

ENVIRONMENTAL EDUCATION IN JAPAN

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1. *Start of Environmental Education in Japan*

Environmental education in Japan started in the mid-1960's as education against environmental disruption or "kōgai" education. The environmental disruption caused by the industrial development came to the attention of the communities located around the industrial areas and factories in the early 1960's, but it was not recognized by the Japanese people at large until the late 1960's.

Let us take the case of the Yokkaichi industrial complex in Miye Prefecture, one of the notorious newly emerging industrial areas in Japan. The residents of the area complained of polluted air, bad odors, noise, and polluted water to the city government. The number of complaints is reported as follows: 20 in 1960, 25 in 1961, and 30 in 1962. These moderate figures suddenly jumped to 171 in 1963, 391 in 1964, and 732 in 1965!

The air which was polluted by the chemical industries of the Yokkaichi industrial complex gradually began to affect the populace. Let us take a look at some statistics of pollution by sulfur dioxide (SO_2) in Yokkaichi City. The area polluted in 1966 by SO_2 concentrations of more than 0.05 ppm was 12 km² (that is 4.6 square miles, 5.9% of the total city area); it has increased to 32 km² (12.4 square miles; 16.0% of the total city area) in 1970. 66.40% of the total city area was polluted by SO_2 levels of more than 0.015 ppm.

Those people who were recognized by the authorities of Yokkaichi City as suffering from some kind of pollution have increased rapidly in number since the mid-1960's. The number of such persons in 1966 was 208, 353 in 1967, 399 in 1968. It reached 663 in 1971. A most conspicuous feature of these victims' diseases is that which have since been named "Yokkaichi asthma (Yokkaichi zensoku)."

A rather deplorable fact is that environmental pollution affects children first, primarily because they are usually too weak to resist it. It was reported that a girl died of "Yokkaichi asthma" after she had moved from a polluted area to another area which had clean, unpolluted air. Among those people who were recognized by the authorities of Yokkaichi City in 1971 as victims of pollution, there were 258 children ages ranging from 0 to 9, and 46 boys and girls ages ranging from 10 to 19. The total number included 304 boys and girls ranging from ages 0 to 19 years old, and they comprised 48% of the total number of those affected.

On a national level, let us look at the total number confirmed as suffering from pollution. As of September, 1973, children from ages 0 to 4 years old comprised 30.0%, from ages 5 to 9, 20.5%, from ages 10 to 14, 0.5%, and from ages 15 to 19, 1.3%. According to these

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statistics, we can see that boys and girls under 19 years old comprised 58.3% of all the victims suffering from pollution.

According to the survey made by the Study Group of Anti-pollution Measures for Japanese Primary and Secondary School children (Zenkoku sho-chugakko kogai taisaku kenkyukai), the ratio of primary and secondary schools that had pupils affected by pollution is reported to be 28.8% of all primary and secondary schools in Tokyo. This ratio is 32.8% in Osaka Prefecture. 18.7% in Kanagawa Prefecture, and 24.9% in Aichi Prefecture.

From the statistics cited above, we can conclude that environmental disruption had become a definite reality in Japan during the period from the mid-1960's to the 1970's, and that it began to affect boys and girls in particular. The more concerned a teacher is about this situation, the more seriously he feels that he has to protect his pupils from pollution, and at the same time he recognizes what little power he has in tackling a colossal reality brought about by the policies for unceasing industrial development which have been predominant in Japan. He is really put in a dilemma.

The education of Japan in the 1960's has stressed the ideas which glorify the policies of industrial development and modernization which have been advocated since the Meiji era. We can find examples of this kind in the Social Studies curriculum.

This curriculum has an underlying assumption that Japan's rapid emergence as an advanced country in Asia can be attributed to its miraculous economic growth which was attained within an extremely short period of time. And also that there is a national aspiration that Japan will become one of the most advanced industrial nation by bringing the growth of its Gross National Product (GNP) to a peak in the 1960's. This surprisingly high economic growth, however, was attained only at the expense of too much sufferings of many human beings, and of great damage to the environment. This fact became very clear to all of us in the late-1960's. One such example can be found in the environmental pollution that took place in the areas around industrial complexes, which symbolize high growth of GNP.

Japanese teachers in polluted areas, therefore, had to protect their school children from various kinds of pollution, and at the same time they made efforts to criticize statements and descriptions in the textbooks which glorified the high growth of GNP, and turn the children's eyes to see the reality as it was.

Thus environmental education in Japan started, not as static education, but as education against environmental disruption. Being victims of pollution themselves, they have learned to oppose environmental disruption.

II. *Educational Activities against Environmental Disruption*

The administrative guidance from "above" suggested in the mid-1960's by local educational authorities to the areas where pollution was serious was, in effect, nothing but health education in the form of slogans such as "Physical Training to Resist Pollution". They planned, as part of the bettering of educational environments, to install air purifiers and sound-proof facilities in each classroom. Other plans include to set up open-air schooling systems in nature settings such as mountains, greening the campus by planting trees. Also, sanitary measures, such as encouraging, gargling and the washing of eyes, and giving

instructions on nutrition. They also encouraged sports activities such as gymnastics, swimming and running for the purpose of building up physical strength. We even found, today, an unbelievable situation where some children who were living in cities stopped outdoor sports immediately after the occurrence of photochemical smog was announced.

However the main question is, have this kind of health education measures helped to decrease the damages of pollution on children? My answer to this question is obviously in the negative. This kind of symptomatic therapy has not saved a single child. Teachers truly concerned with pollution could not have faith with this kind of administrative measures which were given by the local educational authorities. They considered it as their task to study and investigate the truth about environmental disruption and the real causes of it, to inform their community members of the results, and lastly, open the eyes of children by a rearrangement of the curriculum.

The idea that observing reality is the first step to a scientific education has long been settled in the minds of teachers in Japan. Environmental education, when undertaken by teachers from a realistic point of view, ceases to be health education in a simple symptomatic therapy. It begins to integrate the curriculum, and covers all the subjects. The teachers of Yokkaichi City gradually began refusing the administrative guidance from "above".

They began, instead, to take a multi-angular approach to the reality of pollution. This involved analyzing materials concerning Social Studies. Items such as the socio-political background of the Yokkaichi industrial complex area were studied, using the natural sciences approach in finding the facts about environmental disruption. Describing the lives of people who were suffering from pollution using the medium of Literature was also used. Thus, they began to teach their students to recognize the causes of pollution from the standpoint of the social and natural sciences, and to understand the concept of human rights to a good environment.

Among teachers in areas where pollution has been rather serious in Japan, similar educational activities are taking place. For example, in Minamata City in Kumamoto Prefecture—a name which is now world-famous for the Minamata Disease which caused the death of many of its residents due to organic mercury poisoning—the teachers have incorporated the cause-effect relationship of Minamata Disease into their curriculum.

"Minamata Disease—pollution on Kumamoto Prefecture", a class of Social Studies conducted for 8th graders in Kumamoto City in 1968, was printed in its entirety. It had a great impact on the teachers of Japan after it was presented at a meeting (Zenkoku kyoiku kenkyu shukai) held under the auspices of the Japan Teachers' Union. The teaching objectives of this class were clear and the teaching-learning process was brilliant.

The points of teaching objectives were as follows:

- (1) To help students understand the reality of pollution which was brought about by high economic growth:
- (2) To help students single out the problem of Minamata Disease as a form of pollution in Kumamoto Prefecture:
 - (a) To help them understand the tragic reality of the Minamata Disease
 - (b) To help them understand the efforts in search of its causes, and the inter-relationships between fishermen, companies and citizens
- (3) To help students inquire into the responsibilities and how to handle pollution:
 - (a) Who is responsible?

(b) How should it be handled?

This class was successful in: 1) directing the children's attention to the facts of the Minamata Disease: 2) making known the social background, against which private enterprise persistently denied the cause-effect relationships between the company's discharging of mercury and the damages which was brought about: and 3) helping student think of how society and nature of Japan should be, and how those of community should be, through the analysis of the facts. The teacher who conducted this class concluded that "in no case should humanism take second place to the profit-seeking activities of private enterprise."

This conclusion was an immediate antecedent to a series of court rulings on pollution which followed.

Investigation is a major starting point in education in the fight against pollution. In Meiji Japan, the Ashio Copper Mines of Furukawa Mining Corporation caused great harm to peasants and their agricultural products by draining a large amount of polluted water into the river where the villagers obtained their water supply. This incident of copper poisoning, which was the first case of pollution in Japan, was incorporated into the teaching materials of History by many teachers.

Thus environmental education in Japan started when both teachers and students began to see the reality of environmental pollution with their own eyes and to investigate it using their own powers. Then environmental education began to elucidate the cause-effect relationships between the sources of pollution and its results, as well as bringing into light its social background. Another feature of environmental education was its recognition of the value of nature and man, as well as to reflection on how the human environment should be.

III. *A Point of View for Environmental Education*

The teachers who, on their own, had been tackling the problems of pollution in various districts in the 1960's, began communicating with each other and exchanged their experiences on a nationwide scale in the 1970's. What motivated these teachers to exchange their experiences on a nationwide scale was the reality of the extensive environmental disruption. For example, items such as photochemical smog and polluted air in big cities in the early 1970's, regional struggles against "development" in various areas, 4 lawsuits on pollution, and so on.

Since the best teaching materials for education against environmental disruption are based on the reality itself, as has already been pointed out, one of the most difficult problem is: how to incorporate the reality of pollution into teaching materials.

The teaching objectives of environmental education that have been considered essential by many of the teachers in Japan on the basis of their past experiences can be summarized in the following 4 points:

- (1) To help students understand the reality of environmental disruption based on the facts, and to realize the importance of the normal working mechanism of nature and society for human life. To help them understand the objectives of human life, which include man's respect for the environment and nature. This is based on the fact that man has used nature best by treating it with respect and consequently benefiting from it. This teaching should be done in contrast to the facts of

environmental disruption in Japan in the 1960's.

- (2) To help students learn the importance of life and health, and to foster an attitude of respect for life. Environmental disruption destroys health first, and eventually life itself. Therefore, it is necessary to help students learn that industrial development should never temper with the principle of the respect for man. The lawsuits on pollution in Japan have made this clear, but we still need to rewrite the ideas of the court rulings into the educational materials.
- (3) To help students learn the implications of environmental problems in contemporary society, and the relationship between environmental problems and modernization in Japan. The Meiji period, especially, should be taught in social history. This helps them to recognize and assert their right to a good environment.
- (4) It is through local self-government by the members of the democratic community that a good environment is to be maintained, protected and if necessary, reconstructed. It is also based on this right of self-government that the members of such a community decide on community plans for local development and thus realize their right to a good environment. Therefore, the core of environmental education must be civil education which protects and maintains a good and favorable environment.

To put the above-mentioned 4 objectives more concisely, environmental education in Japan has the aims of teaching (a) natural history, (b) social history, (c) history of the respect for man, and (d) the formation of citizens. These aims are realized by educating students in the history and reality of pollution in a synthesized manner. It is important to note that environmental education needs the synthesization of various subjects. Unless we take an interdisciplinary and transdisciplinary approach and arrange teaching materials by ourselves with the help of scientists, we cannot expect any progress in environmental education. In other words, environmental education requires the synthesis of the various findings that environmental science has made.

This also requires that both teachers and students be active in the teaching-learning process. The teachers are not able to tackle environmental education without a commitment on their part for the solution of environmental problems. Investigation and documentation of environmental problems and commitment to solving these problems are a basis for independent arrangement of teaching materials. This inevitably requires the teachers to be active and independent in resisting stereotyped textbooks given from "above" and recognizing teaching materials by themselves. Similarly, environmental education for children begins, first, with their discovery of the reality around themselves by means of investigation, and second, with their comparison of the reality they face with the lives of others. They are to go out of the classrooms and see the present state of human society and nature with the guidance of their teachers. They are to see rivers, forests, cities and trees as *environment* with their own eyes.

Even judging from its impact on the purely methodological aspects of education, for instance, the innovation in teaching materials and the motivation of children and teachers into activity, we may conclude that environmental education will widen the horizon of educational activities.

IV. *A Diagnosis of Environment in Megaropolis*

Environmental education is not restricted in school education. In the mid-1960's, citizens in area of environmental disruption protested their sufferings to many factories, local governments and national government. Especially under the 2nd national project on regional industrial development planned in 1969, their protests went to the peak. For example, juridical decisions on the noted chemical corporations—at Minamata, Yokkaichi, Toyama and Niigata—are results of their protestation.

We can find long-dated footmarks of citizen's learning on environment in their activities. Inhabitants in polluted area researched by themselves their health, lives and communities exactly. In this learning process, they reached to the real cause of pollutoin. I want to assert that this citizen's learning is communal education for environment.

Communal education is a key concept and fundamental strategy of reconstruction of cities. Louis Mumford teaches us this thought. Environmental education in Japan finds its origin in his thought.

In his most noted work—"The Culture of Cities", L. Mumford insisted a philosophy and strategy of planning for future cities. He wrote this work "to establish, for the purpose of communal action, the basic principles upon which our human environment—buildings, neighborhoods, cities, regions—may be renovated." (preface) What are the basic principles in his philosophy?

Undoubtedly, the thought of Mumford is focused to reconstruction of modern cities under the barbarous mechanisms and the mechanized barbarisms that now threaten the very existence of civilization. He described the historical development of great cities as a route from Metropolis to Nekropolis, a death of city.

By Mumford, the decline of cities begins in the stage of Megalopolis. And then, we appreciate environmental disruption in Japan has started in this stage. "The city under the influence of a capitalistic mythos concentrates upon bigness and power. The owners of the instruments of production and distribution subordinate every other fact in life to the achievement of riches and the display of wealth." He pointed out the megalopolis as beginning of the decline of city. Why? "Physical conquest by military means: financial domination by trade and legal processes: loans, mortgages, speculative enterprises. The agricultural base extends: the lines of supply become more taneous: the impulse to aggressive enterprise and enterprising aggression grows as the lust for power diminishes the attraction of all other attributes of life: as the moral sense becomes more callous and the will-to-culture impotent."

Exactly, in the mid-1960's in Japan, the moral sense of industrial field became callous to human lives and environmental disruption spread on national wide. At the same time, Megaropolis stage had come in Japan.

"Belief in abstract quantity in every department of life : the biggest monuments, the highest bulidings, the most expensive materials, the largest food supply, the greatest number of worshipers, the biggest population. Education becomes quantative. Knowledge divorced from life: industry divorced from life-utility: life itself compartmentalized, dis-specialized, finally disorganized and enfeebled."

Prophecy of Mumford had been proved in Japanese environmental situation in 1970's. Today, we are obliged to recognize that education has become quantitative, industry has been divorced from life-utility and our life itself has been disorganized and enfeebled. At last, by a point of view suggested in "The Culture of Cities," rapid and large scale urbanization might arrive at a conclusion: Nekropolis, the city of the dead.

V. *Communal Education for Environment*

Mumford had, nevertheless, conviction to rebuild and reconstruct cultural cities by many inhabitants. He wrote, "Any effort to reconstitute the metropolis, in other words, must go *against* the basic pattern of the metropolitan economy. It must work against population increase, against multiplying the mechanical facilities for congestion, against the expansion of the continuous urban area, against unmanageable bigness and irrational greatness."

His conviction was backed up by the ideas and politics of regional development. His goal was the re-animation and re-building of regions. Instead of the fall of cities, he proposed regionalism. A principle of regionalism consists of five points.

- (1) the co-ordination of human activities
- (2) the modification and re-location of various elements in the total environment for purpose of increasing their service to the community
- (3) the importance of inter-regional and worldwide intercourse
- (4) to keep the political and cultural pattern in a state of effective readjustment
- (5) re- definition and re-creation of political structure in the interests of a more effective communal life

These points are conveyed to the fact that the cultural reconstitution of the region is an essential part of the political and administrative task. And, same time, many sufferers in polluted area in Japan arrived same conclusion through their learnings and activities.

Then, what is actual strategy of regional planning? Mumford insists that it involves four stages. The first stage is that of survey. He believes that the task of regional survey is to educate citizens. The second stage in planning is the critical outline of needs and activities in terms of social ideals and purposes, because planning is a selective process. The third stage is that of imaginative reconstruction and projection. "At this stage of planning, the disciplined play of the creative imagination is extremely important; but unfortunately civilization has yet presented little scope for the collective planner." After these three stages—survey, evaluation, and the plan proper—, a final stage follows. Involving the intelligent absorption of the plan by the community, plan goes into action through the appropriate political and economic agencies.

Through this four aspects, Mumford emphasized the meaning of citizen's learning. He wrote "Regional plans are instruments of communal education; and without that education they can look forward only to partial achievement." In his philosophy, the start point of regional planning is survey, and survey is a most meaningful project of communal education.

Why, communal education in region? He urged the return of citizen to political realities, and questioned his reader, "Where better than in the region?" The soil survey, the climatic survey, the geological survey, the historical survey—these concrete experiences to local survey in cities and countrysides must prepare a road to this return of citizen to a

rational political life.

“Once these more realistic type of education becomes universal,”Mumford concluded “instead of being pieced into the more conventional system, we will create a whole generation that will look upon every aspect of the region, the community, and their personal lives as subject to the same processes.”

We can learn many teachings from his thoughts today. Most of all, I take a regional survey as communal education. In the late of 70's, techniques of environmental assesment were introduced in Japan . Especially, environmental education by adult citizens is focused to this project. But, that techniques and policies are remote and exclusive to inhabitants in polluted area. So, we must seek technique and thought of true assessment subject to those who live there. In this stage, we must rethink that Mamford cleared a way to scientific and popular communal education and urged for citizens to return to rational political life.