

Investigative Report Summary: Shared Bicycle Supply Chain Pollution Issues

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Almost overnight, colorful shared bicycles created a new landscape for major cities across China. An emerging industry based on network technology, shared bicycles solve the critical 'last-mile' issue for public transportation, making travel throughout the city more convenient and low-carbon.

However, the industry relies on the large-scale production of new bicycles, which produce vast amounts of greenhouse gases and chemical emissions during the manufacturing process. Furthermore, users do not own the bicycles and do not bear the responsibility of maintaining them, leading to a high damage rate, shorter life-cycles and more pollution from bicycles that must be decommissioned and thrown away.

According to the China Bicycle Association, nearly 20 brands put two million shared bicycles on the street in 2016.¹ As of July 2017, more than 16 million bicycles were online across China.² Considering the growth and scale of the industry, we must consider its environmental impacts as well as its benefits.

The greatest environmental impact of a bicycle comes from the manufacturing process, which calls for metal, plastic and rubber raw materials to undergo stamping, welding, heating and sanding. These manufacturing procedures produce exhaust emissions of sulfur dioxide, nitrogen oxide, smoke and dust, as well as VOCs; industrial wastewater with chromium, nickel, acid and alkali; and solid waste from metal and rubber scraps.

Responsible manufacturing can minimize a company's environmental footprint. However, some manufacturers choose to cut corners to produce faster or lower upfront costs. To identify supply chain pollution issues, the Institute of Public and Environmental Affairs (IPE) found the manufacturing suppliers of the leading bike-share companies in China, Mobike and Ofo, and uploaded a list of their suppliers to the Blue Map Database, finding multiple environmental violation records among their suspected suppliers.

1. Chaohu Yunhai Magnesium Industry Co., Ltd. and Nanjing Yunkai Alloy Co., Ltd., subsidiaries of a Mobike magnesium alloy supplier, both received environmental violations between 2014 and 2016. In 2014, Chaohu Yunhai Magnesium was reprimanded for inadequate equipment to capture its dust and exhaust emissions. Nanjing Yunkai Alloy received official violation records in 2014, 2015 and 2016 for failing to use its air pollution treatment facilities properly, as well as public complaints regarding their exhaust emissions, which failed to meet regulatory treatment standards.³

¹ <http://money.163.com/17/0620/14/CNCLUQJB002580S6.html>

² <http://tech.sina.com.cn/i/2017-08-08/doc-ifvitapp2429906.shtml>

³ <http://www.hfepb.gov.cn/show.aspx?NType=2&NewsID=15880>

2. Four suspected suppliers of Mobike and Ofo's pneumatic and/or maintenance-free airless tires, a critical element of durable shared bikes, were also found with significant environmental violations. The most severe violations included Zhongce Rubber Group Co., Ltd.'s air pollutant emissions, which exceeded their company permit in 2015, and its improper use of water pollutant treatment equipment in 2015. Jiantai Rubber (Shenzhen) Co., Ltd. also exceeded their permit allocation, discharging excess phosphorus and ammonia nitrogen pollutants in 2017.⁴
3. A Taizhou production base for one of Ofo's brake suppliers, Jiangsu Yongling Car Industry Co., Ltd., was punished in both 2014 and 2015 by the Taizhou environmental protection bureau (EPB) for exceeding national water pollutant discharge standards, receiving a yellow environmental credit rating for both years.⁵
4. Taicang Xinlong Cycle Parts Co., Ltd., a supplier of Mobike's bicycle handlebars, handlebar cushions and other accessories, also received multiple violations between 2014 and 2016 for excess wastewater pollutants, failing to establish proper sewage outlets and failing to adequately operate its air emissions treatment facilities. The company received the lowest possible environmental credit rating, a black rating, in 2016.⁶
5. In 2017, Tianjin Fuji-ta Bicycle Co., Ltd., a primary foundry for Ofo, received a public complaint for "painting at night" and "chemical odors from rubber and other materials". The Tianjin EPB confirmed both complaints and asked the company to temporarily halt production for part of its operations in order complete the construction of their exhaust emissions treatment facilities, a task the company failed to complete in a timely manner for several workshops.⁷ An earlier record from 2016 also shows that the company's environmental impact assessment (EIA) documents were not approved or reviewed according to legal standards by the time it began construction.⁸
6. Phoenix (Tianjin) Bicycle Co., Ltd., a production base of the Shanghai Phoenix Enterprise (Group) Co., Ltd., with which Ofo signed a purchasing contract for five million bicycles,

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=138875&dataType=0&isyh=0>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=138880&dataType=0&isyh=0>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=1478230&dataType=0&isyh=0>

⁴https://weibo.com/3585798505/F6HPpb0jw?from=page_1006063585798505_profile&wvr=6&mod=weibotime&type=comment#_rnd1511072125188

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=103700&dataType=0&isyh=0>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=189401&dataType=0&isyh=0>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=356348&dataType=0&isyh=0>

<http://wwwwen.tireworld.com.cn/news/info/enterprise/2017620/25449.html>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=12931&dataType=0&isyh=0>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=297649&dataType=0&isyh=0>

http://www.sohu.com/a/130938065_551515

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=307459&dataType=0&isyh=0>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=496415&dataType=0&isyh=0>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=204267&dataType=0&isyh=0>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=76850&dataType=0&isyh=0>

<http://www.csttires.com.cn/Introduction.php>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=203827&dataType=0&isyh=0>

<http://www.tireworld.com.cn/news/info/enterprise/2017313/24469.html>

<http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=689156&dataType=0&isyh=0>

⁵ <http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=31281&dataType=0&isyh=0>

⁶ <http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=79542&dataType=0&isyh=0>

⁷ <http://mt.sohu.com/20170405/n486688551.shtml>

http://www.tjhb.gov.cn/root16/mechanism/office/20170511_27154.html

⁸ <http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=372097&dataType=0&isyh=0>

also received a violation record for starting production without authorization and discharging exhaust emissions from spray paint without any treatment.⁹

7. Shenzhen XDS Bicycle Co., Ltd., another foundry for shared bike companies, received a similar violation record for starting production without the proper authorization for their environmental protection facilities.¹⁰

Regarding the aforementioned violation records, IPE repeatedly sent letters to Mobike and Ofo to draw their attention to these supply chain impacts and encourage them to assume responsibility for their social and environmental consequences. A Mobike representative visited the IPE office on July 6, 2017 and worked with IPE to motivate Taicang Xinlong Cycle Parts Co., Ltd. to respond to their environmental records by publishing an explanation stating the reasons for their violations, their present status of environmental compliance, and their 2015-2017 wastewater monitoring reports.¹¹ Ofo also communicated with IPE multiple times via email and meetings since June 2017, motivating Phoenix (Tianjin) Bicycle Co., Ltd. to provide a public statement explaining that the operating address of its factory had been changed and the EIA documents for the new factory area were still under review.¹² Beyond these interactions, however, neither Mobike nor Ofo have searched or responded to the environmental concerns among their other suppliers.

Effective recycling for damaged bicycles also remains a serious issue. According to a CCTV News survey in March, shared bicycle repair stations can receive more than 400 bicycles per day, of which nearly 20% will be scrapped.¹³ Although Mobike previously cooperated with the China Recycling Development Co., Ltd. in May 2017 to propose a fully closed loop production system to recycle used Mobikes, it has not yet disclosed how the 30,000 old bicycles recovered in Shenzhen in November were disposed of.¹⁴

On December 5, 2017, the United Nations Environment Program awarded this year's "Guardian of the Earth" award to Mobike in recognition of the company's contributions to sustainable travel, air pollution reduction and climate change response.¹⁵ However, whether shared bicycles improve green transportation or not, the industry needs to pay attention to the load and impact of new bicycles on the environment throughout their entire life cycle, particularly during production and retirement. To this end, we hope that brands such as Mobike and Ofo will resume the environmental compliance screening of their existing suppliers and recycling partners as soon as possible and ensure that problems are addressed until fully resolved.

Note: To read the full report, please refer to the [Chinese version](#) on the IPE website.

⁹ <http://nb.zol.com.cn/638/6385204.html> (Accessed December 1, 2017)

¹⁰ <http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=172042&dataType=0&isyh=0>

¹¹ <http://www.biketo.com/industry/34928.html>

¹² <http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=75058&dataType=0&isyh=0>

¹³ <http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=79542&dataType=0&isyh=0>

¹⁴ <http://wwwwen.ipe.org.cn/IndustryRecord/regulatory-record.aspx?companyId=172042&dataType=0&isyh=0>

¹⁵ <http://shanghai.xinmin.cn/msrx/2017/03/19/30905083.html>

¹⁶ <http://www.sh.chinanews.com.cn/chanjing/2017-05-04/22339.shtml>

¹⁷ http://www.cenews.com.cn/xzb_3498/sh/cx/201712/t20171213_861275.html