Pollution Information Transparency Index

The 2012 Pollution Information Transparency Index (PITI)
Fourth Annual Assessment of Environmental Transparency in 113 Chinese Cities

Bottlenecks & Breakthroughs

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Institute of Public & Environmental Affairs (IPE)
The Institute of Public & Environmental Affairs (IPE) is a registered non-profit organization based in Beijing. Since its establishment in May 2006, IPE has developed the China Pollution Map Database (www.ipe.org.cn), to monitor corporate environmental performance and to facilitate public participation in environmental governance. (www.ipe.org.cn)

Natural Resources Defense Council (NRDC)
The Natural Resources Defense Council (NRDC) is a non-profit environmental organization with more than 1.3 million members. Since 1970, NRDC lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and environment. NRDC has offices in New York, Washington, D.C., Los Angeles, San Francisco, Chicago, Montana, and Beijing. (www.nrdc.cn)

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Executive Summary

Since 2009, the Institute of Public & Environmental Affairs (IPE) and the Natural Resources Defense Council (NRDC) have jointly assessed the level of pollution source information disclosure from 113 Chinese cities. IPE and NRDC have developed and implemented an evaluation system called the Pollution Information Transparency Index (PITI). The fourth annual report, which analyzed data from the assessment year of 2012, found that the average PITI score for these 113 cities continued to rise for the third year, reaching 42.73 out of 100 points total.

In the years that this report has been produced, environmental information disclosure has continued to expand, but there has been a simultaneous downward trend in the annual rate of progress. The 2012 annual assessment saw the largest number of cities with decreasing PITI scores out of the past three years. Eastern China has led previous PITI scores; however, the performance of Eastern China in 2012 was not worth highlighting. Overall, most cities made no substantive progress in the disclosure of key information such as routine supervision records, enterprise emission data and Environmental Impact Assessment (EIA) documentation.

We believe that in the face of such serious air, water and soil pollution, the current situation, whereby disclosed environmental information is scattered, lagging, incomplete and not user friendly, must be changed immediately. Improvements in pollution information transparency is feasible due to the rapid increase in internet access across China; the adherence to good open information practices in provinces, such as Jiangsu and Zhejiang, and cities, such as Ningbo and Wuhan; and the opportunity to learn from the experiences of key industrialized countries.

We hereby recommend that China implement comprehensive disclosure of pollution information as soon as possible by adhering to the following steps:

- Release of online monitoring data from key pollution source enterprises;
- Release routine supervision information for polluting enterprises in a systematic, comprehensive, and timely manner; and
- Regularly publicize emission data for each pollutant discharged by polluting enterprises.

We believe that the comprehensive disclosure of pollution source information can put the power of environmental protection enforcement into the hands of the public, pierce the veil of local protection for polluting enterprises, and curb rent-seeking and fraudulent data reporting. The disclosure of pollution information can also provide evidence for environmental lawsuits. Most importantly, comprehensive disclosure puts polluting enterprises under public scrutiny and allows for public participation in decision-making and environmental management, which can then encourage energy conservation and emissions reduction.

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2012 PITI Assessment Results

Since 2009, IPE and NRDC have been jointly assessing the level of pollution source information disclosure of 113 Chinese cities.[1] This year, IPE and NRDC published the fourth PITI assessment.

2.1 Assessment results for 113 cities

The 2012 PITI results for 113 cities can be found in the following table.

Figure 1: 2012 PITI Results and Rankings for 113 Cities

Rank	City	2012 PITI Score	Change	Rank	City	2012 PITI Score	Change	Rank	City	2012 PITI Score	Change
1	Ningbo	85.3	Unchanged	39	Huzhou	49.1	Up	77	Changsha	32	Up
2	Dongguan	74.9	Unchanged	40	Zhengzhou	49.1	Up	78	Zhuzhou	31.9	Up
3	Qingdao	74.4	Up	41	Taiyuan	48.7	Unchanged	79	Baoding	31.2	Down
4	Shenzhen	73.1	Up	42	Chengdu	47.8	Up	80	Qujing	30.9	Up
5	Yangzhou	73	Up	43	Shaoxing	47.8	Unchanged	81	Jiujiang	30.7	Up
6	Beijing	72.9	Unchanged	44	Nanning	47.7	Down	82	Daqing	30.7	Down
7	Guangzhou	71.4	Up	45	Benxi	46.2	Up	83	Panzhihua	30.6	Up
8	Hangzhou	70.8	Up	46	Zhanjiang	45.6	Up	84	Zhuhai	30.2	Down
9	Chongqing	70.7	Up	47	Xuzhou	45.2	Up	85	Chifeng	30	Up
10	Wenzhou	70.4	Unchanged	48	Ma'anshan	44.9	Down	86	Qiqihar	29.4	Up
11	Yichang	67.9	Up	49	Lianyungang	42.9	Up	87	Jinchang	28.6	Up
12	Fuzhou	67.4	Unchanged	50	Weihai	42.7	Unchanged	88	Qinhuangdao	28.4	Up
13	Jiaxing	66.9	Up	51	Yancheng	42	Unchanged	89	Harbin	28.2	Down
14	Shanghai	65.6	Down	52	Xiangtan	41.8	Unchanged	90	Yan'an	27.7	Up
15	Nanjing	65.5	Unchanged	53	Fushun	41.5	Up	91	Baotou	27.4	Unchanged
16	Quanzhou	65.4	Up	54	Handan	40.8	Up	92	Anyang	27.2	Unchanged
17	Nantong	63.8	Unchanged	55	Zibo	40.2	Up	93	Zunyi	27.2	Up
18	Suzhou	63.8	Up	56	Baoji	40	Up	94	Xiamen	27	Unchanged
19	Zhongshan	63.8	Down	57	Dalian	39.7	Down	95	Linfen	26.8	Up
20	Changzhou	60.3	Down	58	Yinchuan	39.4	Unchanged	96	Hohhot	26.3	Up
21	Taizhou	58.1	Down	59	Rizhao	39.1	Up	97	Lanzhou	26	Down
22	Wuxi	57.7	Ping	60	Changzhi	39.1	Down	98	Tai'an	25.6	Up
23	Tianjin	57.5	Up	61	Jinan	38.7	Up	99	Anshan	25.2	Down
24	Luoyang	57.1	Unchanged	62	Tangshan	38.3	Up	100	Tongchuan	24.5	Down
25	Hefei	57.1	Unchanged	63	Nanchang	38.2	Up	101	Jining	24.2	Unchanged
26	Liuzhou	55.7	Up	64	Urumqi	37.6	Unchanged	102	Weifang	24	Down
27	Shaoguan	54.6	Up	65	Guilin	36.6	Down	103	Yibin	23.6	Up
28	Xining	53.6	Up	66	Shantou	36.5	Down	104	Erdos	22.6	Unchanged
29	Foshan	53.5	Down	67	Yueyang	36.4	Up	105	Jinzhou	22	Up
30	Jiaozuo	52.6	Up	68	Xi'an	35.8	Up	106	Yangquan	21.8	Down
31	Wuhan	52.5	Down	69	Guiyang	35	Down	107	Zhangjiajie	21.6	Up
32	Shenyang	52	Up	70	Wuhu	34.6	Up	108	Jilin	20.2	Unchanged
33	Mudanjiang	51.9	Unchanged	71	Beihai	34.2	Down	109	Changchun	20	Down
34	Jingzhou	51.4	Up	72	Kaifeng	33.8	Up	110	Karamay	19	Unchanged
35	Yantai	51.3	Up	73	Pingdingshan	33.4	Up	111	Xianyang	19	Down
36	Mianyang	50.8	Up	74	Luzhou	33.1	Unchanged	112	Datong	12.2	Down
37	Shijiazhuang	50.4	Down	75	Changde	32.5	Down	113	Zaozhuang	12	Down
38	Kunming	49.6	Up	76	Shizuishan	32.4	Down				

[1] Please visit http://www.ipe.org.cn/about/report.aspx for assessment reports for the last three years.
Please visit http://www.ipe.org.cn/UserFiles/File/PITI.pdf for assessment criteria.

The top ten cities were: Ningbo, Dongguan, Qingdao, Shenzhen, Yangzhou, Beijing, Guangzhou, Hangzhou, Chongqing and Wenzhou with an average score of 73.69, 30.96 points higher than the average of the whole group of 113 cities.

Figure 2: Top Ten Cities in the 2012 PITI

Rank	City	Total PITI Score-2012
1	Ningbo	85.3
2	Dongguan	74.9
3	Qingdao	74.4
4	Shenzhen	73.1
5	Yangzhou	73
6	Beijing	72.9
7	Guangzhou	71.4
8	Hangzhou	70.8
9	Chongqing	70.7
10	Wenzhou	70.4

The bottom ten cities were: Zaozhuang, Datong, Xianyang, Karamay, Changchun, Jilin, Zhangjiajie, Yangquan, Jinzhou and Erdos with an average score of 19.6, 23.13 points lower than the average of the whole group of 113 cities.

Figure 3: Bottom Ten Cities in the 2012 PITI

Rank	City	Total PITI Score-2012
104	Erdos	22.6
105	Jinzhou	22
106	Yangquan	21.8
107	Zhangjiajie	21.6
108	Jilin	20.2
109	Changchun	20
110	Karamay	19
111	Xianyang	19
112	Datong	12.2
113	Zaozhuang	12

Please refer to Appendix I for 2012 sub-scores of the PITI for all 113 Cities.
Please refer to Appendix II for the Provincial Score Rankings of the 2012 PITI.

2.2 Three grassroots NGOs performed local PITI assessments

In 2012, three local NGOs performed PITI assessments, from only one NGO in 2011. Following Green Hunan's initial assessment in 2011, they assessed eight cities in Hunan province in 2012. In 2012, Nanjing Green Stone assessed four cities in Jiangsu province, and Green Anhui assessed 13 cities in Anhui province.

The assessments made by these NGOs covered all the prefecture-level cities in their respective provinces and provided significant indication of the level of transparency of local pollution source data . These local assessments have also allowed for clearer comparison of cities and local references for good practices.

1) Please refer to Appendix III for PITI assessment results for the 14 prefecture-level cities in Hunan Province.

2) Please refer to Appendix IV for PITI assessment results for the 13 prefecture-level cities in Jiangsu Province.

3) Please refer to Appendix V for PITI assessment results for the 16 prefecture-level cities in Anhui Province.

On the basis of local NGO assessments, the 2012 PITI assessment was extended to cover 138 cities. Please refer to Appendix VI for the summary of 2012 PITI scores for the 138 cities.

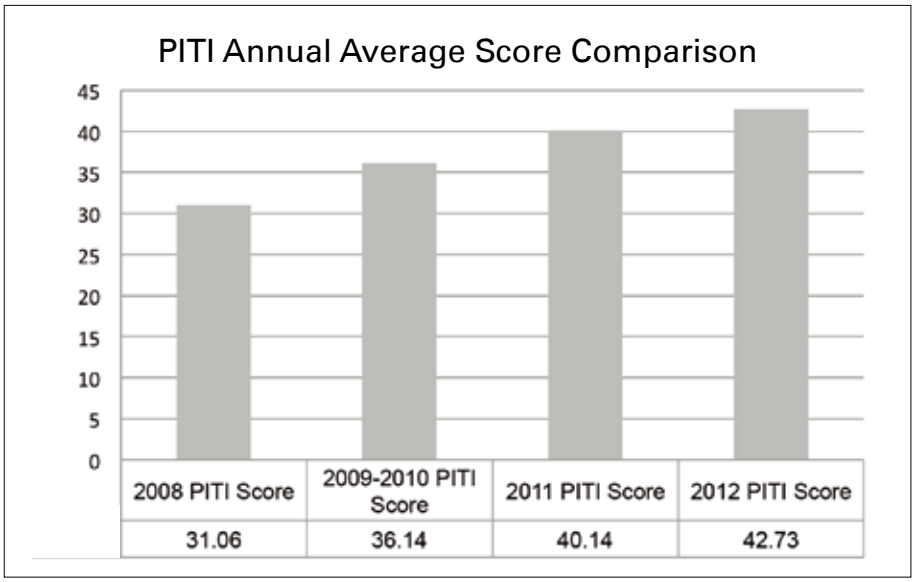
3

Analysis:
Declining Progress in Pollution Information Transparency

3.1 Overall growth but progress is slowing down

Over the past four years the average PITI assessment score for the selected 113 cities has increased from 31.06 to 42.73.

Figure 4: PITI Annual Average Score Comparison



Over the past three years the average annual assessment score for the 113 cities has increased by 16.35%, 11.07% and 6.45% respectively. These figures demonstrate a slowdown in the general upward trend.

One reason for the slowdown in average growth for the 113 cities was that the PITI scores for some cities actually decreased. In the 2012 annual assessment, 35% of cities had lower scores than the previous year. This was the highest percentage of cities to suffer a decrease in points out of any of the assessments over the past three years.

Below are the ten cities from the 2012 annual assessment that suffered the greatest declines:

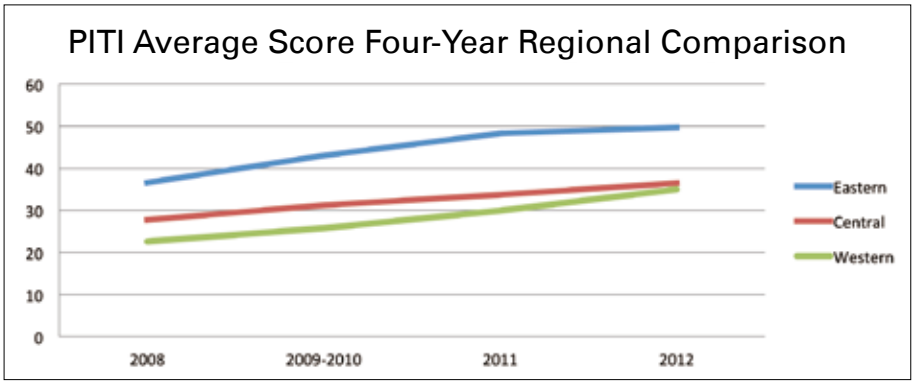
Figure 5: Ten Cities that Suffered the Greatest Declines as shown in 2012 PITI Assessment

City	2012 PITI Score	Point Decrease
Foshan	53.5	-21.1
Shantou	36.5	-20.2
Baoding	31.2	-18
Taizhou	58.1	-17.3
Changzhou	60.3	-16.5
Anshan	25.2	-14.8
Weifang	24	-14.8
Yinchuan	39.4	-14.3
Dalian	39.7	-14
Zhongshan	63.8	-12.2
Ma'anshan	44.9	-12.2

3.2 Scores in Eastern, Central and Western China are converging at a low level

As demonstrated in the following figure, the western region had stronger growth than that of the central region, and the growth of the central region was stronger than that of the eastern region.

Figure 6: Four-Year Average Score Comparison among the Eastern, Central and Western Regions



When comparing the 2012 annual assessment results, we found a convergence. Unfortunately, the convergence was not at a high level of transparency.

In the assessments of the past three years, the eastern regions of China have accounted for many of the examples of national best practices. However, the 2012 annual assessment demonstrates that progress in Eastern China was limited.

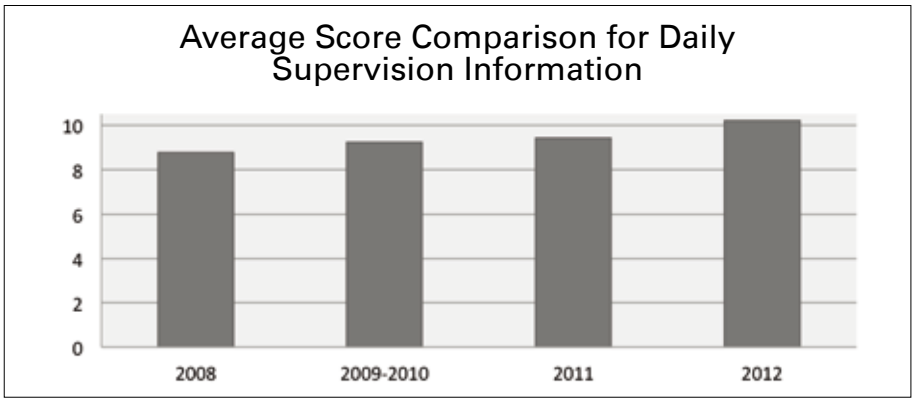
3.3 Limited Progress for Three Types of Key Open Information Indicators

Most cities made no substantive progress in the disclosure of key information such as routine supervision records, enterprise emissions data and EIA documentation, indicating that pollution source transparency has reached a bottleneck.

3.3.1 Little growth in the disclosure of routine supervision information

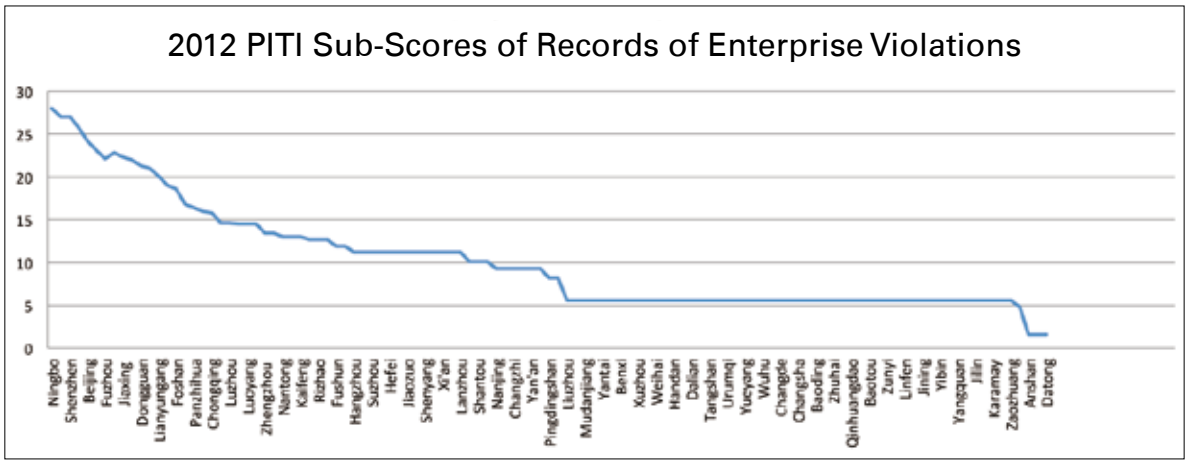
Routine supervision information includes enterprise violations of emission standards, violations of total emission control targets, and records of administrative penalties. Because these figures indicate whether the enterprise has been in compliance with environmental regulations, they can be considered the most important type of information. All previous assessments, starting from 2008, saw low average scores for the 113 cities in this routine supervision information category. Over the past three years, the average score for the 113 cities in this category has increased by merely two points to an average of 10.20 points in 2012.

Figure 7: Year-on-Year Comparison of Routine Supervision Information Scores



According to the 2012 PITI assessment, there were still 55 cities that were barely able to reach the lowest score level for routine supervisory information.

Figure 8: PITI Sub-Scores of Records of Enterprise Violations



3.3.2 Limited disclosure of emissions data

In industrialized countries, it is common practice to make emissions data public. Enterprises in America, Canada, the European Union, Japan and Korea are required to disclose to the public the categories and amounts of hazardous substance discharged to the environment on a regular basis. In China, despite requirements in the 2003 Cleaner Production Promotion Law and the 2008 Measures on Open Environmental Information (for Trial Implementation), that require certain enterprises to disclose emissions data, implementation has been limited.

This PITI assessment found that only Hubei Province, the cities of Changzhou, Liuzhou, Yichang, Beihai, Wuhan and Daqing, and a number of districts and counties in Chongqing published emissions data, however, the data categories in these locations were often very limited.

3.3.3 EIA information in want of material information disclosure

Though China has been performing environmental impact assessments for over three decades, China's EIA system still lags behind that of western country in terms of preventing the approval and construction of projects that lead to severe pollution and ecological damage. Like developed countries, China has the technical capacity to employ environmental impact assessments. However, there are significant differences between China and developed countries in the procedural aspects of EIAs. The core differences lie in limited information disclosure and public participation. In this year's assessment, none of the cities surveyed made entire environmental impact assessment reports public, nor were there any environmental impact assessment hearings that invited the public to participate.

4 Recommendations: Towards Comprehensive Pollution Transparency

Pollution information transparency must be significantly expanded to respond to the strong public demand for pollution control. The rapid expansion in access to the Internet in China has proven vital to pollution information transparency. Further, some Chinese localities have successfully adopted key pollution information transparency practices from developed economies.

Therefore, we urge the implementation of a comprehensive pollution information disclosure system as soon as possible.

4.1 Background: severe pollution incidents have resulted in widespread unease

Since 2011, haze and smog affected wide areas of China for a long period of time, bringing pollution-based public health afflictions to millions of residents' lives. Moreover, less visible types of pollution, such as water, garbage, soil, groundwater and offshore pollution present long-term challenges.

Backed by widespread popular demand, China has made significant progress with respect to air quality information disclosure beginning in 2011. From 2013, eighty Chinese cities have begun to release real-time air quality data, allowing the public to be better informed and protected.

In contrast with the progress made in the disclosure of air quality information, access to data on pollution sources is very limited. Information is often incomplete, released in an unorganized fashion and difficult to obtain. To contain air, water and soil pollution, large-scale reduction in emissions must be realized. To reduce emissions, policymakers must identify key sources of emissions and encourage public monitoring of pollution sources by opening access to information, drawing upon the best practices of advanced economies, such as the United States and European Union member states.

4.2 From Opening $PM_{2.5}$ data to Pollution Source Information Disclosure

4.2.1 Lessons from Opening $PM_{2.5}$ Data

Under current conditions in China, one might ask whether it is possible to achieve comprehensive disclosure of pollution data? What disclosure methods are the most effective? In looking for solutions, the experience of opening $PM_{2.5}$ data provides several important lessons.

In particular, breakthroughs have been made in opening $PM_{2.5}$ data in the following four ways:

- Systematic publication: publication of $PM_{2.5}$ data now covers all monitoring sites and monitoring data throughout the year.
- Timeliness: publication of $PM_{2.5}$ data occurs on an hourly basis.
- Comprehensiveness: in addition to index, detailed concentration values have been included.
- User-friendliness: data on monitoring spots has been released on an online map, along with different colors indicating specific levels of pollution.

We believe that for substantive emissions reductions to take place, year-long monitoring, supervision and emissions data from key polluting enterprises must be disclosed under a timely, comprehensive and user-friendly system.

4.2.2 Comprehensive disclosure of pollution source information should start from the following three initiatives

To be able to adequately participate in the public supervision process, the public needs information on pollution sources in addition to air quality monitoring data. We suggest starting with the following three steps:

- Release real-time online monitoring data from key state, provincial and city-level enterprises, along with historical data.
- Release administrative penalty records, verified citizen petitions, and complaint information on polluting enterprises on a systematic, timely, and comprehensive basis.
- Release emissions data periodically, covering, at a minimum, all pollutants identified in a project's EIA report.

4.2.3 Breakdown of recommendations for comprehensive pollution source information disclosure

Figure 9: Breakdown of recommendations for comprehensive pollution source information disclosure

Category	Systematic	Timely	Comprehensive	User-Friendly
Daily supervisory records	Release online monitoring data covering all key state, provincial and city-level pollution sources; Release records of violations such as violations of emissions standards, and other administrative penalty information; Release verified citizen petitions and complaints; Release annual enterprise environmental performance results; Release information of all unexpected environmental accidents; Release information on enforcement campaigns against polluting enterprises, such as demanding correction within a given time period, enforcement supervision by higher agencies, etc. Information should be disclosed throughout the year.	Publish electronic data online every hour; Release manual monitoring data the following day; Immediately publicize pollution accidents.	Release concentration and the status of compliance with relevant emission standards; Publish the total discharge volume of waste water and air emissions, and give access to historical data; Release decisions on administrative penalties; Release total emissions violation details, including the standard violated, actual amount of emissions released and a comparison of emissions vs. standards; Release information on excess emissions, and excess total amounts, including excess figures for sewer-connected enterprises; Enterprises generating hazardous waste should publish violation information; Release of verified citizen petitions and complaints should cover the complaints, verification information, and any action taken to address the complaints; Release all information relevant to environmental accidents; Reports of government supervision activities should include the enterprise name, actions taken, future requirements and completion time.	Pollution sources should be marked on a digital map, data points should have monitored information integrated into them; Use a clear color scheme to highlight violations and annual assessments; Utilize new technologies such as mobile apps to promote ease of public access to this information; Provide convenient and effective channels for citizens to request information;
Emissions data	All key enterprises should disclose emissions data; All key enterprises should provide data on total annual emissions volume; Release Clean Production Assessment results.	Disclose information on the internet in a timely manner.	Open emissions data should include applicable pollutants; Clarify calculation methods and data sources; State whether the data have gone through a third-party audit.	EPB websites should facilitate public access to pollution-source information; Provide quantitative rankings of pollution source data and emission volume trends by region and industry; Provide directions regarding the possible health risks caused by polluting enterprises; Provide convenient and effective channels for citizens to request information.
Environmental impact assessment information	Information disclosure should cover all projects subject to an EIA reports.	Information disclosure should start from the commencement of the project preparation; Seek public comments for the EIA reports on a timely basis and for an adequate period.	Release the full text of the EIA report and the EIA approval; Release public comments and response to public comments; Release full text of construction project approval upon completion.	EPB websites should facilitate public access to pollution-source information; Provide convenient and effective application channels for citizens to request information; Convene open hearings to spread EIA information to the public and solicit comments.

4.3 Assessing the necessity and feasibility of comprehensive pollution source information transparency

4.3.1 Necessity of comprehensive pollution source information transparency

We believe that it is necessary and feasible for China to maintain comprehensive, timely, and user-friendly pollution source information.

Environmental protection in China is subject to a number of significant challenges: environmental enforcement, environmental litigation, and public supervision. A lack of environmental law enforcement has typically stemmed from a number of local governments blindly pursuing GDP growth and failing to take into account environmental costs. Weak environmental litigation has stemmed from imperfections in China's judicial system. Weaknesses in public supervision has stemmed from China's governance mechanisms which are not sound.

Although deep-seated, institutional challenges to improving China's environment remain, the demand to mitigate widespread environmental degradation is pressing. We propose that greater access to environmental information is a critical and achievable challenge that is key for many potential future environmental success stories.

Comprehensive disclosure of pollution source information can help bring the power of environmental enforcement to the public and place polluting enterprises under public supervision. In particular, comprehensive disclosure allows the public to discourage local protection for polluting enterprises and curb instances of rent-seeking and data fraud; provide a sounder database to support environmental lawsuits; and most critically, improve public participation in environmental decision-making and management.

4.3.2 Regulatory basis of comprehensive pollution source information transparency

- The Cleaner Production Promotion Law, implemented in 2003 and revised in 2012 by the National People's Congress (NPC), stipulates emission disclosure requirements for some enterprises.
- The State Council's Regulation of the People's Republic of China on Open Government Information (in effect as of May 1, 2008) and the former State Environmental Protection Administration's Measures on Open Environmental Information (for Trial Implementation) (entered into effect as of May 1, 2008) state specific rules regarding information that government agencies and enterprises must release to the public.
- Measures on the Registration of the Environmental Management of Hazardous Chemicals (for Trial Implementation), issued in October 2012 by the Ministry of Environmental Protection (in effect as of March 1, 2013), stipulates open information obligations of enterprises producing or using key hazardous chemicals.

- Article 14 of the Twelfth Five Year Plan's Monitoring Measures for Total Emission Reduction of Major Pollutants, jointly issued by the Ministry of Environmental Protection, the National Bureau of Statistics of China, the National Development and Reform Commission, and the Ministry of Supervision of the People's Republic of China, stipulates requirements for disclosure of emission data by pollution sources, most significantly, real-time disclosure of online monitoring data.

4.3.3 Feasibility of comprehensive information transparency for pollution sources

It is feasible to implement comprehensive information transparency for pollution sources using current technology for three reasons:

- Widespread growth in access to IT tools and the internet can be utilized to easily publish environmental information.
- The five years of experience since the adoption of the Regulation of the People's Republic of China on Open Government Information and the Measures on Open Environmental Information have provided a foundation and best practices for creating open environmental information in China.
- Lessons can be drawn from a wealth of diverse international experiences as robust pollution information transparency regimes have been established in industrialized countries such as the United States, Japan and the European Union member states.

4.3.3.1 Rapid development of internet and widespread online monitoring

• Expansion of internet access

According to the China Internet Network Information Centre (CNNIC) and the 29th Statistics Report of China Internet Network Development,[2] by the end of December 2011, there were over 500 million internet users in China, including 356 million mobile users. Moreover, 48.7% of Chinese internet users use microblogging services such as SinaWeibo (China's version of Twitter).

[2] http://www.cnnic.net.cn/hlwfzyj/hlwxzbg/201201/P020120709345264469680.pdf (in Chinese)[3] http://www.cnnic.net.cn/hlwfzyj/hlwxzbg/201201/P020120709345264469680.pdf (in Chinese)

Figure 10: Chinese internet users[3]

The rapid development of Chinese internet infrastructure and the growth of social media tools such as microblogs have created unprecedented accessibility to open information and broader public participation activities through the internet.

• Progress in online monitoring

Recent years have brought significant progress in the development of online monitoring in many provinces in China. In accordance with regulations in the Notice on Strengthening Acceptance, Networking and Operation Management for Automatic Monitoring Capacity-building Projects of State-controlled Key Polluters (《关于加强国控重点污染源自动监控能力建设项目验收、联网和运行管理工作的通知》), the Ministry of Environmental Protection (MEP) has established a dynamic scheduling platform for the processing of automatic monitoring data from key state-controlled polluters.

According to statistics from the MEP scheduling platform, as of March 2013, about 13,326 enterprises have been linked to the monitoring network, among which 6,358 enterprises have posted real-time data and 8,678 enterprises have posted historical data to the platform (see Figure 11).

[3] Source: 29th Statistics Report of China Internet Network Development, http://www.cnnic.net.cn/hlwfzyj/hlwxzbg/201201/P020120709345264469680.pdf (in Chinese)

Figure 11 Platform for Automatic Monitoring of Key Pollution Sources[4]

This platform offers a basis for the real-time release of monitoring data from enterprises with automatic monitoring systems nation-wide. We encourage real-time release of the monitoring data collected through this platform.

Environmental protection organizations, volunteers, and internet users have been involved in initiatives to locate enterprises. Presently, nearly 4,000 Key State Monitored Enterprises have been plotted onto the online map (see Figure 12). We anticipate that the monitoring data can be released jointly on the pollution source distribution map to make a convenient and comprehensive platform, enabling much more effective public monitoring of key polluting enterprises.

[4] Source: MEP pollution source supervision center website; link: http://www.envsc.cn/schedulingplatform/ReportFile/AllProgressSummaryQuery.aspx)

Figure 12: Key Pollution Source Map for 2011[5]

4.3.3.2 Best practices by local environmental agencies in various areas of China

• Publishing real-time online monitoring data

a) Publishing of real-time online monitoring data improves environmental law enforcement. Responding to calls for real-time publication of online pollution data by several national ministries, the following provinces and cities have recently started to implement good practices.

i. Jiangsu Province: The Jiangsu Provincial Environmental Protection Department's "1831 Jiangsu Key Pollution Sources Automatic Monitoring System" went online on March 1, 2013 with 840 key state-controlled polluting enterprises in Jiangsu province participating. Based on the online monitoring data, the excess emissions records of a number of key state monitored pollution sources are made public daily. The number of instances where emissions limits are breached is also released (see Appendix 7).[6]

ii. Ningbo City: The Ningbo Environmental Protection Bureau (EPB) began publishing reports of online monitoring data of key pollution sources at the state, provincial, and city level on an hourly basis starting in 2013. These reports include data on: pH, COD concentration, and discharge volume for water pollution sources; and the concentration and total volume of SO_2, soot, NOx and smoke.

iii. Wuhan City: The Wuhan EPB is producing two versions of a daily report on

[5] Source: China Water Pollution Map; link: http://www.ipe.org.cn/pollution/sources.aspx)

[6] Website: http://www.jshb.gov.cn:8080/pub/wryyxtb/sthjjk/

pollution sources. In the older version of the report, the Wuhan EPB released daily data dating back to 2008. Looking at the standard value and the graph of changes in the daily means, it is easy to see if the emissions are in excess of the highest allowed amount. In the new version of the report, the Wuhan EPB releases information on a map, allowing the viewer to select many options such as "under direct control of Wuhan," urban districts, and development zones, many of which are available with video feeds (See Appendix 8).

iv. Zhejiang Province: In January 2012, the Zhejiang Province EPB added onto its website the "Daily Pollution Source Online Monitoring Report," which publishes the daily average values of air and water pollution from key state-controlled enterprises from the previous day. Users can request data according to pollutant category (e.g. waste water or gas) and location online.

b) The above examples—Jiangsu's online publication of excess emissions, Ningbo's hourly report on emissions volume, Wuhan's release of historical data and mapping of current pollution data, and Zhejiang's data request function—demonstrate the benefits of institutionalizing the systematic, timely, comprehensive and user-friendly release of pollution data online.

• Publishing emissions violation data, citizen petitions, and complaints information

a) Violation records and other environmental administrative penalty records are crucial for environmental supervision, while citizen petitions and complaint information provide additional data to routine governmental monitoring.

i. Ningbo City: Ningbo EPB publishes a quarterly list of the names of enterprises subjected to administrative penalties—a systematic, timely and user-friendly tool.

ii. Shenzhen City: Shenzhen EPB releases one individual document for each penalty decision, containing comprehensive information including the name of the enterprise violating emissions regulations, the time of the violation, treatment options, a description of the regulations violated, and evidence of violations, including the degree to which the emissions standards have been breached[7] .

iii. Shanxi Province: The Shanxi Environmental Protection Department releases a quarterly list of key enterprises that fail to meet environmental standards, including information on pollutant categories and a description of the degree of the violation (see Appendix IX).

iv. Dongguan City: Dongguan EPB releases weekly reports on environmental petitions and complaints, including the names of the enterprises citizens have complained about, the time of the violation or complaint, and the on-site treatment and decision by the Dongguan EPB (see Appendix X).

b) Adopting the above effective practices from Ningbo's column on emissions violation penalties to Dongguan's comprehensive quarterly reports, could lead to more systematic, timely, comprehensive and user-friendly release of violation records throughout China.

[7] The weaknesses of Shenzhen City are that it publishes yearlong information in a one-off manner , and it is published at a very late time, for instance 2011 information was published until May 23, 2012.

• Regular publication of data on enterprise emissions

a) In addition to being one of the most important factors providing for a greater understanding of industrial emissions, the regularity of publication of data on enterprise emissions is critical for environmental agencies to use to strengthen environmental management.

   i. Chongqing Municipality: some districts and counties have published emissions data of enterprises subject to Cleaner Production Audits on their websites. Published information included a list of emitted pollutants, their concentrations, and total annual discharge volume, and whether there were any emissions violations. These reports also included the names and volumes of toxic and hazardous substances used and discharged in the production process (see Appendix XI for an example from Yubei District, Chongqing Municipality).

   ii. Yichang City: the Yichang EPB published a full report on Cleaner Production Audits of enterprises, which summarized the industrial discharge situation of the last three years.

   iii. Tianjin TEDA Development Zone: the Tianjin TEDA Development Zone EPB is in the process of developing a provisional Chinese Pollutant Release and Transfer Register (PRTR) and plans the first release of a number of enterprises within the Zone on June 5, 2013.

b) Open enterprise emissions data lags far behind. We anticipate that the efforts of the Tianjin TEDA Development Zone's PRTR pilot will provide an example toward systematic, timely, complete and user-friendly emissions data disclosure.

4.3.3.3 Abundant international experience provides important lessons

International experience has demonstrated that an effective and comprehensive system for pollution information transparency can increase and improve communication between environmental agencies and the public, improve the public's understanding of environmental management and public participation in environmental governance, and put pressure on companies to voluntarily reduce emissions. The Pollutant Release and Transfer Register (PRTR) is used across the world and has been widely seen as effective. The Register requires enterprises to regularly report the emission and transfer of specified pollutants to environmental protection agencies, and requires environmental agencies to aggregate this data and release it to the public. Holland was the first country to adopt a PRTR, followed by the United States, European Union, Australia and Japan. Through adequate open information, members of the public who desire to participate in environmental governance and support sustainable development goals can create a cohesive force to do so. (see Appendix XII).

Appendices:

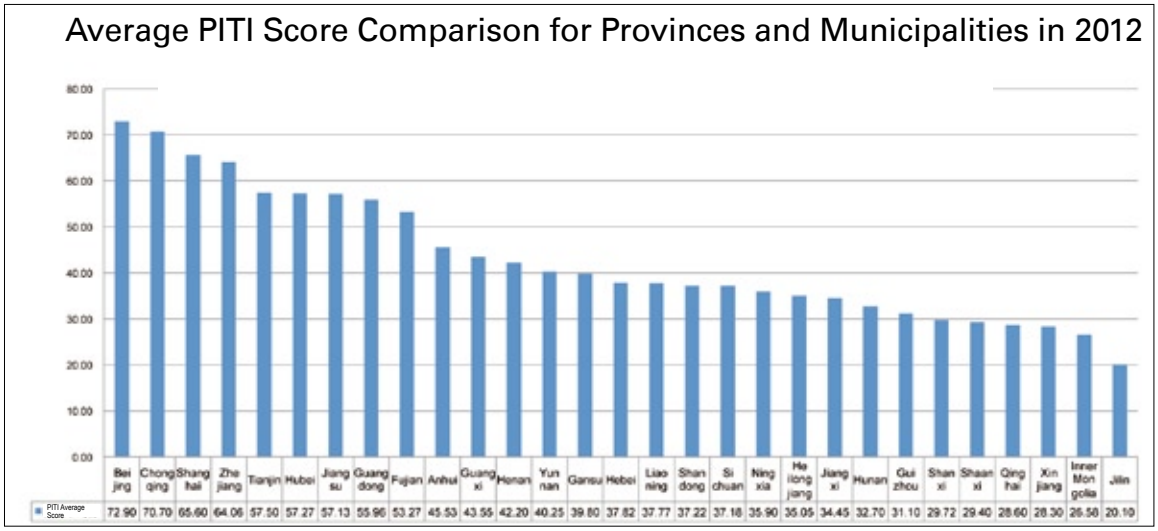
Appendix I 2012 Eight Sub-scores of the PITI for All 113 Cities

Rank	City	Records of Enterprise Violations (28 point)	Results of Enforcement Campaigns against Polluting Enterprises (8 points)	Clean Production Audit Information (8 points)	Enterprise Environmental Performance Ratings (8 points)	Verified Petitions and Complaints (18 points)	EIA Reports an Project Completion Approvals (8 points)	Discharge Fee Data (4 points)	Public Information Requests (18 points)	Total PITI Score in 2012(100 points)
1	Ningbo	28	5.2	4	1.6	16.9	7.6	4	18	85.3
2	Dongguan	21.3	6	4	4	14.4	4	3.2	18	74.9
3	Qingdao	27	3.2	3.6	0	16.2	3.2	3.2	18	74.4
4	Shenzhen	27	5.2	5.2	5.8	16.9	6	0	7	73.1
5	Yangzhou	16.8	5.8	4	2.6	16.2	6.4	3.2	18	73
6	Beijing	24.2	4.2	0	1.6	16.1	5.6	3.2	18	72.9
7	Guangzhou	25.8	6	3.2	3.6	10.8	2.4	3.4	16.2	71.4
8	Hangzhou	11.2	5.2	3.2	5.8	18	6	3.4	18	70.8
9	Chongqing	15.8	6	4.8	0	16.9	6	3.2	18	70.7
10	Wenzhou	22	1.6	3.2	5.4	15.8	5.2	0	17.2	70.4
11	Yichang	11.2	6.4	6.4	0	16.1	6.4	3.4	18	67.9
12	Fuzhou	22.1	3.8	4.8	0	16.9	1.6	0.2	18	67.4
13	Jiaxing	22.3	4.8	3.2	4.6	6.4	7.6	0	18	66.9
14	Shanghai	23.1	5.6	4	0	11.1	2.4	3.2	16.2	65.6
15	Nanjing	9.3	6	3.2	6.2	16.2	4	3.4	17.2	65.5
16	Quanzhou	19	6.4	4	0	16.2	2.8	0.2	16.8	65.4
17	Suzhou	11.2	3.4	3.2	6.2	14.4	4	3.4	18	63.8
18	Nantong	13	5.8	3.2	5.8	10.8	7.2	0	18	63.8
19	Zhongshan	11.2	6	3.2	2.4	15.4	4.4	3.2	18	63.8
20	Changzhou	12.7	4.8	5.2	3.6	16.2	6.4	3.4	8	60.3
21	Taizhou	22.8	4.8	3.2	1.6	16.1	6.4	0	3.2	58.1
22	Wuxi	14.5	4.6	4	4.6	10.8	4.4	0	14.8	57.7
23	Tianjin	11.2	4.8	4	1.6	15.5	0.4	3.2	16.8	57.5
24	Luoyang	14.5	6	3.2	0	16.2	1.6	0	15.6	57.1
25	Hefei	11.2	3.6	3.6	0	16.9	2.8	3.4	15.6	57.1
26	Liuzhou	5.6	6.4	6	0	16.9	2.8	0	18	55.7
27	Shaoguan	5.6	4	3.2	3.2	10.8	6.4	3.4	18	54.6
28	Xining	21	6.4	3.2	0	10.8	2	0	10.2	53.6
29	Foshan	18.6	4	3.6	3.2	16.1	0.8	0	7.2	53.5
30	Jiaozuo	11.2	4.6	3.2	0	13.4	1.6	3	15.6	52.6
31	Wuhan	11.2	6.4	0	0	16.9	2.8	0	15.2	52.5
32	Shenyang	11.2	2.6	3.2	0	15.4	1.6	0	18	52
33	Mudanjiang	5.6	4.6	4	0	16.9	2.8	0	18	51.9

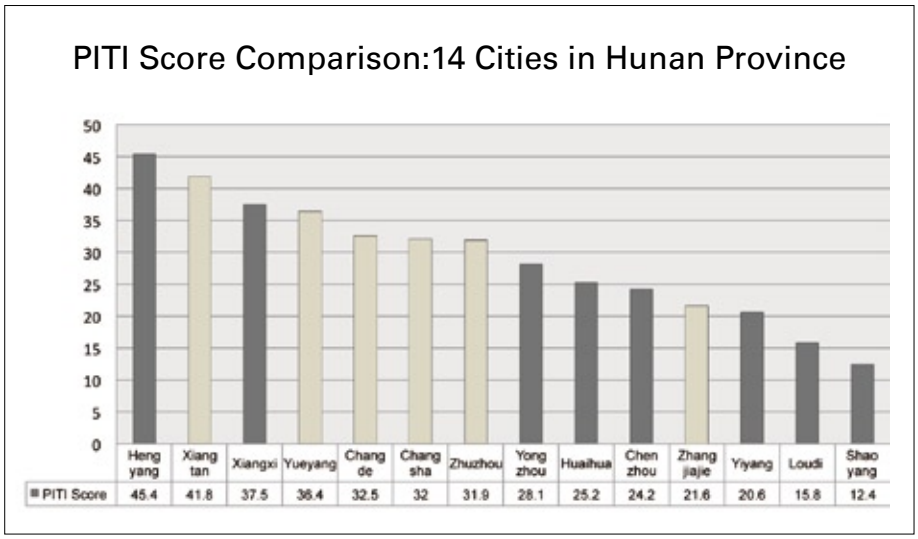
34	Jingzhou	5.6	3.2	2.4	0	16.2	2.8	3.2	18	51.4
35	Yantai	5.6	4	3.2	0	16.9	1.6	3.6	16.4	51.3
36	Mianyang	14.6	1.6	3.2	0	7.2	5.6	1.4	17.2	50.8
37	Shijiazhuang	4.8	4.2	3.2	0	16.2	2.8	2	17.2	50.4
38	Kunming	11.2	4	3.2	0	10.8	3.2	0	17.2	49.6
39	Huzhou	14.5	4.8	3.2	5.8	0	6.4	0	14.4	49.1
40	Zhengzhou	13.4	4	3.2	0	6.5	2.8	2.8	16.4	49.1
41	Taiyuan	16	5.8	3.2	0	16.9	0	2.6	4.2	48.7
42	Chengdu	13	4.6	3.2	0	16.2	7.6	0	3.2	47.8
43	Shaoxing	9.3	4.4	3.2	0	16.9	6.4	3.6	4	47.8
44	Nanning	5.6	5.8	3.2	0	11.1	2.4	3.4	16.2	47.7
45	Benxi	5.6	6	3.6	0	10.8	1.6	1.4	17.2	46.2
46	Zhanjiang	5.6	4.2	3.2	1.6	15.4	2.8	0	12.8	45.6
47	Xuzhou	5.6	4	3.2	5.8	3.6	3.2	1.8	18	45.2
48	Ma'anshan	5.6	3.6	3.6	1.6	16.9	1.6	3.2	8.8	44.9
49	Lianyungang	20.1	5.8	3.2	1.6	3.6	1.2	3.2	4.2	42.9
50	Weihai	5.6	4	3.2	0	15.1	0	0	14.8	42.7
51	Yancheng	13.4	4.6	3.2	1.6	10.8	3.2	0.2	5	42
52	Xiangtan	5.6	3.4	0	0	14.4	1.2	0	17.2	41.8
53	Fushun	11.9	6	3.2	0	17.2	2.4	0	0.8	41.5
54	Handan	5.6	6.8	3.2	0	14.4	0	0	10.8	40.8
55	Zibo	5.6	3.4	3.2	0	10.8	0	0	17.2	40.2
56	Baoji	10.1	5.6	3.2	0	16.9	0	0	4.2	40
57	Dalian	5.6	1.6	5.6	0	16.9	2.8	3.2	4	39.7
58	Yinchuan	5.6	4.2	3.2	0	10.8	0	0	15.6	39.4
59	Rizhao	12.7	4.6	3.2	0	13	1.6	0	4	39.1
60	Changzhi	9.3	6.4	3.2	0	10.8	1.6	2.8	5	39.1
61	Jinan	9.3	6.4	4	0	7.2	1.6	3.2	7	38.7
62	Tangshan	5.6	4.6	3.2	0	16.1	1.6	0	7.2	38.3
63	Nanchang	5.6	4.6	3.2	0	3.6	1.6	2.8	16.8	38.2
64	Urumqi	5.6	6.4	3.2	0	10.8	0	0	11.6	37.6
65	Guilin	5.6	6	4.4	0	3.6	5.2	2.6	9.2	36.6
66	Shantou	10.1	3.8	3.2	1.6	0	6	3.4	8.4	36.5
67	Yueyang	5.6	1.6	0	0	7.2	2.4	1.6	18	36.4
68	Xi'an	11.2	4.6	3.2	0	10.8	2.8	0	3.2	35.8
69	Guiyang	5.6	4.6	0	0	3.6	2.8	1.2	17.2	35
70	Wuhu	5.6	1.6	3.2	0	16.2	2.8	0	5.2	34.6
71	Beihai	5.6	5.8	5.6	0	7.2	5.2	0	4.8	34.2
72	Kaifeng	13	6	3.2	0	3.6	0.8	3.2	4	33.8
73	Pingdingshan	8.2	4.6	3.2	1.6	7.2	0	0	8.6	33.4

74	Luzhou	14.6	4	3.2	0	6.5	0	1.6	3.2	33.1
75	Changde	5.6	4.4	0	0	16.9	1.6	0	4	32.5
76	Shizuishan	5.6	3.2	3.2	3.2	14.4	2.8	0	0	32.4
77	Changsha	5.6	4.6	0	0	10.8	0.6	2	8.4	32
78	Zhuzhou	5.6	3.4	0	0	16.9	0	0	6	31.9
79	Baoding	5.6	4.2	3.2	0	1	0	0	17.2	31.2
80	Qujing	10.1	0	0	0	3.6	0	0	17.2	30.9
81	Daqing	5.6	0	5.6	0	6.5	2.8	2.2	8	30.7
82	Jiujiang	12.7	6	3.2	0	3.6	4.4	0	0.8	30.7
83	Panzhihua	16.4	4.2	3.2	0	0	2.8	0	4	30.6
84	Zhuhai	5.6	4.2	3.6	1.6	0	5.2	0	10	30.2
85	Chifeng	11.2	1.6	3.2	0	10	1.6	0	2.4	30
86	Qiqihar	5.6	4.6	0	0	14.4	2.8	0	2	29.4
87	Jinchang	8.2	6	3.2	0	0	1.6	2	7.6	28.6
88	Qinhuangdao	5.6	4	3.2	0	0	2.8	3	9.8	28.4
89	Harbin	5.6	1.6	0	0	15.4	1.6	3.2	0.8	28.2
90	Yan'an	9.3	4.2	2.8	0	3.6	2.8	0	5	27.7
91	Baotou	5.6	0	3.2	0	14.4	0	0	4.2	27.4
92	Anyang	5.6	4.6	3.2	0	7.2	0	2.6	4	27.2
93	Zunyi	5.6	4.4	0	0	10.8	0.4	1.8	4.2	27.2
94	Xiamen	5.6	4.6	3.2	0	3.6	2.8	3.2	4	27
95	Linfen	5.6	4.6	3.2	0	7.2	1.6	3	1.6	26.8
96	Hohhot	9.3	3.4	3.2	0	3.6	3.6	0	3.2	26.3
97	Lanzhou	11.2	3.4	3.2	0	0	1.6	2.6	4	26
98	Tai'an	5.6	4.6	3.2	0	7.2	0	0	5	25.6
99	Anshan	1.6	1.6	3.2	0	12.8	2.8	0	3.2	25.2
100	Tongchuan	11.9	4.6	3.6	0	3.6	0	0	0.8	24.5
101	Jining	5.6	3.2	3.2	0	7.2	2.4	0	2.6	24.2
102	Weifang	5.6	6.4	3.2	0	0	0	0	8.8	24
103	Yibin	5.6	5.2	3.2	0	3.6	1.2	3.2	1.6	23.6
104	Erdos	5.6	4.6	3.2	0	0	5.2	0	4	22.6
105	Jinzhou	1.6	0	3.2	0	10.8	0	0	6.4	22
106	Yangquan	5.6	4	3.2	0	3.6	0	2.8	2.6	21.8
107	Zhangjiajie	5.6	1.6	0	0	3.6	1.6	0	9.2	21.6
108	Jilin	5.6	4	3.2	0	0	2.4	0	5	20.2
109	Changchun	5.6	1.6	3.2	0	3.6	0	0	6	20
110	Karamay	5.6	5	3.2	0	3.6	0	0	1.6	19
111	Xianyang	5.6	5.8	3.2	0	0	1.2	0	3.2	19
112	Datong	1.6	0.6	3.2	0	3.6	0	0	3.2	12.2
113	Zaozhuang	5.6	0	3.2	0	0	1.6	0	1.6	12

Appendix II Provincial Scores Rankings of 2012 PITI

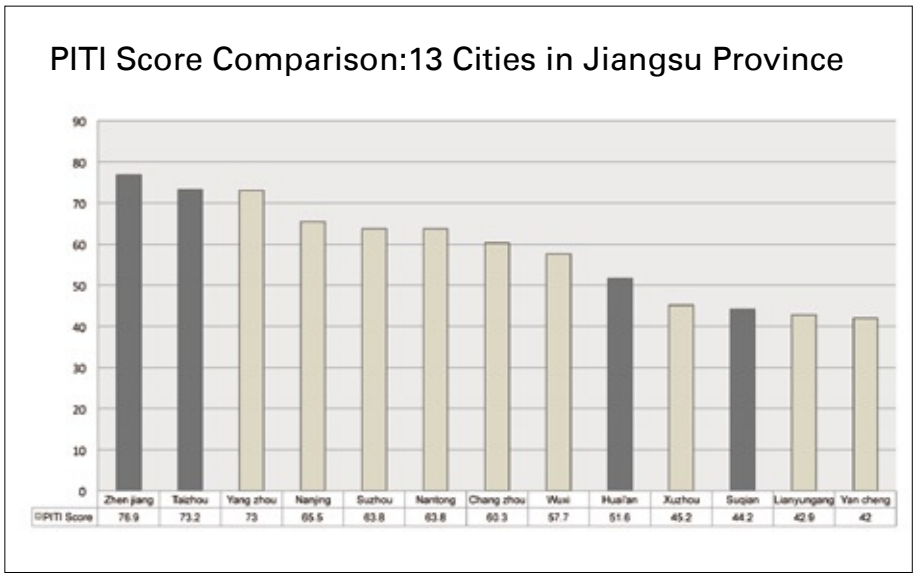


Appendix III 2012 PITI Scores for 14 cities in Hunan Province[8]

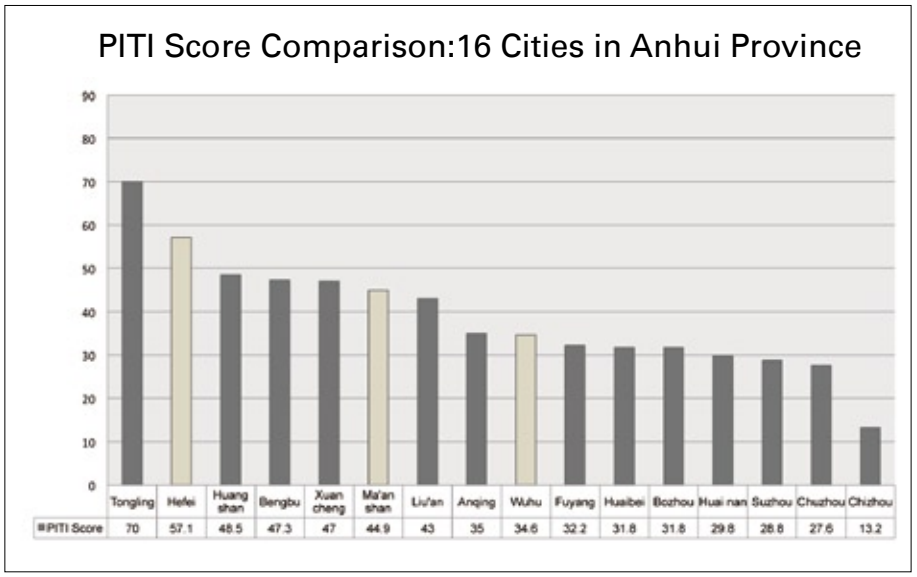


[8] Hengyan, Shaoyang, Yiyang, Chenzhou, Yongzhou, Huaihua, Loudi and Xiangxi were assessed by Green Hunan.

Appendix IV 2012 PITI Scores for 13 Cities in Jiangsu Province[9]



Appendix V 2012 PITI Scores for 16 Cities in Anhui Province[10]



[9] Zhenjiang, Taizhou, Huaian and Suqian were assessed by Nanjing Green Stone.

[10] Huaibai, Bozhou, Suzhou, Bengbu, Fuyang, Huainan, Liuan, Tongling, Chizhou, Anqing, Xuancheng, Huangshan and Chuzhou Cities were assessed by Green Anhui.

Appendix VI 2012 PITI Scores Ranking List for 138 Cities in China

Rank	City	Total PITI Score-2012	Rank	City	Total PITI Score-2012	Rank	City	Total PITI Score-2012
1	Ningbo	85.3	47	Chengdu	47.8	93	Bozhou	31.8
2	Zhenjiang	76.9	48	Shaoxing	47.8	94	Baoding	31.2
3	Dongguan	74.9	49	Nanning	47.7	95	Qujing	30.9
4	Qingdao	74.4	50	Bengbu	47.3	96	Jiujiang	30.7
5	Taizhou	73.2	51	Xuancheng	47	97	Daqing	30.7
6	Shenzhen	73.1	52	Benxi	46.2	98	Panzhihua	30.6
7	Yangzhou	73	53	Zhanjiang	45.6	99	Zhuhai	30.2
8	Beijing	72.9	54	Hengyang	45.4	100	Chifeng	30
9	Guangzhou	71.4	55	Xuzhou	45.2	101	Huainan	29.8
10	Hangzhou	70.8	56	Ma'anshan	44.9	102	Qiqihar	29.4
11	Chongqing	70.7	57	Suqian	44.2	103	Suzhou	28.8
12	Wenzhou	70.4	58	Liu'an	43	104	Jinchang	28.6
13	Tonglin	70	59	Lianyungang	42.9	105	Qinhuangdao	28.4
14	Yichang	67.9	60	Weihai	42.7	106	Harbin	28.2
15	Fuzhou	67.4	61	Yancheng	42	107	Yongzhou	28.1
16	Jiaxing	66.9	62	Xiangtan	41.8	108	Yan'an	27.7
17	Shanghai	65.6	63	Fushun	41.5	109	Chuzhou	27.6
18	Nanjing	65.5	64	Handan	40.8	110	Baotou	27.4
19	Quanzhou	65.4	65	Zibo	40.2	111	Anyang	27.2
20	Nantong	63.8	66	Baoji	40	112	Zunyi	27.2
21	Suzhou	63.8	67	Dalian	39.7	113	Xiamen	27
22	Zhongshan	63.8	68	Yinchuan	39.4	114	Linfen	26.8
23	Changzhou	60.3	69	Rizhao	39.1	115	Hohhot	26.3
24	Taizhou	58.1	70	Changzhi	39.1	116	Lanzhou	26
25	Wuxi	57.7	71	Jinan	38.7	117	Tai'an	25.6
26	Tianjin	57.5	72	Tangshan	38.3	118	Anshan	25.2
27	Luoyang	57.1	73	Nanchang	38.2	119	Huaihua	25.2
28	Hefei	57.1	74	Urumqi	37.6	120	Tongchuan	24.5
29	Liuzhou	55.7	75	Xiangxi	37.5	121	Jining	24.2
30	Shaoguan	54.6	76	Guilin	36.6	122	Chenzhou	24.2
31	Xining	53.6	77	Shantou	36.5	123	Weifang	24
32	Foshan	53.5	78	Yueyang	36.4	124	Yibin	23.6
33	Jiaozuo	52.6	79	Xi'an	35.8	125	Erdos	22.6
34	Wuhan	52.5	80	Guiyang	35	126	Jinzhou	22
35	Shenyang	52	81	Anqing	35	127	Yangquan	21.8
36	Mudanjiang	51.9	82	Wuhu	34.6	128	Zhangjiajie	21.6
37	Huai'an	51.6	83	Beihai	34.2	129	Yiyang	20.6
38	Jingzhou	51.4	84	Kaifeng	33.8	130	Jilin	20.2
39	Yantai	51.3	85	Pingdingshan	33.4	131	Changchun	20
40	Mianyang	50.8	86	Luzhou	33.1	132	Karamay	19
41	Shijiazhuang	50.4	87	Changde	32.5	133	Xianyang	19
42	Kunming	49.6	88	Shizuishan	32.4	134	Loudi	15.8
43	Huzhou	49.1	89	Fuyang	32.2	135	Chizhou	13.2
44	Zhengzhou	49.1	90	Changsha	32	136	Shaoyang	12.4
45	Taiyuan	48.7	91	Zhuzhou	31.9	137	Datong	12.2
46	Huangshan	48.5	92	Huaibei	31.8	138	Zaozhuang	12

Appendix VII Screenshots of 1831 Jiangsu Key Pollution Source Automatic Monitor System from the Environmental Protection Department of Jiangsu Province

The Jiangsu Provincial Environmental Protection Department's "1831 Jiangsu Key Pollution Source Automatic Monitor System" went online on March 1, 2013 with 840 key state-controlled polluting enterprises in Jiangsu province participating. Based on online monitoring data, excess emission records of some pollution sources are made public daily, and the periods of excess emissions are also published.[11]

全省重点污染源自动监控系统运行异常情况明细表

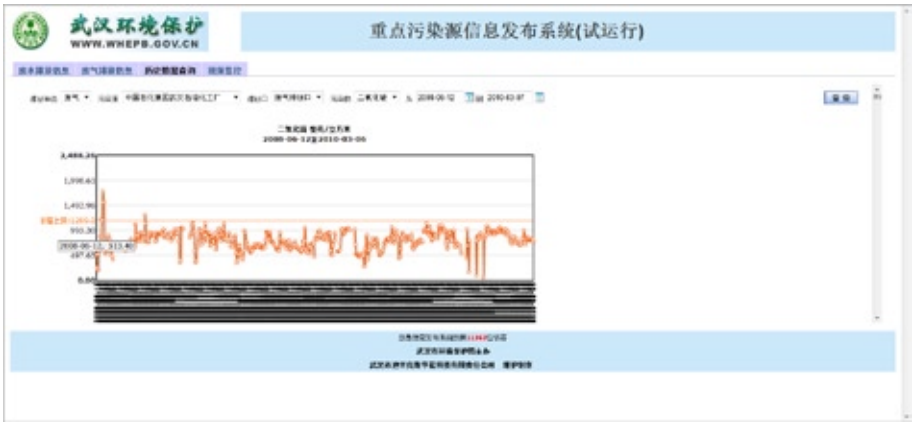
起止时间：2013年03月23日08:00-03月24日08:00

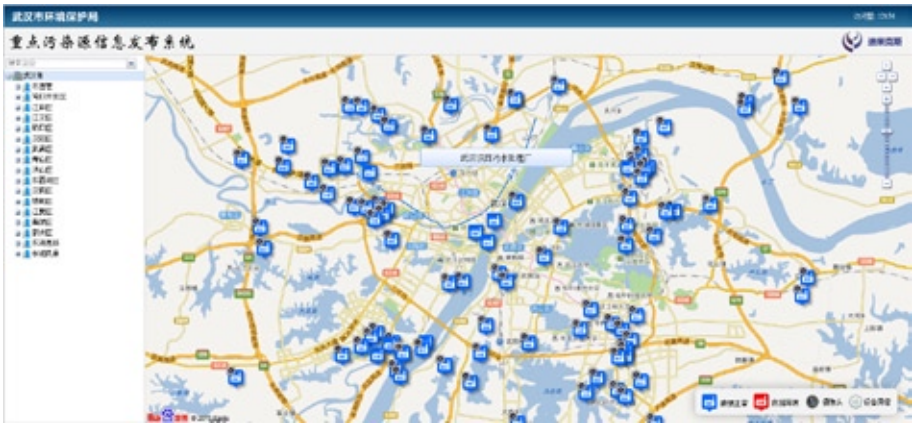
地区	市、县	企业名称	监控点位	监控因子	异常问题描述		异常发生时间	备注
					无数据	超标		
南京市	浦口区	南京市浦口区珠江污水处理厂	珠江镇污水厂(金迪水务)出口	COD		√	2013-3-23 17:45:49	共超标7次
	浦口区	南京市浦口区石桥污水处理厂	石桥污水出口	全部	√		2010-1-1 0:00:00	
	浦口区	南京市浦口区桥林污水处理厂	桥林工业园总排口	全部	√		2012-11-28 9:20:00	
	栖霞区	南京仙林污水处理厂	南京仙林污水处理厂出口	COD		√	2013-3-23 17:46:56	共超标4次
	六合区	特殊美天（南京）精细化工有限公司	特殊美天总排口	COD		√	2013-3-23 18:50:00	共超标2次
	高淳县	南京红太阳股份有限公司	红太阳公司总排口	COD		√	2013-3-23 21:00:00	共超标1次
无锡市	锡山区	健鼎（无锡）电子有限公司	7	COD		√	2013-3-23 21:50:00	共超标1次
	惠山区	江苏金麒环境科技有限公司	18	全部	√		2013-1-17 15:10:00	
	宜兴市	宜兴市华骐污水处理有限公司	总排口	COD		√	2013-3-23 19:10:00	共超标2次
	宜兴市	宜兴市建邦环境投资有限责任公司清源污水厂	总	COD		√	2013-3-23 23:40:00	共超标8次

[11] Website: http://www.jshb.gov.cn:8080/pub/wryyxtb/sthjjk/

Appendix VIII Old and new versions of daily report on pollution sources from Wuhan Environmental Protection Bureau

In the older version report, the Wuhan EPB has released daily data dating back to 2008. According to the standard value and the graph of changes in the daily means, it is easy to see if the emissions are in excess of the required ceiling. In the new report, the Wuhan EPB releases information on a map, allowing the viewer to select many options such as "under direct control of Wuhan," urban districts, and development zones, many of which are available with video feeds.[12]





[12] Source: Website of the Wuhan Environmental Protection Bureau; link: http://sp.whepb.gov.cn/whhbp/

Appendix IX The Shanxi Environmental Protection Department released a quarterly list of key enterprises that failed to meet environmental standards, including information on pollutant categories, approaches and time of discovery, and description of the degree of the violation

附件一： 2012 年第二季度山西省环保不达标生产的重点监控企业名单							
一、废气排放超标企业（废气超标排放企业 16 家， 33 个排放口）							
序号	企业名称	地区	污染物种类	发现途径	排放口名称	发现时间	备注
1	山西西山热电有限责任公司	太原	氮氧化物	监督性监测	西山热电厂2#	2012年4月26日	超标倍数为：0.2
2	太原华润煤业有限公司第一焦化厂	太原	氮氧化物	监督性监测	1#焦炉大烟囱	2012年4月19日	超标倍数为：0.7
			氮氧化物		2#焦炉大烟囱		超标倍数为：0.3
3	国电电力大同发电有限责任公司	大同	氮氧化物	监督性监测	7#炉	2012年5月15日	超标倍数为：0.1
4	华电大同第一热电厂有限公司	大同	二氧化硫	监督性监测	1#锅炉	2012年4月24日	超标倍数为：4.7
			二氧化硫		2#锅炉		超标倍数为：3.9
5	大同冀东水泥有限责任公司	大同	颗粒物	监督性监测	1#磨V型选粉机	2012年4月23日	超标倍数为：5.5
			颗粒物		1#熟料库底东侧		超标倍数为：2.4
			颗粒物		1#熟料库底西侧		超标倍数为：3.3
			颗粒物		1#水泥磨	2012年4月24日	超标倍数为：1.1
			颗粒物		1#选粉机		超标倍数为：1
			颗粒物		2#V型选粉机		超标倍数为：2.5
			颗粒物		2#包机	2012年4月23日	超标倍数为：1.4
			颗粒物		2#包机提升机		超标倍数为：1.5
			颗粒物		2#熟料库底东侧		超标倍数为：1.5
			颗粒物		2#水泥磨		超标倍数为：3
			颗粒物		2#选粉机	2012年4月24日	超标倍数为：1.9
			颗粒物		3#包机提升机	2012年4月23日	超标倍数为：0.2
6	天脊煤化工集团股份有限公司	长治	氮氧化物	监督性监测	水泥回转窑尾	2012年5月8日	超标倍数为：2.4
7	长治瑞达焦业有限公司	长治	二氧化硫	污染源自动监控	60万吨（50孔×2）排放口	2012年4月5日—5月7日	超标倍数为：0.01—0.33

Appendix X Dongguan EPB released weekly reports on environmental petitions and complaints, including the names of the enterprises receiving complaints from citizens, the time of the violation or complaint, and the on-site treatment and decision by the Dongguan EPB

东莞市环保信访情况公示（周报）2011-01-28

2011-06-02

文号	被投诉地址	被投诉企业	投诉时间	投诉内容	处理情况
信1598	南城 居民区南村48号附近	噪声	2010-12-17	工业噪声	我局执法人员到现场调查，未发现群众反映的工厂，我局曾多次致电投诉联系电话，但均未能接通。于以上情况，我局将加强对该地区的巡查力度，确保不发生噪声污染现象。
信1242	凤岗 雁田蓝山锦湾前	东深河	2010-11-8	工业废水	我局执法人员曾致电投诉者了解该案件的进一步情况，据投诉者反映，该河段不定期会出现较大异味现象，疑为上游企业偷排所致。根据投诉者反映的情况，我局对东深河蓝山锦湾段至深圳交界处河段的企业进行了排查，分别排查了"东莞市凤岗海泽铭剂厂"、"东莞市丰金属有洁有限公司"和"东莞市凤岗荣利五金厂"等企业，均未发现有偷排行为。我局将加强对该地区的巡查力度，避免发生废水及废气扰民现象。
电55	中堂 袁家涌工业区	星航泡沫厂	2010-1-7	工业粉尘	我局于2011年1月21日对反映的问题进行调查，有关情况如下：一、基本情况被投诉单位为东莞市中堂星航泡塑厂，位于我镇袁家涌管理区北堤边，主要经营泡沫制品生产，主要生产设备为泡沫生产线及燃煤锅炉一台，该公司已办理环保验收手续。二、检查情况我局工作人员现场检查时，该公司正常生产，生产工序及设备与审批的环评相符，其中锅炉主要燃料为木柴，生产过程中烟囱偶有冒黑烟现象。三、处理

Appendix XI Pollution production and discharge from the second batch of audit enterprises in the process of implementing mandatory clean production in 2011, Yubei District, Chongqing Municipality[13]

重庆市渝北区2011年第二批开展强制性清洁生产审核企业产排污状况公示

根据《中华人民中华共和国清洁生产促进法》、《清洁生产审核暂行办法》（国家发展和改革委员会、国家环境保护总局令第16号）的规定，现将重庆渝北区2011年第二批实施强制性清洁生产审核企业的产排污状况公示如下，请社会各界进行监督。

企业名称	企业注册地址	主要产品名称	主要污染物名称	主要排放污染物浓度	污染物排放总量（Kg/年）	是否超标/是否超总量	生产中使用有毒有害物质名称/消耗量（Kg/年）	生产中排放有毒有害物质名称/排放量（Kg/年）	废水排污去向	联系人联系电话
重庆有友实业有限公司	渝北区现代农业园区	泡凤爪、泡花生、泡竹笋、卤鸡翅、卤鸭掌、卤豆干	化学需氧量 悬浮物 动植物油	2850 mg/L 375mg/L 181mg/L	172600 22500 10900	超标超总量 超标超总量 超总量	———	———	污水经处理后通过市政排污管网排入向家河污水处理厂进一步处理后达标排入向家河	鲍志刚 13908328263
重庆中南橡胶有限公司	空港工业园区	橡胶 输送带	化学需氧量 石油类 碳黑尘	113.45mg/L 572 0.08mg/L	0.4 15.9 43.6	否	促进剂24000 硫磺30000 软化剂72000	碳黑尘43.6 废机油及废棉纱1320送资质单位处理	处理达标后经市政排污管网到城北污水处理厂处理后排入后河	唐德谦 88663073
重庆旺[illegible]	[illegible]	[illegible]	化学需氧[illegible]	50.4 mg/L [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[13] Source: The website of Chongqing Yubei Environmental Protection Bureau, screenshot from http://www.ybepb.gov.cn/Article/zwgk/201109/20110901170336.shtml, 20130320

Appendix XII Excerpt from Number of PRTRs Covering Sectors-Chemicals from the Short Chemical and Reporting Sector Lists; OECD Global Pollutant Release and Transfer Register[13]

Common list of pollutants ("short list")

CAS Number	Pollutant	Remarks	80	146	78	130	156
			PRTR List				
			Aus	Cdn	E-PRTR	Japan	USA
Persistent Organic Pollutants (POPs)							
309-00-2	Aldrin				x		x
57-74-9	Chlordane				x		x
50-29-3	DDT / 1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane				x		
60-57-1	Dieldrin				x		
72-20-8	Endrin				x		
76-44-8	Heptachlor				x		x
2385-85-5	Mirex				x		
8001-35-2	Toxaphene				x		x
319-84-6	alpha-hexachlorocyclohexane						x
319-85-7	beta-hexachlorocyclohexane						
58-89-9	Lindane / gamma-hexachlorocyclohexane				x		x
143-50-0	Chlordecone				x		
608-93-5	Pentachlorobenzene				x		x
118-74-1	Hexachlorobenzene (HCB)		x	x	x		x
1336-36-3	Polychlorinated biphenyls (PCBs)		x		x	x	x
36355-01-8	Hexabromobiphenyl				x		
68631-49-2	2,2',4,4',5,5'-hexabromodiphenyl ether (BDE-153)	as Hexabromodiphenyl ether and heptabromodiphenyl ether (commercial octabromodiphenyl ether)					
207122-15-4	2,2',4,4',5,6'-hexabromodiphenyl ether (BDE-154)	as Hexabromodiphenyl ether and heptabromodiphenyl ether (commercial octabromodiphenyl ether)					
446255-22-7	2,2',3,3',4,5',6-heptabromodiphenyl ether (BDE-175)	as Hexabromodiphenyl ether and heptabromodiphenyl ether (commercial octabromodiphenyl ether)					
207122-16-5	2,2',3,4,4',5',6-heptabromodiphenyl ether (BDE-183)	as Hexabromodiphenyl ether and heptabromodiphenyl ether (commercial octabromodiphenyl ether)					
5436-43-1	Tetrabromodiphenyl ether	as Tetrabromodiphenyl ether and pentabromodiphenyl ether (commercial pentabromodiphenyl ether)					
60348-60-9	Pentabromodiphenyl ether	as Tetrabromodiphenyl ether and pentabromodiphenyl ether (commercial pentabromodiphenyl ether)					
	Perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOS-F) / (syn. perfluorooctane-1-sulfonic acid)					x	
47, N150	Polychlorinated dioxins and furans (as TEF)	expressed as WHO 2005 TEF	x	*	x		x
Metals							

[13] Source: OECD website; link: http://search.oecd.org/officialdocuments/displaydocumentpdf/?cote=env/jm/mono(2013)5&doclanguage=en

Afterword:
What Path To Follow To Stimulate More Environmental Information Disclosure

The large environmental incidents that occurred in Shifang, Qidong, Ningbo and Shenzhen in 2012 remain hot topics. Unlike earlier incidents, the public became concerned not only with the impact of environmental pollution, but also with the validity of Environmental Impact Assessment (EIA) information disclosed for proposed projects, and finally, with whether the public could effectively involved in the decision making process. These issues present new challenges for China's fledgling environmental information disclosure system.

1. Steady progress has been achieved in the establishment of an environmental information disclosure system

The year 2012 marks the fifth year since the Regulation of the People's Republic of China on Open Government Information and the Measures on Open Environmental Information (trial) were released. State and local environmental protection departments have newly added normative documents concerning the release of environmental information and key areas for open access, while at the same time, have made modest progress in environmental law enforcement. After four years of practice, the public is now able to acquire basic information and data on EIAs, environmental quality, pollutant emission, and pollution source monitoring in some regions. For instance, the Ministry of Environmental Protection's (MEP)2012 Inventory of Key State Monitored Enterprises listed, for the first time, heavy metal related enterprises of significant concern to the public due to their severe effects on public health, making them targets for key monitoring status. Aside from the list of enterprises engaged in lead-acid battery production and (secondary lead) assembly and recycling, the inventory also had a list of heavy metals enterprises involved in mining, smelting, leather tanning, electroplating, and centralized sewage treatment plants. Beginning September 1, 2012, construction units were required to present abridged editions of the report while submitting the EIA Report to environmental protection departments at different levels. The abridged edition of the EIA report, which includes information on public participation, should also be publicized online when environmental protection departments at all levels notify the public of accepted projects. In October 2012, Environmental Management Measures for the Registration of Hazardous Chemicals (trial) issued by MEP, clarified the open information requirements for those enterprises involved in producing and

handling hazardous chemicals. The Notice on Further Strengthening the Disclosure of Environmental Protection Information, issued by the MEP, reiterated, strengthened, and clarified the information disclosure requirements for environmental review of IPO enterprises, environmental monitoring and environmental accidents.

As another example, in May 2012, Zijin Mining Group was fined 300,000 RMB by China Securities Regulatory Commission because its affiliated plant failed to disclose a sewage spill accident in July 2011 in a timely fashion. In August 2012, the EIA Report for a 50,000 tons/year of sodium cyanide project of Xinjiang Ziguang Yongli Fine Chemical Co., Ltd. (hereinafter referred to as "Xinjiang Ziguang") was publicly rejected by the MEP due to inadequate public participation and EIA representation. Such rejection is very rare in the history of the EIA approval process.

The PITI assessment results over the past four years have demonstrated the initial establishment of an environmental information disclosure system in China with the annual increase of average scores of the surveyed 113 cities increasing annually. Some local environmental protection departments are also taking the initiative to communicate with the public through new media platforms such as micro-blogs. For example, Chongqing EPB took the lead in the national environmental protection system by issuing the first administrative measures for governmental affair micro-blog, Interim Management Measures for the Governmental Affairs Micro-blogging of Chongqing Environmental Protection System, in which the Chongqing EPB makes sure the official micro-blog responds to any catastrophic and emergent environmental accidents by releasing authoritative statements on the accident within one hour.

2. Weak correspondence between environmental information disclosure and public participation – major contradictions exist

In addressing mass environmental disturbances that occurred in Shifang, Qidong, and Ningbo where citizens gathered to fight against new projects, local governments and judicial agencies acted differently. However, they all stopped the ongoing and newly proposed projects to quell the disputes. While searching for a sound solution, profound concerns on legal problems were triggered: in implementing the EIA process, which steps violated the environmental assessment information disclosure and public participation stages, provoking such fierce public reactions? To what extent can the environmental information disclosure system that is in progress meet the requirements of public participation? What are the problems that remain in the current process of information disclosure and public participation?

"Prevention" is supposed to be the objective of EIA environmental impact assessment while "community friendliness" and "public participation" are the core of environmental benefits and the EIA process. All the aforementioned cases share the characteristics of "Not-In-My-Back-Yard" (NIMBY) protests, in which residents and communities adopt resolute and sometimes highly emotional collective resistance to, or even protest against, construction projects that may negatively affect human health, environmental quality and asset values. There is no doubt that the lack of construction project EIA information disclosure and the fact that there is no user friendly access to information and inadequacy of public participation all contribute to the Not-in-My-Back-Yard attitude.

China is in a very environmentally sensitive period: constant occurrences of environmental pollution incidents have made the public more aware of environmental safety and there has been an unprecedented increase in awareness of environmental transparency and public participation. Access to information through current environmental information disclosure channels that is effective, user friendly and meets requirements is severely limited. Sometimes disclosed information is out of date, incorrect, and inconsitent. Under such circumstances, citizens will start looking at experiences in their own life and the general state of environmental management, and increasingly go to social media (including Weibo) channels to gather fragmented information. When a new construction project that might have an adverse impact on health is proposed to be built close by, it is easy for those affected to be anxious about it and develop a "Not-In-My-Back-Yard" attitude.

So then how can public participation in EIAs be enhanced to enable all stakeholders to express their opinions and communicate with each other through an institutionalized and orderly approach? What is the gap between the demands of the general public and governmental information supply?

Routine supervision information and EIA information are the most crucial tools for pollution source regulation and epitomize the value of environmental information disclosure system. The effective implementation of the system will be significant for building up public confidence on environmental safety. However, the PITI assessment of the past four years shows that the disclosure of daily monitoring information and EIA information still remains insufficient despite the gradual progress that has been observed. Routine supervision information, including records of enterprises breaching emission standards and environmental administrative penalties records are crucial. All previous assessments since 2008 have shown a low average score in the 113 cities for disclosure of routine supervision information. The 2012 PITI assessment showed that the total growth of average scores for routine supervision information disclosure had increased by less than two points over the past three years and was only 10.20 in 2012.

The core of an EIA system is to encourage public participation and enhance scientific decision-making. Full public participation is not limited to enabling the public to obtain reliable environmental information and providing them a platform to rationally express their views, but also to improving effectiveness in environmental management and building positive relationships between new projects and community development. In practice, however, the procedure to solicit the public's opinions is unclear. The major participants in EIA decision-making are officials, developers and experts, while the communities who are directly influenced by the projects are unable to obtain information and to express their opinions. According to the Interim Measures for Public Participation in Environmental Impact Assessment, there are two rounds of information disclosure during the EIA process: The first round is to release the basic information including project overview, name of assessment units and procedures of EIA when the project developer identifies the EIA agency to be responsible for the assessment work. The second round is prior to submitting the EIA report to the environmental protection department for approval. The abridged edition of the EIA report is disclosed in the second round, however, there are only ten days of public consultation, which is not enough for those projects with more complicated social and economic issues

and those that could have a big influence on public health. If there is once again poor enforcement, then a rushed and careless EIA process not only infringes the public's right to participate, but can also cause immense waste in national environmental management resources.

Environmental information disclosure is not the sharing of unidirectional and scattered information, but should provide the public with comprehensive and systematic access to information, based on which the general public can participate in the decision-making process. A platform where stakeholders can communicate with each other and protect the interest of all parties can only be built through establishing effective communication channels and breaking the closed-off management approach. A sophisticated environmental information disclosure system and an efficient implementation mechanism can enhance dialogue between policy makers and the public, improve public awareness and their capacity to participate, and can as a useful addition to environmental protection departments environmental management.

3. Looking forward: Establishment and improvement of legal system for information disclosure

The 2012 PITI Report has put forward the principle of "Comprehensive Disclosure" for pollution information transparency. By following such a principle, it is anticipated that environmental information disclosure could go deeper and make breakthroughs while progressing steadily. "Comprehensive Disclosure" is not only the concept of establishing interactive communication when providing an environmental service, but also the requirement to further refine pertinent details of the legal system, reinforce the institutional basis for public participation, establish a legal basis for open information and public participation, and when this is not possible legal recourse should be available. The 2012 PITI project has also attracted widespread attention and participation from NGOs and the private sector. We hope government at state and local levels can strengthen their efforts to engage environmental protection NGOs to enable them to play a critical role in mitigating social conflicts, and to encourage more rational and professional public participation.

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Pollution Information Transparency Index

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