

Let's Not Get Poisoned!

In 1908, Chisso Corporation opened a chemical factory making fertilizer in Minamata, Japan. When fishermen noticed fish catch reductions in 1926, the company compensated and continued business as usual. By 1932, Chisso switched from manufacturing fertilizer to acetaldehyde, a chemical intermediate in the synthesis of other chemicals to produce products like perfume and food preservatives (EPA 1987). As fish catch reductions persisted, other issues arose, including cases of cat's dancing disease, birds unable to fly, and humans experiencing symptoms of delirium, speech disturbances, and decreased visual field. Public health officials discovered that methylmercury (MeHg), an organic compound that impairs neurological development, such as cognitive thinking and motor skills (WHO 2017), bioaccumulated in aquatic organisms and poisoned citizens consuming them. A catalyst of the company's acetaldehyde production, mercury sulfate, discharged into Minamata Bay through wastewater and reacted with methanogenic bacteria to produce MeHg. Although MeHg was not directly discharged by Chisso, the company must be held accountable for the indirect neurological and social damage caused by their irresponsibility to dispose or treat their wastewater properly. To prevent more individuals from getting MeHg poisoning, consumption of fish and shellfish should be restricted, Chisso's mercury sulfate byproduct should be disinfected and recycled, and legal action against Chisso Corporation should be initiated to pressure the company into cooperating.

Preventing further exposure to MeHg, consumption of fish and shellfish should cease and legal action against Chisso Corporation should be taken for the sake of Minamata citizens and the environment. Since MeHg contaminated the marine life downstream of Chisso's wastewater discharge point and impaired neurological development, the Minamata fisheries must halt trawling and citizens avoid fish and shellfish consumption. In the meantime, public health

officials should take samples of the Minamata Bay soil to test exposure levels so that more knowledge of methylmercury thresholds could be developed. Simultaneously, the Minamata government should collaborate with the federal government to seek legal action against Chisso Corporation for polluting mercury sulfate and not acknowledging its consequences. Citizens, in conjunction with the government, must demand Chisso to initiate wastewater treatment and reuse it in production. Wastewater treatment accelerates the process at which the polluted water purifies itself so that it's safer for disposal or reuse (EPA 1998). This way, Chisso would be held accountable for their past and future actions. Another possibility is to demand the company to find an alternative process in creating acetaldehyde so that it doesn't involve discharging large quantities of toxicants in wastewater. As a chemical company that has the intellectual and monetary means to invest in alternative acetaldehyde production processes, Chisso must either satisfy requests or be banned from manufacturing acetaldehyde. Whereas finding an alternative process may be more complicated for the company to reconfigure, wastewater treatment would maintain the integrity of their product. While lawsuits take longer to pursue, halting fish and shellfish consumption is quicker and more feasible because citizens want to avoid getting MeHg poisoning too. Despite the time variations, all of these steps must be taken to immediately prevent further exposure to MeHg, understand the consequences of certain MeHg exposure levels, and place stricter regulations on chemical factories.

For many lives were affected by Chisso Company's lack of responsibility, governmental entities, public health organizations, and businesses should use this incident as motivation to take caution and provide strict regulations for human and environmental health. While treatment methods are desirable to temporarily fix detrimental outcomes, structural changes are necessary to prevent future incidents, like Minamata's, from happening again.

References

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