

Environmental Restoration in the Former German Democratic Republic

Christine M. Stackpole



Introduction

Through over-employment and unchecked industrial pollution, the former German Democratic Republic (GDR) degraded the Earth's natural resources and caused an environmental crisis in its state. The environmental crisis within the GDR resulted from industry's high production levels, which were directly managed by the East German government. (Picht and Schmidt, p. 135) Before unification East German economic policy included over-industrialization and over-employment directives that closely resembled the industrialization-bent economic policies of the Soviet Union under Stalin. It was, in fact, a Stalinist notion of the economic benefits which heightened production would bring about that led the former GDR to virtually ignore the increasing environmental degradation.

However, the unification of East and West Germany has ended the political and physical assault on the environment, and the German federal government has initiated an environmental restoration process. The signing of the Unification Treaty of August 31, 1990, cemented not only the nation's commitment to a unified Germany, but also the commitment to ecological rehabilitation in the East. As chapter VII, article 34 of the treaty stated, "It shall be the task of the legislators to protect the natural basis of man's existence... and to promote uniform ecological conditions of a high standard at least equivalent to that reached in the Federal Republic of Germany." (Press and Information Office, p. 84) The treaty thus emphasizes the environment and natural resources as significant factors to the overall development of eastern Germany. (Umweltbundeamt, Environmental Protection..., p. 55)

The former GDR, also referred to as East Germany, included the following five states: Brandenburg, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt and Thuringia. The full extent of the degraded environmental condition in these eastern states had not been completely ascertained even by the date of the treaty, although it was common knowledge in the West that the GDR had suffered economically. When the federal government set the environment as a priority issue in the East, the inherent conflict between environmental rehabilitation and economic growth issues arose in both the governmental policy-making and public forums.

Nevertheless, economic development does not transcend in importance the restoration of eastern Germany's rivers, air, forests, contaminated land sites, and industries. More importantly, the conflict between environmental restoration and economic development has not stopped the German federal government from implementing a large number of necessary environmental programs and subsidies to enable the East to reach the environmental and economic condition of the West.

In this essay, I discuss and evaluate the process of environmental restoration in the former German

Democratic Republic. I describe several environmental problems faced by the East around the time of unification with the West. I also examine the federal environmental policy of Germany, which governs the restoration process, and the environmental programs enacted to assist the East. Finally, I address additional economic concerns of the restoration process with a special emphasis on job creation and privatization.

Environmental Crisis in the Former GDR

Before describing and analyzing the environmental restoration process, I will provide background on the ecological degradation that occurred in the GDR. A description of air quality, water quality, and other environmental problems will serve this purpose.

Air Quality

Air quality in the East has suffered from pollution generated by households, industry, and power plants. (Rothkirch and Klinger, p. 35) Air pollutants, including carbon dioxide, nitrogen oxides, and sulfur dioxide, supplied by these sources have far-reaching effects on human health, forest ecosystems, and global warming.

In particular, the use of brown coal as an energy source has detrimentally affected air quality in the East. Brown coal is among the most environmentally harmful types of fuel as determined by the types and amounts of its toxic emissions. Although the proportion of brown coal used by households fell from 63 percent to 50 percent during 1990-1993, brown coal was used extensively in the GDR from 1970-1985. (Umweltbundesamt, Environmental Data.... p. 9) The use of lignite, a broad classification of coal that includes brown coal, has been argued to be the most serious environmental energy problem. Lignite results in the highest amounts of air pollution through the release of sulfur dioxide, nitrogen oxides, and carbon monoxide. (Pichl and Schmidt, p. 137) By shifting to energy sources with less toxic emissions than lignite, the energy supply structure of eastern Germany has changed dramatically since unification. Since 1990, the use of natural gas and nuclear power has become more widely used as coal and oil have become less common. (Umweltbundesamt, Environmental Data..., p. 9)

Carbon dioxide emissions per capita from energy use measured over two times greater in the East as compared to the West in 1987. In 1990, nearly 50 percent of carbon dioxide emissions, excluding those from natural sources and marine bunkers, in the East originated from power stations and the production of electricity. Only eight percent of total emissions originated from transportation uses. In the West only 35 percent of carbon dioxide emissions came from power stations and production of electricity, and 22 percent came from transportation uses. This illustrates in part the high level of industrialization in the East and its resulting high output of the pollutant carbon dioxide. (Umweltbundesamt, Environmental Data..., p. 16) Total amounts of carbon dioxide emissions dropped in the East after unification so that in 1993 these emissions per capita were approximately the same in the East and West.

At the time of unification, approximately five times the amount of sulfur dioxide emissions was measured in the East compared to the West due to outdated technologies for the combustion of fossil fuels. By 1992 the East had decreased sulfur dioxide emissions by 40 percent from 1990. (Umweltbundesamt, Environmental Data.... p. 17) Total nitrogen oxide emissions per year in the East are significantly lower (478 thousand tons) than in the West (2,426 thousand tons) because of the smaller number of cars in the eastern states. (Umweltbundesamt, Environmental Data..., p. 18)

The rise in the standard of living that followed unification unfortunately created further environmental problems for the eastern states. In 1990, the GDR's deutsche mark was made equal in value to that of the

West German deutsche mark; and Germans living in the East were immediately able to purchase gas-consuming, nitrogen-oxide-emitting motor vehicles. Even before unification, individual car traffic rose by slightly over 30 percent in the GDR, while the use of transportation that emits less pollutants, for example, railways, decreased by 13 percent from 1980 to 1993. (Umweltbundesamt, Environmental Data..., p. 1) Air quality and land use problems have been related to the traffic problem; land area used for residential and transport facilities, such as roadways, has increased from 1981 to 1993. (Umweltbundesamt, Environmental Data..., p. 2)

Water Quality

Another environmental problem directly affecting human health is the lack of adequate wastewater treatment facilities throughout the East. (Rothkirch and Klinger, p. 56) A comparison of the percentages of homes connected to sewage networks illustrates the differences in the public health situation in the East and West. In 1991, 94 percent of households in the West were connected to sewage systems, while in the East only 75 percent of households were linked to such systems. (Umweltbundesamt, Environmental Data... p. 29) In 1991, the percentage of households connected to wastewater treatment plants for biological and advanced treatment in the West was 89 percent compared to only 37 percent in the East. (Umweltbundesamt, Environmental Data... p. 29)

Wastewater, released in large quantities from outmoded factories that lack sewage treatment, has led to severe contamination in lakes and rivers in the former GDR. Like other environmentally degrading practices, the release of wastewater was permitted in the East because it was less costly and quicker than water treatment. Three percent of all rivers and only one percent of still waters were characterized as fully sound from an ecological perspective in 1989. (Rothkirch and Klinger, p. 99) For example, the Rhine River, which flows through the West, measured lower heavy metal concentrations (e.g., mercury and cadmium) than the Elbe River, which flows through the East. (Umweltbundesamt, Environmental Data..., p. 31) The use of lignite in chemical processes, which produces tar by-products, also pollutes waterways. (Pichl and Schmidt, p. 137)

Other Environmental Problems

Forest damage presents another environmental problem for both the timber industry and recreational users throughout Germany. Ranked among the world's largest exporters of timber (Kappler and Grevei, p. 282), the German timber industry has cause to be concerned with the present level of forest damage throughout Germany. As late as 1994, 25 percent of the trees in Germany were characterized as having a high level of damage. (Umweltbundesamt, Environmental Data... p. 26) Symptoms of a high level of forest damage include defoliation, discoloration of needles or leaves, slowed growth, and ultimately death. Such damage is primarily caused by air pollution. (Kappler and Grevel, p. 282) Unlike the previously mentioned environmental problems, forest damage remains a problem in both the eastern and western areas of Germany. For example, 44 percent of forest area in the East's Thuringia Forest, 33 percent of forest area in the West's Black Forest, and 17 percent of the East's Westphalia forests are damaged. (Umweltbundesamt, Environmental Data..., p. 26)

In addition to forest damage, other environmental problems include the high numbers of environmental offenses and site contamination. The total number of known environmental offenses reported by the Federal Environment Agency, which includes water pollution and illegal hazardous waste disposal among offenses, has increased in the East. Although actual crimes may not have increased since unification, the number of reported environmental crimes jumped from 615 in 1991 to 5,404 in 1993. This phenomenon is likely caused by increased environmental awareness on the part of both the public and private sectors in the East and not by an increase in environmental offenses. During this same two-

year time period, offenses in the West increased only by five percent. (Umweltbundesamt, Environmental Data.... p. 4) This is no doubt due to the fact that a high level of environmental awareness has existed for some time in the West.

A suspected total of 65,288 contaminated industrial, mining, and agricultural sites exists in the East, with the greatest number occurring in the industrialized state of Saxony. (Umweltbundesamt, Environmental Protection, p. 51) To restore the environment, many of these sites and the previously mentioned instances of waterway and industrial site pollution will require massive on-site restoration clean-ups. The reason offered by the German Federal Environmental Agency for this large-scale environmental restoration process is that "the environment must be in satisfactory condition if we want to offer the people of a region, and the companies based there, long term [economic] prospects. The cardinal aim of ecological and economic efforts must be to establish and consolidate healthy living conditions." (Umweltbundesamt, Environmental Protection..., p. 55)

Federal Environmental Policy

Once the full extent of the ecological crisis in the East had been ascertained, existing West German federal environmental policy governed the environmental restoration process. On July 1, 1990, the Framework Environmental Law made West German environmental law and policy effective in the East. (OECD, p. 83) The basis of federal environmental policy covers three strategies and includes: coping with, and avoidance of, environmental problems; rehabilitating the ecological condition caused by the economic structure of the former GDR; and acceptance of responsibility for the environment. (Rothkirch and Klinger, p. 13)

In general, German environmental policy is created and enforced by laws and economic controls. Orders, regulations, and environmental impact statements fall under the government administration as well. Environmental consulting, information services, and education also serve to further the goals of German environmental policy. (Rothkirch and Klinger, p. 13)

At the federal level, environmental policy strategy centers on three principles: the precautionary principle, the polluter-pays principle, and the principle of cooperation. The Federal Environment Ministry describes the precautionary principle as promoting the integration of environmental compatibility and protection into production processes before unsafe environmental conditions arise. (Rothkirch and Klinger, p. 12) The goal of the polluter-pays principle is to factor in an ecological cost to both the manufacturer and the consumer if the manufacturer has harmed the environment. (Rothkirch and Klinger, p. 13) Because polluters may be unidentifiable or in some cases government institutions, the polluter-pays principle often cannot be enforced without problematic economic consequences for the East. (OECD, p. 93) Finally, the principle of cooperation focuses on voluntary actions and market incentives to facilitate the use and creation of environmentally compatible technologies. (Rothkirch and Klinger, p. 12)

Eastern Germany receives assistance from the federal government in the general areas of assessing environmental quality and defining ecological priorities. (OECD, p. 92) Western Germany's state administrations also assist in strengthening the administrations in the eastern states through training programs that explain federal environmental policy and other important regulations and procedures. Western state administrations have transferred employees from the West who have provided assistance to eastern state administrations, consulted on issues related to emission controls and water quality, and have funded research on eastern environmental problems. (OECD, p. 95)

Environmental Programs

The vast differences in the environmental situations of the East and West require that massive amounts of both financial assistance and program initiation take place. Although eastern state governments are almost exclusively responsible for implementing and enforcing federal environment programs, the federal government has taken responsibility for the formation and financing of ecological rehabilitation programs. Programs are created by the government, with the intent that the eastern states will one day assume total responsibility for environmental initiatives. (OECD, p. 92) The West has sometimes been criticized for creating inefficient administrations in the East similar to those in the West. (OECD, p. 95) Nevertheless, the federal government's laws and programs have provided needed funding to the environmentally unstable former GDR.

Federal monetary support for environmental rehabilitation projects can be obtained in two ways: through "environmental programs" explicitly designed for environmental purposes, and through "general programs" qualifying for environmental projects. (OECD, p. 92) Examples of environmental programs include the Community Credit Program, which lends money to municipalities, and the Ministry for the Environment emergency measures, which provide grants for projects concerned with ending immediate health risks. (OECD, p. 94) General programs emphasize job creation and investment subsidies. (OECD, pp. 94-95)

Certain environmental restoration programs in the East were undertaken by the government immediately after unification in what is referred to as Germany's "Common Task of Rehabilitating the East." The first was a program for emergency measures in the field of environmental protection that cost 1.2 billion deutsche marks and funded 1,810 projects. The projects focused on improving drinking water, air quality, landfill contamination, soil condition, and wastewater treatment. Also, between 1990 and 1992 approximately 400 million deutsche marks were allotted to support an additional 38 pilot restoration projects, which promoted new environmental technologies in the East. (Rothkirch and Klinger, p. 101) Financing the rehabilitation of abandoned waste sites was one of the goals of the government's "Common Task of Rehabilitating the East." The Environmental Framework Law of 1990 contained an exemption clause that served as the legal basis for relieving eastern owners, residents, and investors from the financial costs of and legal responsibility for cleaning up environmental problems associated with deserted waste sites. Both the federal and state governments will provide 15 billion deutsche marks between 1993 and 1997 to rehabilitate abandoned waste sites. This sum will be divided in the following manner: 1.5 billion deutsche marks per year for deserted lignite mines, 2.26 billion deutsche marks for chemical industries, and 3.2 billion deutsche marks for other major environmental clean-up projects. (Rothkirch and Klinger, pp. 101-103)

In the federal government's effort to define and restore environmentally damaged areas, the largest environmental restoration program completed in the East took place in the area surrounding Leipzig, Bitterfeld, Halle, and Menseburg. (OECD, p. 93) Leipzig in particular was seriously devastated by lignite-type pollution (Pichl and Schmidt, p. 143), and factory closings occurred throughout the Halle-Leipzig-Bitterfeld area due to the unsafe environmental conditions caused by damaging industrial practices (e.g., hazardous waste disposal and toxic air emissions). (Pichl and Schmidt, p. 146) This restoration project provides a blueprint for other environmental restoration programs because it addresses not only environmental concerns but also legal and economic concerns for an entire region. (OECD, p. 93) The Saxony-Anhalt, Saxony, and Thuringia state governments have already utilized this project's strategy to improve their own environmental restoration programs. Other rehabilitation and development programs have focused on Mansfeld, Rostock, and Lusatia's mining and power industries. (Umweltbundesamt, Environmental Protection..., p. 56) Two of the federal government's key programs, the Pollution Abatement Investment Program and the Regional Loan Program, have cost approximately 8.7 billion deutsche marks. The Pollution Abatement Investment Program aids industrial improvements, and 358 million deutsche marks were provided to 28 abatement projects from 1990-1992. These abatement projects attempted to lower industrial emissions, apply new production processes, or produce

environmentally safe goods. The Regional Loan program was designed to assist local authorities with environmental investments. Loans from this program totaled 8.3 billion deutsche marks for 1991 and 1992. (Umweltbundesamt, Environmental Protection.... p. 61)

Federal monetary support is also available to promote private environmental consulting in industry and local government. The Federal Environmental Foundation has supported environmental consulting projects since 1991 to heighten awareness of effective environmental policy and management among local businesses. (Umweltbundesamt, Environmental Protection..., p. 62) A need to involve private investors in planning, building, and financing environmental restoration projects has likewise been attempted by the Federal Government to develop environmental protection in the East. (Umweltbundesamt, Environmental Protection..., pp. 62-63)

Along with financial support, important policies and programs have been instituted for environmental protection of the East by institutions outside Germany, in particular the European Union. The Fifth Action Program on the Environment, created by the European Community Commission in 1992, supported the integration of industrial, energy, traffic, and agrarian policies with environmental protection. (Rothkirch and Klinger, p. 14) The European Recovery Program, created under the post-World War II Marshall Plan, supports ecological restoration and supplies low-interest loans to the East. Between 1990 and 1992, the European Recovery Program lent 1.3 billion deutsche marks to applicants in the East for energy, sewage treatment, and air quality projects. (Umweltbundesamt, Environmental Protection.... p. 62)

Additional Economic Considerations

The costs and implementation of the environmental restoration process in the East have impacted both the economic condition and social culture of Germany. Unemployment, environmental awareness, and government expenditures have all been considerably affected by the restoration process and have altered the lives of many Germans. Although federal economic policy aims to increase economic activity, job security, and the public's understanding of environmental issues, the German government has struggled with properly balancing these three goals. (Pichl and Schmidt, P. 145) Part of the struggle has involved disbanding previously state-owned industries and overhauling the pre-unification East German policy of over-industrialization. Over-industrialization maintained factories at excessively high levels of production, which could not be supported by a market economy. The policy was replaced by lower levels of industrialization and environmentally sound manufacturing methods. (Pichl and Schmidt, p. 133) To lower production levels and establish sound environmental standards, the federal government has had to privatize the majority of eastern companies and to establish job assistance programs.

Privatization

The privatization of state-owned firms and properties required a tremendous effort by the federal government and affected both employment and the environmental restoration process in the East. The government agency charged with privatizing industries and land was the Treuhandanstalt, which was created under the former GDR government and was then passed to the control of the federal government after October 1990. (Fucci, p. 10) Among the obstacles to privatization which the Treuhandanstalt faced were questions regarding investors' liability for existing contamination of industrial sites and questions regarding property rights. (OECD, p. 96) Questions regarding investors' liability for deserted waste sites were answered by the previously mentioned Environmental Framework Law of 1990. (Rothkirch and Klinger, pp. 101-103) Property rights, which constituted the greatest obstacle to privatization, became a question for the Treuhandanstalt when the German government legislated property restitution to those who had land taken by either the Nazis or the Soviets during their occupations. (Fucci, p. 11) When the

Treuhandanstalt successfully secured a new owner for a contaminated industrial site, the buildings and land had to be cleaned up before the site became occupied. (Umweltbundesamt, Environmental Protection..., p. 59)

Investors were not solely responsible for environmental cleanup costs. Instead these liability costs were financed in the following way: ten percent of the cost was paid by the investor, while the Treuhandanstalt and the eastern states divided the remaining costs at a ratio of 60:40. (OECD, P. 96) Different financing procedures were used for larger rehabilitation projects such as lignite mining and chemical industry sites. In these cases the Treuhandanstalt covered 75 percent of the remaining costs while the states covered 25 percent. (Umweltbundesamt, Environmental Protection..., p. 51)

The Treuhandanstalt concluded its business as of December 31, 1994, with cleanup expenditures alone totaling over 44 billion deutsche marks. (German Information Center, p. 4) Altogether the Treuhandanstalt converted some 8,000 eastern companies into 13,000 western-like corporations, and privatized completely or in part almost all of its initial holdings. An estimated 13,000 enterprises and company divisions were sold to private investors by January 31, 1994. (Fucci, p. 12)

Effect on Jobs

The process of environmental restoration often has a favorable effect on jobs. The sale of companies from Treuhandanstalt holdings, regardless of the environmental condition of the companies' land and buildings, saved 1.5 million jobs in all. (Fucci, p. 13) Job opportunities arise through environmental regulation, which provides a strong incentive for the invention of new technologies. The environmental protection business in the East in 1990 accounted for 134,000 jobs. Of these 134,000 jobs, 60,000 came from government job creation initiatives. According to the Federal Environment Agency, the forecast for the year 2000 is that there will be 336,000 jobs in the environmental protection business. Predicted increases include greater employment due directly to environmental protection and to the production of environmental protection goods (e.g., emissions filters and wastewater treatment facilities). (Umweltbundesamt, Environmental Data.... p. 5)

Although the environmental protection business continues to grow, the numbers of people who will be employed in jobs related to environmental protection are different for the East and the West. Of all the jobs in Germany, one in 40 in the West and one in 20 in the East will be connected to environmental protection in the year 2000. (Umweltbundesamt, Environmental Data..., p. 5)

The socioeconomic costs of environmental restoration have included factory closings and dismissals of workers throughout the East. Usually the factories were not environmentally sound because they lacked environmental controls on noise, air, and water pollution. Examples of such factories include a carbide-production plant in Schkopau, Saxony-Anhalt. (Pichl and Schmidt, p. 144) The 10th Amendment to the Employment Promotion Act relates specifically to long-term job creation in the environmental sector in the East. The amendment, which came into effect on January 1, 1993, has implemented a new form of job generation. Section 249 of the act aims to restore and provide maintenance of vital economic industrial centers in order for new companies to thrive. Overhauling polluted production sites, construction of recycling plants, and reclamation of lignite mines are some of the projects that the Employment Promotion Act encourages. Most of the money for the projects must be put up by the company that has initiated the work or else supplied by a third party, such as the federal government or the European Union. (Umweltbundesamt, Environmental Protection.... p. 60)

Before unification a surplus of two million people existed in the manufacturing sector while a worker shortage existed in the service sector. Job creation in the service sector has considerable importance to

the East because of this imbalance. As previously mentioned, the federal government is seeking to reduce the number of jobs in the manufacturing sector and increase the number of jobs in the service sector. (Pichl and Schmidt, p. 136) An increase in environmental jobs, some of which are included in the service sector, will help reduce this imbalance.

Prices in the East will begin to reflect resource scarcity and the costs of preserving the environment because the eastern economy is no longer managed by directive planning and price controls. Consumer goods that are environmentally unsound or produced in an environmentally unsound way will be more expensive. Businesses will then adapt their production of goods to consumers' ability to buy and to production costs. (Pichl and Schmidt, pp. 145-46) Thus, the new market economy will permit the East to have an ecologically compatible economy in the long run. (Pichl and Schmidt, p. 146)

Conclusion

Unified Germany has taken on the responsibility for restoring the East's environment, once degraded by the Stalinist notion of over-industrialization. One of Stalin's successors, however, would applaud the changes in policy from over-industrialization to environmental restoration in the East. Mikhail Gorbachev in his book, *Perestroika: New Thinking for Our Country and the World*, voiced concern over ecological issues when he wrote: "For all the contradictions of the present-day world, for all the diversity of social and political systems in it ... this world is nevertheless one whole. We are all passengers aboard one ship, the Earth, and we must not allow it to be wrecked. There will be no second Noah's Ark." (p. 12)

The notion of environmental protection, of which Gorbachev writes, now governs environmental policies in the former GDR. Perhaps the following statement best articulates the current objective of the federal government's environmental policy: "Those states which accept in good time the challenge for the future with regard to an environmentally compatible economic system and way of life will derive great benefit from this." (Rothkirch and Klinger, p. 9) The many environmental programs and subsidies instituted for the East further illustrate the commitment of the German federal government to uniting the economy and environmental concerns in an ecologically-committed manner despite the initial financial burden of restoration.

Within the almost six years since environmental restoration has been implemented in the East, results indicative of positive environmental change have been observed. From decreasing air pollution to balancing employment levels in the industrial and service sectors, Germans living in the East can soon look forward to living in a region comparable in health and safety to the West.

References:

- Fucci, Frederick R. "Whither the Treuhandanstalt," in A. Bradley Shingleton, Marian J. Gibbon and Kathryn S. Mack, eds. *Dimensions of German Unification: Economic, Social and Legal Analyses*. Boulder, CO: Westview Press, 1995, pp. 9-25.
- German Information Center. *Focus on the Treuhandanstalt*. New York, 1995.
- Gorbachev, Mikhail. *Perestroika: New Thinking for Our Country and the World*. New York: Harper & Row, 1987.

- Kappler, Arno, and Adriane Grevel, eds. Facts about Germany. Frankfurt/Main: Societdts-Verlag, 1993.
- Organization for Economic Cooperation and Development (OECD). Environmental Performance Reviews, Germany. Paris, 1993.
- Pichl, Peter and Uwe Schmidt. "Economic Development and Ecological Crisis in the Former GDR: Opportunities Offered by Change," in Markus Jachtenfuchs and Michael Strubel, eds. Environmental Policy in Europe: Assessment, Changes, and Perspectives. Baden-Baden: Nomo Verlagsgesellschaft, 1992, pp. 133-153.
- Press and Information Office of the Federal Government. The Unification of Germany in 1990.- A Documentation. Bonn, 1991.
- Rothkirch, Dr. Utel Graf, and Verena Klinger, eds. Environmental Policy in Germany. Bonn: Federal Environment Ministry, 1994.
- Umweltbundesamt. Environmental Protection - an Economic Asset.- Seven Arguments for not Setting a Lead in Environmental Protection... and What We Think of Them. n.d.
- Umweltbundesamt and the Statistisches Bundesamt. Environmental Data: Germany 1995. Berlin: Hagedorn, 1995.