

Occupational and Environmental Health – Cross Cutting Issues in China

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1. Introduction

Over many years, China has become the “world’s factory” and its industrial development has greatly increased employment opportunities. This has also been accompanied by the frequent occurrence of production safety accidents, however. Such occupational hazards have been the cause of safety accidents and have also extended beyond the factory walls and resulted in the release of harmful emissions into the natural environment, causing ecological damage and harming the health of nearby residents.

When production safety and environmental pollution accidents occur, different groups become concerned about the harmful impacts to themselves, the community and to future generations, and try to find preventative and remedial measures. However, when we collected data in preparation for writing this article, we found that very few studies and reports related to occupational health paid attention to the impact of occupational hazards to environmental health. At the same time, reports about environmental pollution also rarely mentioned that pollution and emissions from factories and mines are poisoning workers (reports concerning harmful substances in food, toys, clothing and other products also rarely mentioned the impact on workers). Therefore, this article tries to pass through the factory walls and to explore the common problems faced in the two areas of occupational health and environmental health, as well as possibilities for cooperation by organisations internationally related to resources and activities.

Since we are not professionals in the field on environmental protection, the data related to pollution problems was mostly only found on the internet. For some areas (such as nuclear plants) very little information was available. Due to length and capacity constraints, we can only consider the effects of some of the major topics and preliminarily build a loose framework which we leave to later be filled. We would also like to thank our friends in environmental circles for providing valuable advice.

2. Industrial Harm and Human Health

Currently the world has more than 13 million known synthetic or chemical substances, of which 65,000 to 85,000 are commonly used. Every year more than 300 million tons of organic chemicals, made up of a lot more than 100,000 different kinds, are released into the environment¹. According to a WHO report, air pollution causes more than 7 million premature deaths every year² and indoor air pollution causes 4 million premature deaths³.

According to a model looking at the cause of illnesses⁴, occupational illnesses were caused by exposure to occupational hazards inside factory areas⁵. When environmental pollution causes different degrees of damage to the body then it is called an environmental-pollution-related illness⁶. Serious examples of environmental pollution related illnesses⁷ have included Minamata illness and Itai-itai illness in Japan and lung cancer caused by indoor air pollution from burning coal in Xuanwei in China's Yunnan province⁸.

Following industrial development and capital flows, industrial hazards have not only occurred inside factory districts but have also constantly, through emitting outside pollutants, explosions, leaks and safety accidents, directly harmed residents outside of factory districts. At the same time, as the majority of workers also live close to the factory, they have a double identity as workers and as residents of an industrial area and so face a doubly serious risk of suffering from industrial hazards. As far as physical health is concerned, factory workers and local residents are facing the same problem. Workers and residents⁹ need to stand together if they want to more effectively improve the environment. Seemingly different groups of people, who face the same hazard factors (production safety accidents, industrial pollution and occupational hazards) and are the same victims (workers and residents) have the same road to protecting their rights. As the issue of concern for victims of occupational accidents or environmental damage and the issue of promoting workers and community residents rights' are both interlinked, is there not the possibility of more cooperation

¹ *Environmental Health* 环境卫生学, Issue 7, Yang Kedi Ed. Beijing, People's Medical Publishing House, May 1981.

² *Short-term Mitigation to Reduce Climate Pollutant Emissions so as to Reduce the Risk to Human Health* 减缓短期气候污染物排放 降低人类健康风险, World Health Organisation and affiliates of the United Nations Environment Protection Programme's "Climate and Clean Air Coalition"

³ Indoor Air Pollution leads to more than 4 million premature deaths per year [J], *Environmental Monitoring and Forewarning*, 2015 No.4.

⁴ For details see: http://220.163.113.53/G2S/eWebEditor/uploadfile/20140115202810_924620836380.swf

⁵ An occupational illness is defined as an illness contracted by a worker due to the existence of harmful factors in their working environment which have led to the illness. Each country has laws related to the prevention of occupational illnesses. In general, an illness must match with the legal specification of the illness before it can be described as an occupational illness.

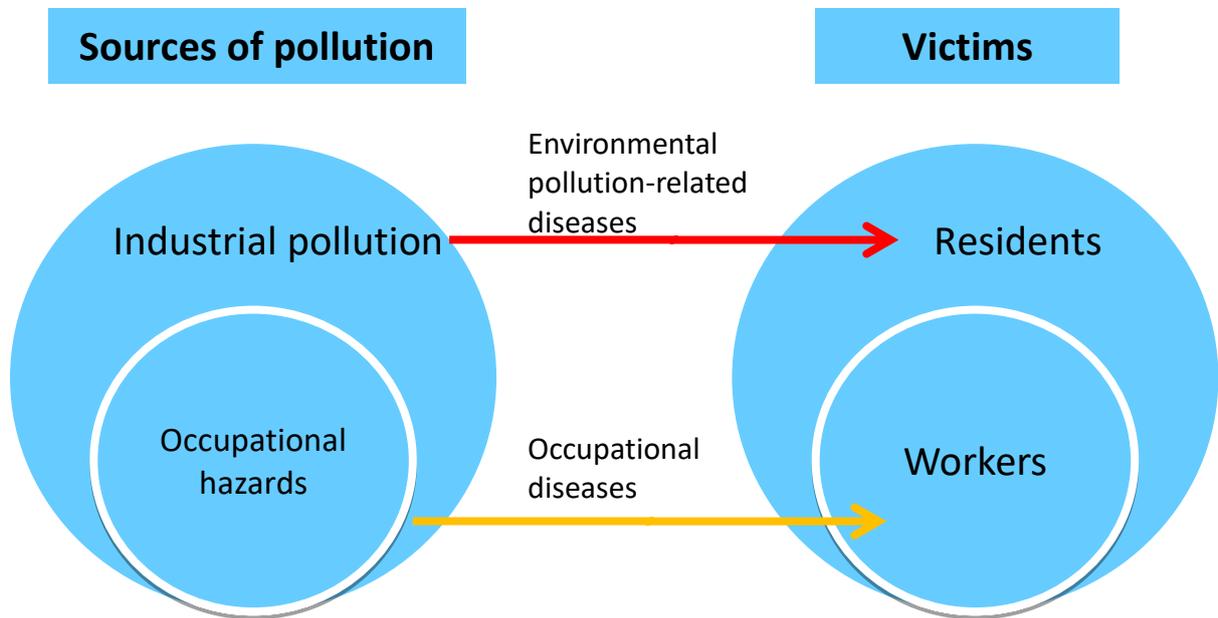
⁶ Anything that pollutes the environment, causes deterioration to the quality of the environment and directly or indirectly causes illness is a pollutant factor, and in general is referred to as an illness *causing environmental pollutant*. An illness which is the result of exposure of the population to such a pollutant constitutes *environmental pollution induced illness*.

⁷ Production activities which cause regional pollution, be it air pollution, water pollution, soil pollution, noise, vibrations, ground subsidence, odors or other destruction of the ecological balance and have caused harm to human life and health are referred to as public harms. As public harms have led to the occurrence of some regional illnesses, these have become called public harm illnesses. Public harm illnesses need to be thoroughly investigated to prove whether they have been caused by environmental pollution and to be recognized by relevant departments. Sufferers from such illnesses have the right to receive care from relevant departments and social welfare.

⁸ *Environmental Health* 环境卫生学, Issue 7, Yang Kedi Ed. Beijing, People's Medical Publishing House, June 2012.

⁹ If residents have property or other interests, then the situation might be different.

between labour and environmental groups?



3. Occupational Hazards and Occupational Diseases

In many enterprises such as factories, mines, and construction sites, there are a lot of occupational hazards¹⁰. By the end of 2012, occupational disease hazards existed at around 12 million enterprises across the whole country and around 150 million people were exposed to occupational hazards¹¹. Let us cite official data to introduce the impact of these risk factors on workers.

By the end of 2014, the country had a reported total of 863,600 occupational disease cases, of which 777,200 were reported pneumoconiosis cases, 53,700 were occupational poisoning cases including 26,300 acute occupational poisoning cases and 27,300 chronic occupational poisoning cases¹².

Table: Major occupational diseases by number of persons 2010-2014 in China

	2010	2011	2012	2013	2014
Total number of occupational diseases (new cases)	27,240	29,879	27,420	26,393	29,972
Pneumoconiosis	23,812	26,401	24,206	23,152	26,873
Occupational Poisoning	2,034	2,131	1,641	1,541	1,281
Acute Occupational Poisoning	617	590	601	637	486
Chronic Occupational Poisoning	1,417	1,541	1,040	904	795
<i>Chronic Lead and its Compounds Poisoning</i>	<i>499</i>	<i>621</i>	<i>197</i>	<i>231</i>	<i>224</i>
<i>Chronic Benzene Poisoning</i>	<i>272</i>	<i>354</i>	<i>329</i>	<i>285</i>	<i>282</i>
<i>Chronic Arsenic and its Compounds Poisoning</i>	<i>157</i>	<i>290</i>	<i>164</i>	<i>232</i>	<i>120</i>
Noise-induced Deafness	333	492	597	681	825

Amongst the hazard factors leading to occupational diseases, chemicals (heavy metals, organic solvents etc.) dust and noise are also very easily emitted into the environment affecting the surrounding residents.

¹⁰ Risk factors may exist in raw materials, by-products, finished products and in the production environment. For details of the different categories refer to the *Occupational Disease Hazard Factors Classification Directory* 《职业病危害因素分类目录》 <http://www.chinasafety.gov.cn/newfiles/20151207zyb.pdf>

¹¹ “Effective Containment of the High Momentum of Pneumoconiosis and Occupational Poisoning”, Li Zhaoqian, speech at the National Occupational Health Supervision Work Video Conference, March 8th 2016.

¹² The editors compiled this data from relevant literature and the newly published data from the Ministry of Health’s National Occupational Disease Report.

4. Projects which carry high pollution risks and their occupational hazards

Industrial pollution harms the health of workers and has also led China to have a high incidence of occupational diseases. At the same time, residents opposed to nearby projects that cause a high level of pollution have been active in carrying out actions to protest against them. Some opposition actions have forced the cessation of some projects and led to other projects being transferred to other areas in the province. But occupational hazard risks related to the projects are usually mentioned very little.

4.1 PX Plants

4.1.1. Why build a PX plant?

This type of chemical project is harmful to human health and many developed countries have already stopped producing it. Why then is only China continuing to introduce it? There is only one reason and that is that PX is highly profitable. Since 1997, PX (paraxylene) has been in short supply on the international market and since 2003 the demand rate for PX has been almost one million tons per annum. To meet this demand each PX production base in China has expanded its production capacity in order to reap in huge profits. The health threats to nearby residents and to the health and safety of the workers involved in the production of this type of toxic raw chemicals cannot be ignored¹³. For details of hazards related to PX see Appendix I.

4.1.2. Anti-construction Actions

In 2007 there were protests against plans to construct a PX project in the Haicang peninsula of Xiamen in Fujian province. Due to fear that upon construction the chemical plant would endanger public health, one hundred CPPCC members jointly opposed it and the public engaged in collective resistance until the municipal government announced the suspension of the project. The progress of this PX incident caught the public's attention¹⁴. After the Xiamen PX project was relocated to Gulei in Zhangzhou two large explosions occurred in 2013 and 2015 at the chemical plant.

Since then mass actions opposing PX projects have been held in Dalian, Ningbo, Kunming and other locations, some of which have resulted in the suspension of the project or its relocation.

4.2 Other Chemical Plants and Refineries

In China it is generally more difficult for people to participate in the discussion of public policy. When the construction of a large chemical works is likely to endanger health and safety or is an oil refinery or other highly polluting project, it is even harder for people to have a say in it. There is a lack of public participation in the majority of environmental impact assessment reports and in some places, particularly for oil refineries, the report is kept secret and there is a refusal to make it public¹⁵. These

¹³ *The Current Situation of Labour in the "World's Factory"* 《“世界工厂”中的劳工现状》, He Qinglian, <http://www.modernchinastudies.org/cn/issues/past-issues/100-mcs-2008-issue-2/1044-2012-01-05-15-35-31.html>

¹⁴ Source: Baidu Baike <http://baike.baidu.com>

¹⁵ *Yunnan Development and Reform Commission: Petrochina Oil Refinery Project Environmental Impact*

chemical plants and oil refineries are sometime built close to densely populated areas meaning that in the case of illegal dispatchment of pollutants, leaks, explosions and other safety accidents, the lives of residents will be seriously threatened. In Nanjing there was a case where a girl living close to an oil refinery contracted leukaemia. Her family suspected that it was related to the oil refinery and asked the refinery to pay millions in compensation, resulting in it becoming the country's first environmental pollution damages dispute case¹⁶.

Everyday factory workers have more direct close contact with these harmful substances. In petroleum processing, the main occupational hazards are gasoline vapours and solvent oil vapours as well as hydrogen sulphide and other toxic gases. Positions involving hot furnaces mean high temperature work, while the existence of noise hazards are a further risk.

4.3 Waste Incinerators

Although China has experienced rapid economic development, the speed of dealing with garbage or waste has not been able to keep up with the pace of economic development. This has led Chinese newspaper reports to often talk of "cities besieged by waste". "China's National Programme to Address Climate Change", published by the National Development and Reform Commission in 2007, mentioned that "in a developed economy with scare land resources, waste incinerator power plants shall be constructed..." The "Eleventh Five Year Plan" National Urban Life Harmless Waste Treatment Facilities Construction Plan" set out plans for the country to build 41 waste incinerator plants during the Eleventh Five Year Plan, including 14 in Guangdong province alone. Under pressure from "cities besieged by waste", the widespread construction of waste incinerator power plants led to widespread civil resistance¹⁷.

In fact incinerators do not make the waste disappear; instead the waste is turned into toxic ash and gas emissions. The ash contains all kind of toxic metals, dioxins and furans and other toxic compounds.

4.3.1. The effects of incinerators on the health of workers and nearby residents.

Although incinerators will create some local employment opportunities, they also produce a great threat to the health and safety of workers and residents living close by. The dioxins which are produced in the process can lead to cancer, intelligence deficiencies, interference with development, birth defects, damage to the immune system and abnormal behaviour. Due to malfunctions of the boiler or improper use, there is also the possibility of explosions in the incineration process due to bad maintenance or poor handling of leaking liquids, leading to casualties and pollution of the surrounding environment (some reports are listed in the table below).

No.	Headline	City	Date
1	Boiler explosion at waste power plant incinerator in Guangzhou injures 5 people (the same plant as item 2).	Guangzhou, Guangdong	2010.1.8
2	Li Hang waste incinerator causes dozens of cancer deaths	Guangzhou,	2012.11.21

Assessment Report is Kept Secret. 《云南发改委：中石油炼油项目环评报告涉密不公开》，Chinanews.com <http://wen.oeeee.com/a/20130514/1061115.html>

¹⁶ *The Nation's First Environmental Pollution Damages Dispute Case will be Heard in Nanjing.* 《全国首例环境污染损害纠纷案将在宁开庭》，Xinhua: <http://news.sina.com.cn/o/2004-10-18/10063954248s.shtml>

¹⁷ *Public Participation in Waste Politics: Guangzhou Panyu Waste Incinerator Power Plant Protest.* 《垃圾政治学中的公共参与：广州番禺的垃圾焚烧发电厂抗争》，Xu Sijian, China Research Newsletter No.14., 31st July 2010

	<u>in Yongxing village.</u>	Guangdong	
3	<u>Shanghai incinerator shock burst kills 1, injures 5 and 1 is still missing.</u>	Shanghai	2013.12.6
4	<u>5 die from injuries from Anqing waste power plant incinerator explosion.</u>	Anqing, Anhui	2014.4.13
5	<u>Wall collapse in Anxi waste incinerator power plant leads to 3 deaths and 2 injured.</u>	Quanzhou, Fujian	2014.7.8

4.3.2. Reports on opposition to building incinerators from different locations

No.	Headline	City	Date
1	<u>Construction of Panyu incinerator incites anger. Hong Kong homeowners also take to the streets and 300 demonstrate surrounding the Guangzhou Municipal Government.</u>	Guangzhou, Guangdong	2009.11.24
2	<u>10,000 in Guangzhou oppose the construction of an incinerator: 1000 police attempt to drive away protestors causing conflict.</u>	Guangzhou, Guangdong	2013.7.20
3	<u>China: Hangzhou anti-incinerator protests confront the communist regime.</u>	Hangzhou, Zhejiang	2014.5.17
4	<u>One thousand protest against building of incinerator in Yangjiang leading to conflict.</u>	Yangjiang, Guangdong	2015.10.12
5	<u>60,000 students boycott class in Guangdong in opposition to incinerator construction: march met with police repression.</u>	Puning, Guangdong	2015.12.22
6	<u>10,000 oppose Puning incinerator construction: another clash with police.</u>	Puning, Guangdong	2015.12.25

4.4 Thermal Power Plants

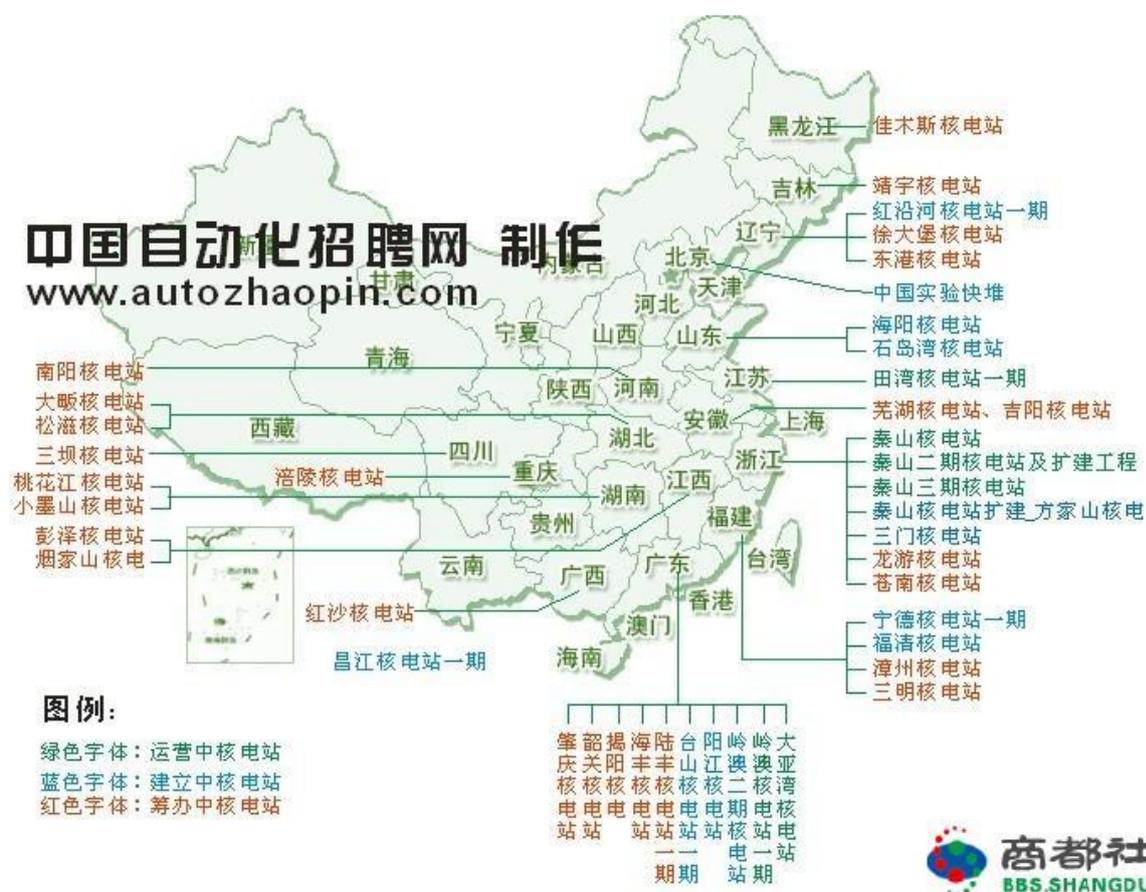
Electricity is necessary to industrial development. In China, the “world’s factory”, the main source of electricity comes from thermal electricity. In the process of its operations this might produce grime (free from SiO₂ content <10%), asbestos dust, welding fumes, fluorine and its compounds (excluding hydrofluoric acid), sulphur dioxide, sulphuric acid, ammonia, carbon monoxide, hydrochloric acid, sodium hydroxide, heat, noise etc., all of which may lead to a variety of occupational diseases (see Appendix II)¹⁸.

4.5 Nuclear Power

Since thermal power causes serious pollution and is one of the causes of global warming, China has been promoting the increased use of clean energy. However there is still a lot of controversy about whether nuclear energy is clean and very little information can be found about it on the internet in mainland China. The China Nuclear Safety Information Exchange Centre (<http://chinanuclearsafetyinformationcenter.blogspot.sg>) claims to be an independent and open information platform for sharing domestic nuclear power safety related information. But the site’s last update was on January 28th 2014 when it published “Energy Bureau: The Appropriate Time to Start Giving Approval to Nuclear Power Projects” which stated that, “In addition to providing nuclear power with an optimistic position in the future energy landscape, big central enterprises’ enthusiasm

¹⁸ Thermal power plant occupational hazard factors and health knowledge. Source: Internet blogs.

for nuclear power projects is undoubtedly driven by the pursuit of a trillion Yuan market share for large-scale nuclear power projects”.



China Nuclear Power Plant Distribution (Picture Source: Internet)

In the operation of nuclear power plants, occupational risk factors, such as radioactive risk factors, noise, toxic chemicals, heat, dust and high frequency electro field, may exist or be produced. For this reason, work at a nuclear power plant carries the risk of radiation poisoning (which may cause severe reversible or irreversible damage or even death), occupational contact dermatitis, occupational chemical burns, occupational chemical poisoning, acute occupational chemical poisoning respiratory diseases, silicosis, pneumoconiosis, noise induced hearing loss, electric ophthalmia, vibration white finger and other occupational harm risks¹⁹.

In addition to this, the disposal of nuclear waste is also a very serious problem.

¹⁹ Identification and Analysis of Occupational Hazard Factors in Nuclear Power Plant 《核电站职业病危害因素的识别与分析》, Occupation and Health, February 2014, Vol. 30, No.4 p.561.

5. Production Safety Accidents Create Work Injuries and Environmental Damage

In 2015 alone, there was at least one major production safety accident every ten days²⁰, resulting in 768 deaths or disappearances²¹. The victims included workers and residents. The accidents also caused damage to the local environment. These accidents were the result of putting business interests first, collusion with local governments, and a lack of popular participation and monitoring.

Examples of recent production safety accidents which have also caused serious environmental damage.

Date	No. Persons Killed	Brief Introduction to the Accident
2015. 12.20	77	A landslide at a landfill in Guangming New District in Shenzhen, Guangdong Province, led to a gas station explosion which caused the collapse or damage of 33 buildings. The investigation found that the collapse of the landfill was not caused by a natural landslide or a natural disaster but was a production safety accident caused by the movement of mud which had been piled up. ²²
2015. 8.12	165	Two large explosions in the Chinese port city of Tianjin resulted in 168 deaths including 94 firefighters. The explosion site had been storing quantities of the highly toxic chemical sodium cyanide which far exceeded safe levels. Hundreds of angry residents came out together to protest against the poor regulation of the dangerous chemical warehouse and its close location to a residential area, which was in violation of relevant national regulations.
2015. 4.6	---	The “citizen’s walk” event in Xiamen in 2007 made the world aware of Tenglong PX. In 2009 the project was quietly relocated in Gulei peninsula. Then two large explosions in 2013 and 2015 resulted in 15 people being injured. After the explosion incidents, 40,000 residents needed to be relocated ²³ .
2014. 4.11	---	A Sinopec oil pipeline spill resulted in the Langzhou section of the Yellow River (the only local source of drinking water) to be contaminated with excessive benzene leading to citywide drinking water crisis for several days. 9 citizens filed a lawsuit but it was not until 10 months after the benzene poisoning incident that the court heard the case and the final ruling rejected the claims of each of the plaintiffs ²⁴ .

²⁰ According to the “Regulations for Dealing with the Reporting and Investigation of Production Safety Accidents” a major production safety accident occurs when more than ten people are killed, more than 50 people are seriously injured or the direct economic losses from the accident total more than 50 million RMB.

²¹ 2015 Safe Production Report: <http://news.cntv.cn/2016/01/15/VIDEndhj2VjKxbQjXxPRwwyy160115.shtml>

²² Direct causes of “12.20” major landslide accident in Guangming New District, Shenzhen, Guangdong Province have been ascertained:

http://www.chinasafety.gov.cn/newpage/Contents/Channel_21356/2016/0310/265758/content_265758.htm

²³ After the Zhangzhou Gulei explosion a total of 40,000 residents will need to relocate:

<http://finance.sina.com.cn/china/20150410/224121930905.shtml>

²⁴ Lanzhou citizens lose lawsuit “excessive benzene in water”, one person will appeal:

<http://news.qq.com/a/20151128/005881.htm>

6. Environmental Pollution and Protection of Community Residents

6.1. Procedural Justice or Substantive Justice?

In 2007 citizens in Xiamen collectively came out on the streets in opposition to the PX project. In Guangzhou in 2009, residential apartment owners surrounded the municipal government in opposition to the incinerator plant²⁵. In 2012 Shifang²⁶ and Qidong²⁷ saw the continuous occurrence of mass protest incidents. This has opened the way for a new stage in which the Chinese masses participate in environmental protection through social movements. But the boom in strong environmental movements has only been able to halt a few polluting projects and has not been able to bring about institutional change to the mechanism for participation in the decision-making process and to the advantages enjoyed by developers²⁸.

6.1.1 Restrictions on the Public Right to Knowledge and Participation

Although the government has introduced environmental regulations, civic engagement can be expected to remain elusive. Implementation of Article 21 of the 2003 “Environmental Impact Assessment Law”, for instance, *could have a significant impact on the environment. Accordingly, environmental impact assessment report statements should be prepared for construction projects, construction units should obtain approval of the environmental impact assessment report prior to commencing construction and hold a demonstration meeting and hearing or arrange other methods to solicit the opinions of relevant units, experts and the public.* This provision is beneficial to the people’s rights to environmental information and participation and to preventing polluting production. But if this provision is implemented, why are there so many highly polluting projects as well as mass spontaneous actions?

6.1.2 The Environmental Public Interest Litigation Upper Threshold

In addition to spontaneous actions, another channel for victims to seek help is through environmental public interest litigation. The new 2015 environmental protection law defines the eligibility criteria for environmental protection groups to take on public interest litigations, such that they must “be registered in accordance with the law with the municipal district level civil affairs department, have specialized in engaging in environmental protection public interest activities for more than 5 consecutive years and have no illegal social organization record.” In fact it is already very rare for environmental groups to be able to successfully register and engage in legitimate operations. Public interest litigations consume a lot of human energy as well as material and financial resources. This means that the cost of litigation usually places a huge burden on individuals or organizations. The “Friends of Nature” public interest lawyer, Yang Yang, from the Yunnan Qujing chromium

²⁵ Construction of Panyu incinerator incites anger. Hong Kong home owners also take to the streets and 300 demonstrate surrounding the Guangzhou Municipal Government.

<http://hk.apple.nextmedia.com/international/art/20091124/13452879>

²⁶ 2012 Shifang citizen opposition to the molybdenum copper project incident:

<https://zh.wikipedia.org/wiki/2012%E5%B9%B4%E4%BB%80%E9%82%A1%E5%B8%82%E5%8F%8D%E5%AF%B9%E9%92%BC%E9%93%9C%E9%A1%B9%E7%9B%AE%E4%BA%8B%E4%BB%B6>

²⁷ 2012 Qidong citizen opposition to the sewage project incident:

<https://zh.wikipedia.org/wiki/2012%E5%B9%B4%E5%90%AF%E4%B8%9C%E5%B8%82%E5%8F%8D%E5%AF%B9%E6%8E%92%E6%B1%A1%E9%A1%B9%E7%9B%AE%E4%BA%8B%E4%BB%B6>

²⁸ 10 Year Review: From Environmental Crisis to Social Movements:

<https://www.chinadialogue.net/article/show/single/ch/5660-China-s-street-protests-won-t-change-failing-system>

pollution case, for instance, revealed in a previous interview that the current appraisal fees already required a minimum of one million Yuan. This means that many environmental organizations cannot afford it.

6.2 The compensation mechanism needs to be strengthened

Environmental pollution not only leads to ecological damage but also affects the health of nearby residents. From the point of view of compensation for the restoration of ecological damage, even if environmental groups put great effort into pursuing environmental litigation, the compensation (ordered by the court) is probably pocketed and used by the government treasury²⁹, so it is difficult for civil society groups to monitor its use and effectiveness.

From the point of view of damage to personal health, since there is a lack of evidence that the environmental pollution has caused the victim’s illness and there is a lack of sources about the degree of damage that pollution can cause to human health, as well as a lack of the concept of “there is an environmental hazard risk and so there is the possibility of harm”, it is difficult for the victims to obtain compensation. Due to a lack of attention being paid to the victims, environmental litigation is less likely to be fair.

Environmental Public Interest Litigation Case	Plaintiff	Judgement	Main Difficulties
In 2008 Xie Zhijin and four other people engaged in the unauthorized expansion of mining areas without the approval of the administrative supervisory department. This involved taking the stone off the top of the mountain, dumping the abandoned stone from the mine’s production at the foot of the mountain, and building a shed below the mine, causing serious destruction to 28.33 acres of forest vegetation.	Beijing Chaoyang District Friends of Nature Environmental Research Institute and Fujian Province’s Green Home Friends of the Environment Centre sued on 1 st January 2015.	Won. The defendant had to pay 1.27 million Yuan in compensation for remote and local ecological restoration costs and had to pay 165,000Yuan for the plaintiff’s assessed expenditure, lawyer’s fee and other reasonable litigation costs. A second hearing upheld the verdict of the first.	The compensation won by the case could not be paid to a social organisation. In the future the Ministry of Finance and the Ministry of Environmental Protection will discuss the establishment of a special account or fund to supervise this kind of compensation ³⁰ .

²⁹ Supreme People’s Court Clears Doubts About Who Should Pay Compensation For Environmental Public Interest Litigation <http://finance.sina.com.cn/sf/news/2015-12-30/085815224.html>

³⁰ Beijing Chaoyang District Friends of Nature Environmental Research Institute and Fujian Province’s Green Home Friends of the Environment sue Xie Zhijin and four other people in civil litigation for the destruction of forest land. <http://www.chinacourt.org/article/detail/2015/12/id/1777817.shtml>

Environmental Public Interest Litigation Case	Plaintiff	Judgement	Main Difficulties
<p>First case of excessive lead in children’s blood</p> <p>In Daepo town in Hengyang, Hunan province, excessive lead levels were found in the blood of more than 300 children. 53 residents made claims to the Meilin chemical plant for compensation. As result of pressure, 40 of the plaintiffs withdrew before the hearing and the remaining 13 plaintiffs changed the claim to more than 2.06 million Yuan.</p>	<p>Affected Residents</p>	<p>The final verdict was that only two people suffered from moderate lead poisoning (250ug/L) and they received a total of 26,372 Yuan.</p>	<p>Even though it is a recognised fact that excessive lead impairs the intellectual development of children, the court ruled that it could not quantify the extent of the damage caused by lead poisoning to the children’s bodies so the victims had not provided evidence to obtain compensation。 ³¹</p>
<p>Tap water of Lanzhou residents supplied by Veolia contaminated with excessive benzene levels.</p> <p>In 2014, a Sinopec oil pipeline spill led to the contamination of the Lanzhou section of the Yellow River (the only drinking water source for residents) with benzene, resulting in a citywide drinking water crisis within a few days. 9 Lanzhou citizens filed a lawsuit.</p>	<p>Affected Residents</p>	<p>The court dismissed the plaintiffs’ request.</p>	<p>The court held that after the water supply was contaminated with excessive benzene levels, the Veolia corporation, due to the suffering of the general public, made a public apology and developed appropriate remedial measures in line with fair value requirements and there was a lack of necessity for Veolia to pay individuals compensation ³².</p>

³¹ Hunan “Excessive Lead in Children’s Blood” Litigation Settled: Claimed 2.06 million, Awarded 26,000. http://www.thepaper.cn/newsDetail_forward_1436245

³² Lanzhou citizens suing over “excessive benzene in tap water” lose case. One person will appeal. <http://news.qq.com/a/20151128/005881.htm>

7. Combining Labour Protection and Environmental Public Interests

While production site workers can be described as being on the frontline in the defence against industrial safety accidents and pollution, they are also the main victims of any accidents. If workers make public details of the illegal operations of their enterprise, however, they are likely to be dismissed or to face other forms of retaliation. In April 2016, for instance, when two employees of a waste processing sub-contracted company in Hong Kong reported to the public that the company had illegally dispatched sewage, they were dismissed³³.

On the other hand, workers who are injured or suffer from occupational diseases reveal the hazards of the industry. On the 17th April 2016, the media reported that 493 students from Changzhou Foreign Language School in Jiangsu Province had developed dermatitis, eczema, bronchitis, blood abnormalities, leucopenia and other abnormal symptoms. Some individuals were also found to have lymphoma, leukemia and other malignant diseases. The reporters found that several chemical factories had opened next door to the school and according to one of the worker's log records the factory produced carbofuran, methomyl, cyano-naphthol and other highly toxic products. Some workers who had been diagnosed with skin diseases and other occupational diseases had been required to leave the factory in advance³⁴.

There are a few cases which describe the impact of industrial pollution on workers' and residents' rights to health. In 2001, the construction of the 2,450 acre Sheng Tong Group Changde Industrial Park in Taoyuan County, Changde, Hunan Province, for the processing of raw aluminium products and other high pollution projects. It has been reported that more than ten local residents have developed cancer and diseases of unclear cause and more than 170 employees have been confirmed to have excessive fluoride levels³⁵.

From the above it can be seen that the same pollution can impact on both workers' and residents' rights to health. If the right to life and health are placed above enterprise operation rights and if environmental public interests are placed above corporate profits, then worker supervision of the polluting behaviour of producers should receive institutional protection and the support of society. But in reality there is still a lot that needs to be fought for.

7.1 The Solidarity of Citizen Power

In their advocacy, environmental and labour groups can always look at occupational injuries and diseases from the perspective of the victims and extend this to cover industrial hazards. Knowledge relevant to occupational disease hazard factors, as well as harm caused by occupational diseases to health and compensation cases, can be publicized so as to remedy the inadequacy of present environmental regulations on industrial hazards and how the damage they cause to human health is assessed, so as to deepen people's awareness of industrial pollution and how to prevent it. Open participation by citizens and groups in environmental policy (including public participation in environmental impact assessments, citizen actions, group environmental interest litigation, the involvement of environmental NGOs etc.) will help provide solidarity to victims. Occupational injuries and diseases cannot easily be considered as isolated cases, but are one specific example amongst

³³ Employees fired for exposing their company giving clean water samples to the Environmental Protection Department. <http://hk.apple.nextmedia.com/news/art/20160416/19573841>

³⁴ Nearly 500 students have physical abnormalities: Why does pollution at the school exceed [normal levels] 100,000 times? <http://mt.sohu.com/20160418/n444664788.shtml>

³⁵ Serious pollution by the aluminum industry in Taoyuan, Hunan: They can never return home. <http://www.bjnews.com.cn/news/2014/12/06/344672.html>

industrial hazards. If residents who are victims of industrial hazards can learn about clear diagnoses (see Appendix III) and compensation standards for industrial injuries and diseases, they can use this as reference in claiming economic compensation.

	Industrial Pollution Victims	
Victim group	Residents	Workers, persons with work injuries and occupational diseases.
Citizen Action Advantages	<ul style="list-style-type: none"> ➤ More easily attracts public concern. ➤ Can participate in environmental impact assessments. ➤ Related to a group interest; mass participation is likely. 	<ul style="list-style-type: none"> ➤ Occupational injuries and diseases can easily be regarded as an individual or individual enterprise problem and so less likely to attract concern by society. ➤ Unless a group of people contract an occupational disease in the same short time period, it is more difficult to coordinate group action.
Personal Damage Compensation	<ul style="list-style-type: none"> ➤ Dilemma: due to the current lack of a criteria and basis, it is difficult to verify the extent of the impact of environmental pollution on human health. ➤ Space: it is possible to carry out group litigations with the help of public interest organisations. 	<ul style="list-style-type: none"> ➤ Space: there are clear diagnostic criteria and disability levels and a more specific chain of evidence can be traced linking pollutants and occupational diseases (see Appendix IV). ➤ Dilemma: it is difficult from the perspective of an infringement, to fight for personal compensation for injuries. ➤ Dilemma: it is not possible to carry out group litigation and victims can easily be divided.
Cooperation	<ol style="list-style-type: none"> 1. By increasing the cost of illegal action, citizen participation in supervision and information disclosure can help prevent production safety accidents and pollution. 2. Through publicity about the issue of industrial pollution, people can become more aware of the current situation concerning work injuries and occupational diseases. 3. Work injuries and occupational diseases have clear diagnostic criteria and compensations standards and are rich in relevant information which can be used as a reference in the assessment of the health effects for sufferers from environmental pollution (see Appendix V and VI). 4. A combination of environmental test results and the medical reports of victims can be used in epidemiological studies to confirm a causal relationship. 5. Pursue group litigation and establish an effective compensatory mechanism (see Appendix VII). 	

8. Summary

In mainstream discourse it is common to place “economic development” against “environmental protection” and “labour rights”. But should human development be guided by capital or should it be people-oriented sustainable development? China’s surging environmental movement has made people concerned about the vision for society’s development and shifted the attention to human needs. This is the starting point for the unification of the labour and the environmental movement.

Environmental pollution cannot be stopped as long as it follows capital flows. Even if the main object and purpose of environmental and labour groups is not the same, they all speak up for the vulnerable and are all concerned with the negative impacts and suffering caused by industrial development and capital flows. Under the current system in China, group action is under pressure, there is inadequate government regulation and sometimes even covering up for the perpetrators, and the repression of civil society is a common problem. Facing the same problem of polluting production, from the perspective of health rights, if the labour and environmental movements mutually support each other then it will be beneficial to the reform of China’s industrial pollution prevention and control work and to the promotion of grassroots participation.

Appendix (in Chinese only)

I. PX 的危害 Harm caused by PX

根据化学品安全说明书 (MSDS), PX 属于低毒类化学物质, 对人的眼部及上呼吸道有刺激作用, 高浓度时对中枢神经系统有麻醉作用。短期内吸入较高浓度 PX 时, 可出现眼及上呼吸道明显的刺激症状、眼结膜及咽充血、头晕、头痛、恶心、呕吐、胸闷、四肢无力、意识模糊、步态蹒跚。重者可有躁动、抽搐或昏迷, 有的有癔病样发作。长期接触 PX, 工人常发生皮肤干燥、皴裂、皮炎, 产生神经衰弱综合征, 女性发生月经异常等状况。2007 年, 世界卫生组织国际癌症研究机构 (IARC) 将 PX 定义为“第三组致癌物”, 即现有的证据不能证明其对人类致癌。辽阳石油化纤公司在上世纪 80 年代曾对与 PX 接触的工人进行健康调查, 结果显示, 长期接触高浓度的 PX 导致部分工人出现咽炎、神经衰弱等症状。³⁶

II. 火力发电厂常见职业病 Common occupational diseases at thermal power plants

- (1) 尘肺: 煤工尘肺、石棉肺、电焊工尘肺;
- (2) 职业性放射性疾病: 外照射急性放射病、放射性皮肤疾病;
- (3) 职业中毒: 铅及其化合物中毒 (不包括四乙基铅)、锰及其化合物中毒、苯中毒、甲苯中毒、二甲苯中毒、汽油中毒、氟化合物及其分解产物中毒;
- (4) 物理因素所致职业病: 中暑、噪音性耳聋;
- (5) 生物因素所致职业病: 炭疽、布氏杆菌病、引起职业性传染病的细菌、病毒;
- (6) 职业性皮肤病: 接触性皮炎、光敏性皮炎、电光性皮炎、化学性皮肤灼伤
- (7) 职业性眼病: 化学性眼部灼伤、电光性眼炎
- (8) 其他职业病: 金属烟热病

III. 职业病诊断标准中, 非职业性接触可参照执行诊断的标准

Occupational disease diagnostic criteria which can be used as reference for non-occupational exposure

编号	标准号	标准名称	实施日期
1	GBZ 3-2006	职业性慢性锰中毒诊断标准	2006-10-1
2	GBZ 10-2002	职业性急性溴甲烷中毒诊断标准	2002-6-1
3	GBZ 13-2002	职业性急性丙烯腈中毒诊断标准	2002-6-1
4	GBZ 15-2002	职业性急性氮氧化物中毒诊断标准	2002-6-1
5	GBZ 21-2006	职业性光接触性皮炎诊断标准	2006-10-1
6	GBZ 23-2002	职业性急性一氧化碳中毒诊断标准	2002-6-1
7	GBZ 26-2007	职业性急性三烷基锡中毒诊断标准	2007-11-30
8	GBZ 27-2002	职业性溶剂汽油中毒诊断标准	2002-6-1

³⁶ 《科学时报: PX 真相还原》, <http://news.sciencenet.cn/htmlnews/2011/8/251109.shtml>

编号	标准号	标准名称	实施日期
9	GBZ 28-2010	职业性急性羰基镍中毒诊断标准	2010-10-1
10	GBZ 29-2011	职业性急性光气中毒诊断标准	2011-11-1
11	GBZ 31-2002	职业性急性硫化氢中毒诊断标准	2002-6-1
12	GBZ 33-2002	职业性急性甲醛中毒诊断标准	2002-6-1
13	GBZ 34-2002	职业性急性五氯酚中毒诊断标准	2002-6-1
14	GBZ 35-2010	职业性白内障诊断标准	2010-10-1
15	GBZ 38-2006	职业性急性三氯乙烯中毒诊断标准	2007-7-1
16	GBZ 40-2002	职业性急性硫酸二甲酯中毒诊断标准	2002-6-1
17	GBZ 42-2002	职业性急性四氯化碳中毒诊断标准	2002-6-1
18	GBZ 43-2002	职业性急性拟除虫菊酯中毒诊断标准	2002-6-1
19	GBZ 46-2002	职业性急性杀虫脞中毒诊断标准	2002-6-1
20	GBZ 51-2009	职业性化学性皮肤灼伤诊断标准	2009-11-1
21	GBZ 59-2010	职业性中毒性肝病诊断标准	2010-10-1
22	GBZ 65-2002	职业性急性氯气中毒诊断标准	2002-6-1
23	GBZ 69-2011	职业性慢性三硝基甲苯中毒诊断标准	2011-10-1
24	GBZ 72-2002	职业性急性隐匿式化学物中毒诊断规则	2002-6-1
25	GBZ 74-2009	职业性急性化学物中毒性心脏病诊断标准	2009-11-1
26	GBZ 75-2010	职业性急性化学物中毒性血液系统疾病诊断标准	2010-10-1
27	GBZ 76-2002	职业性急性化学物中毒性神经系统疾病诊断标准	2002-6-1
28	GBZ 77-2002	职业性急性化学物中毒性多器官功能损害综合征诊断标准	2002-6-1
29	GBZ 78-2010	职业性急性化学源性猝死诊断标准	2010-10-1
30	GBZ 80-2002	职业性急性一甲胺中毒诊断标准	2002-6-1
31	GBZ 81-2002	职业性磷中毒诊断标准	2002-6-1
32	GBZ 84-2002	职业性慢性正己烷中毒诊断标准	2002-6-1
33	GBZ 86-2002	职业性急性偏二甲基肼中毒诊断标准	2002-6-1
34	GBZ 88-2002	职业性森林脑炎诊断标准	2002-6-1
35	GBZ 89-2007	职业性汞中毒诊断标准	2007-11-30
36	GBZ 91-2008	职业性急性酚中毒诊断标准	2008-12-1
37	GBZ 92-2008	职业性高原病诊断标准	2008-12-1
38	GBZ 93-2010	职业性航空病诊断标准	2010-10-1
39	GBZ 95-2014	放射性白内障诊断标准	2014-12-15
40	GBZ 96-2011	内照射放射病诊断标准	2012-5-1
41	GBZ 97-2009	放射性肿瘤病因判断标准	2010-2-1
42	GBZ 100-2010	外照射放射性骨损伤诊断	2011-3-1
43	GBZ 101-2011	放射性甲状腺疾病诊断标准	2012-5-1
44	GBZ 104-2002	外照射急性放射病诊断标准	2002-6-1
45	GBZ 105-2002	外照射慢性放射病诊断标准	2002-6-1

编号	标准号	标准名称	实施日期
46	GBZ 106-2002	放射性皮肤疾病诊断标准	2002-6-1
47	GBZ 107-2015	职业性放射性性腺疾病诊断	2016-6-1
48	GBZ 185-2006	职业性三氯乙烯药疹样皮炎诊断标准	2007-7-1
49	GBZ 190-2007	放射性食管疾病诊断标准	2007-12-1
50	GBZ 219-2009	放射性皮肤癌诊断标准	2010-2-1
51	GBZ 226-2010	职业性铊中毒诊断标准	2010-10-1
52	GBZ/T228-2010	职业性急性化学物中毒后遗症诊断标准	2010-10-1
53	GBZ 239-2011	职业性急性氯乙酸中毒的诊断	2011-11-1

IV. 环境排放中的允许浓度³⁷与化学品在工作环境中的接触限值³⁸

Permissible limits for the concentration of emissions and chemicals into the work environment.

注：两者可否作比较、互相参照，需作进一步研究。

编号	名称	最高允许排放浓度 ³⁹ (mg/m ³)	时间加权平均容许浓度 ⁴⁰ TWA (mg/m ³)
1	二氧化硫	550	5
2	石英粉尘	60	1
3	石棉尘	10	0.8
4	其他粉尘颗粒物	120	8
5	氟化物	9	2
6	铅及其化合物	0.7	0.05
7	汞及其化合物	0.012	0.01
8	镉及其化合物	0.85	0.01
9	铍及其化合物	0.012	0.0005
10	镍及其化合物	4.3	1
11	苯	12	6
12	甲苯	40	50
13	二甲苯	70	50
14	酚类	100	10
15	甲醛 ⁴¹	25	0.5
16	乙醛	125	45
17	丙烯腈	22	1
18	丙烯醛	16	0.3
19	氰化氢 ⁴²	1.9	1

³⁷ 根据《GB 16297-1996 大气污染物综合排放标准》

³⁸ 根据《GBZ 2.1-2007 工作场所有害因素职业接触限值 第1部分：化学有害因素》

³⁹ 指一定高度的排气筒任何1小时排放污染物的质量不得超过的限值。

⁴⁰ 时间加权平均容许浓度，指以时间为权数规定的8小时工作日、40小时工作周的平均容许接触浓度。

⁴¹ 其中职业接触限值为最高允许浓度（MAC），指工作地点、在一个工作日内、任何时间有毒化学物质不应超过的浓度。

编号	名称	最高允许排放浓度 ³⁹ (mg/m ³)	时间加权平均容许浓度 ⁴⁰ TWA (mg/m ³)
20	甲醇	190	25
21	苯胺类	20	3
22	氯乙烯	36	10
23	光气	3	0.5
24	沥青烟	40	5

V. 环境污染对健康影响的诊断 Diagnosis of the impact of environmental pollution on health

环境污染受害人索偿难点之一，是如何证明环境污染物与健康损害存在因果关系。有很多测量方法可以检测污染物对人体健康的危害，常见有流行病学调查等。职业病危害因素与职业病诊断的因果关系，也透过此类方式确定。以下诊断标准也适用于环境污染的健康损害诊断标准。

铅、镉、砷、铬、汞污染所致中毒

a. 诊断机构

- 承担国家级和省级中毒救治基地职能的医疗机构
- 具备职业性铅、镉、砷、铬、汞中毒诊断资质的医疗卫生机构
- 卫生行政部门确定的承担铅、镉、砷、铬、汞污染人群中毒诊断的医疗卫生机构

b. 诊断标准⁴³

污染物	职业卫生标准	卫生行业标准	部门标准
铅	GBZ 37-2002 职业性慢性铅中毒诊断标准 ⁴⁴	WS/T 112-1999 职业接触铅及其化合物的生物限值	卫生部《儿童高铅血症和铅中毒分级和处理原则（试行）》
镉	GBZ 17-2002 职业性镉中毒诊断标准 ⁴⁵	WS/T 113-1999 职业接触镉及其化合物的生物限值	
砷	GBZ 83-2002 职业性慢性砷中毒诊断标准	WS/T 211-2001 地方性砷中毒诊断标准 WS 277-2007 地方性砷中毒病区和划分标准	
铬	GBZ 12-2002 职业性铬鼻病诊断标准		
汞	GBZ 89-2007 职业性汞中毒诊断标准		

目前，《职业病诊断标准》为职业病诊断的法定依据。其中 53 种，非职业性接触也可参照执行，即环境污染所导致的身体损害可参照诊断（详见附录 III）。

⁴² 同上

⁴³ 《重金属污染诊疗指南（试行）》（卫办医政发[2010] 171 号）

⁴⁴ 修订版 GBZ 37-2015 于 2016 年 5 月 1 日实施。

⁴⁵ 修订版 GBZ 17-2015 于 2016 年 5 月 1 日实施。

VI. 劳动能力鉴定 Labour ability appraisal

环境污染受害者索偿难点，还包括如何确立健康损害程度。目前，关于人身损害伤残等级鉴定标准有：

标准号/ 实施日期	名称	适用范围
GB 18667-2002	道路交通事故受伤人员伤残评定	道路交通事故受伤人员的伤残程度评定
GB/T 16180-2014	劳动能力鉴定——职工工伤与职业病致残等级	职工在职业活动中因工负伤和因职业病致残程度的鉴定
2014.1.1	人体损伤程度鉴定标准（司发通（2013）146号）	适用于《中华人民共和国刑法》及其他法律、法规所涉及的人体损伤程度鉴定

从上述标准的适用范围来看：在交通事故中受伤，伤残等级的鉴定适用《道路交通事故受伤人员伤残评定》标准；工伤的伤残等级鉴定适用《劳动能力鉴定——职工工伤与职业病致残等级》；其他应适用《人体损伤程度鉴定标准》。若根据《人体损伤程度鉴定标准（试行）》，我们发现其中仅列明肢体伤残级别，对于有机溶剂或重金属中毒等常见环境污染物质损害并无注明，无据可依。

环境污染受害者虽不属于工伤，但在无据可依的情况下，工伤职业病的评残标准，可作为参考，以了解污染物对健康影响的程度。

例：由于工业废水排放导致土壤和农作物长期受镉污染，当地居民检查发现尿镉超标，严重者已出现肾脏损伤，可根据《GB/T 16180-2014 劳动能力鉴定——职工工伤与职业病致残等级》进行伤残级别评估。

级别	内容
一级	肾功能不全尿毒症期，内生肌酐清除率持续 $<10\text{mL}/\text{min}$ ，或血浆肌酐水平持续 $>707\mu\text{mol}/\text{L}(8\text{mg}/\text{dL})$
二级	肾功能不全尿毒症期，内生肌酐清除率 $<25\text{mL}/\text{min}$ 或血浆肌酐水平持续 $>450\mu\text{mol}/\text{L}(5\text{mg}/\text{dL})$
五级	肾功能不全失代偿期，内生肌酐清除率持续 $<50\text{mL}/\text{min}$ 或血浆肌酐水平持续 $>177\mu\text{mol}/\text{L}(2\text{mg}/\text{dL})$
六级	①中毒性肾病，持续性低分子蛋白尿伴白蛋白尿； ②中毒性肾病，肾小管浓缩功能减退
七级	肾功能不全代偿期，内生肌酐清除率 $<70\text{mL}/\text{min}$
八级	中毒性肾病，持续低分子蛋白尿

VII. 环境污染补偿机制 The compensation mechanism for environmental pollution

环境破坏过程中的受害者主要是指：因环境受到破坏而使生命财产受到损失的个人，如身体受损、财产损失、生活变得不安定等。因环境受到破坏而使产品产量质量下降、财产损失的企业/个人，也应包括在环境破坏过程中的受害者之列。⁴⁶

确定环境污染与损害之间具有关联性后，对受害者补偿分为两方面，一方面是由环境污染造成的财产损害赔偿，如贵州吴某因中铁五局的噪声污染，导致养殖场出现蛋鸡大量死亡、生产软蛋和畸形蛋等情况，判决赔偿 45 万余元。⁴⁷

另一方面则是对受害者的健康损害赔偿。环境重金属污染健康损害赔偿采取一次性补偿和后续治疗补偿相结合的补偿方式。即首次认定为环境重金属污染健康损害的病例，根据健康受损等级，分别给予一定数额的一次性补偿；已获得一次性补偿仍需继续治疗的，根据认定的健康损害程度，分别给予医疗费、护理费、交通费、住宿费、住院伙食补助费、误工费、必要的营养费以及其他有关费用；定残后的残疾辅助器具费、残疾者生活补助费；被抚养人生活费；死亡补偿费、丧葬费；精神损害抚慰金等补偿。⁴⁸

a. 法律依据

- 《环境保护法》第 64 条：因污染环境和破坏生态造成损害的，应当按照《中华人民共和国侵权责任法》的有关规定承担侵权责任。
- 《侵权责任法》第 16 条：侵害他人造成人身损害的，应当赔偿医疗费、护理费、交通费等为治疗和康复支出的合理费用，以及因误工减少的收入。造成残疾的，还应当赔偿残疾辅助具费和残疾赔偿金。造成死亡的，还应当赔偿丧葬费和死亡赔偿金。
- 《侵权责任法》第 65 条：因污染环境造成损害的，污染者应当承担侵权责任”

《侵权责任法》对由于环境污染侵害生命权、健康权、所有权等人身、财产损害的赔偿做出了较为明确的规定，但对于环境污染导致公民环境权益损害的赔偿尚未明确。

b. 人身损害受害者补偿范围

民事赔偿范围：

① 精神损害抚慰金：

具体赔偿多少，根据所受到伤害的程度由法官酌情判定。

——《最高人民法院关于审理人身损害赔偿案件适用法律若干问题的解释》第 18 条

② 残疾赔偿金：

残疾赔偿金根据受害人丧失劳动能力的伤残等级，按照受诉法院所在地上一年度城镇居

⁴⁶ 厉以宁,章铮.第十七讲 环境保护与对受害者的补偿(上)[J].环境保护,1993,(第 12 期).

⁴⁷ 吴国金诉中铁五局(集团)有限公司、中铁五局集团路桥工程有限责任公司噪声污染责任纠纷案 <http://www.chinacourt.org/article/detail/2015/12/id/1777828.shtml>

⁴⁸ 刘占旗.环境重金属污染健康损害赔偿标准及指标体系研究[J].中国科技成果,2014,(第 21 期).

民人均可支配收入，或者农村居民人均纯收入标准，自定残之日起按 20 年计算。但 60 周岁以上的，年龄每增加一岁减少一年；75 周岁以上的，按 5 年计算。

计算方法：残疾赔偿金=受诉法院所在地上一年度居民人均收入×伤残系数×赔偿年限（伤残系数按一至十级伤残对应百分比系数分别为 100%至 10%）。

——《最高人民法院关于审理人身损害赔偿案件适用法律若干问题的解释》第 25 条

③ 后续医疗费：

如果受害者在一定的时间内还需要医疗依赖的，可以提出后续医疗费的赔偿。如果需要长期医疗依赖的，根据相关法律规定，最长按 20 年计算。后续医疗费包括：住院费、检查费、治疗费、药费、康复费等。其计算标准需要医疗机构出具证明或经司法鉴定机构鉴定，根据实际情况作出评估结论，来确定赔偿标准。

——《最高人民法院关于审理人身损害赔偿案件适用法律若干问题的解释》第 19 条

④ 被扶养人生活费：

被扶养人生活费根据扶养人丧失劳动能力程度，按照受诉法院所在地上一年度城镇居民人均消费性支出和农村居民人均年生活消费支出标准计算。被扶养人为未成年人的，计算至 18 周岁；被扶养人无劳动能力又无其他生活来源的，计算 20 年。但 60 周岁以上的，年龄每增加 1 岁减少 1 年；75 周岁以上的，按 5 年计算。

被扶养人是指受害人依法应当承担扶养义务的未成年人或者丧失劳动能力又无其他生活来源的成年近亲属。被扶养人还有其他扶养人的，赔偿义务人只赔偿受害人依法应当负担的部分。被扶养人有数人的，年赔偿总额累计不超过上一年度城镇居民人均消费性支出额或者农村居民人均年生活消费支出额。

——《最高人民法院关于审理人身损害赔偿案件适用法律若干问题的解释》第 28 条

计算方法：受诉法院所在地上一年度城镇居民人均消费性支出和农村居民人均年生活消费支出标准×伤残系数（按一至十级伤残对应百分比系数分别为 100%至 10%）×赔偿年限