

# Air and water pollution in three cities

[Environment](#), [Air](#)



Single Zheng Modern lifestyle and technological development are increasingly giving rise to problems of pollution, especially in the developing world. Groundwater contamination, artisanal gold mining, urban air pollution, radioactive waste and uranium mining and other six environmental problems have been considered as the “ Top 10 Pollution Problems” in year 2009.

Blacksmith Institute Green Cross Switzerland WWPP Report, 2009) In this essay, the writer is going to illustrate the causes and effects of the water and air pollution in Candelaria (Chile), Rangoon (Burma) and Chernobyl (Ukraine), identify what measures are taken in these cities and find out which the most effective strategies are.

Candelaria is a city of great water and air pollution problems. Mining, which may unavoidably cause the heavy metal to leach into the drinking water and more particulate matter and other exhaust gases such as carbon monoxide and sulphur dioxide to rise into the air<sup>1</sup>, is one of the mainstay industries in Candelaria. There, the copper mine tailings in Candelaria have been contaminating the drinking water during the past decades, bringing great inconvenience and hazards to the local residents. While the original rock is crushed, the valuable constituents are separated.

But, at the same time, toxic materials such as cyanide, which is used to dissolve these metals and their ores, are also flooded into the surrounding streams. Cyanide is a highly poisonous chemical which can affect the heart and central nervous system if a human is exposed to it. “ Short-term exposure causes brain damage and coma. Miners exposed to high levels of heavy metals could experience breathing difficulties, chest pains, vomiting and enlargement of thyroid glands.

(US CDC) Also, breathing in the air which contains higher levels of PM and other motor exhaust will reduce the ability of oxygen delivery in human body, and cause respiratory diseases as well. 2 As the water resources are integral to those desert regions, the Chilean government determined to remedy the situation: set up a component of 450-hectare tailings disposal facility and stop cyanide poisoning via filtrating the waste through multiple phases. They also required those mining companies to cover the stock heap with dust screens to cut off the root cause of air pollution. But the report said that these treatments can extract and treat a majority of the tailing water, while the rest 20% is still hard to neutralize, and air pollution still exists. Rangoon is another city which is facing air and water pollution problems, which are mainly caused by leaded fuel burning.

Air quality worldwide is typically lower in those densely populated and inadequately afforested cities. Millions of citizens commute from their home to their office which, unavoidably, increases the lead emissions in the air. Those lead-containing PM are easily dissolved into the rain drops and leached into drinking water<sup>3</sup>. Lead poisoning can damage human's central nervous system, cause cardiovascular problem in adults, slow down the intellectual development of children and even threaten the reproductive ability of women. 4 In Rangoon, which is considered as one of the most heavily lead-poisoned cities, people are more likely to choose leaded gasoline, since they are generally more inexpensive than the unleaded ones, continuously polluting the air and water there.

It is believed that it is the lack of governmental support that jams the switch to the usage of unleaded fuel. In some parts of Burma, the government is offering subsidy to facilitate the phase-out of the leaded gasoline. And after these measures have been taken, Blacksmith Institution reported that according to the EPA, " Only 11 countries continue to use leaded gasoline and among these, only three used leaded gas exclusively" 5. Chernobyl has been known for decades for the nuclear accident which happened there on April 26th, 1986. Reactor number four at the Chernobyl plant exploded, sending a plume of radioactive fallout into the atmosphere, ruined the whole city and caused 4, 000 cancer deaths and up to 93, 000 kills.

The plume was spread by fire and strong wind, contaminating both the air and water in not only Chernobyl but also the whole eastern Europe. Animals and plants in these radioactive regions suffered a lot. It is said that four square kilometers of pine forest in the immediate vicinity of the reactor turned reddish-brown and died, and some cattle on the same island died and those that survived were stunted because of thyroid damage. (Chernobyl disaster, Wikipedia)<sup>7</sup> Being exposed to radioactive particles may induce all kinds of cancer, genic mutation and may even trigger certain mental disease. In order not to aggravate the damage, over 336, 000 citizens are required to evacuate from Chernobyl.

Strict restrictions have been set by the governments on importing mushrooms and milk, just in case that the radioactive elements would get into human's food chain. Rehabilitation camps were also set to offer medical treatment to these endangered citizens. " More than 14, 600 children have

participated in youth therapy camps—in these healthful and comforting surroundings it is typical for their radioactivity exposure levels to drop by 30 to 80 percent. ” 8Among those three cities, all of them have achieved remarkable success in remedying the air and water pollution problems there.

Although Chernobyl and Rangoon are also making progress, Candelaria’s strategies seem more effective. With the help of the new technology, Candelaria government is showing their ability in solving new problems in an effective way. In conclusion, with the development of human civilization, more and more environmental problems which were caused by industrial revolution and rejuvenation are increasingly arousing our concern for the future of our planet. According to the problems and solutions that the writer has described above, three cities are all devoting their human and financial resources to fixing the problems.

References: 1. Air pollution, EPA, March 4th, 2010 Online at: <http://www.epa.gov/ozonepollution/> 2. Ibid 3.

Water pollution, EPA, March 7th, 2010 Online\_at: [http://www.informaction.org/cgi-bin/Page.pl? menu= menua.txt&main= waterpoi\\_gen.txt&s= Water+sewage](http://www.informaction.org/cgi-bin/Page.pl? menu= menua.txt&main= waterpoi_gen.txt&s= Water+sewage) 4. New directions: Air pollution and road traffic in

developing countries Online at: [http://www.ea.ac.uk/\\*\\*e044/newd.html](http://www.ea.ac.uk/**e044/newd.html) 5. Blacksmith Institute Green-Cross Switzerland WWPP

Report 2009 Online at: <http://www.worstpolluted.com>

org/files/FileUpload/files/2009-report/ 6. CDC's National Surveillance Data (1997-2007) Online at: <http://www.cdc.gov/nceh/lead/data/national.htm> 7. Chernobyl disaster Online at: [http://en.](http://en.wikipedia.org/wiki/Chernobyl_disaster)

[wikipedia.org/wiki/Chernobyl\\_disaster](http://www.worstpolluted.org/projects_reports/display/67) 8. Nuclear Contamination Chernobyl-Affected Zone, Eastern Europe Online at: [http://www.worstpolluted.org/projects\\_reports/display/67](http://www.worstpolluted.org/projects_reports/display/67)