, Global Times, The Guardian, New York Times and CNN (Fig. 6).

The dominant motivation in most of the articles is a threat to the health of ordinary people: “lung cancer is responsible for one in four deaths”, “city’s smog contains carcinogens”, “increasing air pollution might be largely blamed... for lung cancer”, “city dwellers in China will be breathing unhealthy air for at least another



**Fig. 6** Motivational frames

20 years despite moves to tighten controls on PM<sub>2.5</sub> particulates” (China Daily Dec 06, 2011; Chinadialogue Oct 14, 2011; Dec 06, 2011; Jan 06, 2012). Those are just few examples of the NIMBY frame that tries to mobilize people for a change in order to protect their own health and health of their children.

Ma Jun in his essay published in *Global People*, a magazine produced by People’s Daily, with a website attracting 50 million clicks/day, dreams about the time when Beijing will be as clean as cities in the West. “When that day comes...you won’t have to rack your brains figuring out what kind of dust prevention face mask your children need, so that they don’t inhale too many fumes on their way home from school...You’ll be able to change into a pair of trainers and go for a morning jog in the sunlight, without worrying that the exercise may be doing you more harm than good” (Ma 2012). This strong visualization is entirely concentrated on the individuals and represents the NIMBY frame. Ma Jun proposes four steps for action: monitor and publish data on pollutants, announce appropriate health alerts based on that data, carry out research and identify the key sources of pollution and finally formulate and implement a targeted emissions reduction plan. Public involvement—will be the solution according to him.

If diagnostic and prognostic frames were used to explain the reasons and health effects of PM 2.5, motivational framing was used to mobilize people and provoke deep feelings about the problem. One respondent said that “Chinese society doesn’t have as high level of compassion as in the West, because life is complicated for everybody and it is hard to sympathize people to each other”.<sup>8</sup> This resonates with the Lemos’ (2012) point that lay people are concerned about their own wealth and health of their children. Deng and Yang (2013) also show that frame that asked Huanxi farmers to preserve their health and “quality of descendants” was successful in provoking village-wide protests. Therefore, PM 2.5 case once again has proved the importance of the NIMBY frame in public mobilization.

Most articles stress the embodied individual experience: “The man on the street doesn’t know whether Chinese or US air quality criteria is better; he only cares about when the hazy weather will come to an end” (Boyd and Meng 2011). “I dared not to go outside, as the haze covered the city, but the official data said the pollution was not so heavy” (Guo 2011).

However, the NIMBY frame was not the only one—but “appreciation of the government’s efforts” was also present in motivational framing. “Thank the government for making this effort to solve the problem. It is a Chinese New Year gift from them to the people” (FlorCruz 2012), “the capital has met its 2011 target of 274 ‘blue sky’ days” (China.org 2011)—were some examples, followed by even further encouragement to the public to get involved in the discussion. In a country where political behaviour is influenced by cultural heritage and individuals are supposed to sacrifice their private interest, it was of crucial importance to find a frame that would not place people against the government, but would rather unite society towards a common goal.

Thus, the publications about PM 2.5 used different frames and motivations; however, it is possible to conclude that the dominant discourse in the motivational

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<sup>8</sup> Interview with an ENGO worker, Beijing, April 2012.

framing was a concern about people's health. This demonstrates the success of the NIMBY frame and supports Mayer's (Mayer 2009) argument that "health framing" can be that middle ground between ENGOs and labourers—or environmentalists and nimbies—where both sides are motivated to find a consensus and take actions for better results. Environmental activists with cosmopolite environmental values and ordinary people were all interested in improving air quality, and the State Council's commitment to monitor PM 2.5 was the first necessary step towards this goal.

## Conclusion

From this investigation of the PM 2.5 case and other stories shared during the interviews, it is possible to suggest some features of current Chinese environmental activists discourses and tools they use for policy change. In the first place, in order to mobilize environmental publics, framing cannot be confrontational. The strategy that was used by journalists resembles one of the "stick and carrot". At first they would thank the government for tremendous efforts and data disclosure. This is often followed in the very next sentence by demands for new efforts to improve air quality. In the PM 2.5 campaign, the governmental critique was minimal, and every effort from the officials' side was widely acknowledged, publicized and supported.

Meanwhile, Chinese environmental activists have found a way to partner with the media that provides them with legitimacy and public support. While ENGOs could not get any space offline they have increased their online presence. There are even some ENGOs only existing online (Yang 2005). The power of the Internet is growing, and ENGOs are embracing new opportunities. It is remarkable that almost no distinction is made between environmental journalists and ENGO workers. They float in the same public space, creating new discourses and sending messages trying to provoke public support and mobilize citizens. Weibo is increasingly important as a tool for public mobilization, and in the case of the PM 2.5, campaign has become the main platform for environmental publics to assemble around a "matter of concern". It also provided the space for issue entrepreneurs such as Pan Shiyi and Ma Jun to emerge with the tools for motivational framing.

Moreover, environmental activists have found ways to partner with the government in order to create more political space. As a contact from a Climate Change, NGO said: "The State needs us: when we go to the Climate Change negotiation, global press will not ask the government what is done about the environment in China, they will rather ask us".<sup>9</sup> In the PM 2.5 case, one ENGO was invited to give advice on the proposed new governmental regulation, behind closed doors. This non-profit energy consultancy from the US has been present in China for more than ten years, and they have been working with different INGOs (e.g. NDRC), the World Bank and the Asian Development bank. The key expert in Beijing speaking about his work said that his goal was to set up measurement standards for PM 2.5: "We have been working for so long on this issue and finally

<sup>9</sup> Interview with the leader of an ENGO on climate change, Beijing, April 2012.

proposed the standards to the government that they have adopted and we don't care that we don't get a credit for it".<sup>10</sup> Thus, finding the way behind the closed doors of "public consultations" is essential for Chinese ENGOs if they are to get political leverage and affect the change, even if no credit will be given for it.

Finally, in the PM 2.5 case, environmental activists and journalists found that the frame that resonated with a wider society was a NIMBY frame of health concerns. After the establishment of the new term "PM 2.5", the dominant discourse in the press and Weibo was not about the environment in general but the health of ordinary people. Most of the motivational framings have been focusing on people's health, and the threat to children and individual embodied experiences (such difficulty to breath or inability to see far). However, the second most popular frame was one of appreciation of governmental efforts. "Government will do everything for the people, and they should be thankful for what they have. Common people will not act against the government"—one of our contacts in Beijing said. This statement emphasizes Xie's point that in Chinese society, it is still shameful to be disrespectful towards the authorities. Therefore, it was necessary to show that in taking action on PM 2.5 data disclosure and partnering with ENGOs, journalists and other public figures were not making a critique of the government, but rather they were helping it to take even better care of citizens.

While the importance of cultural values, historical heritage and religion in framing of environmental campaigns in China has been emphasized by different scholars (e.g. Mertha 2008; Weller 2006; Lemos 2012), we could not find such frames in the publications about PM 2.5. The present analysis rather supports Mayer's argument that it is the health frame that is more likely to unite environmentalists and nimbies in common action (Mayer 2009). However, it must be noted that the NIMBY frame is more effective for short-term public mobilization, rather than for achieving the long-term goals (Johnson 2010). It is now more important to create sustainable channels for public dialogue with the State and other opportunities to influence the policy in urgent areas.

Although case study research is relevant for "how" and "why" questions (Yin 1984) and could generate prolific, detailed elaborations and understanding of variation of social phenomena (Snow and Trom 2002), it must be taken into account that a single case study of the PM 2.5 campaign cannot be extrapolated to explain universal features for China as a whole, or issues more widely. Nevertheless, appropriate measures were taken to mitigate the errors and biases, and diverse interview sampling incorporated insights into the research from different angles.

In sum, this case study is valuable in highlighting important issues playing out in public mobilization in contemporary China and, therefore, will hopefully add to an important debate and begin to encourage new questions that are relevant to civil society's engagement and influence on policy making for improving environment and health. As the result of a long-awaited but very rapid PM 2.5 campaign, Chinese ENGOs have not only managed to mobilize environmental publics and secure a government response and action on the issue, but also set up a precedent for widespread public discussion leading to the achievement of policy change in China.

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<sup>10</sup> Interview with an energy expert, Beijing, April 2012.

This marks this case as a milestone in participation for sustainable development and might serve as guidelines for future campaigns in countries with semi-authoritarian regimes. This study has brought insights into one of the most important campaigns of recent times—that bears lessons for wider thinking of issue mobilization in China and for research looking forward.

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## Appendix

See Tables 1, 2 and 3.

**Table 1** Diagnostic framing

Date	Media outlet	Frames	Citation
Jul 09, 2012	Chinadialogue	Officials blame cars and coal, but public anger helped to shift away from coal	Beijing's vice-mayor, has said that around 22 % of Beijing's PM 2.5 pollution comes from vehicles and 17 % from coal combustion in power plants and district boilers, and scattered, small-scale burning
Apr 10, 2012	Guardian	Blame cars and coal	Air pollution in China is such a big challenge because it's a combination of these two sources—coal combustion and cars
Mar 02, 2012	Chinadialogue	Technical explanation of the threat to health	The fine particles are considered more harmful to human health than PM10
Feb 20, 2012	Chinadialogue	Technical explanation of the threat to health, statistics	All but four provinces (excluding Taiwan) have average annual exposures to PM 2.5 above levels recommended by the World Health Organization (WHO)
Feb 03, 2012	Chinadialogue	Blame vehicles, threat to health	Vehicle exhaust contributes more than 70 % of the nitrogen oxides in central Beijing and are the dominant source of roadside PM 2.5 levels—and the biggest threat to health
Jan 27, 2012	Chinadialogue	Technical explanation of the threat to health, blame on fireworks for the spring festival	China's new-year fireworks spree not only left tonnes of rubbish in Beijing but also drove up the city's air-pollution data to the "hazardous", according to Xinhua
Jan 19, 2012	Chinadialogue	Blame MEP, importance of correct data	In Beijing, the gulf between reported air quality and the reality experienced by city residents became a sharply divisive issue
Dec 12, 2011	Chinadialogue	Technical explanation of the threat to health to ordinary people	But people know that the pollution is not getting better
Dec 09, 2011	Chinadialogue	Technical explanation of the threat to health, citing other sources	Experts are worried, China Daily said, that particulate matter in the air may lead to more cardiovascular and respiratory disease



**Table 1** continued

Date	Media outlet	Frames	Citation
Dec 05, 2011	Chinadialogue	Difference in data between Beijing Official measurement and US Embassy	In the first analysis of US embassy “Twitter” data on pollution, Steven Q Andrews finds major failures in Chinese air quality assessments

**Table 2** Prognostic framing

Date	Media outlet	Frames	Citation
Jun 11, 2012	Chinadialogue	Importance of correct data for the health of ordinary people	To regain public trust, all that the Chinese government needs to do is push its existing systems of data disclosure further, and provide accurate information in a format the public can digest and use. Breathing air under the same piece of sky every day, ordinary Chinese people make their own judgments about the state of their environment
May 21, 2012	Chinadialogue	Taking example form the West	An advanced pollution-monitoring system developed by British scientists, which scans air quality across whole cities, is to be trialed in London during the Olympics in July
Mar 02, 2012	Chinadialogue	Appreciation of the government actions	Pollution inspectors in Beijing stopped about 12,500 vehicles from entering the capital because of their excessive exhaust emissions, according to Chinanews
Jan 13, 2012	Chinadialogue	Appreciation of the governmental actions	Beijing also plans to reduce the density of major pollutants at construction sites by an average of 2 %, recycle 150,000 old cars and replace coal-fired boilers with clean energy for heating
Jan 07, 2012	Chinadialogue	Government should teach people and protect them by providing the data	Wang said the capital should do more to teach the public about the dangers of PM 2.5—especially the old and children. “The important thing is not to simply publicize the figures, but also to reduce the amount of pollutants being released,” said Wang
Jan 06, 2012	Chinadialogue	Threat to health, plans to release the data before the Spring Festival	The authorities in Beijing plan to release air-quality monitoring data using the PM 2.5 gauge—measuring particles smaller than 2.5 micrometres in diameter—for the first time before the Spring Festival holiday
Dec 12, 2011	Chinadialogue	Importance of weibo and public debate	Competing claims about air quality in Beijing have propelled Steven Q Andrews’s research into the centre of a public debate about smog

**Table 3** Motivational framing

Date	Media outlet	Frames	Citation
Mar 13, 2012	Chinadialogue	Learn from the west, children's health, importance of weibo	When I fly over international cities such as London, Paris, New York, San Francisco, Tokyo and Melbourne, it is not the skyscrapers my fellow countrymen so admire that affect me most deeply, but the clearness of the air
Jan 27, 2012	CNN	Appreciation of the governmental actions, importance of the data	Thank the government for making this effort to solve the problem. It is a Chinese New Year gift from them to the people" ... "Only when people have the knowledge of the air quality around them will they change unhealthy behavior"
Jan 27, 2012	New York Times	Appreciation of the governmental actions, importance of the internet and peoples encouragement to speak	At the beginning of last year, we had almost lost hope that the PM 2.5 would be integrated into the standards," Mr. Ma said. "But at the end of the day, the people spoke so loudly that they made their voice heard"
Jan 19, 2012	Chinadialogue	Need to push MEP for action	Just waiting will not bring China clear water and blue skies. Action is required
Jan 06, 2012	Chinadialogue citing the Guardian	Unhealthy air for the people, need to tighten controls	City dwellers in China will be breathing unhealthy air for at least another 20 years despite moves to tighten controls on PM 2.5 particulates
Dec 23, 2011	Global Times	Fear of ordinary people, appreciation of the governmental actions	"At that time, I dared not to go outside, as the haze covered the city, but the official data said the pollution was not so heavy," Chen Zhenyun, a resident in Beijing, It is good news that the government will follow the new standard, commented Pan Xiaochuan, a professor at Peking University, on his microblog yesterday
Dec 12, 2011	Chinadialogue citing China Daily and Global Times	Protect the citizen by publishing the data, lung cancer danger	"We firmly demand that Beijing's environmental protection administration starts at the least publishing PM 2.5 levels in certain areas within 2012! Otherwise provide all Beijingers, including the transient population, with gas masks!" wrote one NGO worker, Guo Xia

**Table 3** continued

Date	Media outlet	Frames	Citation
Dec 08, 2011	Chinadialogue citing China.org	Appreciation of the governmental actions	City officials say the capital has met its 2011 target of 274 “blue sky” days, China.org noted
Dec 06, 2011	China Daily citing Beijing Health Bureau	Hazard for the health of ordinary people	In Beijing, the lung cancer rate has increased by 60 percent during the past decade, even though the smoking rate during the period has not seen an apparent increase... Increasing air pollution might be largely blamed for that. Lung cancer, the leading killer among cancers, claims more than 600,000 lives on the mainland annually, according to the Ministry of Health
Nov 25, 2011	Chinadialogue	Showing national interest	East China’s Shandong province said it would begin monitoring and publishing information on toxic PM 2.5. will publish monthly air quality readings
Nov 17, 2011	Chinadialogue	Threat to health, ordinary people experiences	The man on the street doesn’t know whether Chinese or US air quality criteria is better; he only cares about when the hazy weather will come to an end... city’s smog contains carcinogens
Oct 14, 2011	Chinadialogue citing China Daily	Threat for ordinary people’s health	Every day in Beijing last year, 105 people were diagnosed with cancer, the fast-rising disease responsible for one in four deaths, China Daily said

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