



FROM RED TO

**Environmental Attitudes
and Behavior in Urban China**



GREEN?

BY JOHN CHUNG-EN LIU AND ANTHONY A. LEISEROWITZ

The People's Republic of China approaches its 60th anniversary on 1 October with much to celebrate, but the road ahead for the world's most populous nation is uncertain. Since the 1979 economic reforms ended collective agriculture, opened foreign trade, and began to give more autonomy to the business sector, China has achieved rapid economic development, industrialization, and urbanization, with annual gross domestic product (GDP) increases of 8–9 percent.¹ This process has significantly lifted average living standards, decreased poverty, and improved life expectancies. The rapid development, however, has also severely degraded the environment, creating serious challenges for China's future development.²

Until recently, there has been little research on Chinese environmental attitudes or behavior. It is important, however, to understand whether environmental degradation in China has led to increased public concern and, if so, whether this concern has led to pro-environmental behavior and support for more aggressive government action. As a 2002 UN Development Programme report on the potential for sustainable development in China observed, public environmental awareness and concern are among the most important driving forces for environmental improvements worldwide, and a well-informed society, with outspoken public intellectuals, is often a necessary condition for successful environmental protection.³

A look at Chinese environmental attitudes and behaviors might best begin in urban areas, where residents tend to have higher levels of education, income, and exposure to the mass media than their rural counterparts, and where environmental degradation is clearly evident.

China's cities are among the most polluted in the world.⁴ While urban air quality has improved continuously over the past two decades,⁵ as of 2007, about 40 percent of Chinese cities still did not meet minimal national air quality standards.⁶ In 25 percent of Chinese cities, acid rain, primarily caused by coal burning for energy production,⁷ now falls on more than one-half of rainy days.⁸ The World



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The Chinese public receive most of their information about the environment from newspapers and television.

Bank estimated that acid rain costs 30 billion yuan (approximately US\$4.3 billion) in crop damage and 7 billion yuan (US\$1 billion) in building damage annually.⁹ Further, China recently surpassed the United States in overall greenhouse gas emissions, becoming the largest national emitter in the world,¹⁰ although its per capita emissions remain well below those of developed countries.

Water pollution and scarcity have long been major concerns in China. In 2007, the Chinese Ministry of Environmental Protection classified the water along 50 percent of the length of the country's 197 rivers and in 70 percent of its lakes as unsafe for human consumption.¹¹ Although the government has recently constructed more wastewater treatment facilities, taken together, China currently treats only 20 percent of the country's domestic wastewater. By contrast, the developed world treats 80 percent of its wastewater.¹² China also suffers from

severe water shortages. Per capita, China has only a quarter of the world's average freshwater resources. Further, this scarce water supply is mostly concentrated in rivers in southern China, in particular the Yangtze and Pearl.¹³ China has constructed a number of large river diversion projects in response; nonetheless, water scarcity will likely remain a serious problem for years to come.¹⁴

China's rapid development has also exacerbated the longstanding problem of land degradation, largely in rural areas. Erosion affects about 19 percent of the country's land area, especially on the Loess Plateau in north-central China.¹⁵ The rate of desertification has been increasing in past decades, mainly near the Gobi Desert along the Mongolian border and the Taklimakan Desert in western China, and the nation now loses 2,500 square kilometers of land to desert every year. Additionally, farmers have converted 6.7 million hectares of grassland to food production,



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Shanghai's bright but hazy nightscape shows two sides of China's rapid economic growth: prosperity and pollution.

primarily in the boundary provinces of northern and western China. This land conversion, along with poorly designed irrigation systems, has contributed to serious soil salinization problems and significant declines in agricultural productivity.¹⁶ Land degradation, coupled with water resource depletion, is projected to force tens of millions of people to migrate in the coming decades.¹⁷ Changes in land use also often have negative impacts on wildlife habitat, and in China, habitat loss and other environmental problems have resulted in a rapid loss of biodiversity; 15–20 percent of species are currently endangered, including giant pandas, golden monkeys, and the Tibetan antelope.¹⁸

Environmental degradation and pollution have sparked public protests across the country.¹⁹ In 2005, there were 51,000 pollution-related protests, nearly 1,000 each week.²⁰ In addition, China's judicial and administrative systems have seen a dramatic increase in the number

of environmental petitions. Environmental problems, including their associated health and social costs, have also caused large economic losses. In 2003, the World Bank estimated that the cost of air and water pollution in China alone represented 2.68–5.78 percent of the nation's annual GDP.²¹ When resource shortages are included, some estimates are as high as 12 percent of annual GDP.²²

The Chinese government is increasingly aware of the threat of environmental degradation and has adopted a process to establish laws and regulations to address environmental problems.²³ For example, the environmental component of the current national five-year plan (2007–2012) set ambitious goals to decrease sulfur dioxide emissions and chemical oxygen demand discharges in wastewater by 10 percent and reduce GDP per capita energy intensity by 20 percent.²⁴ In 2007, the government released "China's National Climate Change Programme," a document

detailing a national strategy to address climate change.²⁵ In 2008, the government reorganized the State Environmental Protection Agency and elevated it within the bureaucracy as the Ministry of Environmental Protection.²⁶ These government actions illustrate China's growing determination to deal with environmental issues. However, while certain regions have improved, the overall state of the environment in China continues to deteriorate.

Unfortunately, while government action and citizen protests and petitions provide circumstantial evidence of Chinese environmental awareness, relatively little research has investigated public environmental attitudes, concerns, and behavior in China. Since the 1990s, researchers have conducted a small number of surveys, mostly limited to certain regions or specific populations. National surveys have only been implemented sporadically. The rough outline provided by these early empirical studies suggests that the Chinese public has not given high priority to environmental protection and has exhibited only a halfhearted commitment toward the environment. The use of different methodological approaches from one study to the next, however, yields a muddled overall picture of inconsistent, often conflicting data.²⁷

In the past few years, new studies have shed more light on the subject. A 2005 national survey commissioned by the State Environmental Protection Agency revealed that the general public paid close attention to environmental stories in the media but had taken little action to address environmental problems.²⁸ In addition, respondents reported that they had access to few information sources to learn about the environment, although a majority said they wanted to see stronger governmental actions to protect the environment. The study also found a significant discrepancy between urban and rural residents; urban Chinese were significantly more likely to demonstrate higher levels of environmental awareness and behavior.

The 2007 China General Public Environmental Survey, a joint effort of the China Environmental Awareness Programme and China Academy of Social

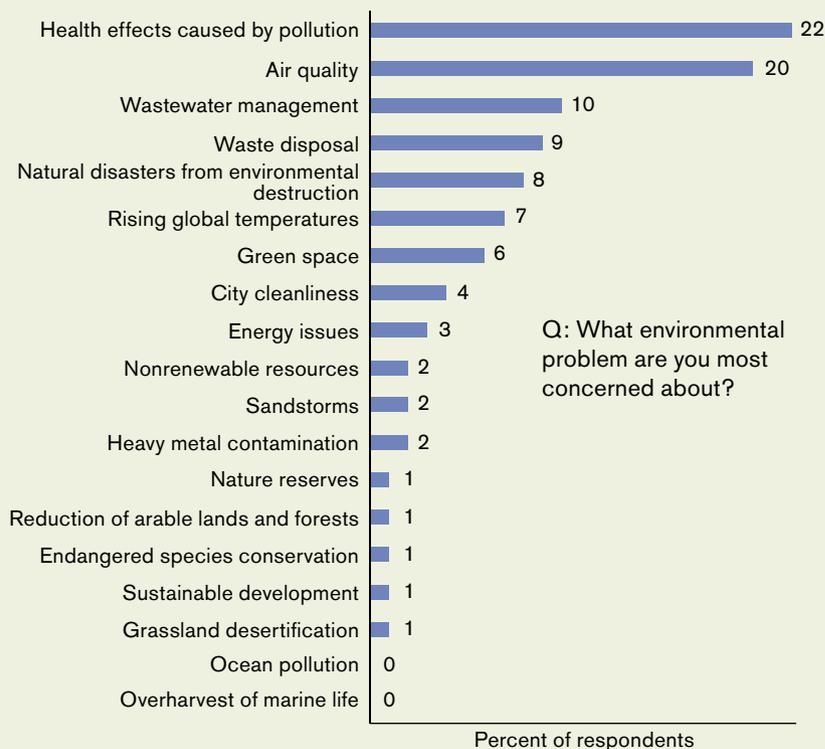
Sciences, found that most of its respondents had heard of various environmental problems and said that degradation is a major challenge in China but demonstrated little detailed understanding of these problems. Respondents tended to blame environmental problems on low levels of environmental awareness, not systemic factors such as population growth, consumption increases, or economic development. Thus many respondents believed the environment could be adequately protected even in the midst of rapid social and economic development.²⁹

In June–August 2007, the Horizon Research Consultancy Group, one of the largest survey research companies in China, conducted a survey in 10 major Chinese cities selected to represent a diversity of geography and economic development across the country: Beijing, Chengdu, Dalian, Guangzhou, Jinan, Shanghai, Shenyang, Wuhan, Xiamen, and Xian.³⁰ The study, the most recent publicly available survey of environmental attitudes and behavior in urban China, describes environmental attitudes and behavior only in these cities, so its results cannot be generalized to the entire country.

Environmental Perceptions

One of the first questions in the Horizon Group survey provided respondents a list of environmental problems and asked which one they were most concerned about (see Figure 1 on this page). Respondents most commonly selected the effects of pollution on human health (22 percent) and air quality (20 percent), while an additional 10 percent said they were most concerned about wastewater management, and 9 percent cared most about waste disposal. By contrast, only 7 percent of respondents identified global warming as the environmental issue that most concerned them. Urban Chinese cared relatively little about environmental impacts on the natural world. Nature reserves, deforestation, endangered species, and grassland desertification were each identified by only one percent of respondents, while ocean pollution and

Figure 1. Environmental concerns



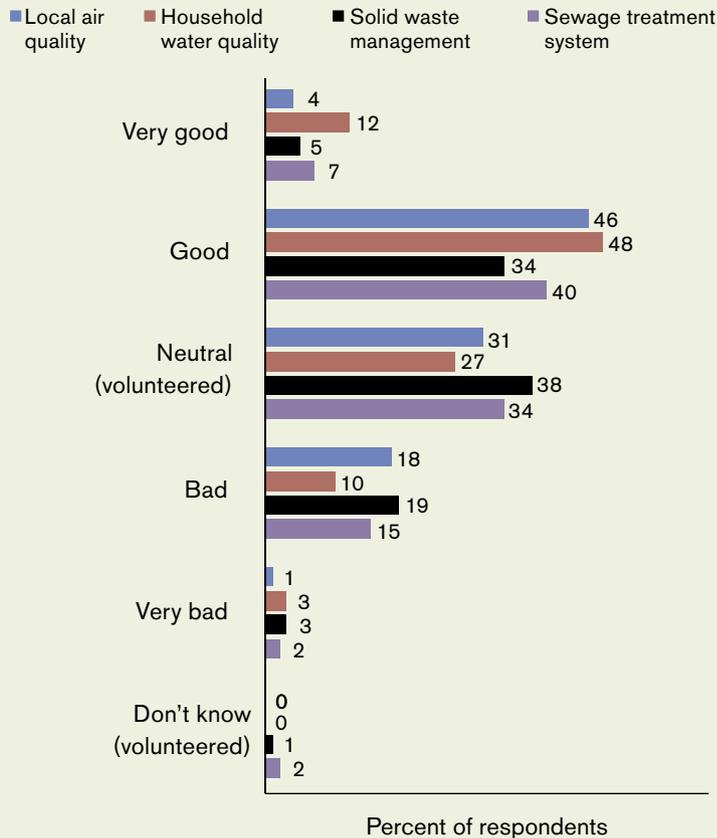
the overharvest of marine species were not selected at all.

Respondents were also asked to rate the quality of their local environment, including local air and water quality, solid waste management, and sewage treatment (see Figure 2 on page 37). A plurality (50 percent) said that local air quality was good or very good, while only 19 percent said that it was bad or very bad. Similarly, 60 percent rated their local water quality as good or very good, while only 13 percent said it was bad or very bad. A plurality (47 percent) rated local sewage treatment as good or very good, compared to the only 17 percent who said that it was bad or very bad. Respondents were least satisfied with local solid waste management; 39 percent said it was good or very good, and 22 percent responded that it was bad or very bad. Significant proportions, ranging from 27 to 38 percent of respondents, rated their own local environmental quality along these four dimensions as neutral.

These aggregate results, especially regarding local air quality, are perhaps surprising to outside observers given the many news reports in the international of severe air pollution in major Chinese cities. Figure 3 on page 38 depicts the perceptions of local air quality for each individual city, illustrating that assessments of local air quality varied greatly. Nearly 90 percent of respondents from Dalian, a coastal city in northeastern China on a peninsula jutting into Bohai Bay, rated their local air quality as good or very good. By contrast, respondents from Jinan, which lies more than 100 miles inland across the bay from Dalian, rated their local air quality much lower, with only 27 percent saying it was good, no one saying it was very good, and 35 percent responding that it was bad or very bad.

Major cities like Beijing and Shanghai received relatively moderate air quality ratings. Fifty-one percent of Beijing respondents considered their air quality good or very good, 34 percent said it

Figure 2. Ratings of local environmental quality



Q: We would like to learn more about your feelings on your local environmental quality. What do you think of the local air quality? What do you think of the household water quality? What do you think of the solid waste management? What do you think of the sewage treatment system?

(see Figure 5 on page 39). By large margins, majorities said that urban air pollution (64 percent) and water pollution (62 percent) were the two most important environmental problems in China, with pesticide pollution identified by nearly half of the sample (46 percent). Fewer respondents said that ecosystem destruction (39 percent) or ocean pollution (14 percent) were urgent problems. Despite increasing international attention to global climate change and China's growing importance as a major emitter of greenhouse gases, the "greenhouse effect" was considered the most urgent problem by only 21 percent of urban Chinese.

The survey examined whether urban Chinese prioritize economic development or environmental protection, using two different measures (see Figure 6 on page 40). First, respondents were asked how much they agreed with two separate statements: "Environmental protection should be given priority even if it affects economic development," and "We should focus our effort on economic development—we cannot affect economic development in the name of environmental protection." A substantial majority preferred environmental protection even if it had negative impacts on the economy, with 77 percent of respondents either agreeing fully (23 percent) or somewhat (54 percent). By contrast, only 29 percent of respondents agreed fully (6 percent) or somewhat (23 percent) that economic development should take priority over the environment.

These questions, however, were relatively abstract, so the survey posed a second question to assess perspectives on a more concrete local scenario. Respondents were asked, "If we were to set up a company in our city that could provide jobs to more than a thousand people but may cause pollution at the same time, what would you think about this?" A large majority (66 percent) said they would object to this proposal, while only 19 percent said they would prefer to set up the company (see Figure 7 on page 41). These two results suggest that many urban Chinese are willing to sacrifice some economic growth to improve environmental

was neutral, and only 14 percent said it was bad or very bad. Shanghai received slightly lower air quality ratings than Beijing, with 44 percent of respondents saying their local air quality was good or very good, 35 percent saying it was neutral, 21 percent saying it was bad, and no one rating it very bad.

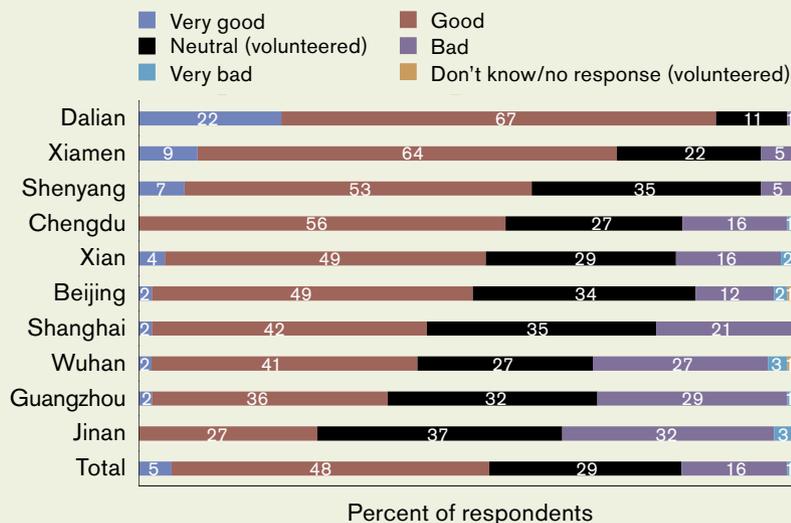
Almost universally, urban Chinese expressed optimism that their local environmental quality would improve in the coming year. Nearly 8 out of 10 respondents said they expected an obvious improvement (20 percent) or some improvement (59 percent) in their own local environmental conditions (see Fig-

ure 4 on page 38). Pessimism was virtually nonexistent: only 2 percent of urban respondents expected some deterioration in the next year, while no respondents expected a serious decline in local environmental conditions.

Policy Preferences

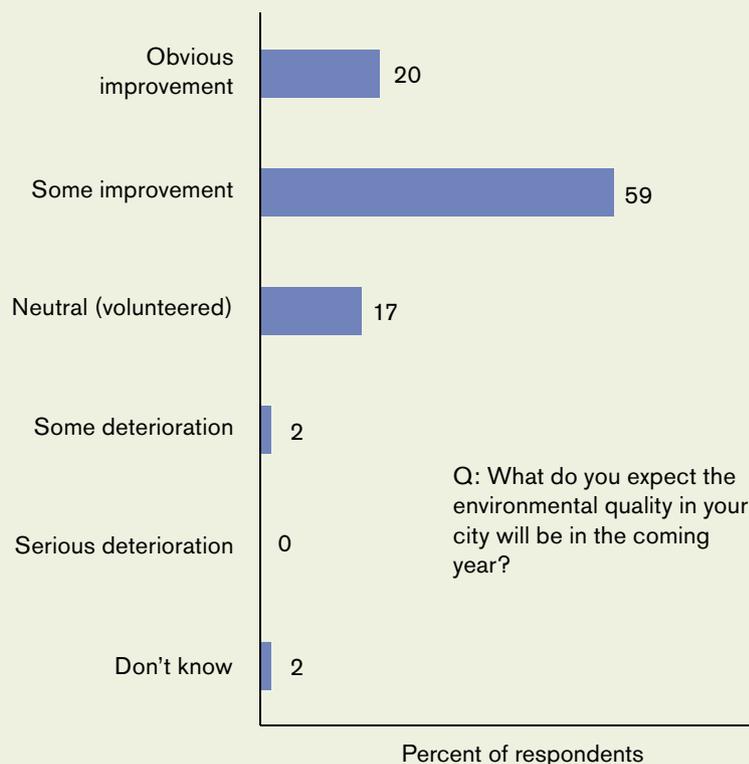
To determine the general preferences of urban Chinese on environmental policy, the survey asked, "What are the most urgent environmental problems for our country now?" The survey allowed respondents to select up to two problems

Figure 3. Ratings of local air quality



Q: What do you think about the local air quality?

Figure 4. Expectations of future local environmental quality



Q: What do you expect the environmental quality in your city will be in the coming year?

quality. It is important to note, however, that this survey was conducted in mid-2007, well before the current global economic recession. With China's economic growth slowing substantially, it is unclear how respondents would respond today.

The survey also provided respondents with a list of actions that might improve national environmental quality and asked them to choose which one they thought most effective. The top four answers were "formulate suitable environmental policies" (23 percent), "increase the penalty in environmental laws" (20 percent), "improve technology to protect the environment" (19 percent), and "improve environmental laws and regulations" (12 percent) (see Figure 8 on page 42). All four are top-down policies, set by the government. By contrast, fewer respondents thought that teaching environmental education (11 percent) or encouraging public participation in environmental events (8 percent) were the most effective ways to improve national environmental quality. Only 6 percent said the most effective approach would be to increase investment in environmental protection. Taken together, these results suggest that urban Chinese expect the government to create and enforce environmental laws but see a lesser role for citizens and do not give much priority to major investments in environmental protection. It appears they believe improving environmental quality is a matter best left to the government to set, regulate, and enforce the environmental laws, rules, and standards.

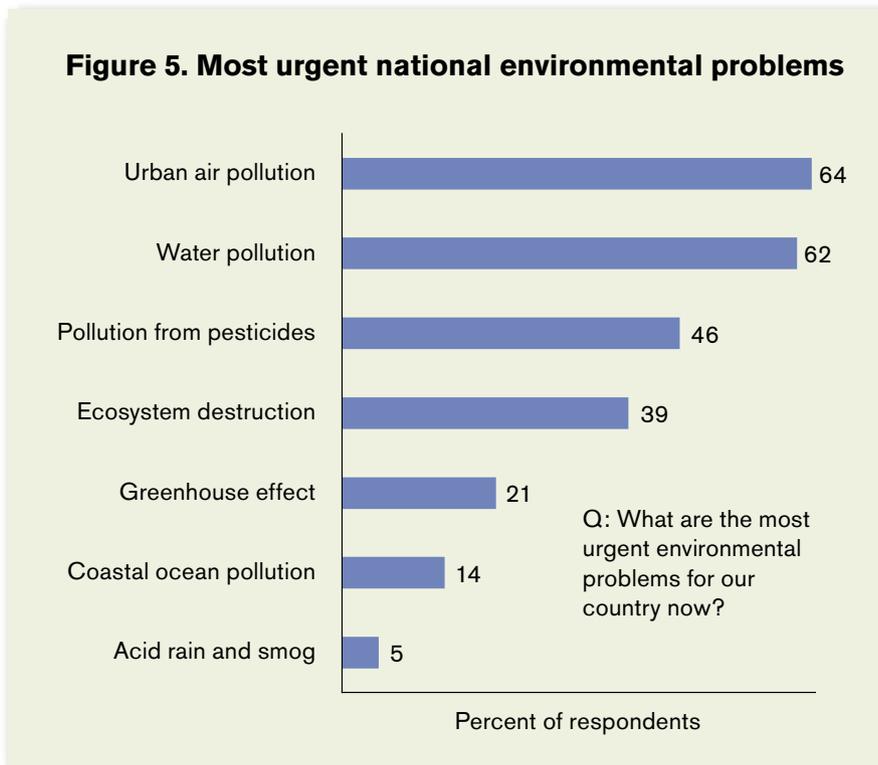
Environmental Behaviors

The survey also investigated how often urban Chinese respondents perform a variety of environmental behaviors. Large majorities reported that they save water (79 percent) or electricity (74 percent) or buy "green food products" (53 percent) (see Figure 9 on page 42).³¹ Nearly one-half of respondents (48 percent) reported that they try to use fewer nonreusable products. About one-third of respondents said they often try to use less natural gas in their homes or had bought energy-saving products.

Fewer than one-third of respondents said they often recycle used batteries (28 percent) or separate different kinds of household waste (23 percent), which may be due in part to the relative lack of curbside recycling as often found in North American, European, and Japanese cities. Likewise, 24 and 22 percent of respondents reported that they use environmentally friendly detergent and household appliances. Very few (16 percent) said that they try to learn environmental knowledge and apply it in daily life. Thus many urban Chinese have adopted environmental behaviors that will save them money or other limited resources. In combination with other results reported above, this suggests that relatively few urban Chinese are motivated to perform environmentally friendly actions for the benefit of the natural environment alone.

Respondents were also asked what kinds of community environmental activities they had participated in. Overall, relatively few urban Chinese reported participating in these activities (see Figure 10 on page 43). Less than one-third (29 percent) reported participating in community cleaning events or patriotic tree-planting events (27 percent). Only 19 percent said they had petitioned against environmental damage, and not many respondents said they had donated money (13 percent) or become members of an environmental group (12 percent)—although this level of participation in environmental groups is roughly equivalent to worldwide averages.³²

The questionnaire also asked respondents how they usually learn about environmental problems. Overwhelmingly, respondents identified television (82 percent) and newspapers (77 percent) as their main sources of information (see Figure 11 on page 43). Only 14 percent of respondents identified using the Internet to gather environmental information, although younger respondents (aged 18 to 25) were substantially more likely to do so. The Internet is not yet as widely available as the traditional media, but access in China continues to expand, and it will likely become a more influential source. Other information sources, such as social



Approximately 15 to 20 percent of China's species are endangered, including the giant panda.

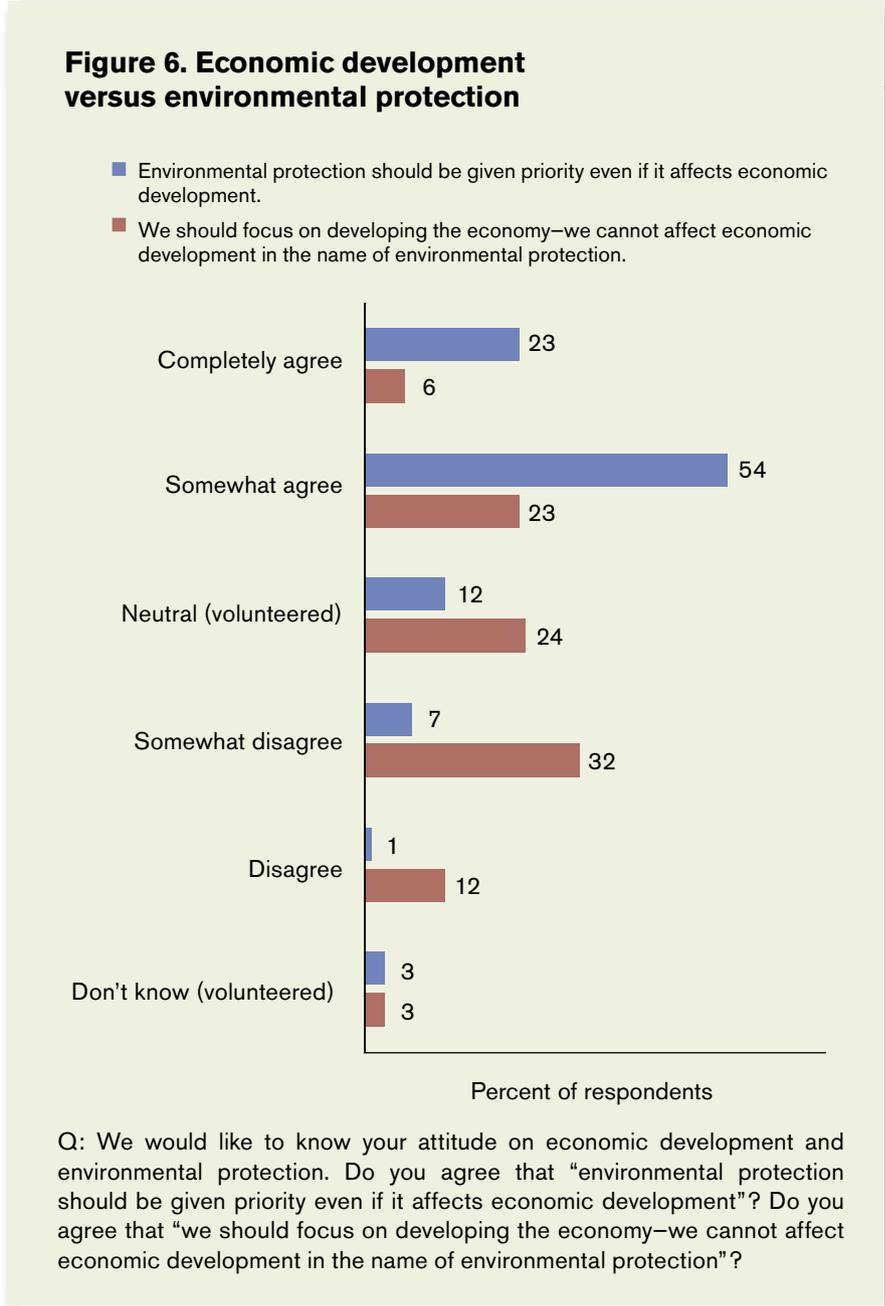
campaigns, radio, outdoor advertisements, flyers, and books appear to play a much smaller role in environmental awareness than do television and newspapers.

Finally, the survey asked respondents to identify the most effective way to complain about environmental problems. A majority of urban Chinese identified the media (53 percent), their own neighborhood committee (50 percent), or the government (49 percent) as key stakeholders to which people should report local environmental problems (see Figure 12 on page 44). Fewer people (22 percent) said that complaining directly to the environmental offender was effective. Others identified the Internet (21 percent) or environmental nongovernmental organizations (NGOs) (14 percent). Only 6 percent said there is no effective channel to complain about environmental problems to authorities.

Public Perceptions of Environmental Quality

Environmental problems have become a major social issue in China. In the national 2007 China General Public Environmental Survey, respondents ranked the environment 4th out of 13 social problems.³³ In 2008, a Pew Global Attitudes Survey found that 74 percent of Chinese respondents said that air pollution is a very or moderately serious problem, while 68 percent said the same about water pollution. Among 17 social problems, respondents ranked air and water pollution 3rd and 5th, respectively.³⁴

Generally speaking, however, urban Chinese care more about the problems in their immediate living and working environment. These problems, such as local air quality, wastewater, and waste disposal, tend to be more visible and cause direct health or other impacts. Thus it is not surprising that respondents rank air and water pollution as higher priorities than climate change. Likewise, environmental problems in the natural world, such as biodiversity loss, deforestation, desertification, and ocean pollution, appear to currently attract relatively little attention or concern among urban residents. The urban public

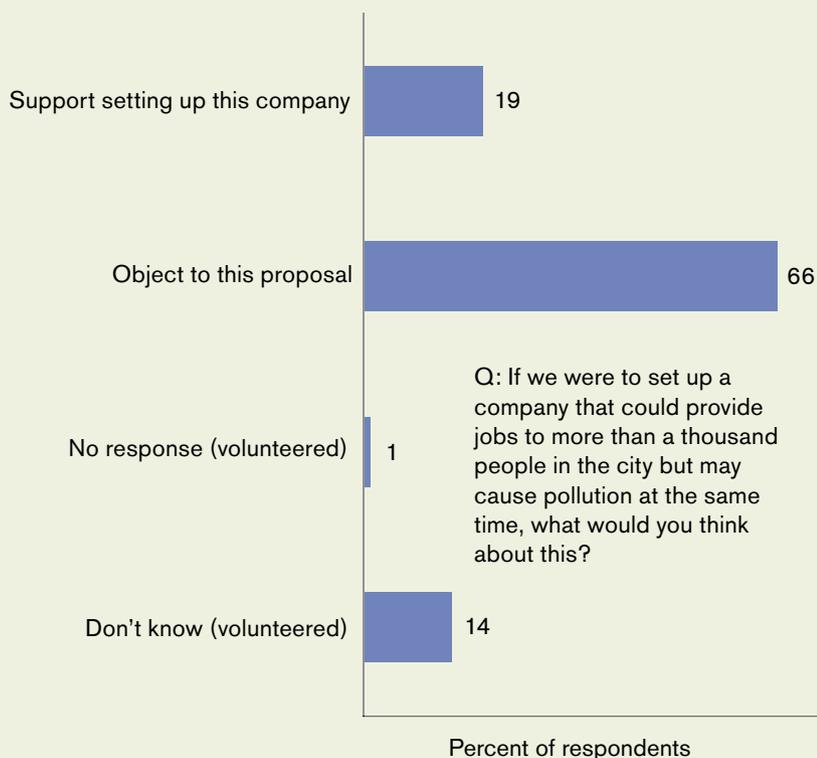


likely has little direct experience with such problems, and these issues may receive relatively little media coverage. It is also possible that deeper cultural values play a role. Given the severity of these problems in China, future research should investigate why urban Chinese express such low levels of concern about the human impact on the natural world.

The public appears very optimistic about the future of environmental protection in China. According to the Horizon Group

survey results, nearly 80 percent expected environmental quality to improve in the coming year. This result is also in line with a broader sense of optimism about China’s future. The 2008 Pew Global Attitudes Survey found that 86 percent of Chinese respondents were satisfied with the direction China is going.³⁵ This sense of optimism, however, conflicts with the scale and severity of environmental degradation in China. This may be due in large part to limited knowledge about environmental

Figure 7. Jobs versus pollution



problems. Many people may also give their experience of local environmental conditions a great deal of weight and thus overlook other serious problems that are relatively distant, such as biodiversity loss and climate change. Moreover, the recent relative improvement in environmental quality in some Chinese cities may add to this sense of optimism, even though local conditions are often still below national and international standards.

In addition, despite their concern about pollution and other environmental problems on a national level, urban Chinese appear generally content about their local environmental quality. About one-half of the respondents said that their local air and water quality were either “good” or “very good.” This result coincides with other regional surveys conducted in China.³⁶ Given the many scientific and media reports describing the extent and severity of environmental degradation in China, this result is rather perplexing. Subjective perceptions of environmental

quality, however, can differ significantly from objective measures of environmental quality. For example, many environmental toxins and pollutants are not directly perceptible by human senses. Another important factor may be shifting baselines of environmental quality.³⁷ After living with pollution for a long time, some people may come to accept current pollution levels as “the new normal,” and thus fail to recognize how much environmental quality has degraded over the years. Likewise, most urban Chinese have no experience of pollution levels in more developed countries, and so lack an experiential point of reference of a relatively clean environment for comparison. In addition, some respondents may place an inordinate emphasis on recent improvements in local environmental quality over objective conditions. People are heavily influenced by recent experience.³⁸ Hence, even in a polluted environment, some may feel environmental quality is “very good” if they have witnessed recent improvements.

Although most people said their local environmental quality was good, they generally considered national environmental problems to be more serious. Local environmental quality is often more observable and familiar than national conditions and may be perceived as more easily corrected by local actions. National and international environmental problems, like climate change and ecosystem destruction, may seem more daunting than local conditions in their own cities.³⁹

These perceptions are also probably shaped by media reports on television and in newspapers, the primary ways most urban Chinese report learning about environmental problems. In China, the news media has developed under the political authority of the state and the economic constraints of the market. Some research has argued that the Chinese media became strong supporters of environmental organizations as part of an effort to use newsworthy environmental issues to expand their autonomy.⁴⁰ Likewise, the Chinese media have significantly improved their environmental reporting since the 1990s⁴¹ and has played a critical role in transmitting environmental values in some environmental campaigns.⁴² In addition, many Chinese environmentalists are media professionals and strategically promote public environmental awareness through their profession. Recent studies have shown that Chinese media not only inform citizen interest in the environment but are creating a “green public sphere” for a wider discussion of environmental problems.⁴³ These survey results also capture the media’s leading role in environmental issues. A majority of respondents said that they would be most likely to turn to the media when they want to complain about environmental problems, slightly more than the government or neighborhood committees.

Public Environmental Behavior

The Horizon Group survey found that pro-environmental behavior for Chinese city dwellers most likely manifests itself in the form of resource conser-

Figure 8. Effective environmental improvement

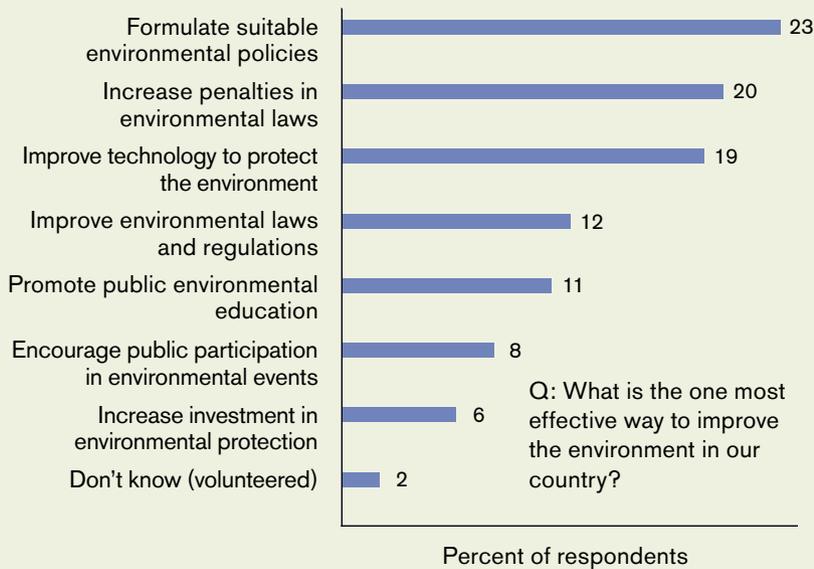
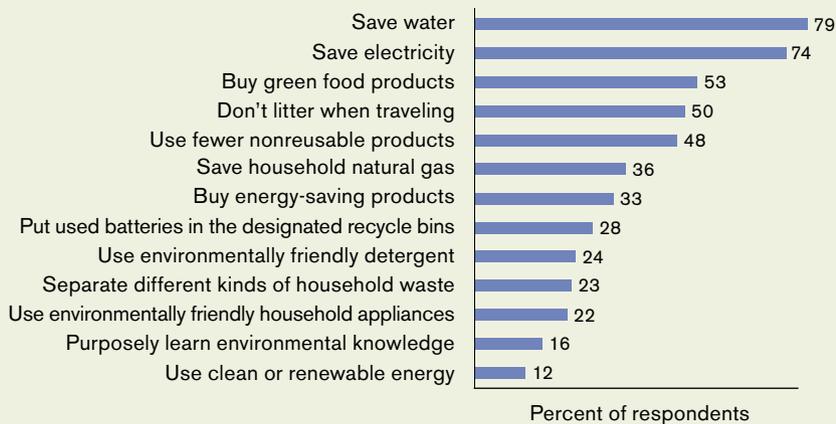


Figure 9. Environmental behaviors



vation. Large majorities said that they save water and electricity. These behaviors, however, may be driven largely by economic, not environmental concerns. Respondents were less likely to engage in environmentally friendly actions if they required extra effort or inconvenience. For instance, fewer than 30 percent of respondents said that they recycle batteries or separate different kinds of wastes. People were also much less likely to take

actions outside their homes. Although more than one-quarter of the population had participated in community cleaning or patriotic tree-planting events, these events are rarely citizen initiatives and are usually organized through governments, schools, and workplaces. Other environmental activities have not gained much popularity.

It appears that most urban Chinese are motivated to participate in environmental

protection for health or economic reasons. Some use environmentally friendly products, but the lack of availability and affordability of such products may limit green consumerism.⁴⁴ Despite China's improving environmental awareness over the past decade, the low level of citizen participation has not changed, indicating a growing gap between environmental awareness and action.⁴⁵

Efforts to close this gap through participatory decisionmaking processes are still limited. The government first introduced a means of public participation when it established a system for citizens to report environmental problems in the 1990s.⁴⁶ More recently, the Environmental Impact Assessment law of 2003 legalized the right to participate in decisionmaking processes.⁴⁷ Thus, the idea of public participation in environmental decisionmaking is still relatively new, and most Chinese probably remain unaware of the new procedures. At the same time, traditional concepts of deference and obedience to authority still dominate in China, so many people rely on government leaders to take action.⁴⁸

Moreover, although the rights of public participation have been codified into law, the Chinese government has made little effort to build institutional capacity to put this policy into effect.⁴⁹ Further, even if the public wanted to take part in environmental decisionmaking, they often do not know how.⁵⁰

Environmental NGOs, however, provide another avenue for public participation. These organizations have engaged the public largely using nonconfrontational measures, such as environmental education and recycling campaigns, that do not challenge the legitimacy of the state. Promoting public participation has remained one of their top priorities, and some have suggested that environmental organizations can potentially serve as sites and agents for broader political change.⁵¹ Nevertheless, this avenue is also limited. Thus far, only a very small proportion of citizens have participated in NGO activities through donations or active membership.

Public Preferences on Policy

The results of the Horizon Group survey suggest a substantial preference for environmental protection over unrestricted economic development. Such public support for environmental protection potentially provides the Chinese government with the latitude to take stronger action to address environmental problems. Prior research has also found, however, that support for environmental protection may vary as economic conditions change—higher levels of public support during times of prosperity, lower during economic downturns.⁵² Given the current global economic crisis and its reverberations in China, public support for environmental protection may have shifted.

Moreover, urban Chinese appear to lay most of the responsibility for environmental improvements on the government and prefer top-down policies for environmental protection. Bottom-up measures, such as education and public participation, are not considered highly effective approaches. To many Chinese, environmental protection is primarily about setting and enforcing rules. This top-down tendency reflects political reality as well as a cultural tradition of reliance on public intellectuals rather than grassroots movements.⁵³

Therefore, the expressed values and actions of the Chinese government may greatly influence popular support for environmental protection.⁵⁴ Research has found, however, that Chinese officials often have conflicting worldviews regarding the proper relationship between humans and nature and typically have a strong faith in scientific and technological solutions.⁵⁵ Officials often have fairly high environmental awareness, but they have tended to place economic development ahead of the environment, the latter remaining a secondary consideration until a certain level of development has been reached.⁵⁶ Given the power of the state in China and continued cultural deference to authority, efforts to influence government policies and enforcement may remain one of the most effective strategies to improve environmental quality in the short term.

Figure 10. Environmental activities

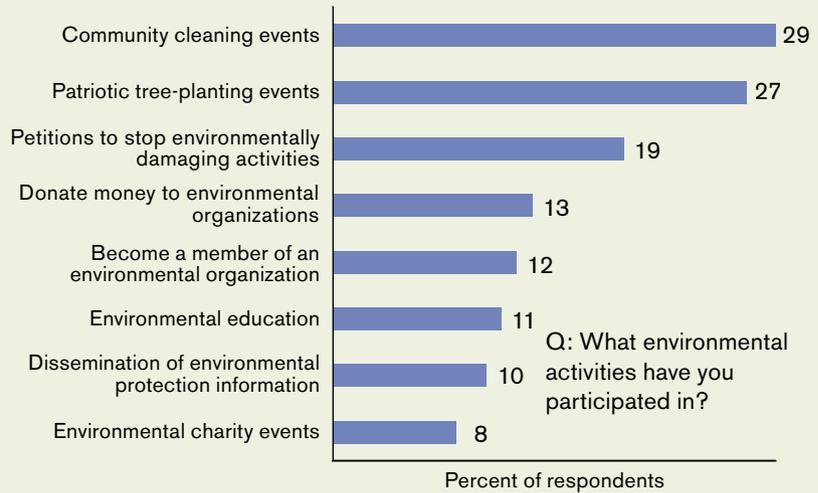
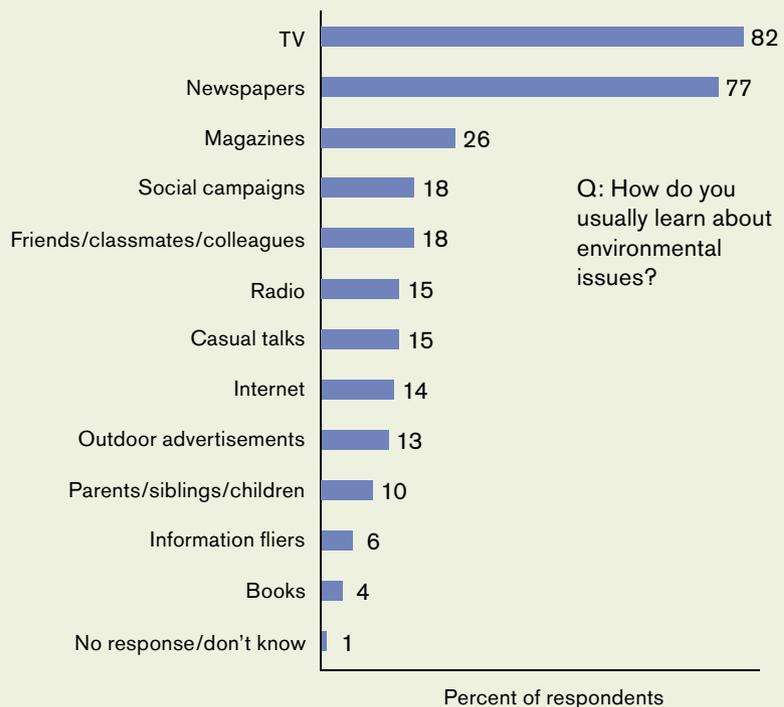


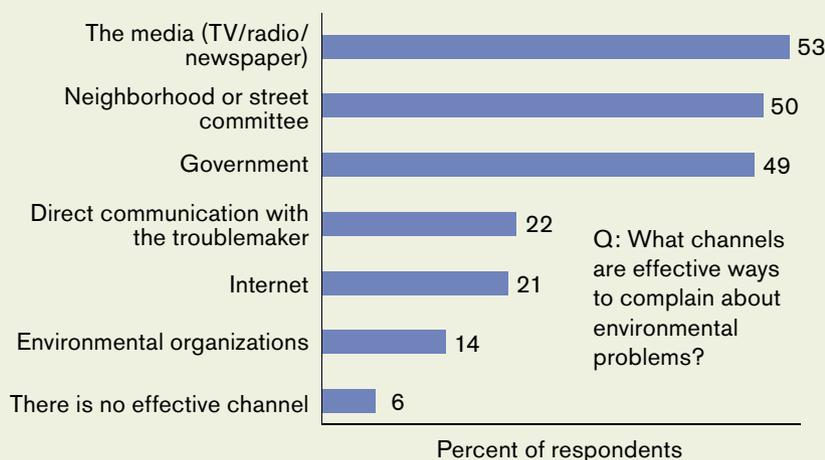
Figure 11. Sources of environmental information



In recent years, the rhetoric of the Chinese government has shifted significantly, with official pronouncements highlighting the need to incorporate environmental concerns into state policy and action. For example, Chinese General

Secretary Hu Jintao recently declared that China intends to promote a “conservation culture by basically forming an energy- and resource-efficient and environment-friendly structure of industries, pattern of growth and mode of consumption.”⁵⁷

Figure 12. Effective channels for complaints about environmental problems



Several concrete policies have also been implemented. For example, in 2004, China established a new fuel economy standard that required all cars and trucks sold in China to achieve between 21 and 43 miles per gallon (mpg) (according to their weight classes) by 2008. This standard is the third most stringent in the world, after Japan and Europe, and far higher than the 35 mpg by 2020 goal established by the United States in 2007. A recent analysis found that the new standard has spurred the deployment of energy-efficiency technologies and reduced average fuel consumption by 11.5 percent.⁵⁸ In addition, in 2007, China set a national goal that renewable energy, including hydroelectric, biomass, wind, and solar power, will account for 10 percent of national total energy supply by 2010 and 15 percent by 2020.⁵⁹

Despite the current economic downturn, China claims to still be committed to cleaner, more efficient development. According to an HSBC analysis of stimulus packages around the world, China is spending 38 percent of its US\$586 billion stimulus on green projects, including major investments in low-carbon vehicles, railways, electric grid transmission lines, and waste, water, and pollution control.⁶⁰ In addition, in an internationally important symbolic gesture, the Chinese government pledged to green the 2008 Beijing Olympics. According to

an independent assessment of the Olympics by the United Nations Environment Programme, China “met if not exceeded many of its pledges on the environment” by investing more than US\$17 billion to improve air quality, increase public transportation and green space, improve building energy efficiency, and increase public environmental awareness.⁶¹

While these accomplishments are positive, it is also clear that not all national environmental policies and goals are fully implemented or enforced. Some observers argue that a “campaign mentality” pervades many of China’s environmental efforts, in which large-scale projects are launched with great fanfare and international press, but without proper consultation or participation at the local level, and subsequently encounter great difficulties in the implementation or enforcement phases.⁶² For example, several high-profile efforts to design and build new ecocities in China have been notable failures.⁶³ Thus, while Chinese rhetoric and legislation has changed significantly in recent years, it remains to be seen whether these and other national policies and goals will be achieved.

Nonetheless, public environmental awareness and behavior in China remains a critical factor. Many of China’s environmental problems stem from the mass decisions and behavior of more than 1.3 billion people. China is rapidly transforming into

a market economy, where the individual choices of hundreds of millions of consumers with growing purchasing power will have greater and greater environmental consequences from the local to the global scales. Poor environmental quality is also increasingly a source of mass protest and unrest, thus political leaders are wise to remain highly attuned to changes in public environmental attitudes and behavior.

The future of environmental sustainability in China will have enormous implications for the rest of the world. Many key questions remain: Will the new middle and upper classes of China seek to replicate the material and consumer lifestyles of Europe and North America? Will China’s greenhouse gas emissions continue to spiral upward at an ever increasing rate, while local environmental conditions continue to deteriorate and scarce resources are depleted? Or will China forge a new model of development, bypassing the polluting technologies and practices historically dominant in the West and help lead the world toward sustainability?

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