

Samsung's War at Home

What the company did
when workers started dying

By Cam Simpson

60 Just inside his single-story home, built of concrete blocks and coated in turquoise paint, Hwang Sang-ki, a 58-year-old Korean taxi driver, sits on a floor mat. He's clasping a small handbag, once bright white and now dull after years on a shelf. He pulls out a snapshot of 13 smiling young women, all co-workers at Samsung Electronics, off-duty and posing in three rows, each embracing or leaning into the other. The leaves of a tree behind them are turning golden in the autumn chill.

"Here," says Hwang, pointing to two women in the center of the group. Both had the same job at the same semiconductor factory, on the same line, standing side by side at the same workstation, dipping computer chips into the same vat of chemicals. Both got a particularly aggressive form of the blood cancer known as acute myeloid leukemia. One was his daughter, Yu-mi. In South Korea, only about 3 out of every 100,000 people die of leukemia. "They worked together, and they died," says Hwang. The snapshot is among a few private memories Hwang keeps of his late daughter.

The story of the two women, and dozens of Samsung workers with leukemia and other rare cancers, is now a very public one in South Korea. In February and March, Koreans could see two movies depicting the seven-year battle led by the Hwangs and other families against Korea's biggest and most influential corporation.

Another Promise, released in February, tells the story of a thinly veiled Hwang and his daughter, who went to work at a Samsung semiconductor plant in 2003, when she was 18, and died at 22. ➔



Hwang Yu-mi at home, a few months before her death from leukemia on March 6, 2007

Hwang, who has deep smile wrinkles radiating from the sides of his brown eyes and a buzz cut of salt-and-pepper hair, is portrayed by Park Chul-min, a 47-year-old actor with 70 film roles in his career. His character in *Another Promise* battles with the fictitiously named company Jinsung. The *Korea Herald* called the movie “a meaningful achievement in Korean cinema, as well as for Korean democracy,” not so much because of its quality but because of how it was made. Without a major studio backer, the director and producer raised almost 15 percent of the \$2 million budget from hundreds of individuals via crowdsourcing and more than half from about 100 small investors. It’s the first Korean film produced this way.

Empire of Shame, a documentary, hit theaters on March 6. Three years in the making, it was shot with intimate access to Hwang and other families of Samsung workers. It focuses on the broader movement Hwang launched to illuminate the use of carcinogens in electronics factories, especially semiconductor plants. Since he began, activists have discovered 58 cases of leukemia and other blood-related cancers across several Samsung plants. Samsung declined to discuss specific cases for this article, saying in a statement that it spent about \$88 million in 2011 on the maintenance and improvement of its safety-related infrastructure.

The main goal for the movement is to wrest compensation for cancer-stricken workers from a Korean government insurance fund. People such as Hwang and the filmmakers are pushing a conversation into mainstream Korean culture about some of the costs of the country’s miraculous economic rise, which happened in large part on the shoulders of Samsung and the rest of the technology industry, global symbols of pride for many Koreans. It’s driving a reexamination of trade-offs in South Korea’s past, when the foundation for today’s prosperity was built by an

authoritarian government working hand in hand with domestic corporate partners who were given great power in exchange for rapid growth.

About 20 miles south of Seoul, inside a fenced and secured compound, the Giheung semiconductor factory rises near the wooded shores of a man-made reservoir. The factory is a wide white box sprouting smokestacks and curled tubes from its roof, with Samsung’s familiar blue-and-white logo across its front. Built in 1984, the plant was the leading semiconductor factory in the country at a time when chips accounted for about 80 percent of all revenue at Samsung Electronics. Giheung’s assembly lines were a prestigious place to work.

Many Koreans revere Samsung. In part that’s because its success mirrors their own climb from a war that divided a country, killed millions, and left millions more destitute. In 1961, eight years after the Korean War ended in a stalemate, South Korea’s per capita gross domestic product was \$92, less than that of Sudan, Sierra Leone, or the Democratic Republic of Congo. By last year, South Koreans had the world’s 15th-largest economy. Almost 24 percent of GDP came from the revenue of the Samsung Group, a conglomerate made up of dozens of businesses including a life insurance company, a heavy-construction company, the world’s second-biggest shipbuilder, and of course Samsung Electronics.

Yu-mi’s parents couldn’t afford to send her to university, so a recruitment notice from the Giheung factory caught her eye in 2003 when it appeared at her high



Hwang Sang-ki (center) confronted by Samsung security

school in the northeastern port city of Sokcho, along the Sea of Japan. Samsung wanted young women from the top third of Yu-mi’s graduating class. She met the initial criteria: decent grades, solid attendance, and no record as a troublemaker. She also passed a required medical exam. “She had an interview, and she told me she was accepted,” her father says. “I was very happy, because Samsung is one of the best companies in Korea.”

One morning in October 2003, Yu-mi and her parents climbed into Hwang’s taxi and drove to Sokcho’s bus terminal. Other young women from her class hired by Samsung were boarding the same bus for Giheung, about three hours west. Teachers and parents gathered for a send-off, their cheers and waves masking their nerves. “It was the first time that Yu-mi left home,” Hwang says.

Behind Giheung’s gates, the women lived four to a unit in high-rise dormitories. The white concrete towers are unadorned, except for some mauve trim and Korean script on each building’s side spelling out the flowering shrub it’s named for. Hwang says his daughter lived in Lilac. The almost identical Forsythia is next door. No visitors were allowed, not even family. After a few weeks of training the women went to work.

Yu-mi was assigned to Line 3, according to court documents. She covered herself head to toe each day in a white cleanroom suit, gloves, and cloth mask—not so much to protect herself but to maintain a dust-free environment for the semiconductors. Her line produced the Samsung logic or “system” chips that drive gadgets, rather than the ones that store data. Yu-mi’s first job involved a process known as diffusion. Her second was in “wet etching” on the same line.

Throughout her eight-hour shifts, Yu-mi was exposed to a battery of potentially dangerous chemicals, fumes, and ionizing radiation, a panel of Korean court judges

The Republic of Samsung

\$1.198t
Korean GDP

\$81.5b
Samsung assets

109
Number of mobile units per 100 people in Korea

84m
Number of smartphones Samsung shipped worldwide in the fourth quarter of 2013

later found. One of her co-workers in wet etching, Lee Suk-young, had developed skin irritations that required her to get regular medical treatment.

Other than describing her fatigue, Yu-mi didn't complain to her parents, until she phoned home late in October 2005, saying "she felt nauseous, dizzy, and she was vomiting," her father says. One of the other workers brought Yu-mi to a Samsung infirmary in the Giheung compound, where personnel drew and tested her blood. They told Yu-mi something was wrong, something they couldn't deal with. She was admitted urgently to the closest major hospital. Her father and mother got into his taxi and headed out to see her.

The doctor told Hwang his daughter had acute myeloid leukemia and asked for permission to start treating her immediately. "I thought I was blinded. I felt darkness and hopelessness," he says. He knew little of leukemia but did know the disease often could be fatal. Yu-mi was inconsolable, her mother says, even though the doctor gave her good odds for a recovery.

The 20-year-old started chemotherapy right away. She lost her hair and was nauseous and constantly exhausted. She was hospitalized for about a month before Hwang drove her back to Sokcho, where she took up residence in her old room. The family drove across the country twice a week for treatments and exams, and Yu-mi was hospitalized again in the summer of 2006. That's when she heard that her co-worker on the same bay of Giheung's Line 3, Lee Suk-young, the woman with the skin irritation, shared the same disease. Lee, a mother of two, including a newborn, was diagnosed on July 13 of that year. She died five weeks later.

After Lee's sudden death, questions swirled in Hwang's mind. He started asking Yu-mi details about her work, especially the chemical chip baths. Hwang didn't know it then, but acute myeloid leukemia had been proven by scientists to be one of the cancers most clearly caused by exposure to carcinogens.

Samsung executives from Giheung's human resources department kept in regular contact with Hwang to check on Yu-mi's condition, and the company had been depositing money in her bank account to help with her care, including the equivalent of about \$18,000 before a bone marrow transplant, Hwang says.

Chemicals used to make semiconductors, or byproducts created from the complex manufacturing processes involved in putting circuits onto and into silicon wafers, include known and likely human carcinogens such as benzene, trichloroethylene, ethylene oxide, Arsine gas, and arsenic trioxide. The chemical cocktails,



Workers' families stage a protest at Samsung's Seoul headquarters in 2013

Then Hwang told them he wanted to file a worker's compensation claim with the government to help cover Yu-mi's ongoing care. At that point, Hwang says, everything changed: Samsung turned hostile.

Despite the reliance on cleanrooms, semiconductor manufacturing has never been a particularly clean business. Chipmakers have been using extremely hazardous chemicals since the early days of Silicon Valley. Santa Clara County, Calif., had more Superfund sites than any county in the U.S. following a wave of designations in the 1990s and 2000s, including those left behind by industry pioneers such as Intel, Hewlett-Packard, Fairchild Semiconductor, Advanced Micro Devices, and National Semiconductor.

As the impact of chemicals dispersed into the Valley's environment caused concern, alarm bells also sounded over the far greater concentrations workers potentially faced inside the plants.

often used as chip baths, and a lack of ventilation intended to reduce the dust inside semiconductor plants fell under increasing scrutiny—just as semiconductor manufacturing was departing California and the rest of the U.S. for the lower-wage shores of Asia.

Industry-backed research and other studies have suggested there was no statistically significant connection between semiconductor production and cancers among workers. Other research suggested there was, yielding an epidemiological tug of war familiar to almost any debate where science weighs on high-stakes questions of liability.

Hwang knew nothing of the semiconductor industry's toxic legacy. He's uneducated and from a humble background in a culture shaped by Confucian values of subordination to authority and the good of the group. All of this put him at a severe disadvantage when dealing with executives from a company such as Samsung. In January 2007, a few months after Lee's death, Yu-mi had relapsed and was confined to her bedroom when four Samsung executives from Giheung came to Sokcho. Hwang, who had insisted he

would file for worker's compensation despite objections from Samsung, met

Still from *Empire of Shame*, a documentary about efforts by Hwang and others to get compensation for Samsung workers





A Samsung press conference in 2011, with experts from the U.S. who conducted a chip plant safety investigation

them at a cafe a couple of minutes from his home. He was unprepared for the reception he got.

“They didn’t ask me about Yu-mi’s condition,” Hwang says. “The four of them were raising their voices against me.” The executives, Hwang says, insisted his daughter’s “disease has no relationship with Samsung, so ‘Why are you blaming Samsung?’” He says he spent much of the 20-minute meeting in tears—“I was upset, I was really upset.” Hwang left the cafe, making the short walk home. Once there, he tried to avoid Yu-mi, knowing he couldn’t hide his feelings. Samsung declined to comment on its executives’ interactions with Hwang.

Yu-mi’s health declined, and Hwang put his desire to file a compensation claim out of his mind. The family renewed its trips back and forth across the country for treatment. After one such day at the hospital, on March 6, 2007, Yu-mi lay down across the back seat of her father’s cab as they began the drive back to Sokcho. As they got closer to home, “Yu-mi said, ‘It’s very hot.’ So I opened the windows, just a little,” Hwang says. “But after a little while, she said, ‘I’m cold,’ so I closed them.” Not long after, his wife looked over her shoulder and cried out. “I pulled my car to the side. I got out and opened her door, and she wasn’t breathing, and her eyes were rolled back. I could see her eyes had gone white. Yu-mi’s mother was crying. Then she closed Yu-mi’s eyes with her hand. I was at a loss. I didn’t know what to do. Then, after a while, I realized I was standing alone on the highway.”

He called family and a few friends and, arriving in Sokcho, went straight to a funeral parlor. Yu-mi’s visitation would be that night, as is the Korean custom. Executives from Samsung’s Giheung plant came, Hwang says, including the four men he’d met with at the cafe. At

one point, Hwang stepped out for a breath of sea air. He says the senior-most Samsung executive followed. “He told me, ‘After the funeral, I will make sure there is compensation,’”

Hwang says. “I didn’t say a word.”

About a week later, Samsung executives came back, telling Hwang over a sashimi dinner that the company wouldn’t compensate the family. “They had changed their attitude,” he says, because they again insisted her cancer wasn’t connected to her job. Hwang got up and left the restaurant. He didn’t believe there was a chance two healthy young women—partners at the same workstation—could die from the same rare disease without family histories and without some connection to their work. He suspected there were others but had no way of knowing.

Hwang went to the office of the Korean Workers Compensation and Welfare Service, known as KCOMWEL, and filled out an application on June 1, 2007. Like similar government programs in the U.S., Korean employers pay into a fund; any compensation for accidents or illnesses is paid by the government, not the company. Benefits are modest, covering medical bills, lost wages, and funeral expenses. There’s no need to demonstrate employer negligence.

Since Yu-mi’s death, Hwang had been calling or visiting just about everyone he thought might help him investigate whether others among the 19,000 production workers at Giheung were sick. He tried government officials, political parties, activists, civil society groups, journalists, and more. He found some sympathy but never much help understanding what had happened to Yu-mi, if there were other cases, or what kind of chemicals she was exposed to, all of which he might need to file an approvable claim with KCOMWEL. “No one would listen,” he says. Then a local journalist introduced him to a 30-year-old labor activist named Lee Jong-ran.

She had heard about semiconductor work causing miscarriages, but nothing

about cancer. She put together a proposal and raised a small amount of money from about 20 organizations, forming a group called Banolim. She was the only employee. Families and others volunteered.

For his part, Hwang began showing up at Samsung’s gates wearing a sandwich board featuring a giant photograph of his daughter, bald and wasted by her disease, as he passed out leaflets asking people to come forward. A few did. Soon families staged small demonstrations. Dribbles of press attention followed. More families emerged.

In May 2009, KCOMWEL rejected Hwang’s claim, almost two years after he filed it. The agency also rejected three others organized by Banolim, including a claim from Lee Suk-young’s widower. Government health and safety officials had conducted an epidemiological study of six semiconductor plants. According to court records, they said that although they found elevated levels of leukemia and statistically significant increases of non-Hodgkin’s lymphoma among female workers, the overall increases among them were “not statistically significant” enough to prove causation within the semiconductor industry. They did not make their raw data public.

By speaking to workers and their families, Banolim discovered the 58 cases of leukemia. They also found other related diseases and scores of other cancer cases, including breast cancer and brain tumors. A group of Korean university scientists and researchers, conducting a study for a peer-reviewed medical journal, would later use these cases to focus exclusively on workers who they could prove were involved directly in semiconductor production—solely at Giheung. They narrowed further to those diagnosed within about a three-year window. They looked only at a group of related cancers proven to have strong causation by, or contributions from, chemicals and radiation—leukemia and non-Hodgkin’s lymphoma. Samsung declined to comment specifically on the study.

Within the window they drew at

Giheung, the scientists and researchers found 17 production workers with such diseases. Eleven of them were young women, average age 26.5. Because the company didn't cooperate, the group didn't have employee turnover or other data needed to prove a causal relationship. They said what they did find was cause for serious concern.

Hwang and the other families were forced to turn to South Korea's court system to appeal the government's denial of benefits. That's how the Korean system works. But after filing suit, the families discovered the defense of the agency's decision was being paid for not just by the government but also by Samsung. The company formally intervened in the case on the side of KCOMWEL—a rare move, even though Samsung would not be responsible for any benefit payments—and put lawyers from one of the nation's top firms on the case.

In 2010, the Korean Broadcasting System (KBS), the largest of South Korea's four major television networks, aired a piece about the controversy on its version of *60 Minutes*, after which more cases emerged. Banolim alleges that Samsung representatives were secretly approaching families and offering to pay them if they withdrew their compensation claims, cut off contact with the group, and maintained public silence. These would not have been akin to lawsuit settlement offers, because there weren't lawsuits against Samsung; there were only government insurance claims. The company denied making such offers.

Now that Samsung was challenging families directly in court, some decided they would fight the company. On Dec. 15, 2010, a Samsung executive from Giheung returned to Sokcho and visited Hwang at home. "I think we will be able to pay you the money that you will be satisfied with," the executive told him. "But please don't tell anyone about this. It places us in a very bad situation."

Hwang asked, "So you're saying that you will just pay us, and that's it?"

"I'm just hoping," the executive replied, "that you wouldn't say anything against Samsung. Right now I think there is a very high chance that you won't be able to get the occupational health insurance anyway."

Working with KBS, Hwang had secretly recorded the conversation, which the

network aired in 2011. Others on the broadcast reported similar offers, including the family of Park Ji-yeon, a 23-year-old woman who died of leukemia in March 2010. Her mother said they got about \$330,000 from Samsung, deposited in their bank account on the day of her daughter's funeral. She also said that company representatives "told us not to meet members of the labor union and to withdraw our lawsuit." Samsung declined to comment on the recording or payments to Park Ji-yeon.

Hwang's appeal was consolidated with that of Lee Suk-young's widower and three other families and heard by a three-judge panel of the Seoul Administrative Court in May 2011. A month later, the presiding judge read out its verdict and opinion in open court. He ruled in favor of Hwang and Lee's widower and ordered the government compensation fund to pay them.

The panel rejected the appeals of the other three families, detailing case evidence and their reasoning for each worker's specific job, highlighting chemicals used, potential radiation exposures, ventilation systems, and other processes in place at Giheung and plants where the others worked. (They found other production lines were more modernized and safer than Giheung, especially before 2009, and that, for two male workers, there was a lack of compelling evidence about increased incidences among men.)

Within three weeks of the ruling, Samsung held a press conference with an American consulting firm it had hired, Environ, announcing the consultants had found no statistically significant correlations between workers' exposures and leukemia. KCOMWEL officials appealed the court's order awarding benefits to the families of the two women.

Banolim has about 40 cases pending today, either before KCOMWEL or in court, and the eyes of Koreans are on them more than ever. Even before this new attention, the worker's compensation board had started easing its resistance, awarding benefits in a couple of high-profile cases. Late last year the courts did the same for another worker, with judges saying studies at Samsung chip factories were flawed and failed to account fully for health hazards. The government's appeal of Hwang's ruling is pending. More than

seven years after Yu-mi died, he's still waiting for a decision.

Samsung says employees are its greatest asset and that its goal is to create "a workplace culture that accepts nothing less than an unwavering and relentless commitment to upholding best practices in process safety management." It also says it was the first semiconductor maker to develop real-time chemical monitoring, which it implemented in 2007, and that it has improved air quality monitoring in plants. "While we are deeply saddened by the loss of former members of the Samsung family and are concerned about those battling illness, we would like to reiterate that independent research has not found a correlation between employee illness and workplace environment," the company says. It also says it's giving financial support to families, but it will not say how much.

Lee Mi-kyung, who has been a member of the South Korean National Assembly for 18 years, has been an ally to Hwang and the other Samsung families. Sitting down between votes at the members' cafeteria just outside the body's chamber, she says Samsung has been so influential in politics, the press, and even the law that many of her countrymen call their land "the Republic of Samsung." She says things are changing as Korean corporate power continues to be checked gradually across society. She mentions the 2008 corruption investigation into Samsung for allegedly maintaining a slush fund to bribe judges, prosecutors, and politicians. Prosecutors said they did not find evidence of bribery, but they charged and convicted Samsung Electronics Chairman Lee Kun-hee with tax evasion. He paid a fine of roughly \$100 million and received a suspended prison sentence.

Samsung posted one of the most interesting public statements about *Another Promise* on one of its Korean blogs. The posting was attributed by the company to a senior executive, Kim Sun-beom, and is the closest thing to an officially sanctioned reaction. Kim says in the post that he was confronted by his own daughter, who was brought to tears when she saw the movie with friends. She had always been proud of her father's job with Samsung.

"As a father, I understand [Hwang's] loss, and partially it is the company's fault that we left him to fight for seven years," he wrote. "However, a movie is a movie. It is not right to distort the truth." Having worked at Giheung himself, Kim also wrote, "I know how hard the company and the workers try to provide a safe environment, so I do not doubt the safety of my workplace." — *With Heesu Lee*

"I'm just hoping that you wouldn't say anything against Samsung," the executive told Hwang