

Industrial Technology and Pollution

“Development” and the Destruction of the Environment

When spring comes and there is no sound of birds singing, we are made to recognize the occurrence of drastic ecological changes that threaten the existence of all life forms, including the human race.

In her 1962 book *Silent Spring*, Rachel Carson provided an early warning of the danger posed to the delicate balance of life by the unrestricted use of agricultural chemicals. Hers was a splendid, if disturbing, critique of our civilization.

During the same period, the seas around Japan were threatened and the nation's quality of life also endangered. Writer Ishimure Michiko was living in Kumamoto Prefecture's Minamata, site of Japan's worst pollution case. Quoting one of the victims of Minamata disease, she writes, “The fish are a gift from heaven. They are something that we take, free of charge, when we need them, as naturally as life itself goes on. Now where can we turn? I would pray to heaven, but heaven itself is ill.”⁹⁹

Carson depicted the deformation of inland areas and Ishimure witnessed destruction along the sea-coast. One could add the words of an elderly resident of a coal-mining town: “We were all poor when I was a child, but we had good things to eat on the mountain. Nothing grows there now.”

Here we have one result of industrialization, which, up to this point, we have counted as a positive thing, but, as is obvious, it has negative consequences too.

Even in developing countries—indeed, there especially—industrial pollution is a huge problem. The bitter experiences of the developed countries can serve to warn the developing countries.

Formerly, pollution and environmental destruction were produced by industry, and this is still largely true today. But now the primary sector of national economies has become either the source or the proximate cause of

pollution, making the problem serious indeed. This is because "development" is first of all a response to the population explosion, and its first priority must be to increase the food supply. To this end agricultural chemicals (pesticides, herbicides, fertilizers) have been developed and applied to raise food production. This results in what Carson calls the beginning of the destruction of the delicate balance in the chain of life.

There is the added problem today of atmospheric discharges resulting in acid rain, which destroys forests in countries thousands of kilometres away from the source, kills the plant and animal life in their lakes, and pollutes their seas. Acid rain is thus an international problem, and not all of it stems from large factories.

Because of the increase in the sources of pollution, even though each source may meet emission control standards, their combined long-term effect mean an enormous and absolute increase in pollution build-up.

And thus it becomes difficult to identify the polluters. It becomes impossible to assign responsibility for the pollution that results from the total discharge, since each source may in fact be meeting the established discharge limitations. There is no legal basis for assigning responsibility or guilt in these cases. In the mean time, environmental damage and the danger to human health are on the rise as a result of these discharges.

When the polluters also suffer the effects of pollution and when their numbers reach a certain level, the problem becomes unsolvable by legal means. The legal system operates on the presumption that the violators of the laws will be a minority and that the majority of the population will co-operate to maintain the system.

Thus, the environmental problem is becoming a political problem, requiring political initiative and a newly defined (broadened) legal conceptualization. The environmental problem has grown beyond the capacity of the present legal system. Despite the limitations, however, environmental disputes are being pursued along conventional legal lines, and, from this effort, a new concept of the issue in terms of human rights has arisen. However, because it has been difficult to assign a monetary value to the right to a clean environment, the legal system has not been able to deal adequately with the problem, and thus the inefficacy of the legal system becomes apparent and the environmental problem becomes politicized.

As mentioned, industrial pollution and environmental damage are not limited to the industrialized countries. They are also serious in the third world. The desertification of central Africa is due to the population explosion and the increase of livestock raising. The forests of Thailand have fallen below the level of 40 per cent of total national land area deemed necessary to preserve their reproductive capacity. Land erosion and flooding in north Thailand have resulted, spreading damage as far as Bangkok. The air in South American cities is so bad it makes travellers from Tokyo ill. The year 1985 will go down in history as the year of the two great human disasters that befell Mexico and India.

Minamata disease, thought to be peculiar to Japan, has reportedly appeared in Iraq and in north-east China. There are also reports of its occur-

rence in Finland and Canada. There is a time lag between the occurrence of pollution, environmental damage, and society's recognition of the problem. How long that lag is depends on that society's view of human life and human rights.

The problem of acid rain has been discussed in Europe for a long time now. Its solution is difficult because of the great distance between the source of the discharges and the areas they damage, and this is compounded by the international nature of the problem. Yet damage is increasing without regard for particular political or economic systems.

For this reason, the pollution problem must be addressed from the viewpoint of the victim, in terms of the basic human right of survival.

Pollution and environmental damage are the by-products and the ill effects of development. Once there were cries of "Give us pollution!" from members of the *élite* in some third-world countries, showing the high priority development has had and continues to have in those countries. Since surveys are not carried out and even surveys by foreign experts prohibited by some governments, it is difficult to know just how serious the environmental problem is in these countries.

Arguing against development, however, is not the answer; those who oppose development are in effect telling millions of people to starve to death.

What is important—and feasible—is discussing how development is carried out. Development is a right of every nation, the key to the formation of a modern nation. But no nation has the right to carry out development without regard to the threat it may pose to the basic human rights, basic human survival, of those in other nations. As a citizen of the nations of the earth, I must advise against over-emphasizing development to the detriment of the lives and welfare of every planetary citizen. One citizen may not threaten the life or property of another, and governments should not be permitted to do what citizens may not do.

Certainly pollution and environmental problems make the task of development more difficult, but they must not be ignored because they do. Instead, an international effort must be mounted, using fully the experience and wisdom of all nations.

In this sense, however directly applicable Japan's experience in other fields may be, the "Japanese experience" is most directly applicable to other nations on the environmental level.

Japan is advanced as both a polluter and a producer of antipollution devices. But the latter comes as no honour, since even the most advanced antipollution technology cannot erase the accumulated damages of the past.

The Question of Diagnosis

Even in medical diagnosis, where assessment is much easier than in environmental pollution, serious legal problems exist regarding assigning responsibility, tracing causes and linking effects.

Modern medicine is capable of diagnosing a great variety of diseases, but it

tends to consider only particular, individual symptoms, thereby missing the larger picture and failing to grasp the totality of new diseases resulting from pollution. By separating individual symptoms and analysing them as if they were not related, the totality of the problem is completely ignored, and symptoms resulting from combined effects are improperly understood.

In the conventional method of diagnosis, test results showing mercury in the hair and in the blood confirm mercury pollution. Yet even this recognition leads to the rather scattered diagnoses of pulmonary obstruction, asthma, diabetes, high blood pressure, arthritis, and kidney damage, without recognizing that the actual culprit is Minamata disease. This has happened in Finland, Canada, and China.

Minamata disease was defined by researchers at Kumamoto University as being caused by the presence in the body of certain levels of mercury: 200 ppb in the blood, 300 ng/l in the urine, and 20 mg per 50 kg of body weight.

Harada Masazumi has pointed out (1985) that this definition is both vague and inadequate. It deals only with acute typical Minamata disease and does not cover non-acute, late, incomplete, or fetal exposure to the pollutant. By thus defining the disease narrowly, the authorities were able in 1960 to declare that the disease had been eradicated.

The Kumamoto University research group looked at only the initial symptoms of Minamata disease, and of these, only the more acute ones.

Harada, in contrast, insists that an "epidemiological" method of diagnosis be employed in diagnosing Minamata. By this method, victims and non-victims "would be compared as groups, and their group health trends" closely examined.¹⁰⁰

This methodology is a function of modern statistical analytical techniques. Factors that cannot be examined in an individual analysis of patients, such as environmental factors, can be placed in their proper context and defined over time, through space, and in terms that also include all other relevant factors.

It is this point—that diagnosis that is impossible in individual cases becomes possible on a group level—that is so important in regard to the methodology of diagnosing environmental destruction and its effects on human health.

The point, evident in the example of Minamata disease, is that, just as the problems of the environment and pollution cannot be properly understood in terms of pre-existing theory, neither can the new diseases be diagnosed by means of conventional diagnostic practices.

An understanding of a disease involves an appreciation of a great many related factors, since the ultimate aim is to prevent initial damage and, if that cannot be accomplished, to aid the victims who have been harmed.

Even when the polluter and the source of the pollution can be identified, the polluter may not have the resources to compensate for the damages, further complicating the problem. In such cases, the government, although perhaps not directly involved, is compelled to step in and bear some responsibility for solving the problem. And as a result, it tends to minimize the problem in order to minimize its responsibility. This is what happened after the

outbreak of Minamata disease; its definition by researchers at Kumamoto University effectively cut off from assistance everyone whose individual symptoms did not fit the narrow terms laid out.

Here again the problem becomes one of basic human rights. Everyone involved in working toward a solution to the pollution problem is involved because of a concern for basic human dignity. An unavoidable loss of that dignity occurs when specialists concerned with the problem of pollution focus narrowly on “professional interests”—be they those of the technician, the lawyer, the doctor, or the bureaucrat—to the exclusion of an overall solution.

The narrow view of duty to one’s profession and unquestioning obedience to one’s superiors that marked the handling of the Minamata disease case brings to mind the attitude of the man responsible for the deaths of so many at Auschwitz during World War II, Adolph Eichmann, who also had no inclination to disobey orders that violated the basic dignity of humans.

As for the victims and the protectors in the Minamata and other similar cases, people stood up for human dignity in a way that self-serving bureaucrats and professionals overly concerned with wealth and status would never do. The courage of the victims and their supporters brought renewed hope.

The Prototype of the Present-Day Pollution Problem

Technology is necessary for development, and technology hastens that development. But that same technology, even when applied in the proper way according to existing standards, can lead to unexpected damage and victimization. It can also lead to a very severe worsening of natural disasters. In these cases, however, the responsibility of the polluter is all too often unclear.

Pollution in Japan first appeared in connection with mining. Mines create their own pollution but they also contribute to natural disasters and intensify the effects of environmental destruction for which they are not the direct cause.¹⁰¹

Because the pollution problem occurred in a strategic industry, the protests of the farmers whose fields were being polluted and the pleas to close the mine were ignored by the authorities, and when the protests grew, the army was brought in to suppress them.¹⁰²

For its own sake and to meet the needs of the military, the Meiji state pursued development with little regard for human welfare; a concern for human rights and the environment was sorely lacking and all pleas and protests were suppressed. Indeed, in many cases production was accelerated, causing further environmental and health problems.

However, even if protest and resistance can be pushed aside, pollution problems and damage remain. In the end, even heavier costs must be borne. Such has been the case in Japan many times over the years.

Forced development to satisfy the needs of the state has also occurred in

Canada, where members of its native population now suffer from Minamata disease.

As governments compete to lure corporate investment, that competition weakens concern for protection of the environment. Since corporations do not operate on the basis of societal needs, and since they will invest where there are profits to be made, even if environmental controls are strict, they will stay. They will leave, even if controls are lifted, when profits decline. If we rush to promote development at all costs, we risk underestimating the behaviour of technology owners, the corporations.

When national development needs and big business's interests match, environmental problems are extremely difficult to solve, considering the size and strength of state power. This is true also of nationalized industries. It is a myth that there are no pollution problems in the socialist countries.

Summarizing the Japanese experience, from the perspective of pollution, we can say that the post-war period of rapid economic growth was also the peak period of pollution, resulting in protests and campaigns to have the problem addressed. And it was addressed in the development of new anti-pollution technology, in the introduction of various controls: anti-smog controls are stricter in Japan than in any European country. The responsibility of polluters has also been clearly defined. Companies that pollute, it is safe to say, will not survive.

This does not mean, however, that Japan has eliminated all pollution. According to experts, the controls are effective, but there is still a slow, steady build-up of pollutants. Also, as anyone can recognize, the decline in the level of pollution is not unconnected with the slowing down of economic growth, with the depression of the manufacturing industries.

The economic downturn occasionally makes people nostalgic for the days when pollution was pouring into the environment. It is a dangerous illusion.

One elderly person in a ravaged, abandoned mining town had this to say: "We were all poor once. There was not much to eat, but what we had was good. Well water, mountain herbs, river fish: it was all there for the taking, and it was good. Perhaps those were the real luxuries."

Today's developing countries need to industrialize and to raise their food production to feed their growing populations, but we would not have them choose to destroy nature, which provides, free of charge, things so good but so precious they can be called luxuries. We would urge them to re-examine conventional technology, to substitute, where possible, alternative technologies.

In the development of new concepts of technology, it is desirable to minimize the use of chemical controls, and in planning this, the people of the areas affected should participate in decision-making for development. If not, it will not be possible either to use the accumulated wisdom and experience of the local populace or to carry out smoothly any plans developed.

The benefits from development are great. They come as surely as the damages resulting from it. Even a temporary dislocation can prove disastrous for people already on the margin of existence. Any assessment of the advantages

and disadvantages of development should take into account the warning of the founder of the Club of Rome, Aurelio Peccei (1908–1984), who urged developers to ensure safe development not only during our lifetime but for the coming generations as well.

Medical Myths

Harada Masazumi, the Minamata researcher, in noting how the discovery of Minamata disease destroyed old medical myths (e.g. the foetus is in no danger so long as the mother is healthy, since it is supported by the nutrition of the placenta), points out that mercury poisoning “threatens the foetus even when it does not harm the mother.” Eugene and Eileen Smith brought the plight of 40 foetal victims of Minamata disease in Japan to the attention of the world, but there are many others in Sweden, America, and Iraq.

This discussion of pollution has not covered all aspects of the problem of pollution in Japan; it merely touches on the cases so thoroughly documented by Ui Jun and his colleagues who participated in our project. One final point to be made concerns the presence of occupational diseases in companies that pollute, showing that there are intimate links between such diseases and pollution of the environment.¹⁰³