

The Legacies of the Uranium Mining Company “Wismut” in East Germany

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“Wismut” was the code name of the uranium mine located in the East German provinces of Saxony and Thuringia. It was founded to supply the Soviet Union with materials for nuclear weapons. Under harsh conditions, miners received various material benefits. However, the work at Wismut led to health problems for workers and caused environmental damage. After German reunification, the Wismut GmbH Company was founded to carry out a clean-up operation. Despite spending enormous amounts of time and money, the restoration and decontamination of the area is not complete. The discourse over Wismut should not be mere nostalgia of hard mining work or the success of decontamination. A perspective is needed that connects the victims of Wismut with that of other nuclear sites as “Global Hibakusha.”

Keywords uranium mining, nuclear weapon, Chernobyl disaster, decontamination, “Global Hibakusha”

Introduction

The Japanese people experienced the military use of nuclear weapons three times, namely Hiroshima, Nagasaki, and the Lucky Dragon Incident. Therefore, they have had a skeptical attitude not only toward the military use but also toward the “peaceful” use of nuclear energy for a long time. Government and industry have made a concerted effort to change the public’s attitude towards nuclear weapons and power through propaganda and disinformation in order to proceed with a nuclear policy.

Against this tendency, the German journalist Robert Jungk (1913-1994), who wrote the vivid account of Hiroshima *Children of the Ashes* and the devastating indictment of the nuclear industry *The Nuclear State*, visited Japan to encourage anti-nuclear power activists (Jungk 1961, 1979).

After all, the majority of the Japanese people have come to accept the

national policy of nuclear energy. Because of their strong faith in economic development, the Japanese population looked away from the fact that the use of nuclear energy in wartime and peacetime is one and indivisible, and took an optimistic attitude toward the essential risk of nuclear energy itself. They believed, or wanted to believe, in the illusion of a “safe, cheap, and clean nuclear power plant.” Needless to say, this delusion was destroyed by the Fukushima Daiichi nuclear disaster in 2011.

After the nuclear catastrophe in Fukushima, some European movies on nuclear power plants have been screened in Japan, for example *The Fourth Revolution: Energy* (Germany, 2010, directed by Carl-A. Fechner, Die 4. Revolution - Energy Autonomy) and *Into Eternity* (Denmark, 2010, directed by Michael Madsen). The film *Yellow Cake - The Dirt Behind Uranium* (Germany, 2010, *Yellow Cake - Die Lüge von der sauberen Energie*) by Joachim Tschirner (1948-) is another example. This film recounts the clean-up operation in Germany, the biggest operation in the world history of uranium mining. It shows at first the abandoned underground tunnels of the former uranium mine. Not only in Germany, but also worldwide, uranium mining has always managed to keep itself out of the public eye, because it is the first link in the chain of nuclear development and it must be kept secret.

The uranium mine located in the East German provinces of Saxony and Thuringia was the third largest in the world. It was code named “Wismut,” which means originally the chemical element bismuth. During the German Democratic Republic (GDR) era, Wismut supplied the Soviet Union exclusively with 220,000 tons of uranium. This quantity was enough for the production of 32,000 Hiroshima bombs. In Hiroshima, some 140,000 people were killed by the blast, resultant firestorm, and acute radiation disorder by the end of 1945.

Tschirner was a critical intellectual in the GDR. Towards the end of the Cold War, he defended the ideas of Perestroika and Glasnost, which meant a radical transformation of society in the Eastern bloc. He appeared as a speaker at the demonstration for freedom of travel, opinion, press, and assembly on November 4, 1989 in East Berlin.

The pioneering movie dealing with Wismut, entitled *Die Wismut* and released in 1993, was filmed by Volker Koepp. He was already a famous documentary film director during the GDR era. His film, which was produced relatively soon after German reunification, revealed various problems at Wismut that were not well known at the time.

Wismut was literally a “nuclear state” in the GDR and therefore there is not much literature about it. A two volume essay *Uranium Mining in the Cold War* (*Uranbergbau im Kalten Krieg*), which Rudolf Boch and Rainer Karlsch edited, is the most important (Boch and Karlsch 2011). Karlsch had already written the book *Uranium for Moscow* (Karlsch 2007). He was also the coeditor of an English survey about uranium mining in the region of the German-Czech border (Zeman

and Karlsch 2008). In the mid-1990s, a pioneering collection of papers about Wismut was published (Beyer et al. 1995). Michael Beleites (1964-), a dissident and Green activist in the GDR, wrote a samizdat about Wismut in 1988 which is still relevant today (Beleites 1988).

This article aims to trace the history, nuclear politics, and culture of Wismut in order to fill the gap of research on East German nuclear politics. It also aims to examine the problem of a “nuclear state” like East Germany from a case study of Wismut. This will illustrate the common problems between societies which are dependent on nuclear energy, both during the Cold War period and today, from the perspective of “Global Hibakusha.” Hibakusha is a Japanese term that refers to people who have been exposed to nuclear radiation. This word was used in the preamble of the Treaty on the Prohibition of Nuclear Weapons (Nuclear Ban Treaty) which was adopted in the United Nations in July 2017.¹ “Global Hibakusha” is a new research field of peace studies which is working with victims in radiation-affected communities all around the world. It includes not only the victims and survivors of the A-bombs in Hiroshima and Nagasaki, but also people who were exposed in nuclear tests around the world. It includes also all people who were affected by the nuclear fuel cycle such as victims of incidents in nuclear power plants and inhabitants who live near uranium mines, uranium refineries, plutonium production plants, and nuclear waste disposal sites. Moreover, the idea that the human race as a whole both suffered from the production and testing of nuclear weapons, and that no one would escape the disaster of nuclear war is expressed through the term “Global Hibakusha” (Jacobs 2016). As the danger of radiation exposure and nuclear wars are present all over the world, all people could be considered hibakusha.

History of Wismut

Since the twelfth century, the Ore Mountains (Erzgebirge), today the border between Germany and the Czech Republic, have been famous for producing silver and tin. In 1789, the chemist Marin Heinrich Klaproth from Berlin discovered uranium in pitchblende ore from Johanngeorgenstadt in the Ore Mountains. In 1898, radium and polonium were discovered in pitchblende ore from the Czech town of Jáchymov by Marie and Pierre Curie.

In 1567, the Swiss physician Paracelsus mentioned the “Schneeberg disease.” In and around this Saxon town, the miners were especially unhealthy and died prematurely. In the 1920s, the cause was identified as lung cancer. Even after closing the underground tunnels after German reunification, the mortality rate of women from lung cancer in the old city of Schneeberg reached four times the German average (Schrep 1995).

Uranium was used as a coloring agent for glass and porcelain for a long time.

The blue color factory Oberschlema (Blaufarbenwerk Oberschlema) was once the largest blue color factory in the world with forty-two buildings. Uranium was also used for medical purposes. In 1906, the first radon spa in the world was founded in Jáchymov. After 1918, the world's richest radium spa was developed in Bad Schlema. Only ten years later, it was counted among Germany's most popular spas. The Thuringian city Ronneburg flourished as a spring resort that was effective for treating gout, rheumatism, and anemia.

The Beginning of Wismut

The Soviet Union received information about the Manhattan Project from the German theoretical physicist and atomic spy Klaus Fuchs and his spy ring. In spite of the huge and horrendous damage caused by the war and technological lag, the Soviet Union embarked upon the development of nuclear weapons immediately after World War II.

On April 4, 1946, the Council of Ministers of the Soviet Union decided to place uranium mining under the control of NKVD (People's Commissariat for Internal Affairs). This made the organization independent of the Group of Soviet Occupation Forces in Germany (Gruppe der Sowjetischen Besatzungstruppen in Deutschland, GSBT) and the Soviet Military Administration in Germany (Sowjetische Militäradministration in Deutschland, SMAD). It was officially said that bismuth and cobalt would be mined. On May 10, 1947, SAG Wismut (Soviet Wismut Corporation) was established in order to claim the mine in Saxony for the Soviet Union. In 1949, exploration of uranium reserves also began in Thuringia.

After the foundation of the GDR on October 7, 1949, SDAG Wismut (Soviet-German Wismut Corporation) began operations on January 1, 1954. Although SDAG fell under the authority of the GDR government, the Soviet Union maintained its control over the management of Wismut.

In most cases, uranium is mined in remote places. However, the locations of Wismut were originally in relatively densely populated areas. Therefore, some towns and villages were forcibly relocated. The 800-year-old town of Oberschlema was torn down in 1952. Most parts of the old town of Johanngeorgenstadt, which had been founded by Protestant refugees from Bohemia in 1654, were demolished from 1953 through 1960. Schmirchau, a holiday resort for the citizens of Ronneburg, was destroyed in 1953 in order to open the biggest uranium strip mine in the world.

Inhabitants often had to collect their belongings and leave their houses where their ancestors had lived for centuries in a few days or weeks. Sometimes they had no choice but to move to a relatives' house. In this way, the third largest uranium mine in the world was founded.

Figure 1. Map of Nuclear Facilities of Wismut



Source: Boch, Rudolf, and Rainer Karlsch, eds. 2011. Vol.1. 8.

Representation and Reality of Life in the “Sixteenth District of the GDR”

The existence and reality of Wismut were not well known in East German society. The movie *Sun Seekers* (Sonnensucher), which was directed by Konrad Wolf (1925–1982) in 1958, drew attention to the situation in Wismut. Wolf had lived with his family in exile in Moscow since 1933 and joined the Red Army. He received positive reviews for the movies he directed beginning in the 1950s and served as the President of the GDR Academy of Arts from 1965. However, *Sun Seekers* was banned and not released until 1972 because the Soviet Union was afraid of the exposure of the atomic bomb development program.

Werner Bräunig (1934–1976) wrote the novel *Fairground* (Rummelplatz) in 1965 based on his experiences in Wismut in Johanngeorgenstadt in 1953. Despite the recommendations of Christa Wolf and Anna Seghers, his novel was banned from publication because it conflicted with the official view on the construction of socialism. *Fairground* was known as “the most famous unpublished novel in the world” until it was published posthumously in a shortened version in 1981, with the full version being published in 2007.

The entry “Wismut” can be found in the encyclopedia published in the GDR in 1977. Only the general characteristics of the chemical element bismuth are explained there. The uranium mining project, let alone the connection with the Soviet nuclear weapon development, was not mentioned at all.

The first Direktor General of Wismut was Mikhail M. Maltsev, Major General of NKVD. He was responsible for the Vorkuta Pechora Gulag and oversaw coal mining and the construction of Vorkuta, the town north of the Arctic Circle. By analogy to the “Gulag Archipelago” it is easy to understand that Wismut was surrounded by a double steel wire fence and strictly monitored and patrolled.

Wismut was a pretty isolated “nuclear state” in the GDR. It had its own logistical support, health care system, car registration numbers, telephone network, police, and party system. The organization of the Socialist Unity Party in Wismut was connected not only with Berlin but also with Moscow.

After an administrative reform in July 1952, there were fifteen districts (Bezirke) including East Berlin in the GDR. But various organizations in Wismut were rather autonomous from the central state. Wismut was often considered the sixteenth district. When it came to uranium mining and refinement, Wismut was also beyond the authority of the State Office for Nuclear Safety and Radiation Protection (Staatliches Amt für Atomsicherheit und Strahlenschutz, SAAS) which was founded in 1962.

The Socialist Unity Party of Germany (Sozialistische Einheitspartei Deutschlands, SED) organized shock brigades in Wismut in order to fulfill and exceed work quotas quickly. The workers of the shock brigades were highly conscious of politics and took pride in their ability to produce more than required by working harder and more efficiently.

The model worker of Wismut was Sepp Wenig (1896-1981). In 1924, he joined the recently formed Communist Party. After World War II, he became a member of the SED. In 1948, Wenig responded to the advertisements offering employment at SAG in Wismut. In 1950, he received the Hero of Labour award and became a member of the People’s Chamber. From 1955 to 1966 he was the General Director of SDAG Wismut, with direct responsibility for the “Labour Department.” Sepp Wenig received the Order of Karl Marx in 1971.

Wenig was very popular among his fellow workers and party comrades. In 1966, Wenig appeared in a television drama in the role of a “party worker.” His lines were dubbed into standard German though.

In Wismut, enough uranium for 32,000 Hiroshima-type atomic bombs was produced. The uranium produced accounted for a considerable proportion of all uranium produced in Eastern Bloc countries, as shown in Table 1.

Despite the claims of West German propaganda, Wismut was not a labor camp. There were all kinds of people who came to Wismut at first: prisoners of war, fortune seekers, criminals, willing workers, etc. The number of employees

Table 1. Uranium Production in Eastern Bloc and Wismut

	Total Uranium Production in Eastern Bloc (t)	Uranium Production in Wismut (t)	Proportion of Wismut (%)
1946	135	17	13
1950	2,062	1,224	59
1955	10,591	4,522	43
1960	14,933	5,356	36
1965	15,729	7,090	45
1970	18,816	6,389	34
1975	23,863	6,884	29
1980	25,447	5,242	21
1985	25,223	4,470	18
1990	18,636	2,972	16

Source: Boch and Karlsch (2011, Vol.1, 78)

Figure 2. Amount of Uranium Delivered to the Soviet Union and Number of Employees at Wismut



Source: Beyer et al. (2007, 30, 37)

of SDAG Wismut and the amount of uranium delivered to the Soviet Union changed as shown in Figure 2.

The employees of Wismut received a variety of benefits. The belowground laborers received premium wages of 40 percent and the others 20 percent. The shops in Wismut sold special articles at special prices. There were cultural and recreational facilities, hospitals, and sanatoriums which the Wismut workers could use preferentially. The special provision of foodstuffs such as butter, milk, and cheese were especially popular among the workers. Clothes and daily necessities like shoes were offered upon beginning one's work at the facility, and cars and housing were offered later. The ration tickets Wismut workers received were an object of envy for outsiders. Though it was prohibited, it is said that these tickets were bought and sold.

Cultural activities played an important role. In January 1951, the Culture Palace of Wismut was built in Chemnitz. It had a cinema with 900 seats, a dance hall, a restaurant, a café, and a library with 20,000 books. There were such cultural facilities on a small scale in every Wismut office. There were choirs, dance groups, theatre groups, and literary circles, and these were often open to families and local residents.

The cultural activities in Wismut constituted the "Socialist competition" and competed for the honorary title "Brigade of Socialist Work." In the socialist GDR, not only economic and technological but also cultural and educational achievements were emphasized.

In the GDR it was common that painters and sculptors cooperated with offices and factories and created works of art on commission. The offices, dining rooms, hospitals, and recreational facilities of Wismut were decorated with various art works. There were also events where German and Soviet artists and the amateur painters of Wismut held exchange meetings.

Today, the Wismut GmbH, the company that succeeded SAG/SDAG Wismut and is responsible for restoring the former mining and milling sites, owns 4,209 prints, drawings, and pictures by 450 artists. These are sometimes shown at exhibitions in the towns such as Chemnitz, Gera.

The most famous work of Wismut art is *The Peaceful Use of Atomic Energy* by Werner Petzold (1972-74). This huge fresco, sixteen meters long and twelve meters wide, consists of three layers. In the lower layer the workers who support society are drawn. In the middle layer a miner and four citizens appeal to the audience to participate in the formation of a new society through the peaceful use of nuclear energy. In the upper layer is the leader of the new social structures between a cosmonaut and a lady with red flag with both his hands open in front of a big atomic nucleus. This work, which is typical of socialist realism, has been exhibited outdoors in Löbichau in the suburb of Ronneburg since 2009.

From the beginning, Wismut had various sports organizations too. There were sports events (Spartakiade) for each Wismut office and the whole Wismut

Figure 3. *The Peaceful Use of Atomic Energy* by Werner Petzold



Source: Landeszeitung (2014)

company. The activities of the sports association of Wismut were often honored as exemplary by the German Gymnastics and Sports Federation. The club “Wismut Aue” enjoyed modest success in the GDR-Premier League of Football.

However, such special treatment was at the expense of strict labor, confidentiality, control, and mutual surveillance. The miners in Wismut were forced to undertake severe manual labor in narrow spaces with poor ventilation because there were no legal regulations for the protection of health, work, and the environment related to uranium mining. In West Germany, this situation was condemned as uranium slavery.

On July 15, 1955, thirty-three miners died in a cable fire inside the pit in Aue. SDAG Wismut attempted to improve the protection for health and work. At the same time, labor accidents were manipulated so as not to appear in the statistics because they were negatively evaluated in the “Socialist competition.” Nevertheless, it is estimated that there were a total of 626 fatal accidents in Wismut through 1968 (Wismut GmbH 2011).

Despite some efforts at health management, “occupational illnesses” were unavoidable among the miners at Wismut. They had not been informed about the health issues associated with uranium mining. According to official statistics, the number of accredited occupational diseases contracted is shown in Table 2.

It is easy to imagine that the number of patients who contracted an occupational disease was actually much larger. Moreover, even if it was officially recognized as an occupational disease, the disease was often not recorded as the cause of death.

After German reunification, the SAAS was integrated into the Federal Office for Radiation Protection (Bundesamt für Strahlenschutz, BfS). From 1993, the BfS has undertaken investigations into the effects of uranium mining on the health of about 59,000 former Wismut laborers. It has attested that more than 3,800 former

Table 2. Contracted Diseases and Injuries among Workers at Wismut

	Silicosis/ Silicotuberculosis	Bronchial Cancers from Ionizing Rays	Vibration and Overuse Injuries	Hearing Loss	Skin Diseases	Other	Total
1952-1960	2,723	51	116	68	117	74	3,149
1961-1965	3,421	260	760	1,556	56	23	6,076
1966-1970	2,711	580	1,173	2,190	77	194	6,925
1971-1975	1,961	1,051	915	328	108	62	4,425
1976-1980	1,700	1,212	870	316	90	107	4,295
1981-1985	1,150	1,099	602	158	94	72	3,175
1986-1990	926	1,022	617	41	65	105	2,776
Total	14,592	5,275	5,053	4,657	607	637	30,821

Source: Wismut GmbH (2011, 690)

Wismut laborers had lung cancer and 2,500 had silicosis from 1991 until 2014. The fatality rate of their lung cancer is double that of the general public.

The health risks from uranium mining and milling extended to residents of areas neighboring Wismut. There were huge waste rock dumps in the mining areas which were more or less radioactive. The pebbles were used as cheap construction material. Uranium mill waste produced radioactive dust and gas. Residents were threatened by hazardous substances like arsenic in their drinking water supplies and in the fish from the area.

Oberrothenbach is a village and former municipality in Saxony. It has been a part of the municipality of Zwickau since 1999. Today it has a population of about 600. Beginning in the late 1940s, SAG Wismut processed uranium for the Soviet Union in the neighboring town of Crossen to the east. The gravel pit of Helmsdorf, which was built around 1890 and was used as a POW camp before 1945, was intended as the deposit for the uranium sludge from Crossen. A waste dump was built on the site into which the liquid process waste from the processing plant Crossen was pumped and deposited via a hose conveyor. In 1961, the inhabitants of Oberrothenbach experienced a minor radioactive accident. After a pipe running vertically into the waste dump in Helmsdorf broke, the pressure also caused the pipe to break on the outside of the dam. As a result, large quantities of radioactive sludge flowed through the village into the river Zwickauer Mulde. The damage could not be corrected immediately.

Oberrothenbach was dubbed the “tired village” (*das müde Dorf*). Its residents appeared as if they tired easily. Today it is clear that the cause was the radioactive contaminated air and water. Their symptoms were similar to the “atomic bomb idleness disease” (*gembaku burabura byō*) in Hiroshima and Nagasaki. The people

in these cities complained that they were physically weak, prone to disease, tired easily, and felt listless. They could not find steady jobs because they could not work like others. They were susceptible to sickness and tended to become severely ill if they contracted something. They suffered mentally as well as others accused them of being lazy.

The Distance to the Dissolution of Wismut

The Rheinsberg Nuclear Power Plant, the first nuclear power plant reactor in East Germany, began its commercial power production on October 11, 1966. Greifswald Nuclear Power Station, also known as Lubmin Nuclear Power Station, was the second and largest nuclear power station in the GDR. It began production on July 12, 1974. In 1973, the Stendal Nuclear Power Station was planned to become the largest nuclear power station of the GDR, but it could not be finished before the end of the Cold War. After German reunification, construction was finally stopped in 1991.

Unlike in West Germany, East German environmental groups did not address the nuclear issue until the Chernobyl disaster. This incident shocked East German society. East German dissidents were not only able to take advantage of the disaster itself but also the Soviet authorities attempt to cover up the accident and the way the East German media trivialized the disaster for several days.

Neues Deutschland, the official party newspaper of the SED, commented on May 2, 1986: "It was and is no threat to the health of the citizens of our state or to nature" (*Neues Deutschland* 1986). The article severely criticized the way the Chernobyl disaster was portrayed in the media, in political circles, and in Western countries as an opportunity to fill the population with half-truths and speculation.

Opposed to the official stance, East German environmental protection groups and peace movement groups called for action to deal with the nuclear accident under the motto "Chernobyl has an effect everywhere" (*Tschernobyl wirkt überall*) (Kneipp 2006). The groups were informed about the critical situation by transmissions from West German broadcasters, who played an important role in this instance.

In East Germany, Protestant Churches served as crucial activity bases to the civil movement. Sebastian Pflugbeil (1947-), an environmental activist in East Berlin, requested the leadership of the Federation of Protestant Churches in the GDR (Bund der Evangelischen Kirchen in der DDR) take up this problem. Entrusted by the Federation, he wrote a study about the problems of the East German nuclear power policy in 1987. Pflugbeil was one of the thirty founders of New Forum (Neues Forum), the first independent political movement in the GDR. In the "government of national responsibility" formed under Prime

Minister Hans Modrow, he became a minister without portfolio in February 1990. During this time, he gathered documents about nuclear power plants in East Germany, which he summarized in a detailed dossier for the People's Chamber. He has been the president of the German Society for Radiation Protection (Gesellschaft für Strahlenschutz) since 1999. Following the nuclear disaster in Fukushima in 2011, he has travelled regularly to Japan to exchange information about environmental and health damage.

Michael Beleites also participated in the environmental protection movement and peace movement of the Protestant Church. In the face of the reality of the Chernobyl disaster that radioactive rain can also fall in places that are 1,000 km away from the point of the disaster, he was determined to work on the uranium-mining problem in Wismut which had been absolutely taboo until then. His hometown was in Gera, one of the fifteen districts of the GDR. The population of the city rose during the GDR period because of the uranium-ore mining in Wismut in nearby Ronneburg.

From 1986, Beleites illicitly investigated the health and the environmental damage caused by Wismut. He had had no knowledge about the uranium problem before, to say nothing of Wismut. The GDR government prohibited independent radiation measurement by a government ordinance on October 2, 1984. Therefore, he had to see the facilities in Wismut for himself, to talk with the workers and the nearby residents personally, and to study a lot of books about the physical and the ecological dangers of uranium mining activities. He was supported by West German scientists and journalists. The Stasi, the official state security service of the GDR, watched and tried to interfere with his activities.

In June 1988, the samizdat (underground press) of Beleites "Pechblende" was edited and published by the Church Research Facility in Wittenberg (Kirchliches Forschungsheim Wittenberg) and the working group "Doctors for Peace - Berlin" (Arbeitskreis Ärzte für den Frieden - Berlin) at the Protestant Church Berlin-Brandenburg. After German reunification, Beleites published a sequel entitled "Contaminated Area Wismut" in 1992 (Beleites 1992). From December 2000 to December 2010, he was the commissioner of the Stasi Records Agency in Saxony.

Beleites was not the only person working on these issues. In the "tired village," the residents formed a citizen group "Antenna Oberrothenbach" in 1985. In August 1989, a leader of this group wrote a letter to Erich Honecker, the General Secretary of the SED and the Chairman of the State Council of the GDR, requesting government action on the environmental damage at Wismut. Supported by West German green groups, they requested Wismut produce environmental data, especially about the burden of radioactive rays, to limit dump truck transportation from three shifts to two shifts, to set the speed limit at 30 kilometers an hour, and to keep the roads clean.

In Ronneburg, an environmental issue group was formed around the pastor who took his new post in 1988. In spring 1989, they tried to collect signatures

against the depositing of uranium sludge and sent a petition to the State Council.

In March 1989, photographs of a radioactive spoil tip and a deposit of uranium sludge appeared on *Impuls* 68, the schoolchildren's magazine for physics, chemistry, and biology edited by the Friedrich Schiller University Jena. The authorities tried to quickly halt distribution, but one third of the magazines had already been sent out. This magazine brought the problems of Wismut into the East German public eye. In the last years of the GDR, Wismut was one of reasons authoritarian control began to break down.

Alongside growing public discontent, there was a pending problem between the GDR and the Soviet Union. Because of the increasing cost burden of the uranium mining, the GDR wished to increase the price of uranium. The desired rise could not be realized because the world uranium market was declining at that time. The Perestroika policy of Mikhail Gorbachev and the economic difficulties of the Soviet Union also made it hard for the leader of the Eastern Bloc to request the GDR continue to offer the raw material for its nuclear force.

According to its last five-year plan for 1986-1990, Wismut expected that the production of uranium would decrease by 34 percent from ten years prior and that the cost would double. In January 1989, the Soviet Union gave the GDR a notice to reduce the purchase volume of uranium from 3,800 tons to 3,000 tons. Due to the protests of East Germany, the decision was postponed for one year to 1990.

With the radical change in the East German political situation including the fall of the Berlin Wall and the German reunification, Wismut was forced to adapt itself to the market economy system, as were other state enterprises in the GDR. On December 8, 1989, the Soviet Union reduced the total amount of purchased uranium from 1991 through 1995 to 6,000 tons and zeroed it out in 1996. This collapse in demand for uranium meant the closure of Wismut, the dismissal of 21,000 workers, and the loss of the 75,000 tons of uranium reserves. The East German side was forced to shoulder the financial burden of this sudden change. SDAG Wismut tried to abandon uranium production more slowly, but there was no room for such moderate changes at that time.

While Wismut was forced to deal with environmental destruction from uranium mining, it had to give up establishing a joint venture because it was not being subsidized by the Soviet Union or the GDR any more. Through the Monetary, Economic and Social Union of both German states on July 1, 1990, the export demand for uranium from Wismut decreased by 60 percent. This reduced level of business could not sustain the company. Six days after the German reunification, on October 9, 1990, the Federal Government signed an agreement with the Soviet Union to close down Wismut on January 1, 1991.

Although, the political situation played a large role in the closure of Wismut, the environmental protection movement and democratic movement in the GDR also played a role. In the process of democratization, the environmental

Table 3. Number of Employees at Wismut

Year	Number of Employees
1990	28,300
1991	23,000
1992	11,400
1993	6,900
1994	5,900
1995	5,700
1996	5,300
1997	4,800

Source: Wismut GmbH (2011, 2566)

problem of Wismut suddenly began to be reported. The closure of Wismut and its consequences were important to the employees and residents, but the environmental and health issues were more pressing and sacrifices had to be made to resolve them.

On May 16, 1991, Germany and the Soviet Union signed an agreement to end the operation of SDAG Wismut. Germany would be responsible for the restoration and environmental cleanup of the former uranium mining and milling areas. On October 30, 1991, the Bundestag passed the Wismut Law which came into force on December 18. At this point, SDAG Wismut became the Wismut GmbH Company. In this way, the history of SAG/SDAG Wismut, a company that had supplied a total of 231,000 tons of uranium over the course of some forty-five years, came to an end.

SAG/SDAG Wismut had contaminated a total area of almost 10,400 square kilometers with radioactivity, an area four times as large as the state of Saarland. The Wismut GmbH Company has undertaken the huge task of decontaminating and removing the 1,500 kilometers of underground tunnels, the 311 million cubic meters of waste rock dumps, and the 150 million cubic meters of processing plants, and to backfill the open-air uranium mine faces. It has also been important to rebuild the trust of the residents and the local governments due to the covert nature of SAG/SDAG Wismut for many years.

The number of employees in the Wismut GmbH Company dropped sharply as shown in Table 3. Also, the average age of the employees rose from 40.8 years (December 31, 1991) to 47.6 years (June 30, 1997). Some unemployed Wismut miners engaged in illegal underground tourism. As a means of livelihood, they guided tourists looking for shining mineral ores with unusual colors and shapes into the mineral mines.

Conclusion

The decommissioning of Wismut was a national project that coincided with the reunification of Germany. It took more than fifteen years and a cost of 6.5 billion euros. From April 27 to October 14, 2007, the Federal Horticulture Show (Bundesgartenschau) was held in Thuringia. For the first time it was held at two sites, in Gera and Ronneburg. At the Hofwiesenpark in Gera, an ordinary gardening exhibition was held. In Ronneburg, the former Wismut uranium mine of 124 hectares was renaturalized into the New Landscape Ronneburg (Neue Landschaft Ronneburg). The site of the open-air uranium mine, that was 230 meters deep and 2 kilometers long, has been completely transformed. In Schmirchau, where the whole town was once dismantled for uranium mining, an artificial hill has been created where the town once stood and stone monuments were carved and exhibited with the name of town. Kristin Jahn showed interviews with former Wismut miners as an accompanying program for the Federal Horticulture Show "Resurrektion Aurora" in Löbichau.

In the village Löbichau, site of the former Wismut shaft Drosen, only the shaft itself has been preserved to the present day. In order to keep the memory of the period of uranium mining alive, twelve local residents, workers, and critics tell of their time in the shaft of Drosen and in the surrounding area. The film *Blackbox* was especially popular with visitors. The filmmaker compiled the contents of the movie into a book (Jahn 2007, 2009).

As of June 2018, the Wismut GmbH company has finished 99 percent of yielding mine workings, 99 percent of the work to fill cavities, 98 percent of the flooding work, and 95 percent of the work to ensure mine integrity. Regarding aboveground work, 97 percent of the plants have been decommissioned, 84 percent of outlining and profiling has been completed, 83 percent of surfaces have been covered, and 84 percent of surface clean up has been done (Wismut GmbH 2018).

The term "finished" does not necessarily mean "completely and finally finished." Although Wismut GmbH has been making huge material and financial efforts to come to terms with its past for more than twenty years, there are areas that appear to have been transformed into green hills but were revealed to have reddish brown soil after rainfall.

During the Cold War, the "mineral ores for peace" that Wismut produced were necessary for the nuclear arms race between the Soviet Union and United States. More than a quarter of century after Wismut finished its work, its endless story is still continuing. The world's largest sanitation project in the history of uranium mining is a universal alarm and warning that human beings are not able to coexist with nuclear material today or in the future.

In that sense, the discourse over Wismut should not be mere nostalgia of hard mining work or the success story of decontamination. It is necessary to have

a perspective that connects the victims of Wismut with that of the Semipalatinsk Test Site and the Chernobyl disaster as “Global Hibakusha.”

Notes

1. “The States Parties to this Treaty [...] Mindful of the unacceptable suffering of and harm caused to the victims of the use of nuclear weapons (hibakusha), as well as of those affected by the testing of nuclear weapons” (United Nations Treaty Collection 2017).

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