**Submission to Mr. David Boyd, UN Special Rapporteur on Human Rights and the Environment and Mr. Marcos Orellana, UN Special Rapporteur on Toxics and Human Rights**

Asian Citizen’s Center for Environment and Health (ACCEH): Yeyong CHOI, director, choiyy@kfem.or.kr

International Pollutants Elimination Network (IPEN): Joe DiGangi, IPEN Special Advisor, onemorejoe@protonmail.com

Via email to srenvironment@ohchr.org and srtoxicshr@ohchr.org with SR Environment & Toxics/Toxic-free Places included in the subject line

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This submission is in response to a [call](https://www.ohchr.org/EN/Issues/Environment/SREnvironment/Pages/ToxicFree.aspx) for inputs on toxic-free places to live, work, study and play for a joint report to be presented to the UN Human Rights Council in 2022. Asian Citizen’s Center for Environment Health ([ACCEH](http://eco-health.org/)) is a public interest non-governmental organization based in South Korea and has worked since 2010 to conduct research on environmental pollution and support the health and safety rights of citizens exposed to toxic substances.

**Summary**

Since most people spend approximately 90% of their time [indoors](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7215772/), a safe and healthy indoor environment is a key human rights issue. The ongoing humidifier disinfectant tragedy in South Korea serves as [case study](https://koreascience.or.kr/article/JAKO201925454134049.page) in hazardous chemicals used in consumer products and accompanying human rights issues as it represents the [largest](https://www.eaht.org/journal/view.php?number=764) number of deaths known to be caused by a home consumer product.

In South Korea, humidifiers are widely used during the dry winter and humidifier disinfectants were sold to consumers to inhibit microbial growth in the water tanks of humidifiers. Elements of the humidifier disinfectant tragedy include:

**Severe harm**:

According to government agencies, as of 30 Sep 2021, the humidifier disinfectant tragedy has [killed](https://www.healthrelief.or.kr/home/content/stats01/view.do) 1,717 people – mostly infants, their mothers and elderly people. A total of 7,576 cases of humidifier disinfectant-associated lung damage and other harmful effects have also been reported. However, a 2019 government survey [estimated](https://www.e-jehs.org/journal/view.html?pn=search&uid=1981&vmd=Full&all_k=Humidifier%20disinfectant&) that 9.94 million people could have been exposed to humidifier disinfectants and that nearly 1 million people experienced health damage including 20,000 deaths. This scale of death and health damage has not been seen in South Korea since the Korean War in the 1950s.

**Double standard and scientific fraud**:

UK-based Reckitt (formerly Reckitt Benckiser) sold [47%](https://www.e-jehs.org/journal/view.html?pn=search&uid=1981&vmd=Full&all_k=Humidifier%20disinfectant&) of the toxic humidifier disinfectants on the South Korean market but could not sell the same products in the UK due to laws prohibiting use of their toxic ingredients. After harm to Korean consumers became apparent, Reckitt engaged in [scientific fraud](https://en.yna.co.kr/view/AEN20161014005700315) by paying two Korean university professors to publish papers exonerating their toxic humidifier disinfectant products. Ironically, the company’s [slogan](https://www.reckitt.com/) is *“protect, heal, and nurture.”*

**Lack of corporate accountability**:

None of the companies producing humidifier disinfectants tested the respiratory safety of these chemicals despite the fact that they would be used in a humidifier and inhaled by consumers. Mr. Gaurav Jain, a former Reckitt CEO in South Korea, fled to India to avoid charges as Korean prosecutors [revealed](http://www.gfr.co.kr/news/articleView.html?idxno=14414) that Reckitt had concealed evidence showing that the company knew that the principal active ingredient of its product, PHMG, was toxic. Mr. Jain is still working for Reckitt in India and is currently on Interpol’s [Red Notice](http://www.gfr.co.kr/news/articleView.html?idxno=14414) list.

**Inadequate remedies**:

The South Korean government [established](https://www.kdca.go.kr/board/board.es?mid=a20501010000&bid=0015&list_no=9368&cg_code=&act=view&nPage=1) the link between humidifier disinfectants and harm to human health in 2011. Ten years later, a very small [fraction](https://www.healthrelief.or.kr/home/content/stats01/view.do) of potential victims has been registered (0.8%); nearly half of the reported cases have been delayed in processing or declined (56%); and of the cases actually recognized by the government only 15% have been compensated by the responsible companies. The 2018 law designed to address this tragedy has loopholes that pave the way for a repeat of this painful experience.

Key human rights issues in the humidifier disinfectant tragedy include:

* Right to a safe and healthy environment
* Right to information
* Right to science in the context of toxic substances
* Rights of children
* Right to an effective remedy

**Introduction**

In South Korea, humidifiers have been widely used at home and in hospitals to prevent cough and to ease breathing for patients, especially during the dry winter. To address the issue of possible microbial contamination, in 1994, SK Chemical developed and began selling a toxic chemical-containing humidifier disinfectant that consumers could add to the water tank to inhibit microbial growth. SK Chemical [advertised](https://www.e-jehs.org/journal/view.html?pn=search&uid=1799&vmd=Full&page=2&all_k=%EB%B0%95%EB%8F%99%EC%9A%B1&) its product as *“no harm for human at all.”* Reckitt appealed to consumers by [describing](https://www.e-jehs.org/journal/view.html?pn=search&uid=1799&vmd=Full&page=2&all_k=%EB%B0%95%EB%8F%99%EC%9A%B1&) its humidifier disinfectant product as, *“safe for children.”*

**Widely used products and a double standard**

The market for humidifier disinfectant products grew rapidly. At least 48 different but similar brands emerged on the Korean market. By 2011, at least 9.98 million humidifier disinfectant [products](https://www.koreascience.or.kr/article/JAKO202025356104373.page) had been sold to the public. Companies that produced these products included the market leader, Reckitt – a UK company that could not sell the products containing these toxic chemicals in the UK due to regulatory restrictions. Other producers included: TESCO (UK), Henkel (Germany), Daiso (Japan) and a variety of South Korean companies such as SK, LG, Aekyung, Samsung, E-mart, Lotte, and GS.

**Government identifies links to severe lung damage and death**

Severe health issues emerged as humidifier disinfectant use continued. In 2011, the South Korean Ministry of Health and Welfare and the Centers for Disease Control (CDC), [revealed](https://www.kdca.go.kr/board/board.es?mid=a20501010000&bid=0015&list_no=9368&cg_code=&act=view&nPage=1) that humidifier disinfectant use caused severe respiratory disorders and even death with a 47.3 odds ratio. Note that an odds ratio greater than 1 means that there is a higher probability of lung damage due to humidifier disinfectant exposure. The South Korean CDC also confirmed that the chemical ingredients in the humidifier disinfectant products penetrated the respiratory system.

Further investigations [revealed](https://www.eaht.org/journal/view.php?number=796) that the ingredients in humidifier disinfectants included added toxic chemical substances such as polyhexamethylene guanidine (PHMG), oligo(2-[2-ethoxy]ethoxyethyl) guanidinium chloride (PGH), methylisothiazolinone (MIT), chloromethylisothiazolinone (CMIT), N-alkyldimethylbenzylammonium chloride (BKC) and sodium dichloroisocyanurate (NaDCC). Surprisingly, none of the companies producing humidifier disinfectants tested the respiratory safety of these chemicals despite the fact that they would be used in a humidifier and inhaled by consumers.

**A large-scale disaster**

The scale of the humidifier disinfectant tragedy is significant. In 2017, the South Korean Ministry of Environment estimated that 3.5 - 4.0 million people were exposed to toxic humidifier disinfectants at home and that 490,000-560,000 people experienced health damage including pulmonary fibrosis, interstitial lung disease, and others (Republic of Korea (2017). Establishing disease identification and standards criteria to expand the range of health hazards caused by the humidifier sterilizer. Ministry of Environment. NIER-SP2016-429).

According to government agencies, as of 30 Sep 2021, the humidifier disinfectant tragedy has [killed](https://www.healthrelief.or.kr/home/content/stats01/view.do) 1,717 people – mostly infants, their mothers and elderly people. A total of 7,576 cases of humidifier disinfectant-associated lung damage have also been [reported](https://www.healthrelief.or.kr/home/content/stats01/view.do) and government certification has been provided to 4,258 people – about half of the total cases (56%). This scale of death and health damage has not been seen in South Korea since the Korean War in the 1950s.

In 2019, a special government agency created to deal with the humidifier disinfectant tragedy conducted a thorough and systematically designed nationwide survey. The government survey [estimated](https://www.e-jehs.org/journal/view.html?pn=search&uid=1981&vmd=Full&all_k=Humidifier%20disinfectant&) that 9.94 million people could have been exposed to humidifier disinfectants and that nearly 1 million people experienced health damage including 20,000 deaths.

**Companies try to avoid responsibility**

The humidifier disinfectant tragedy is not well known outside of South Korea. However, due to its position as market leader, UK-based Reckitt did attract the attention of the UK press. In 2015, Guardian UK [noted](https://www.theguardian.com/world/2015/may/24/uk-firm-poison-claim) that the Korean Free Trade Commission found Reckitt guilty of false advertising for saying that its toxic product was *“safe for humans”* and reported that the company *“refuses to admit culpability or to provide a frank apology.”* As consumers became sick and died, the company [delayed](https://www.hankookilbo.com/News/Read/201605051150971495) action for more than 17 years.

In 2016, South Korean prosecutors brought [charges](https://www.reuters.com/article/us-reckitt-benc-grp-southkorea/south-korea-court-convicts-ex-reckitt-benckiser-unit-chief-in-sterilizer-case-idUSKBN14Q09F) including loss of life against more than 14 Reckitt employees in South Korea including one of the former CEOs. Additional charges included criminal negligence for failing to inspect the safety of the product and allowing its sale, and false labeling for marketing it as safe. After the legal process, the Supreme Court sentenced them to 2 – 6 years in prison in 2018. As of this date, there are still twopeople in jail.

However, Mr. Gaurav Jain, a former Reckitt CEO in South Korea, fled to India to avoid charges. As a result, South Korean prosecutors sought his extradition from India to face [criminal](https://en.yna.co.kr/view/AEN20161005008900315) [charges](http://www.gfr.co.kr/news/articleView.html?idxno=14414) in South Korea, which India rejected. The prosecutors [revealed](http://english.hani.co.kr/arti/english_edition/e_international/746838.html) that Reckitt had concealed evidence showing that the company knew that the principal active ingredient of its product, PHMG, was toxic. The company covered up these results while Mr. Jain was CEO.

Mr. Jain rebuffed a summons from Korean prosecutors and [refused](http://socialdisasterscommission.go.kr/news/report/Read.jsp?ntt_id=3472) to meet with South Korean government representatives who visited Reckitt’s office in India in 2019. As a result, Mr. Jain has been [placed](http://www.gfr.co.kr/news/articleView.html?idxno=14414) on Interpol’s Red Notice list. As [noted](https://www.interpol.int/en/How-we-work/Notices/View-Red-Notices) by Interpol, *“Red Notices are issued for fugitives wanted either for prosecution or to serve a sentence. A Red Notice is a request to law enforcement worldwide to locate and provisionally arrest a person pending extradition, surrender, or similar legal action.”*

**Industry uses scientific fraud to avoid accountability**

After the Korean government linked their product to sickness and death, Reckitt engaged in scientific [fraud](https://en.yna.co.kr/view/AEN20161014005700315) by paying two Korean university professors to publish papers exonerating their humidifier disinfectant product. The company strategy was to challenge claims that its product was responsible for harm and delay regulatory action and compensation.

One of the researchers bribed by Reckitt was a renowned professor at Seoul National University, South Korea’s most prestigious university. The company requested a reproductive toxicity test and inhalation toxicity test and the [result](https://www.hankookilbo.com/News/Read/201605051150971495) showed that 13 out of 15 pregnant mice died (87%). However, the company omitted this data in its submission to the Korean court and instead stated that *“the causal relationship between humidifier disinfectants and lung diseases is not clear.”*

**Inadequate remedies**

The fight for official recognition of damage and adequate compensation continues. By the end of September 2021, only around 650 cases had been compensated by companies out of 4,258 certified victims (~15%). However, there are more than 3,300 unaccepted or under processed [cases](https://www.healthrelief.or.kr/home/content/stats01/view.do) in the system. Of 7,576 reported cases of humidifier disinfectant-associated damage, 1,717 have died (23%). In addition, the actual number of cases could be far larger. In 2019, a special government agency created to deal with the humidifier disinfectant tragedy estimated that 9.94 million people could have been exposed to humidifier disinfectants and that 952,149 people probably experienced some health damage from exposure to them. This indicates that only 0.8% of the potential cases have been actually registered. Years after the government identified deadly links between humidifier disinfectants and harm to infants and adults, most potential victims are not registered and most victims that are registered have not been compensated.

Another key remedy would be a law that would prevent another tragedy of this type from occurring. However, the 2018 law designed to address this tragedy has a number of key loopholes that pave the way for a repeat of this painful experience (see below).

**Legislative loopholes would permit another tragedy to occur**

The 2018 South Korean Consumer Chemical Products and Biocides Safety [Act](https://www.law.go.kr/LSW/lsSc.do?section=&menuId=1&subMenuId=15&tabMenuId=81&eventGubun=060101&query=화학물질#undefined) attempted to respond to a serious chemical safety tragedy caused by the sale and use of toxic chemicals in humidifier disinfectants. The law should have adequately addressed chemicals in products so that a tragedy similar to the humidifier disinfectant disaster would not happen again. Unfortunately, this is not the case.

The shortcomings of the Consumer Chemical Products and Biocides Safety Act include:

1. The law fails to prevent inclusion of toxic substances in products that will be inhaled

If a substance is not classified as a biocide, the law does not require pre-approval. However, there are many household products that contain chemicals that are not classified as biocides but are still inhaled. The chemicals in the toxic humidifier disinfectants were not tested for inhalation toxicity before being sold, with devasting consequences.

1. The law has weak testing requirements

The law uses a six-hour exposure standard, but in the case of consumer products, people are often exposed all day long and 7 days a week. This type of 24/7 exposure happened during the humidifier disinfectant tragedy. The law’s inadequate testing standard opens the door to products that could be harmful under ordinary use as occurred in the humidifier disinfectant tragedy.

1. The law creates a double standard

Biological products must be licensed on domestic markets, but if they are destined for export, they are exempt from this requirement. This permits unlicensed and possibly unsafe products to be exported to other countries. Exporting possible health and safety problems to residents in other countries is disrespectful and not consistent with responsible chemicals management and human rights obligations.

A weak law that does not adequately address a lethal chemical safety tragedy should be strengthened and not used by other countries as an example of a model policy to address chemicals in products.

**Key human rights issues**

Key human rights issues in the humidifier disinfectant tragedy include:

* Right to a safe and healthy environment
* Right to information
* Right to science in the context of toxic substances
* Rights of children
* Right to an effective remedy

**Right to a safe and healthy environment**

In October 2021, the UN Human Rights Council [declared](https://news.un.org/en/story/2021/10/1102582) that a clean, healthy and sustainable environment is a human right. In resolution [48/13](https://undocs.org/A/HRC/RES/48/13), the Council noted that air pollution interferes with, *“the enjoyment of a clean, healthy and sustainable environment, and that environmental damage has negative implications, both direct and indirect, for the effective enjoyment of all human rights.”* In bedrooms around South Korea, parents poured toxic humidifier disinfectants marketed as safe into humidifiers so their infants could sleep well. The humidifiers polluted the indoor air with toxic chemicals and the result was the [largest](https://www.eaht.org/journal/view.php?number=764) number of deaths known to be caused by a home consumer product.

**Right to information**

None of the toxic humidifier disinfectant products carried warning labels or any information about their toxic contents. In 2015, the former UN Special Rapporteur on Toxics and Human Rights, Mr. Baskut Tuncak, released a [report](https://undocs.org/A/HRC/30/40) on the right to information which noted that, *“Information about hazardous substances is essential to prevent risks, mitigate harms, conduct focused research on safer alternatives, provide treatment and remedy, and ensure transparency, participation and consent in decision- and policymaking.”* The report reiterates a key chemical safety principle, that *“It is not legitimate to claim that public health and safety information on hazardous substances is confidential. There is widespread recognition that health and safety information should not be confidential, and States have legally binding obligations to this end.”* Despite these clear human rights obligations, companies producing and marketing humidifier disinfectants provided no information about their toxic chemical content.

**Right to science in the context of toxic substances**

In 2021, Mr. Marcos Orellana, the current UN Special Rapporteur on toxics and human rights, presented a [report](https://undocs.org/A/HRC/48/61) to the Human Rights Council on the right to science in the context of toxic substances that is highly relevant to the humidifier disinfectant tragedy. The report notes that, *“Tactics of denial, diversion and distortion are intended to keep hazardous products on the market, despite knowledge of their risks and harms, and at the expense of adequate human rights protections.”*

Reckitt, the market leader in sale of toxic humidifier disinfectants in South Korea, at first strongly maintained the position that the company had [no liability](https://www.ohchr.org/en/NewsEvents/Pages/DisplayNews.aspx?NewsID=16639&LangID=E) for its actions and even claimed that causation for harms resulting from use had not been proved. In fact, the company [advertised](https://www.e-jehs.org/journal/view.html?pn=search&uid=1799&vmd=Full&page=2&all_k=박동욱&) its toxic products as *“99.9% disinfectant and safe for children”* without ever even testing their respiratory toxicity. When humidifier disinfectants entered the Korean market, SK Chemical also made and marketed toxic humidifier disinfectants which it [described](https://www.e-jehs.org/journal/view.html?pn=search&uid=1799&vmd=Full&page=2&all_k=박동욱&) as, *“no harm for humans at all.”* In 2012, the Korean Fair Trade Commission [charged](https://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2956722) Reckitt (and other companies) with false advertising and fined Reckitt 50 million won (~USD$43,000). Reckitt’s response was to [appeal](https://www.donga.com/news/article/all/20150204/69474583/1) the decision to the Korean Supreme Court, which upheld the Commission decision. In 2016, Korean prosecutors [found](http://www.koreaherald.com/view.php?ud=20160516000815) evidence demonstrating the Reckitt knowingly sold the toxic products in Korea while being aware of their toxicity.

Mr. Orellana’s report also notes that, *“Conflicts of interest often arise in cases when business interests exert undue influence on the design of research and/or the reporting of results.”* Reckitt engaged in [scientific fraud](https://en.yna.co.kr/view/AEN20161014005700315) by bribing two Korean university professors to publish papers exonerating their toxic humidifier disinfectant products. When the [results](https://www.hankookilbo.com/News/Read/201605051150971495) showed severe harm in animal studies, the company lied to prosecutors claiming that no causal link to harm could be found. The court noted that the scientific papers published by these professors, *“caused more confusion in clarifying the cause behind the humidifier disinfect case”* and that *“It was also another reason for a delay in proper compensation procedures for the victims.”*

**Rights of the child**

Most of the people killed and harmed by toxic humidifier disinfectants are infants, their mothers and elderly people. This runs counter to human rights obligations outlined by the former UN Special Rapporteur on Human Rights and the Environment, Mr. John Knox. In his [report](https://undocs.org/A/HRC/37/58) to the Human Rights Council in 2018, Mr. Knox noted that, *“States should require businesses, including State-owned businesses, to carry out “child-rights due diligence” to ensure that identify, prevent and mitigate their impact on children’s rights.”*

In South Korea, no law or due diligence protected the children who were killed and injured. Mr. Knox also noted that, *“Businesses have direct responsibilities to respect children’s rights… Certainly businesses should never seek to evade applicable laws through corruption or other practices, or abuse those laws… they should undertake environmental and human rights impact assessments that examine the effects of proposed actions on children…”* In South Korea’s humidifier disinfectant tragedy, the market leader, Reckitt, could not sell its toxic products in the UK due to regulatory safety requirements so they sold them in South Korea where no law existed. None of the companies producing humidifier disinfectants tested the respiratory safety of these chemicals despite the fact that they would be used in a humidifier and inhaled by consumers. Instead, they misled consumers by placing a safety claim on their products so that people would buy and use them.

**Right to an effective remedy**

The South Korean government [established](https://www.kdca.go.kr/board/board.es?mid=a20501010000&bid=0015&list_no=9368&cg_code=&act=view&nPage=1) the link between humidifier disinfectants and harm to human health in 2011. Ten years later, a very small [fraction](https://www.healthrelief.or.kr/home/content/stats01/view.do) of potential victims has been registered (0.8%); nearly half of the reported cases have been delayed in processing or declined (56%); and of the cases actually recognized by the government only 15% have been compensated by the responsible companies. This reality sharply contrasts with any reasonable definition of effective remedy or [*“adequate, effective and prompt reparation.”*](https://www.ohchr.org/en/professionalinterest/pages/remedyandreparation.aspx)