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## LEAD POISONING IN CHINA: A HEALTH AND HUMAN RIGHTS CRISIS

Jane E. Cohen and Joseph J. Amon

### ABSTRACT

*Acute and chronic lead poisoning is occurring throughout China and is a major cause of childhood morbidity. The Chinese government's emphasis on industrial development and poverty reduction has, over the past three decades, decreased by 500 million the number of people surviving on less than one dollar per day, but has caused significant environmental degradation that threatens public health. Drawing upon in-depth interviews conducted in 2009 and 2010 with families affected by lead poisoning, environmental activists, journalists, government and civil society organization officials in Shaanxi, Henan, Hunan, and Yunnan provinces, as well as a review of scientific and Chinese media, and health and environmental legal and policy analysis, we examine the intersection of civil, political, economic, and social rights related to access to information, screening, treatment, and remediation related to lead poisoning. In-depth interviews in each province uncovered: censorship and intimidation of journalists, environmental activists, and parents seeking information about sources and prevention of lead poisoning; denial of screening for lead poisoning, often based upon arbitrary eligibility criteria; and inadequate and inappropriate treatment being promoted and provided by health facilities. Over the past decade, the Chinese government has prioritized health care and invested billions of dollars towards universal health coverage, and strengthened environmental to address industrial pollution and guarantee access to information on the environment. Yet, despite these reforms, information remains constrained and citizens seeking information and redress are sometimes arrested, in violation of Chinese and international law. Local government officials and national environmental policies continue to prioritize economic development over environmental protection. To effectively address lead poisoning requires an emphasis on prevention, and to combat industrial pollution requires stronger enforcement of existing laws and regulations, as well as accountability of local authorities charged with upholding environmental regulations. In this context, restrictions on such rights as freedom of expression, assembly, and political participation have direct consequences on the realization of the right to health.*

### INTRODUCTION

China has the world's largest population and second largest economy.<sup>1</sup> The country's gross domestic product has increased tenfold in the last 15 years. Rural and industrial development over the three decades has helped reduce by 500 million the number of people in China surviving on less than one dollar a day.<sup>2</sup> Undertaken without appropriate accompanying safeguards to mitigate negative impact, industrial development has also exacted a steep environmental price: widespread industrial pollution that has contaminated water, soil, and air and put the health of millions of people—likely even hundreds of millions—at risk. Currently, 20 of the world's 30 most polluted cities are in China.<sup>3</sup>

Lead poisoning is among the most common pediatric health problems

in China.<sup>4</sup> While the lack of comprehensive data makes it difficult to determine the full extent of the epidemic, a number of sources, including academic and media reports, indicate that acute and chronic lead poisoning is a national public health emergency (see Figure 1).<sup>5,6</sup> Lead poisoning can harm the body's neurological, biological, and cognitive functions.<sup>7</sup> Children are particularly susceptible, and high levels of lead exposure can cause reduced IQ and attention span, reading and learning disabilities, behavioral problems, hearing loss, and disruption in the development of visual and motor functioning. High levels of lead can cause brain, liver, kidney, and nerve damage, as well as anemia, comas, convulsions, and death.<sup>8</sup>

The US Centers for Disease Control and Prevention (CDC) has maintained that there is no threshold for the harmful effects of lead, and that blood lead concentrations lower than 10 µg/dL (micrograms of

lead per deciliter of blood) have been associated with adverse cognitive effects in children.<sup>9</sup> According to international guidelines, when a child's blood lead level is 10–15 µg/dL, the first response should be nutritional and environmental intervention, which involves removing the source of contamination. When the source itself cannot be removed, or if the contamination of the surrounding environment is too widespread, people should be moved away from the contamination to avoid further exposure.<sup>10</sup>

The Chinese government has developed numerous laws, regulations, and action plans promoting rigorous new standards for coal-fired plants designed to cut lead, mercury, sulfur dioxide, and nitrogen oxide emissions, and to encourage more environmentally friendly industries to decrease pollution.<sup>11</sup> High-level government officials have also expressed concern about environmental conditions. For example,

**Figure 1. Lead poisoning incidence reported in mainland Chinese media, January 2009-May 2011**



Cheng Siwei, former vice chairman of the Standing Committee of the National People's Congress, acknowledged in 2010 that the country has "paid heavy costs for all the environmental pollution, wasted resources, and ecological deterioration."<sup>12</sup> Yet economic development is a key guiding principle of the country's Twelfth Five-Year Plan for Environmental Protection (2011-2015), discouraging enforcement of environmental laws and regulations.<sup>13,14</sup> In the past few years, it has been estimated that more than 100,000 "mass incidents" (protests) have occurred in China, many of which are related to appropriation of land and environmental degradation.<sup>15</sup>

## METHODS

A mixed-methods study was conducted which included: in-depth interviews with a) individuals affected by lead poisoning and b) key informants; analysis of international human rights law, national legislation, and government health and environmental policies; and a review of Chinese and English language media accounts of acute lead poisoning incidents.

In 2009 and 2010, 52 parents and grandparents, and six children, in heavily lead-contaminated villages in Shaanxi, Henan, Hunan, and Yunnan provinces were interviewed. Four government officials, responsible for restricting access to villages where high levels of lead poisoning have occurred, were also interviewed, as well as five Chinese and international journalists who had reported on lead poisoning issues in China. Eleven Chinese and international nongovernmental organization (NGO) workers familiar with pollution and lead poisoning in China were also interviewed.

Interviews with family members of children with a history of elevated blood lead levels took 45-90 minutes and were conducted in Chinese using a semi-structured questionnaire. Questions focused on knowledge about lead poisoning, access to information and blood lead testing, experiences seeking and receiving treatment, and interaction with government officials. The children interviewed ranged in age from 6-14. Interviews with children were typically shorter, between 15-30 minutes, and included questions about their health and well-being and school performance. Interviews were conducted in the presence of a parent or grandparent.

Interviews with key informants from government and national and international NGOs took 30-45 minutes, on average. These interviews used a semi-

structured questionnaire focused on Chinese government policies and practices related to blood lead testing and treatment, as well as the availability of public information on lead pollution and exposure, including journalism on lead poisoning and "mass incidents" (protests) related to the environment. Specific questions were modified as information was collected from family members and other key informants, with questions posed to earlier key informants focused upon identifying salient issues, and questions to later key informants seeking to probe emerging themes.

The authors hand-coded the qualitative data from the interviews and conducted a content analysis to identify key themes. In the first analysis of the data, an initial set of codes was generated to capture key constructs. Subsequent analyses were undertaken to examine the consistency of reports across themes and examine negative evidence.<sup>16</sup>

Human Rights Watch funded this work as part of its global efforts to document human rights conditions and advocate for the respect for human rights for all. Human Rights Watch does not generally identify its work as "research," defined as seeking to develop "generalizable knowledge."<sup>17</sup> Rather, its investigations aim to examine laws and policies, document and respond to specific human rights issues, monitor human rights conditions, and assess human rights protections. Each of these purposes is consistent with what has been defined as "public health non-research" or practice, which is typically exempt from research ethics committee review.<sup>18,19</sup> However, because public health non-research and practice also raise ethical and human participant protection issues, all investigations conducted by Human Rights Watch staff, including this investigation, are subject to internal review. This review includes the research protocol and is conducted prior to disseminating information that may identify or affect the security of research participants or other interlocutors. Human rights monitoring by independent international organizations is not allowed in China, and we did not seek ethics review by a local research ethics committee because we felt it could endanger, rather than protect, both research participants and researchers.<sup>20</sup> All research was undertaken with the informed consent of participants. Interviews were conducted in a private setting and full anonymity was offered to individuals who discussed their personal experiences. Pseudonyms are used in presenting testimony below.

## RESULTS

*Access to testing*

For families in China trying to understand and react to the environmental health crisis created by industrial lead poisoning, information is limited, often confusing, and potentially dangerous. Because information about environmental impact assessments and factory emissions are not available, the majority of individuals we spoke with discovered there was a major environmental health concern after their child became sick or when they heard from neighbors that children in the area had lead poisoning.

In each area we visited in Henan, Shaanxi, Hunan, and Yunnan Provinces, blood lead testing programs for children were ongoing. However, none of the testing programs were advertised; parents uniformly reported that information on testing spread by word-of-mouth, including that only some children were eligible. Often, only children under 14 were eligible, and only if they lived within an arbitrary radius of one kilometer from the largest smokestack defined as the “area of risk.” Some parents said that when they went for testing they were told that the testing machines were broken.

As more and more children were found to have elevated blood lead levels, demand for testing grew. Many people we interviewed said that barriers to testing then increased. One man, Liu, told us:

Our village is not within the government’s one-kilometer line, but when it turned out that children in other villages had lead poisoning we wanted to find out if our children also had lead poisoning. There were 56 children in total who needed to get testing. About half of them went, and almost all of them showed serious lead poisoning. But then when we wanted to bring in the second group the government wouldn’t test them. They kept making up excuses, like the testing machines were broken. (Liu, Henan province)

Even when parents were able to access testing for their children, they often reported difficulties in obtaining test results. Many parents in Yunnan and Shaanxi

said that results from their children’s lead tests were withheld completely. Others were allowed to see the results from initial testing but were prevented from seeing the results from follow-up testing. Parents in Yunnan reported that they were told follow-up tests were “normal” although they were never allowed to see the result themselves. One mother said:

The doctor told us all the children in this village have lead poisoning. Then they told us a few months later that all the children are healthy. They wouldn’t let us see the results from the tests, though. (Tan, Yunnan province)

In some cases, parents sensed that their children were still at risk, but because they had been told that the results showed they were “better,” they did not actively push for treatment.

Parents we spoke to in each province said that they suspected health workers of providing false blood lead test results. In a number of cases, those parents had their children tested again by a hospital or a Chinese Center for Disease Control clinic in a different area; in each case, the second test revealed far higher levels of lead in the blood.

In Henan, a father described the experience of his daughter, Rong, who was 10 years old when she was tested for lead poisoning. According to his account, Rong received government-sponsored free testing. He said:

She was very thin and not eating and had trouble sleeping. When she got tested, her level was over the normal limit, but it wasn’t very high. It was 14.8 µg/dL. We didn’t think that test result could be right, and we had heard of other children being given results that were false, so we took her to another place to be tested. The result of the second test was 25.4 µg/dL. These tests were on the same day! (Zhen, Henan province)

The parents we spoke with were not told what methods of blood lead testing were conducted, so it is possible that differences were due to different test types or methods.

*Access to information*

Just as information on testing was communicated by word-of-mouth, as many parents told us, so was information on the sources of lead and the medical consequences of high blood lead levels. The information, though, was almost always uncertain and incomplete. Next to a lead processing factory in Henan, we spoke to the grandmother (and primary caretaker) of a one-year-old girl, who had a lead level of over 40 µg/dL at the age of nine months, and a 9-year-old boy with less severe lead poisoning. Her grandson, but not her granddaughter, was provided with milk from the government. She said:

I know that 40 µg/dL is above the normal standard. I don't know what that means. During Chinese New Year we got some extra milk for my grandson from the government, but they didn't tell us anything about what lead poisoning is or where it comes from. (Xu, Henan province)

In Yunnan, one mother, Lei, told us:

The local government said that all the children in this village were tested and that they have a little bit of lead poisoning and they should eat more apples and drink milk. But I don't understand, are our children still sick? No one will answer our questions. (Lei, Yunnan province)

In Henan, we asked a medical worker in a hospital for information about lead poisoning treatment. When she produced a booklet, we asked if every family affected by lead poisoning was given the booklet. She said, "These books are not widely distributed. If people want to know more information about treatment they can look on the Ministry of Health website."<sup>21</sup> But the vast majority of families affected by industrial pollution and lead poisoning in the areas we visited have no access to the internet or a computer; some grandparents we spoke with, who were charged with their grandchildren's care, were illiterate.

The Ministry of Health does have detailed information about lead poisoning on its website. The guidelines specify that health workers should educate parents on lead poisoning, including the health

consequences. But rather than focusing on removing the lead hazard, the treatment guidelines emphasize children's sanitation, indicating that lead poisoning can be avoided if children wash their hands and clean under their fingernails.<sup>22</sup>

*Medical treatment*

In addition to the advice to drink milk and eat apples, some parents we spoke with had been advised to buy, or had been given, medicines, which they were told would treat their children's high blood lead levels. It was not always clear what the medicine was, or how long it needed to be taken.

In Shaanxi, a grandfather told us:

We were given some medication by local officials to give to our grandson. We don't know what it is, but we had him take it for a month until the supply ran out and so he stopped taking it. Then a few months later, they brought another box of it. We don't know when or if they'll bring more. (Dong, Shaanxi province)

One father we interviewed in Henan spoke of his experience trying to get treatment for his son:

My son has a high lead level and is sick all the time. The government is not giving us any help or medication, so I went to see a doctor in Zhengzhou [the provincial capital] and he told me to get a certain medication, which I did. It's really expensive, 1000 RMB (\$150) for four months. He said my son should take it for a year. We really can't afford it, but we borrowed money and bought the medication. It has been four months and there is no change in my son's health. (Su, Henan province)

Some parents in Hunan and Henan said that their children had been hospitalized for lead poisoning treatment. According to a father in Henan:

The local government told us that any children who had a blood lead level over 40 µg/dL would be hospitalized. They did not tell us what kind of treatment



they would receive. My one-and-a-half-year-old had a high level, so we brought her to the hospital. But there they did not give her any treatment and moved her to a hotel where there were other children with lead poisoning. We found out that a provincial level official came to town and our local officials wanted to hide these children! They kept them at the hotel for a month. My daughter was never given any treatment. (Dong, Henan province)

Other parents and grandparents told us that they were told by government workers that there simply was no medicine, or no medicine that worked. A grandmother in Shaanxi, whose grandson has lead poisoning, told us:

We asked about medicine, something to make him better. They said they wouldn't give us any because medicine for lead poisoning doesn't work. (Su, Henan province)

### *Censorship of media and formal complaints*

Chinese laws, such as the 2008 Measures on Open Environmental Information, state clearly that citizens should have access to government information on environmental issues.<sup>23</sup> The government explains this regulation is intended, in part, to “maintain the rights and interests of citizens” and to “promote the public’s involvement in environmental protection.”<sup>24</sup>

One aspect of this public participation guaranteed in the Measures on Open Environmental Information is that citizen complaints posted on Environmental Protection Bureau websites will be made public and the ensuing investigation and results will also be posted. In a few cases, individuals we spoke with were aware of these laws and sought to organize and to protest conditions or file complaints with the government for redress.

In an area we visited in Hunan, a group of villagers had made a written complaint on the local Environmental Protection Bureau website. The complaint, entitled “Pollution from the manganese smelter is harming people and crop,” reads:

In 2008, a manganese smelter was built

next to our township middle school. Black smoke came from the factory production and affected people around the area, and now our crops are dying too. The Agricultural Board already said our harvests would have to take a big cut this year. In order for us to harvest our crops, and for the health of our people, and also for the health of middle school students in the future, we ask our superiors to close this manganese smelter!<sup>25</sup>

The local Environmental Public Bureau acknowledged on its website that the complaint was received, but according to people we interviewed, government officials have not taken direct action in addressing the local accounts of lead pollution; neither have the investigations into the allegations of pollution or the findings been made public, as required by law.

The Measures on Open Environmental Information also states that media should be used to disseminate environmental information.<sup>26</sup> Yet journalists’ attempts to report on pollution have been undermined by intimidation and threats from government officials. Journalists who reported on lead poisoning in three of the four locations where our research was conducted told us that police had followed them or forced them to leave the area when they attempted to interview people.<sup>27</sup> A journalist who had been to a pollution site in Hunan said that after he left the area, police had questioned the people he had interviewed, and that his driver had been questioned.<sup>28</sup> A journalist who had been reporting on the lead poisoning in Shaanxi was forced to leave the province.<sup>29</sup>

In one province, a government official told us, “Journalists are not allowed to come here and not allowed to go into villages to talk to people. There was a small problem here last year, but it’s all been resolved. There is nothing to see here.”<sup>30</sup> In another province, government officials said that journalists could only interview individuals about pollution if the local propaganda department cleared the questions in advance, and if a local government official accompanied them.<sup>31</sup>

### *Protests and intimidation*

The majority of parents we interviewed reported great fear in pursuing the issue of industrial pollution

and lead poisoning in their local area, citing arrests and threats that had been already made to them or to others in the community. In Shaanxi, villagers told us that local officials had explicitly warned them not to share information or discuss the lead poisoning issue, not only with foreign journalists, but also with other villagers. According to villagers we spoke with, attempts to understand the extent of the health crisis, the risk from the factory, and the health consequences for their children were met with hostility and threats, if not outright detention.

In Henan, some families described their participation in protests against factory owners, which they hoped would lead to improved treatment for lead poisoning and ensure compensation to those affected. Parents also told us they protested the inaccuracy of test results, trying to get explanations on how such variation was possible. According to parents, security forces did not respond to these questions and demands, but routinely shut the protests down, detaining and arresting some participants. Many families said that the government tactic had worked, and that fear of arrest or detention had ended efforts to push for information, treatment, compensation, or remediation.

One woman in Henan said:

The government isn't doing anything. We are all scared to ask for help, because people have been detained. Other people have tried to ask the government for help and medicine but they were detained. Now we are all scared to do anything. (Wang, Henan province)

People we interviewed in Hunan described an incident, also reported in the press, where police stopped a busload of parents who were on their way to the provincial capital.<sup>32</sup> The parents, after encountering hostility from local officials in their villages, were planning to request help and information from provincial authorities. Community members told us that several people were arrested, and at the time of our research—more than six months after this incident—one was still in jail. The villagers we spoke to said they were terrified of being arrested, and had decided there was not much more they could do to improve the situation. One man who had been detained told us:

They wouldn't let us out of jail unless our families paid a lot of money. I was in jail for six months. Now, of course, everyone is terrified of the police, so no one is protesting anymore. (Xuan, Hunan province)

The villagers we spoke to also mentioned their suspicions that the local factory, which they had been told was shut down, was actually operating at night. However, given the fear of arrest and other consequences, they were no longer raising this issue with the local government.

### *Financial remediation and relocation*

In Henan, residents of a village adjacent to a large smelter were offered a lump sum of 6,000 RMB (\$880) to compensate them for the pollution. Upon accepting this money, residents agreed to waive future demands on the factory for health, compensation, or relocation services. Most of the people we spoke with accepted this lump sum, which they considered a large amount, but said that it was not enough to relocate and establish a livelihood in another area. In considering whether to accept the compensation, and whether to move, most families we spoke with were not fully aware of the causes and consequences of lead poisoning. The company that runs the smelter has a 30-year lease with the local village leaders.

In Shaanxi, all the families we spoke with were told that they would be moved, but none were given information about when the move would happen or how they would make a living after they were moved away from their small plots of land. One man told us:

They are keeping the factory operating and forcing us to move. We have no way to make a living in the place we are supposed to move to because there is no land for us to farm. The government said they will bring us back here so we can farm and make a living, but our land here is full of lead. (Dong, Shaanxi province)

Children living in this same affected area were sent to a different school, but continued to live in the villages near factories operating without pollution controls. In a village in Henan province, children in one heavily polluted area were sent to a nearby school, but

families expressed concern during our interviews that the new school had not been tested for lead and could also be contaminated.

## DISCUSSION

Our research in four Chinese provinces found poor access to information on lead exposure, poisoning, and treatment; government censorship and intimidation of journalists, environmental activists, and parents of children affected by lead; and inadequate and incomplete implementation of environmental remediation, remuneration, and relocation strategies. We found that health centers refused to conduct screening for lead poisoning, often because of arbitrary eligibility criteria. Health facilities were promoting and providing inappropriate treatment. These abuses violate international human rights protections and Chinese laws and regulations.

### *International human rights protections*

The Convention on the Rights of the Child (CRC), which China ratified in 1992, and the International Covenant on Economic, Social, and Cultural Rights (ICESCR), which China ratified in 2001, both guarantee the right to the highest attainable standard of health.<sup>33</sup> The Committee on Economic, Social, and Cultural Rights (CESCR), which oversees states' compliance with the ICESCR clarified in its General Comment 14 on the Right to Health, that states are obligated to "[refrain] from denying or limiting equal access for all persons....to preventative...and curative health."<sup>34</sup> The Chinese government's refusal to provide access to testing for all children affected by lead poisoning is clearly in opposition to its obligations under international law. Article 24 of the CRC reads: "States Parties recognize the right of the child...to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services."<sup>35</sup>

Access to health information is also a right that is guaranteed under international law. The ESCR Committee specifically states that "the deliberate withholding or misrepresentation of information vital to health protection or treatment" is a violation of the right to health under Article 12 of the ICESCR.<sup>36</sup> More general access to information is protected by the International Covenant on Civil and Political Rights (ICCPR), which China signed

in 1998 but has yet to ratify.<sup>37</sup> Internationally, it is increasingly acknowledged that freedom of information is critical to environmental protection. For example, the Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters, which has been ratified by more than 40 countries (but not China), affirms that parties to the Convention recognize the essential link between the environment and human rights.<sup>38</sup> The Convention also makes clear that to enjoy basic human rights, citizens must be able to access information and participate in decision making around environmental matters.<sup>39</sup>

### *Protections under Chinese domestic law*

In addition to international law, Chinese law also provides human rights protections that are relevant to the ongoing lead poisoning crisis. For example, the Chinese constitution and a number of provisions in Chinese domestic law provide for the protection of the right to health.<sup>40</sup> The right to health is also articulated in China's 2009-2010 National Human Rights Action Plan.<sup>41</sup>

China's Law on the Protection of Minors states that children "shall enjoy the right to life, the right to development, the right to being protected, and the right to participation, and the State gives them special and preferential protection in light of the characteristics of their physical and mental development."<sup>42</sup> The Children's Rights section of the 2009-2010 National Human Rights Action Plan also reinforces the rights of children, including the right to health.

Chinese environmental laws, such as the 2008 Measures on Open Environmental Information, state clearly that citizens should have access to government information on environmental issues.<sup>43</sup> Article 1 of the Measures on Open Environmental Information states that these regulations are intended, in part, to "maintain the rights and interests of citizens" and to "promote the public's involvement in environmental protection."<sup>44</sup> The 2009-2010 National Human Rights Action Plan reiterates the Chinese government's commitment to citizens' "right to be informed" and states the goal to "improve relevant laws and regulations so as to guarantee citizens' right of information."<sup>45</sup> Chinese law also has specific provisions for resettlement, including citizen hearings and participation in the proposed resettlement and guaranteed compensation for vacated land.<sup>46</sup>



The denial of access to blood lead testing and appropriate treatment also violates ethical norms and standards for health care workers. In the past two decades, a range of Chinese laws, policies, and proclamations related to the ethical obligations of health care providers have been passed, including the 1995 Maternal and Infant Health Care Law and the 1999 Patient and Consumer Protection Act (and subsequent revision).<sup>47</sup> In 2002, the Chinese Medical Doctor Association was created, with the fundamental principles of promoting professional ethics and protecting patients.<sup>48</sup>

### *From law to practice*

While these protections under international and domestic law provide a critical foundation for accountability, their enforcement has often been lacking, and loopholes and intimidation often mean that the protections laid out are not fully upheld. The evolving practice of environmental litigation is one means of redress that is slowly growing in use. While environmental litigation in China has not often resulted in stopping ongoing pollution or remediating previously contaminated sites, it has provided an opportunity for victims to be monetarily compensated.<sup>49</sup> Litigation has also served to push relevant government agencies and actors to respond to an incident of environmental degradation.<sup>50</sup> The establishment of special environmental courts suggests willingness by the Chinese government to provide a path towards remedy for people affected by environmental degradation; however, many of these courts only rarely accept cases. Litigation continues to come with considerable risk for Chinese citizens and lawyers: Human rights lawyers and activists often disappear or are detained; the individuals we interviewed commonly expressed fear of retribution for activism, and doubts about the likelihood of an independent or fair judicial process.<sup>51</sup>

At the international level, relevant UN agencies and agencies monitoring compliance with international law could take a larger role in documenting human rights abuses and advocating with the Chinese government on human rights issues. Of course, this is not easily done: Human rights advocacy faces myriad obstacles in China. International organizations often face strict controls on where they can work, and their activities and public criticism of the government can lead to expulsion. In the mid-2000s, for example,

UNAIDS faced expulsion after publishing a report criticizing the Chinese government's handling of the AIDS epidemic.<sup>52</sup> The US Embassy's posting of hourly air-quality information has led to sharp rebukes from the Chinese government, including allegations that the US is illegally interfering in China's domestic affairs.<sup>53</sup> Many UN agencies therefore limit their role to that of "technical advisors" engaged in quiet diplomacy.<sup>54</sup> When UN Special Rapporteurs and others have criticized the Chinese government's human rights record, the criticisms have often been sharply contested. The new appointment of a UN Independent Expert on the Environment may provide an additional opportunity to engage the Chinese government on environmental issues.<sup>55</sup>

### *Repression versus rights*

As our findings show, in the areas we visited, protests were used as a tool by citizens who felt that there was no alternative for people affected by industrial pollution. The motivations for these protests are often not simply about pollution, but are focused on corruption, poor regulation, and lack of accountability or transparency.<sup>56</sup> What used to be a smaller conflict over health issues is, in the context of environmental degradation, quickly becoming a prairie fire of protests over associated rights.

Protests related to environmental degradation, which affects whole communities and transcends socioeconomic strata, mark a departure from previous health-related activism. While civil society response to HIV and SARS was similarly sparked by government denial and neglect, protests in response to environmental health threats have gathered a much broader and larger constituency.<sup>57</sup> Heavy-handed government responses attempting to stem citizen unease around environmental degradation have galvanized local communities, turning small-scale upset into large and often violent uprisings. As awareness of environmental protection laws has grown, frustration with their lack of enforcement has created anger at the impunity of industrial and political officials.

The government's response to this emerging citizen power and consciousness has been mixed. In some cases, protests have resulted in the government ordering projects to be terminated and factories to be shut down.<sup>58</sup> However, these actions have often been reactive. To address the widespread lead poisoning epidemic, the government must ensure broader,

rights-based protections: citizen access to information, participation, and transparency.

In the cases we documented, both financial remuneration and relocation were aimed at appeasing angry citizens to maintain social order, but did not address—and actually obscured—the issue of the lead poisoning threat. Rather than provide real assistance and solutions to the problem of ongoing lead exposure, the government offered citizens money to waive further complaints against polluting factories, while allowing factories to stay open.

Since the process of relocation is not simple and environmental remediation is not cheap, these strategies to address widespread lead poisoning can not be seen as likely to be implemented in the near term. Yet the UN Basic Principles and Guidelines on Development-based Evictions and Displacement provides that “all persons, groups and communities have the right to resettlement, which includes the right to alternative land of better or equal quality and housing that must satisfy the following criteria for adequacy; accessibility, affordability, habitability, security of tenure, cultural adequacy, suitability of location, and access to essential services such as health and education.”<sup>59</sup> The urgency of limiting further environmental contamination through regulation of industry, occupational health protections, health education, screening, and targeted treatment thus becomes even greater. To achieve each of these goals requires respect for human rights and cooperation with active and engaged civil society organizations.

## CONCLUSION

The Chinese government’s industrial and economic development efforts since the mid-1970s have lifted many Chinese citizens out of poverty and increased the standard of living for the population in general. They have also led to severe environmental degradation, which in turn has caused unrest, particularly in rural areas. Our research is limited both in terms of geographic scope (focusing upon four Chinese provinces) and sample size. However, media reports document ongoing acute lead poisoning incidents, and limited population surveys of blood lead among children suggest a problem of national scope. Environmental policies that give priority to economic development, combined with poor local regulation and enforcement of environmental laws, have con-

tributed to a far-reaching, and ongoing, environmental health crisis.

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## REFERENCES

1. D. Barboza, “China passes Japan as second-largest economy,” *New York Times* (August 15, 2010). Available at <http://www.nytimes.com/2010/08/16/business/global/16yuan.html?hp>.
2. World Bank, *From poor areas to poor people: China’s evolving poverty reduction agenda, an assessment of poverty and inequality in China* (Beijing: World Bank, 2009). Available at [http://siteresources.worldbank.org/CHINAEXTN/Resources/318949-1239096143906/China\\_PA\\_Report\\_March\\_2009\\_eng.pdf](http://siteresources.worldbank.org/CHINAEXTN/Resources/318949-1239096143906/China_PA_Report_March_2009_eng.pdf).
3. World Bank, *Data: China* (World Bank, 2010). Available at <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CHINAEXTN/0,contentMDK:20680895~pagePK:1497618~piPK:217854~theSitePK:318950,00.html>.
4. X. Shen, S. Wu, and C. Yan, “Impacts of low-level lead exposure on development in children: Recent studies in China,” *Clinical Chimica Acta* 313/1-2 (2001), pp. 217-220.
5. Ibid. pp. 217-220; S. Li, Z. Zhenyia, L. Lon, and C. Hanyun, “Preschool children’s lead levels in rural communities of Zhejiang province, China,” *International Journal of Hygiene and Environmental Health* 207/5 (2004), pp. 437-40; X. Ye, H. Fu, and T. Guidotti, “Environmental exposure and children’s health in China,” *Archives of Environmental and Occupational Health* 62/61-73 (2007); X. Ye and O. Wong, “Lead Exposure, Lead Poisoning, and Lead Regulatory Standards in China 1990-2005,” *Regulatory Toxicology and Pharmacology* 46/2 (2006), pp. 157-162.
6. Media reports include: Asia News Agencies “Hundreds of children with blood poisoning in

- Shaanxi,” (August 11, 2009). Available at <http://www.asianews.it/index.php?l=en&art=16019&size=A>; Associated Press, “China investigating child lead poisoning cases,” (March 17, 2010). Available at <http://www.thestreet.com/story/10705008/1/china-investigating-child-lead-poisoning-cases.html?cm-ven=GOOGLEFI>; Z. Xingxin and W. Qian, “Tests confirm widespread lead poisoning,” *China Daily* (September 28, 2009). Available at [http://www.china-daily.com.cn/china/2009-09/28/content\\_8743836.htm](http://www.china-daily.com.cn/china/2009-09/28/content_8743836.htm); BBC, “China probes child lead poisoning,” (September 27, 2009). Available at <http://news.bbc.co.uk/2/hi/asia-pacific/8277327.stm>.
7. United Nations Children’s Fund and United Nations Environment Program, *Childhood lead poisoning: Information for advocacy and action* (New York: UNEP-UNICEF, 1997). Available at [http://www.chem.unep.ch/irptc/Publications/leadpoison/lead\\_eng.pdf](http://www.chem.unep.ch/irptc/Publications/leadpoison/lead_eng.pdf).
8. Ibid.
9. US Centers for Disease Control and Prevention (CDC), CDC response to Advisory Committee on Childhood Lead Poisoning Prevention recommendations in “Low level lead exposure harms children: A renewed call of primary prevention” (June 7, 2012). Available at [http://www.cdc.gov/nceh/lead/ACCLPP/CDC\\_Response\\_Lead\\_Exposure\\_Recs.pdf](http://www.cdc.gov/nceh/lead/ACCLPP/CDC_Response_Lead_Exposure_Recs.pdf); US Centers for Disease Control and Prevention (CDC), “Interpreting and managing blood lead levels <10 µg/dL in children and reducing childhood exposures to lead,” *Morbidity and Mortality Weekly Report* 56/RR08 (2007), pp. 1-14, 16.
10. R. Hurwitz and D. Lee, “Childhood lead poisoning: Exposure and prevention,” *UptoDate*, (January 31, 2009). Available at [http://www.uptodate.com/patients/content/topic.do?topicKey=~sGXNGuc8\\_7OzJN](http://www.uptodate.com/patients/content/topic.do?topicKey=~sGXNGuc8_7OzJN).
11. Ministry of Environmental Protection, The People’s Republic of China, *Emission standard of air pollutants for thermal power plants*. (Beijing, 2012). Available at [http://english.mep.gov.cn/standards\\_reports/standards/Air\\_Environment/Emission\\_standard1/201201/t20120106\\_222242.htm](http://english.mep.gov.cn/standards_reports/standards/Air_Environment/Emission_standard1/201201/t20120106_222242.htm).
12. W. Wei, “China committed to sustainable development,” *China.org.cn* (July 30, 2010). Available at [http://www.china.org.cn/environment/2010-07/30/content\\_20609281.htm](http://www.china.org.cn/environment/2010-07/30/content_20609281.htm).
13. Ministry of Environmental Protection, The People’s Republic of China, *The 12th Five-Year Plan for the Environmental Health Work of National Environmental Protection*. Available at [http://english.mep.gov.cn/pv\\_obj\\_cache/pv\\_obj\\_id\\_9D01655844E9055E26218C2C219315D04ABC0000/file-name/P020120110355818985016.pdf](http://english.mep.gov.cn/pv_obj_cache/pv_obj_id_9D01655844E9055E26218C2C219315D04ABC0000/file-name/P020120110355818985016.pdf).
14. Organization for Economic Cooperation and Development, *Environmental compliance and enforcement in China: An assessment of current practices and ways forward* (OECD: 2006). Available at <http://www.oecd.org/environment/environmen-tinemerginandtransitioneconomies/37867511.pdf>.
15. M. Moor, “China’s middle-class rises up in environmental protest,” *The Telegraph* (November 23, 2009). Available at <http://www.telegraph.co.uk/news/worldnews/asia/china/6636631/Chinas-middle-class-rise-up-in-environmental-protest.html>.
16. C. Auerbach and L.B. Silverstein, *Qualitative data: An introduction to coding and analysis* (New York: New York University Press, 2003).
17. Council for International Organizations of Medical Sciences, *International ethical guidelines for epidemiological studies* (Geneva, CIOMS, 2009).
18. US Centers for Disease Control and Prevention (CDC), *Determination of applicability of human research regulations guidance: policy* (2010). On file with Human Rights Watch.
19. Council for International Organizations of Medical Sciences (see note 10).
20. J. J. Amon, S. D. Baral, C. Beyrer, and N. Kass. “Human rights research and ethics review: Protecting individuals or protecting the state?” *PLoS Med* 9(10) (2012).
21. Interview with a medical worker in Henan (2010).

22. Guidelines for prevention of children's high blood lead level and lead poisoning. Diagnosis and treatment principles for children's high blood lead level and lead poisoning.
23. State Environmental Protection Administration of China, Measures on open environmental information (for trial implementation) (2008). Available at [http://www.epa.gov/ogc/china/open\\_environmental.pdf](http://www.epa.gov/ogc/china/open_environmental.pdf).
24. Ibid.
25. Although the complaint was originally posted on the Wugang Environmental Public Bureau website, there is currently no evidence of the recorded complaint on the Wugang Environmental Public Bureau website. An individual re-posted the complaint regarding local lead poisoning from the Wugang manganese smelter on the Chinese website, Space for Legal Rights. In the post, the individual described the deteriorating environmental conditions in city of Wugang and stated that the environmental protection bureau of Shao Yang city responded to the original complaint on the Wugang Environmental Public Bureau website, simply noting that their office was "urging the Wugang environmental protection office to carry out an investigation." Space for Legal Rights, Wugang city's lead pollution from the manganese smelter is causing mass illness (August 5, 2009). Previously available at <http://www.315wq.com/zxts/11748.htm>.
26. State Environmental Protection Administration of China, Measures on open environmental information (for trial implementation), (2008). Available at [http://www.epa.gov/ogc/china/open\\_environmental.pdf](http://www.epa.gov/ogc/china/open_environmental.pdf).
27. Interviews with journalists in Beijing and Shanghai (2010).
28. Interview with journalist in Shanghai (2010).
29. Interview with journalist in Beijing (2010).
30. Conversation with government officials (2010).
31. Ibid.
32. J. Watts, "China defends detention of lead poisoning victims who sought medical help," *The Guardian* (March 16, 2010). Available at <http://www.guardian.co.uk/environment/2010/mar/16/china-lead-poison-victims>.
33. Convention on the Rights of the Child (CRC), G.A. Res. 44/25 (1989). Available at <http://www2.ohchr.org/english/law/crc.htm>, ratified by China on March 2, 1992; International Covenant on Economic, Social and Cultural Rights (ICESCR), G.A. Res. 2200A (XXI), Art. 12 (1966). Available at <http://www2.ohchr.org/english/law/cescr.htm>, ratified by China on March 27, 2001. Ratification of a treaty renders the state a party to and legally bound by the treaty.
34. UN Committee on Economic, Social and Cultural Rights, General Comment No. 14, The Right to the Highest Attainable Standard of Health, UN Doc. No. E/C.12/2000/4 (2000), para. 34. Available at <http://www.unhchr.ch/tbs/doc.nsf/%28symbol%29/E.C.12.2000.4.En>.
35. Convention on the Rights of the Child (CRC), G.A. Res. 44/25 (1989), ratified by China on March 2, 1993. Available at <http://www2.ohchr.org/english/law/crc.htm>.
36. Ibid., para. 50.
37. International Covenant on Civil and Political Rights (ICCPR), G.A. Res. 2200A (XXI) (1966), Art. 19(2). Available at <http://www2.ohchr.org/english/law/ccpr.htm>, signed by China on October 10, 1998. By signing the ICCPR, China is not legally bound by the treaty, but is to refrain in good faith from acts that would defeat the object and purpose of the treaty, (see article 18 of the Vienna Convention 1969); International Covenant on Economic, Social and Cultural Rights (ICESCR), G.A. Res. 2200A (XXI), Arts. 12, 27 (1966), ratified by China on March 27, 2001 Available at <http://www2.ohchr.org/english/law/cescr.htm>.
38. United Nations Economic Commission for Europe, Convention on Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters (1998). Available

at <http://www.unece.org/env/pp/documents/cep43e.pdf>. This treaty applies to the European Union itself in addition to each of the individual signatory nations. China has neither signed nor ratified this treaty.

39. Ibid.

40. The People's Republic of China, The Constitution of the People's Republic of China, (Beijing, 1982)

41. Information Office of the State Council, National human rights action plan of China (2009-2010) (April 13, 2009). Available at [http://www.gov.cn/english/official/2009-04/13/content\\_1284128.htm](http://www.gov.cn/english/official/2009-04/13/content_1284128.htm).

42. The People's Republic of China, Law of the People's Republic of China on the Protection of Minors, (Beijing 1991).

43. State Environmental Protection Administration of China, Measures on open environmental information (for trial implementation), (2008). Available at [http://www.epa.gov/ogc/china/open\\_environmental.pdf](http://www.epa.gov/ogc/china/open_environmental.pdf).

44. Ibid.

45. Information Office of the State Council, National human rights action plan of China (2009-2010). (April 13, 2009). Available at [http://www.gov.cn/english/official/2009-04/13/content\\_1284128.htm](http://www.gov.cn/english/official/2009-04/13/content_1284128.htm).

46. Land Administration Law of the People's Republic of China (2004 Revision). Available at [http://www.fdi.gov.cn/pub/FDI\\_EN/Laws/GeneralLawsandRegulations/BasicLaws/P020060620320252818532.pdf](http://www.fdi.gov.cn/pub/FDI_EN/Laws/GeneralLawsandRegulations/BasicLaws/P020060620320252818532.pdf).

47. O. Doring, "China struggle for practical regulations in medical ethics," *Nature Reviews Genetics* 4 (2003), pp. 233-239.

48. Chinese Medical Doctor Association, Available at: <http://cmdae.org/en/about.php>.

49. P. Goldman, "Public interest environmental litigation in China: Lessons learned from the US experience," *Vermont Journal of Environmental Law* 8 (2006-2007), pp. 247-274.

50. A. Wang, "Green litigation in China today," *China Dialogue* (July 18, 2011). Available at <http://www.chinadialogue.net/article/show/single/en/4413-Green-litigation-in-China-today>

51. Human Rights Watch, *Walking on Thin Ice* (New York: Human Rights Watch, 2008).

52. Interviews with NGO workers and journalists in Beijing (2008).

53. Reuters, "China says only it has right to monitor air pollution," (June 6, 2012). Available at: <http://www.reuters.com/article/2012/06/06/uk-china-environment-idUSLNE85500H20120606>.

54. Conversations with UN workers in China and other countries (2007-2012).

55. The Dui Hua Foundation, UN Rapporteur: "Torture Declining But Still Widespread," (Winter 2006). Available at [http://duihua.org/wp/word-press-content/uploads/2011/09/nl\\_22.pdf](http://duihua.org/wp/word-press-content/uploads/2011/09/nl_22.pdf).

56. P. Xiaoyun, "Public needs say in decisions about local environment," *Global Times* (July 30, 2012). Available at <http://www.globaltimes.cn/content/724172.shtml>.

57. J. Amon, "High hurdles to health in China," in M. Wordon (ed), *China's great leap: The Beijing games and Olympian human rights challenges* (New York: Seven Stories Press, 2008), pp. 125-139.

58. Reuters, "China paper blames poor government decision making for violent protest," (July 30, 2012). Available at <http://www.reuters.com/article/2012/07/30/us-china-environment-protest-idUSBRE86T04N20120730>.

59. Basic Principles and Guidelines on Development-Based Evictions and Displacement, Annex 1 of the Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, UN Doc. No. A/HRC/4/18 (February 5, 2007). Available at <http://www.ohchr.org/EN/Issues/Housing/Pages/AnnualReports.aspx>.