The Ailing Mother Russia

Editor’s Note: Although environmental health problems exist throughout the former Soviet Union, the focus of this article is on the problems in Russia and the programs addressing them.

It is estimated at least one in five Russian babies born today is in poor health. In Moscow, three out of four expectant mothers have some pathology in their pregnancy. Males in one Arctic village are not expected to live beyond their early 40s; women in this village usually do not live beyond their late 40s. Children and adults throughout Russia suffer from respiratory and intestinal disorders at a rate many times higher than elsewhere in the world.

Although such grim statistics are in part a result of poor nutrition, inadequate medical care, cigarette smoking, and alcoholism, extensive environmental degradation remains a primary culprit. As the largest of the former Soviet Union’s 15 republics, Russia helped direct a massive military-industrial machine that stretched from the Baltics to Central Asia, the Arctic, Siberia, and Eastern Europe. That Soviet legacy continues to threaten the environment and health of hundreds of millions of people as well as future generations.

The sources of pollution are many and varied: thousands of factories built in tight concentrations expelling waste into vital waterways; mines working at full tilt to extract raw materials; farms dumping massive amounts of chemicals on crops; nuclear testing sites and power plants that have leaked, exploded, or recklessly disposed of their wastes; and a military that still discards its toxic and nuclear wastes into the seas. Because production was emphasized over efficiency, local environments became overtaxed by the all-powerful monopolies.

Science, to help meet the state’s goals, was made subservient to its demands. The central government determined the direction of scientific research, kept its nature hidden, and sifted through the results to find those that fit its purposes. Until the late 1980s, the Ministry of Public Health would not contradict the USSR’s industrial practices by revealing that they might be damaging the nation’s environment and health. In 1986, immediately after the nuclear reactor explosion at Chernobyl, employees of the public health ministry were forbidden to provide any information about the accident. In addition, it was not until 1988 that the Soviet Union established its first environmental protection agency; the State Committee on Environmental Protection was then promoted to the level of ministry in 1991.

Today, Russians must cope not only with a rapid transition from a command to a market economy, but with a greatly damaged environment as well. A number of organizations in Western countries are attempting to provide funds, expertise, and technology, but efforts sometimes meet a complex set of roadblocks, including a sense of national pride that can cause some Russians to feel “humiliated by large foreign groups arriving and trying to teach them,” according to Marina Savelyeva, Russian program coordinator for the International Center for Better Health/AESOP. “Outside help should be given carefully and with respect to our culture,” she wrote in the fall 1992 issue of Surviving Together, a quarterly journal published by ISAR (formerly the Institute for Soviet-American Relations) in Washington.

“The desire to improve is there,” says Murray Feshbach, professor of demography at Georgetown University and co-author with Alfred Friendly, Jr. of Ecocide in the USSR: Health and Nature Under Siege, “but there’s the lack of funding for environmental work, and now there’s this drive for economic development. It’s true there are a lot of small grants, but there are also a lot of people who want them. There has to be much more from the West; yet, at the same time the Russians want to help themselves.”

Unchecked emissions. Factories throughout Russia, like this metal ore smelting complex near Monchegorsk, continue to pollute the air and water.

Extent of Pollution

Although Russia’s old polluting practices are now known to be dangerous, little has been done to stop them. To close down offending factories would mean dismissing workers and adding to an unemployment burden that Federal Employment Service head Fedor Prokopov says could reach 10–12 million this year. In addition, a single plant is often the only producer of a vital component; to shut it down could start a chain reaction that would jeopardize other related factories. A successful push to close a polluting aspirin factory in 1990, for example, left the entire country without aspirin until it was reopened. Even some regional environmental groups stop short of calling for plant shut-downs; their own livelihood would be wiped out.

“Instead of closing down factories, the government wanted us [scientists] to find medical solutions to the illnesses,” says Ilya Tsyrlin, formerly with the Soviet National Academy of Sciences and now senior research scientist at the U.S. National Cancer Institute. “Or they wanted us to develop a migration approach; for example, people would work at an aluminum factory for one year and then be moved to a different industry. In my opinion, this was totally inhumane.”

In 1992, 6000 businesses were brought to trial for allegedly polluting the environment, according to an August 1993 article in the liberal Russian newspaper, Nezavisimaya Gazeta. Eighty-four percent of the defendants were found guilty, but because of severe financial conditions throughout the country, few could pay. As a compromise, the courts allowed the companies to use a portion of the fines to implement environmental protection measures. Russian experts estimate that if existing environmental fines were levied on all of the country’s industrial businesses, 60% of them would go bankrupt.

In the meantime, Russians and their children continue to get sicker and die younger than their counterparts in other industrialized nations. In 1988, more than 1 out of 2 schoolchildren were believed to be in poor health; 18% suffered from intestinal disorders, 30% from chronic respiratory problems. In the southern Russian city of Magnitogorsk, iron-ore mines and the nearby steel factories surround a community in which 9 out of 10 children suffer from pollution-related illnesses such as bronchitis, asthma, allergies, and even cancers. Nationwide, worker absenteeism due to illness had reached an average of 4 million per day in 1989.

According to Nezavisimaya Gazeta, only 28% of infants born in 1992 were healthy, and only 27% had healthy mothers. It is also estimated that 30% of the children’s
The concentrations of diseases on holism hindered infants illnesses. Turned round have plants. Solution Management

Although chemical fertilizers produce. Reduction dependence "sion." Inadequate DDT in Russia, poisoning soil and water as far north as St. Petersburg. High radioactivity levels have also been found near many Russian cities, including Kapustin Yar, Balakot, Kostroma, and Tver, where nuclear bombs and missiles have been manufactured and tested for decades.

With the collapse of communism have come increasing revelations about the extent of radioactive contamination throughout the former Soviet Union, including secret nuclear dumping in the Russian Arctic, which had been banned for decades by international agreement. Radioactive cesium has been found in tundra mosses, for example, and underground atomic explosions and once-secret plutonium plants have fouled many Russian rivers, including one of its largest, the Ob. In addition, many cities near military bases, including Murmansk, Chelyabinsk, and Severodvinsk, have reported a high incidence of radioactive pollution and suspicious cancers.

In the early 1990s, following national and international pressures, the Soviet Union announced it would suspend construction on new nuclear power plants. At the same time, the production and output of coal, oil, and gas was steadily declining. With the fall of the Soviet Union, however, and the rise of a free-market economy, Russia will need more energy sources than ever, and the government has begun to reconsider the use and construction of nuclear power stations, despite some ongoing public outcry.

One Russian City
Most former Soviet statistics are unreliable because "the local governments and party leaders hid the exact numbers from the people, giving them distorted information," says Valerie Kagan, associate professor in the Department of Environmental and Occupational Health at the University of Pittsburgh. Doctors were prevented from publishing any findings that contradicted official reports.

As a recent Russian emigre, Kagan is part of a trend that could hinder Russia's ability to restore the health of its environment and citizenry. Top Russian researchers and scientists have been leaving the country in droves, lured to Western nations by better materials, equipment, salaries, and opportunities for "real research." Those who stay in Russia are also leaving basic fields of study such as biology and zoology to enter more lucrative fields such as biotechnology or biochemistry, thereby affecting the quantity and quality of basic biological research now being conducted in Russia.

Since his arrival in the United States in 1989, Kagan has received "tons of calls and requests for reference letters to help scientists still in Russia get positions here." Though now a U.S. citizen, Kagan's research remains in great part devoted to improving the life of his former countrymen. Kagan's university department is planning to set up a collaborative research team to study pollution-related health problems in Novokuznetsk, the second largest city in Siberia and a major metallurgical center in the Urals Mountains. In 1987, Novokuznetsk had the fifth highest level of air pollution in the Soviet Union; the children of Novokuznetsk have had pneumonia rates more than four times that of even the heavily polluted northern port city of Archangelsk.

"Novokuznetsk is what Pittsburgh was like 40-50 years ago," says Kagan. "Today, in the United States, we would never have the opportunity to get the kinds of measurements in human groups as we can in Novokuznetsk. It's one of the nastiest examples of air pollution in the world."

NCT's Tsyrlov is also looking at environmental contaminants in the Novokuznetsk region. Because of the number of aluminum factories, he says, benzopyrene levels are "thousands of times higher than normal." The concentrations are so high that "even less sensitive technology" can read them, ironically making it easier for Russian scientists to conduct studies without expensive foreign equipment.
Taking Action
When Russians ask each other "how are you," the almost universal response is "norma-
made." Such an answer is intended to mean that life cannot possibly be any better or any worse, a revealing example of the sense of fatalism that has dominated Russian soci-
dity for decades, if not centuries. Revealing a Russian penchant for dark humor, a
former health minister, A. I. Potopov, reportedly said in 1989 that "To live longer, you
must breathe less."

However, with glasnost and perestroika in the mid-
1980s and subsequent revela-
tions of environmental and health damage, many
Russian citizens, unaccus-
tomed to taking action on
their own behalf, began to
organize and protest, espe-
cially in Moscow and along
the heavily polluted Volga River. Today, there are
more than 500 public, pri-
ate, academic, and grass-
roots organizations working to
improve the environment and
environmental health throughout Russia, according
to a directory published by the
Washington-based Kompass Resources
International. Kompass is a nonprofit or-
ganization that facilitates international
exchange projects on educational, environ-
mental, and health issues not only in Russia
but also in the Newly Independent States,
Baltics, and Central and Eastern European
Republics.

One of the early Moscow-based envi-
nmental groups is the Socio-Ecol-
ogical Union (SEU), founded in 1988 by Maria
Cherkasova, Mikhail Lemeshev, and Aleksei
Yablokov. Yablokov is now presidential
advisor on the environment and health to
President Boris Yeltsin as well as head of the
environmental security subcommittee on
the Security Council. During his presiden-
tial campaign in 1991, Yeltsin often blamed
the Soviet government's secrecy for the
republic's environmental problems, leading
to speculation that he would favor industri-
al reforms. But because Russia's political
and economic problems are still so severe,
says Tsyrloy, "such health problems are not a
priority, not even in second or third place.
Russia's only hope is in its people move-
ments."

Feshbach adds that the percentage of
Russia's federal budget allotted for envi-
ronmental and health concerns is currently
about 4%, down from 6.65% in 1965. And
while pollution from industry has decreased by
11% in the last two years, production has
also fallen by 18%, he says, signaling a
correlation between levels of production
and pollution, rather than significant suc-
cess in controlling emissions and wastes.

Today, the SEU is an umbrella organi-
ization that joins 150 groups from 13 of
the former Soviet republics. The SEU works
closely with the Washington-based non-
profit organization ISAR. Their first joint
project involved the establishment of an E-
mail network that allows environmental
groups throughout the former Soviet Union
to quickly and easily share information with
each other and related groups around the
world. Through the net-
work, more than 200 non-
governmental organizations
(NGOs) are now linked
throughout the former Soviet
Union.

"One thing they discover-
ered is that information is
power," says Kate Watters,
ISAR's head of environmen-
tal programs. "The E-mail
network cuts down on the
isolation that many people
can feel there. What we're
doing is just connecting
groups with each other, so
they don't work at cross-pur-
poses with each other."

In 1993, ISAR received two grants from
the United States Agency for International
Development (USAID) to be administered
to "green" groups working in the
former Soviet Union. The grants support coopera-
tive and individual projects developed by
environmental NGOs in the United States
and Russia.

Environmental collaborations with the
United States go back to the mid-1970s,
when the governments of the United States
and USSR signed the first EPA Bilateral
Agreement in 1975. Continually updated,
the agreement now calls for separate coop-
erative arrangements between EPA and each
newly independent state. In the Russian
Federation, EPA representatives work with
their counterparts from the Ministry of
Ecology and Natural Resources. Among
many joint research projects, the groups are
currently studying the sources, effects, and
potential solutions to air, water, and soil
pollution.

In the late 1970s, when Rosemarie
Russo, now head of the EPA's Envi-
nronmental Research Laboratory in Athens,
Georgia, first visited the Soviet Union,
communication between American and
Russian scientists was hampered by inter-
national tensions and Soviet secrecy. The
American group was allowed only to com-
municate with the heads of state agencies or
scientists approved by the government.

"They always claimed they had zero pollu-
tion discharge from their plants, which of
course was impossible," Russo says. "It was
careful to separate the political statements
from reality. But today professional rela-
tions between American and Russian
researchers are quite close," Russo adds.
"It's a very caring kind of relationship. And
now that they have the freedom to deal
more directly with us, and not have to
touch everything with Moscow, there's also
a new spirit on their side."

Despite this new spirit, most Russian
scientists still lack the technology and
expertise to make complete and accurate
measurements and studies. This has led to
a tendency to be more "theoretically oriented,
while Americans remain more practically
oriented," says Frank Schiermeier, head of
the EPA's Atmospheric Characterization and
Modeling Division.

When researchers from Russo's lab visit
their Russian colleagues to test a region's
water quality, they usually bring their own
equipment, including a hydrolab or gas
chromatograph. Or they may take water
samples back to the EPA lab in Georgia for
metal analysis because it is not possible to
measure all the parameters in Russia.

"The Russians often don't have the
tools to work with," says Russo. "A
Russian chemistry lab wouldn't be
equipped anything like a Western chemistry
lab. For example, they might only be able to
test a water sample's pH and temperature.
But sometimes you'll find some very bril-
liant people there who have developed their
own equipment. For example, I knew of
one scientist who managed to fabricate a
dosing apparatus for toxicity tests. So you
will find these sterling people in little pack-
ets of excellence," she said.

Today, those labs essential to the
Russian government's agenda are the most
likely to be supported by it, according to
Michael Resnick, head of NIEHS's
Laboratory of Molecular Genetics, who has
been conducting research with several
Russians for more than five years. When
visiting laboratories in Russia, he found
them "modestly supported by European
standards and lacking by American." Because
of the general lack of funding for
basic research, some labs have even been
closed down for short periods. To compen-
sate for such shortages, some American
scientists have sent money and other materials
to their Russian counterparts, but they "are
often concerned it will never get there," says
Resnick.

Despite such limitations, Schiermeier
says that Western scientists can also learn
from Russians; the exchange is not always
"a one-way street." As an example, he com-
pared the American practice of measuring
sulfur dioxide levels in large cities 24 hours
day. In Russia, on the other hand, sulfur
dioxide levels are tested for just 20 minutes
4 times a day. "A group at the EPA com-
H Bak Brasch

Rosemarie Russo—There's a new spirit of optimism among Russian scientists.

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Unenforced Regulations

Internal conflicts in the Russian government continue to impede progress in such critical areas as the environment and health. Yeltsin’s violent clash with the Russian Parliament in October 1993 and the election of a high percentage of Yeltsin opponents in December highlight the level of tension between the central leadership and regional representatives. In addition, the president’s environmental advisor, Aleksei Yablokov, and the Minister of Ecology and Natural Resources, Viktor Danilov-Danilyan, have had sharp disagreements on how to manage Russia’s environmental problems. Such divisions have contributed to the country’s slow progress.

Yablokov has called for the country’s environmental clean-up efforts to be carried out primarily by private or privatized industries, an approach Tsyrlov calls “bureaucracy.” Tsyrlov elaborates: “None of the most polluting factories has been privatized yet, including the steel and paper producers, which are the main sources of dioxin-like compounds. Those enterprises are still owned by the government.”

Ironically, the Soviet Union’s environmental regulations were some of the stiffest in the world, though they were seldom enforced. Factory equipment was often archaic by Western standards and minimally equipped to control emissions. Fines for polluting were also low. In one case, cited by Feshbach in his book, 70 factory directors in the Krasnoyarsk region each had to pay the “equivalent of two packs of foreign cigarettes for illegal dumping” in 1990.

“Since then, I’ve seen a more conscious-raising attitude in government but not necessarily in industry,” says Feshbach. “Instead, they have a don’t-bother-me attitude. Now there’s a whole new series of regulations governing hazardous wastes, but the fines don’t seem to have risen when you account for the high inflation.”

Instead of unenforced regulations and fines, one possible solution may involve the voucher program established by Yeltsin as part of his economic reforms in early 1992. By buying shares in companies, for example, Russian citizens have begun to wield some power in factory decision-making and to pressure managers into investing in antipollution equipment and medical improvements, according to Kagan.

Funding Sources

To assist Russian scientists in their research, the Washington-based International Science Foundation (ISF) has recently established a $100-million grant program to support short- and long-term projects in the basic natural sciences in Russia and the other republics of the former Soviet Union. The grants were awarded in two rounds, in September 1993 and February 1994, and range from $10,000 to $100,000 to cover a two-year period, according to Elisa Chait, program officer at ISF. Founded by American philanthropist George Soros, the ISF grants support “research directed toward increased knowledge or understanding of natural processes and phenomena” on the territory of the former Soviet Union.

As part of its many international grant programs, the Howard Hughes Medical Institute accepted applications through January to support five broad areas of fundamental biomedical research in Eastern Europe and the former Soviet Union or between such scientists and their counterparts in the United States, Europe, or Japan. Forty to sixty grants ranging from $10,000 to $75,000 will be awarded for up to five years of work in cell biology, genetics, immunology, neuroscience, and structural biology.

Among its other related activities, the National Academy of Sciences’s National Research Council in Washington runs the Young Investigator Program through its Office for Central Europe and Eurasia, which brings American scientists to meet their counterparts in the former Soviet Union. One group traveled through the Russian Arctic and far north to study the region’s ecological concerns during the summer of 1993. They visited the city of Syktyvkar and its wood, pulp, and water processing facility, the sixth largest in Russia. The plant, now a joint-stock company whose workers own more than half of its shares, has reduced its atmospheric and water pollution but is still unable to remove lignin (wood by-product) from the water.

Like many other newly privatized companies, the Syktyvkar Timber Industry Complex is seeking cleaner production technologies that would reduce the levels of impurities to be removed. They are planning to sell 25% of the company to foreign investors, presumably to help raise capital to buy such equipment.

In addition, the Fogarty International Center at the National Institutes of Health offers several programs to facilitate cooperative research between the United States and Newly Independent States of the former Soviet Union. For example, the Health Scientist Exchange Program will pay the travel expenses of U.S. scientists to spend two to six weeks in Russia and the in-country travel and subsistence costs for a Russian scientist to work in the United States. In addition, the Fogarty International Research Collaboration Award is paid to those scientists currently receiving an NIH grant who would like to include a former Soviet colleague in that research. The grant, up to $20,000 per year for five years, can cover travel expenses, research supplies, materials, and small equipment for the foreign laboratory.

Dissolution of the tightly controlled command economy has spurred many Russians to become more independent and self-reliant as well as to participate in the nascent democratic movement. For example, environmentalists have run for and won seats on their city and district councils. But most Russian citizens remain preoccupied with the ongoing political tensions in Moscow among Yeltsin, the parliament, and local soviets, as well as the pressing need to secure work, food, clothing, and shelter through this dramatic transitional period. Until the political, economic, and judicial systems can be stabilized, environmental and health improvements will continue to be severely compromised.

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New attitudes. The Syktyvkar Timber Industry Complex, now more than half worker-owned, has reduced air and water pollution and is seeking still cleaner processes.