



Green Beagle

China chemical safety case study: Industrial dumping at the Tuoketuo Pharmaceutical Industrial Park

In the frame of the EU-funded project: Strengthening the capacity of pollution victims and civil society organizations to increase chemical safety in China (China Chemical Safety Project)

IPEN and Green Beagle

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Introduction

This case study examines pollution from an affiliate company of China Shijiazhuang Pharmaceutical Group (CSPC) – a mega pharmaceutical enterprise with approximately 10 affiliates, 20,000 employees, ¥11.5 billion in assets (€1.39 million), and ranked as the second most profitable pharmaceutical company in China.¹ At issue is waste dumping of chemical solvents that illustrates key problems with industrial parks, waste management, information disclosure, and the role of local government in enforcement of environmental laws. In the Tuoketuo Pharmaceutical Industrial Park, dumping occurs by direct discharge to vast evaporation ponds – resulting in a direct threat to groundwater. The practice violates Chinese law which requires that all waste water should be treated before release into evaporation ponds. Ironically, the local government built the ponds after receiving payment from the companies for the land to store the wastes. Unfortunately, the scale of pollution has resulted in deep resentment in the community that sees local government officials as primarily protecting the continued dumping of toxic chemicals.



The vast waste water evaporation pond at the Tuoketuo Pharmaceutical Industrial Park

Waste management problems at Tuoketuo Pharmaceutical Industrial Park

The Tuoketuo Pharmaceutical Industrial Park contains more than 25 manufacturing facilities and primarily hosts pharmaceutical plants and biotechnology companies. Some of China's most well-known companies operate plants there including Shiyao Zhongrun (one of China's largest producers of bulk antibiotics and affiliate of CSPC), Shenzhou Pharmaceutical (a large producer of generic steroids) and Zhongmu Bio-Pharmaceutical (a large producer of veterinary antibiotics and feedstuff additives).

Shiyao Zhongrun (石药集团中润制药(内蒙古)有限公司) built what is considered to be one of the largest antibiotic production plants in the world in Tuoketuo with major products including antibiotics such as Penicillin, Amoxicillin, and Cephalosporins. The large size of the plant is reflected in the company's waste outputs as Shiyao Zhongrun's waste discharge accounts for 40% of the entire industrial park.

Several problems have emerged with Shiyao Zhongrun's waste management practices. On May 18, 2011, the Inner-Mongolia provincial government fined the company 514,600 CNY (€62,737) for illegally discharging waste water into municipal sewers. A worker at the company told Project personnel that the company had violated waste dumping laws at least three other times in 2005, 2006 and 2009. The toxic substances that the pharmaceutical plants discharge include high levels of solvents such as acetone, butanol, butyl acetate, toluene, and others. The waste water eventually flows to Wushijia Town that is 20 km from the industrial park. Media reports confirmed by corporate management at the industrial park estimate that companies discharge one million tonnes of toxic waste water each year.

In 2011, United Water, a Shanghai water treatment company entered the industrial park and started to provide waste water treatment service for the plants in the park. However, the chemical oxygen demand (COD) of the water discharged from some of the plants exceeded 300 ppm, a maximum level agreed upon level for treatment. As a result, some pharmaceutical plants were ordered to stop operating. Note that COD is a rough, indirect measure of organic compounds and is commonly used in waste water treatments to determine when water can be returned to the environment.

The water pollution from Tuoketuo also impacts nearby villages. Ironically, local governments view the polluted ponds as an economic benefit since the plants pay them for the land. However, waste water evaporation ponds located at Guandiyang Village and Shulin Village have reported COD levels over 10,000 ppm, with the highest measured level of 36,000 ppm. In contrast, EU limits for these types of facilities are 125 ppm. Although local authorities claimed that the waste water evaporation ponds had been lined, actually the waste water had leaked into to the ground water. No treatment facilities exist at the ponds.

The pollution and the deep community resentment over the matter have caught the attention of corporate officials at Shiyao Zhongrun. In December 2012, Project personnel met with a medium-level officer from the company to discuss the problem. The dialogue has continued since then, along with the pollution.

Ground water testing reveals toxic chemicals

Project personnel contacted notified a journalist about the situation who then collected ground water samples from the area in April 2012 and submitted them for testing at a laboratory utilized by the government Food and Drug Administration. The results demonstrated violation of Chinese law for three characteristics: turbidity (twice the national standard); fluoride (1.8 times higher than regulatory limits); and arsenic (4.8 times higher than regulatory limits). Professor Wu Zhigang (Huazhong University of Science and Technology) expressed concern over the levels of toxic metals measured in the samples noting that long-term ingestion of this water would lead to serious health effects including deformation of fingers and spine, and result in complete disability. In May 2012, the Project in collaboration with Greenovation sampled drinking water and ground water at the site. Taken together, the results shown below demonstrate violations of Chinese regulatory limits for arsenic, fluoride, chloride, sulfate, total dissolved solids, and total hardness. The high arsenic level is of special concern since arsenic is a known human carcinogen.

Tested	Sample #1 ^a	Sample #2 ^b	Sample #3 ^c	Drinking water quality standard (GB5749—2006)	Ground water quality standard (III) (GB/T 14848-93)	US limit ^d
Arsenic	0.8 ug/L	0.6 ug/L	80 ug/L	10 ug/L	50 ug/L	10 ug/L
Fluoride	1.81 mg/L	0.56 mg/L	1.36 mg/L	1.0 mg/L	1.0 mg/L	2 mg/L
Nitrate	4.01 mg/L	9.46 mg/L	1.02 mg/L	10 mg/L	20 mg/L	10 mg/L
Chloride	90.0 mg/L	430 mg/L	227 mg/L	250 mg/L	250 mg/L	250 mg/L ^e
Sulfate	47.7 mg/L	299 mg/L	228 mg/L	250 mg/L	250 mg/L	250 mg/L ^e
Total diss solids	571 mg/L	1380 mg/L	901 mg/L	1000 mg/L	1000 mg/L	500 mg/L ^e
Total hardness (CaCO ₃)	294 mg/L	466 mg/L	100 mg/L	450 mg/L	450mg/L	
COD*	0.20 mg/L	0.24 mg/L	0.48 mg/L	5 mg/L		
Total organic carbon	0.9 mg/L	<0.05 mg/L	0.6 mg/L			
Benzene	0.08 ug/L	0.04 ug/L	0.13 ug/L	10ug/L		5 ug/L

^a Drinking water at Guandiying, 40° 23' 36.00" N; 111° 22' 21.59"

^b Tap water at Guzhiao, 40° 22' 41.81" N;111° 24' 15.42" E

^c Backup well water at Guzhiao, 40° 22' 41.81" N;111° 24' 15.42" E

^d US Safe Drinking Water Act

^e US National Secondary Drinking Water Regulations

*consumed oxygen calculated by O₂

Information disclosure at Tuoketuo

In July 2013, Project personnel sent an environmental information disclosure application to the Inner Mongolia government and requested the release of the Environmental Impact Statement as

required by Chinese law. In addition, the request included pollution monitoring records of all the plants at the Tuoketuo Pharmaceutical Industrial Park, and any testing reports on ground water quality. No response was received as required by law. In addition, Project personnel have learned that a new EIA notice has been filed for more industrial activity at the Park. This raises concerns about future increases in waste dumping before current problems have been resolved.

Conclusion

The Tuoketuo Pharmaceutical Industrial Park is part of a larger trend in China in which polluting facilities are moved from Eastern China, where they are highly visible, to other parts of China in the west and north where they are less visible and enforcement is even weaker. Since Tuoketuo is far from economically developed information centers, the affected community cannot readily publicize their situation or seek solutions guaranteed to them under Chinese law. In addition, the case study highlights the conflict between enforcing pollution laws and economic benefits to local governments. At Tuoketuo, the local government does not monitor pollution. In fact, local residents indicate that government officials even help companies operating in Tuoketuo to avoid monitoring. In addition, instead of economic pressures of fines and other measures forcing less pollution, local government officials receive an economic benefit for facilitating pollution with the unprotected evaporation ponds.

The Tuoketuo case study provides opportunities for improvements in several areas:

Private sector waste management practices

Manufacturers should take responsibility for the full lifecycle of their operations – and that includes wastes generated during industrial processes. In the Tuoketuo case, the companies do not appear to comply with Chinese law and pollute the surrounding communities with impunity. These activities violate the Water Pollution Prevention and Control Law, National Standards, and the environmental monitoring responsibility of the local EPB. Companies should also take aggressive measures to prevent formation of wastes in the first place. Finally, China is a Party to the Basel Convention which obligates Parties to take appropriate measures to ensure that the generation of hazardous wastes and other wastes is reduced to a minimum.

Enforcement of waste management laws

Rigorous enforcement of Chinese law would have identified and addressed this problem much sooner rather than letting journalist and Project activities reveal the extent of the contamination. These relevant aspects of the law should be enforced:

- Illegally discharge, dumping and disposal of at least three tonnes of hazardous waste;
- Pollution that results in functional or permanent damage to at least 5 mu (3333 m²) of basic agricultural fields, protected forest or special forest land, or at least 10 mu (6666 m²) of other types of agricultural fields, and at least 20 mu (13,333 m²) of other types of land.

Information disclosure

Public right to know is a key principle of chemical safety but the community was never informed about the identity or possible danger of tons of toxic solvent waste openly dumped in vast evaporation ponds. Public access to data about plant emissions including wastes should be

regularly provided via an accessible, free, pollutant release and transfer registry. Finally, companies should comply with Chinese law surrounding EIA requests. Project personnel EIA requests filed under lawful procedure have been ignored.

Effective remediation

Companies should take responsibility for contamination resulting from manufacturing activities at the Park including financial support for independent assessment of pollution to air, land and water, and subsequent cleanup. A cleanup fund should be established at the Park as a requirement for continued operation. This fund would be used to pay for independent assessments and cleanup so that the financial burden does not fall on the local governments.

Media reports

CCTV: “The uncontrolled illegal waste water discharge of the companies in Tuoketuo Pharmaceutical Industrial Park, Inner-Mongolia”

<http://www.clean.ngo.cn/bghbd/89.html>

<http://finance.sina.com.cn/chanjing/gsnews/20130504/000015345641.shtml>

<http://news.sohu.com/20120116/n332321439.shtml>

<http://www.cqn.com.cn/news/cjpd/522585.html>

http://zhuanti.hebnews.cn/2011/2011-12/02/content_2410371.htm

<http://www.pinzhi.org/thread-3960-1-1.html>

http://www.nmgtx.gov.cn/zwgk/gw_play.asp?id=919

http://news.xinhuanet.com/politics/2012-01/11/c_111418422.htm

<http://health.sohu.com/20120112/n331958029.shtml>

<http://finance.591hx.com/article/2012-01-12/0000113082s.shtml>

<http://economics.dwnews.com/news/2012-01-11/58505573.html>

http://economy.gmw.cn/2012-01/16/content_3396441.htm

http://health.dzwww.com/jkxw/baoguang/201202/t20120202_6886281.htm

About the China Chemical Safety Project

This is an EU-funded project of IPEN with partner Green Beagle that aims to strengthen the capacity of civil society organizations and communities impacted by pollution to increase chemical safety in China. The Project (also known as the China Chemical Safety Project) is being implemented in China over two years with total EU funding of €344,580 and EU contribution of 77.84% of the total cost.

The Project includes:

- Improving capacities of impacted communities and civil society organizations for involvement in policy making
- Training on public participation in environmental impact assessment
- Generating new publicly available data about pollution and impacted communities that contribute to increased implementation of local and national chemical safety policies
- Raising awareness on emissions-related pollution



European Union

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References

¹ <http://www.e-cspc.com/english/profile.aspx>