

# Analysis of Environmental Engineering and Sustainable Development

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## Abstract

At present, whether it is for the society, or for the country, the most important thing is to make reasonable use of natural resources and protection, make full use of scientific and technological means, efficiently solve environmental problems, improve environmental quality, promote social development. This paper will start from the environmental engineering, take Japan as an example to discuss the topic of sustainable development, according to the specific situation of environmental engineering to put forward the corresponding suggestions, in order to contribute to the ecological construction of the motherland.

## Keywords

Environmental engineering, Sustainable development, Ecological environment, Natural resources

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## 1. Introduction

In the environmental engineering construction, sustainable development is particularly critical and the core content. As far as the concept of sustainable development itself is concerned, it involves a wide range of contents, including social, economic and other aspects, as well as natural resources. At present, the specific development of environmental engineering is not optimistic, there are still a variety of problems, it is difficult to achieve the goal of sustainable development. Therefore, in the construction of environmental engineering, it is necessary to fully analyze the specific conditions of industry and agriculture, find out the specific factors affecting the construction of environmental engineering, so as to take measures to solve these problems, strengthen the construction of environmental engineering, and achieve sustainable development. Japan began to pay attention to environmental problems in the 1960s. At that time, Japan was in the period of rapid economic development, but at the same time, it also brought serious problems of public hazards, and Japan Islands once became "Public Hazards Islands". Taking the opportunity of amending the Basic Law on Countermeasures to Public Hazards in 1970, Japan has gradually established and improved its legal and administrative systems and scientific and technological research and development systems for preventing and controlling public hazards and protecting the environment and ecology. The organization and management of laws and policies, development strategies and plans, and financial input have been constantly strengthened.

### 1.1 The basic connotation of sustainable development

On the road of economic and social development, there are all kinds of bad effects, which not only affect people's quality of life, but also affect people's life and health. In this case, people have a new thinking about the problem of development that is sustainable development. As far as sustainable development is concerned, it is also a reflection on the industrial revolution. In the industrial revolution, people one-sided pursuit of economic benefits, expect to get excellent development in a short period of time, but because of its disregard for social benefits, disregard for environmental protection, disadvantages gradually emerged, sustainable development problems. In the era of industrial civilization, although the industry has already had a cer-

tain scale, its specific production mode is too extensive, high production, high pollution and high consumption, which is undoubtedly not the red line of modern industrial production. But at that time, there was no scruple, which led to the formation of energy crisis, food shortage and other disastrous consequences. On this basis, sustainable development is put forward gradually. The definition of sustainable development is as follows: in the process of economic development, it is necessary not only to consider the contemporary economy and meet the needs of the contemporary economic development, but also to protect the future generations so that their future needs can also be met without affecting their future living environment. Sustainable development strategy is a kind of rational thinking and consideration for future development. In terms of the connotation of sustainable development, it is mainly reflected in two aspects: First, the principle of harmony. In sustainable development, harmony includes not only the harmony between man and nature, but also the harmony between society and nature. Only when the whole is in a harmonious state, can sustainable development be truly realized. Second, the principle of sustainability. In the process of sustainable development, the principle of sustainability mainly refers to the need to fully consider the carrying capacity of resources and environment, which should not exceed its maximum limit, but should be used reasonably. Human beings need to improve their way of thinking, change the unsustainable consumption mode in the past, and try their best to make their consumption mode and production mode healthier, so as to realize the sustainable development of human society.

## **2. The relationship between ecological and environmental protection and sustainable development**

### **2.1 Relationship between agro-ecological environmental protection and sustainable development**

In agricultural production, the protection of agricultural ecological environment is very important. In the idealized agricultural ecology, people pay attention to the combination of natural environment and social economy to realize the harmony and unity between the two, which is conducive to the transformation of matter and energy in crops, and more conducive to the realization of sustainable development of agriculture. It can not only do a good job of ecological environmental protection, but also ensure economic benefits. For example, in agricultural production, in order to eliminate diseases and insect pests and ensure a good harvest of crops, many farmers usually use a large number of pesticides and fertilizers, which will inevitably affect the local ecological environment and pollute the soil and water. In addition, some farmers in the process of felling trees, completely to their own needs as the standard, without restraint, so there will be the phenomenon of deforestation, forestry resources have a negative impact, but also increased the burden of the environment. In view of the above situation, we should discuss it based on environmental engineering theory, put forward treatment measures, apply new technology and equipment in environmental treatment, do a good job in related work, and achieve sustainable development.

### **2.2 Relationship between water environment protection and sustainable development**

At the beginning of the 20th century, water resources in many regions of the world appeared certain conditions, some areas lack of water resources, some areas are serious water pollution. As things stand, the problem of water resources is getting more and more serious. The lack of water resources and the pollution of water resources will certainly affect the survival of fish, and then affect the development of fishing industry. Compared with the past, the quantity and quality of fish products are less or less, and in some areas water pollution is more serious, and people can be poisoned after eating fish that live in these waters. In this context, the relevant departments should strengthen the governance of environmental engineering, regulate the aquaculture industry, promote the healthy development of this industry, and provide people with healthy fish food. In the process of the development of The Times, more and more polluted water bodies, worldwide, many countries are very concerned about the development of relevant new technology, purification of water resources. In this process, Japan and the United States played a leading role in the cooperation of the two countries to study a new technology that can purify water, which can significantly improve the quality of water environment, and it has been promoted in some areas, with good use effect. Aquaculture technology compared with the past has been innovative, the current mainstream aquaculture method is ecological aquaculture. By combining the new aquaculture technology with the ecological aquaculture method, the polluted water body can be improved, at the same time, it can also provide a better growth environment for fish, avoid the negative impact of water pollution on it, and realize the sustainable development of the ecological environment of water body.

### **2.3 Relationship between built environment protection and sustainable development**

With the development of the economic era, people have higher requirements on the level of fresh water, so is the construction of environmental engineering. Compared with the past, people now have a more stringent attitude towards environmental engineering. From the point of view of environmental engineering, it is mainly reflected in the classification of household waste treatment and air-conditioning energy consumption. In the current economic boom, air conditioning has entered thousands of households, and the total installed capacity is as high as 70%. Although it facilitates people's life and enables people to have a better living environment, it will undoubtedly increase the environmental burden and accelerate the pace of global

warming. Due to the use of air conditioning in a large area, the power sector has a greater burden. Besides, it will cause some problems in life. In the process of using air conditioning, not only will the use of electrical pressure increase, but also will produce thermal pollution, noise pollution, etc., and some air conditioning because there is no frequent cleaning, which leads to its higher energy consumption, greater environmental pollution. Therefore, in the building environment engineering, the problem of air conditioning energy saving should be paid attention to, but also need to be solved. From the point of view of urban garbage treatment methods, there are mainly three kinds, they are incineration, microbial decomposition and burial. Each approach has its own advantages and disadvantages. Take incineration as an example. In the process of incineration, garbage will not only produce a large number of toxic gases, pollute the environment, but also have a certain impact on people's daily life. And in some coastal cities, through the flexible application of environmental engineering theory, the construction of garbage transfer wharf. Landfill around the yard and combine the waste with concrete to form a foundation to transform the landfill into a wharf for boats. In this way, garbage can be fully recycled, which is conducive to the realization of sustainable development goals, and is also a typical example of flexible application of environmental engineering theory.

### **3. Effective measures for environmental engineering and sustainable development**

#### **3.1 Publicize environmental protection and enhance people's awareness of protection**

In the process of social development, too much attention has been paid to economic development, emphasizing rapid economic development, not paying equal attention to economic development and environmental protection, so that people ignore environmental protection. In this case, people lack a sense of responsibility for the environment, deforestation of trees, desertification is serious, do not pay attention to the problem of exhaust emissions, leading to the global temperature rising day by day. In addition, some citizens have a low level of education and quality, fail to correctly recognize the harm of the environment, only pay attention to immediate interests, and have not yet realized the importance of sustainable development. No matter which of the above reasons, it is necessary to take a correct way to guide citizens to do a good job in environmental protection, so that they can actively undertake the responsibility of environmental protection and achieve sustainable development. In this process, because the people are different, so the way to choose should also be different. In the process of publicizing the importance of sustainable development to students, attention should be paid to environmental protection education, organizing students to participate in environmental protection activities, explaining relevant knowledge of environmental protection to students, so that students have a correct understanding of the importance of environmental protection. For ordinary people, they should go into thousands of households, give full play to the role of grass-roots communities and village committees, do a good job in environmental protection publicity work in communities and village communities, and broadcast broadcasts on environmental protection. When conditions permit, grass-roots cadres can also issue pamphlets explaining environmental protection and distribute them door-to-door, so that people can have a correct understanding of the importance of environmental protection and participate in environmental protection. For the senior managers of enterprises, they should start from the perspective of corporate strategy. In the process of formulating corporate strategy, they need to fully consider environmental protection issues, pay attention to the development of green economy, and reduce pollutant emission as much as possible. At the same time, we should also strengthen the publicity of environmental protection awareness within the enterprise, let employees realize the importance of environmental protection, do a good job of environmental protection from top to bottom, and build a green enterprise. Government departments should establish and improve relevant laws and regulations, give play to the mandatory role of laws and regulations, promote the further development of environmental protection projects through laws and regulations, pay attention to popularizing legal knowledge to the masses, and let everyone have a correct understanding of the importance of environmental protection. In this way, environmental engineering and sustainable development can be realized. In order to implement this strategy and plan, Japan has made great efforts to promote it from the aspects of production and life as well as the overall operation mechanism of the society. In the links of production, circulation and consumption, it can be realized in five steps: (1) minimize the waste in production, such as reducing waste, energy consumption and goods with poor market demand when producing products, and simplify and reduce packaging when choosing and purchasing products; (2) reuse of items, such as empty beer bottles can be used repeatedly; (3) Recycling non-reusable items, such as garbage sorting and recycling; (4) using the incinerator as a heat source to generate heat utilization or power generation; (5) The final landfill waste residue does not pollute the environment. In terms of operation mechanism, it promotes the transformation of the consciousness and action of the whole people, enterprises and institutions, as well as the transformation of the social and economic system, land use and social basis to the consideration of the environment. The two aspects of the transformation should be synchronized. Therefore, it is necessary to make full use of the control and economic means such as the mechanism of considering environmental protection consciousness in social economy, environmental investment, environmental education and environmental learning.

### **3.2 Implement environmental education strategies and enhance environmental awareness of various subjects**

Since the 1970s, the Japanese government has been actively promoting public hazard education and nature experience learning to enhance the environmental awareness of various social subjects such as citizens, and actively promoting environmental education legislation. In the 1990s, the Japanese government began to promote and implement the practice of “sustainable development education (ESD)”. It was not until November 1993 that environmental education was formally written into the law. Article 25 of the Basic Law of the Environment clearly stipulated “to promote environmental education and other work”. In 2003, the Japanese government specifically launched the Environmental Education Promotion Law to carry out education and learning activities to deepen environmental protection. On the basis of this law, the Japanese government launched the Environmental Education Promotion Law (hereinafter referred to as “Promotion Law”) in June 2011. It is jointly responsible by the five departments of the Ministry of the Environment, the Ministry of Culture, the Ministry of Science and Technology, the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Economy and Industry and the Ministry of Land, Land and Transport, and has been formally implemented since October 2012.

### **3.3 Encourage public supervision and strengthen corporate social responsibility**

In order to better promote various subjects to establish legal awareness of environmental protection and improve the efficiency of government environmental monitoring, the Japanese government encourages all kinds of subjects in society, especially the media, to participate in environmental protection work. In order to promote the coordination between enterprise production and ecological environmental protection, the Japanese government has successively introduced lower laws of the Basic Law of the Environment, including the Law on the Prevention of Air Pollution, to regulate enterprise production activities. For example: to develop emission standards for manufacturing enterprises; to give administrative guidance to enterprises and guide them to improve the environmental pollution problems that may arise in the process of production; encourage enterprises to adopt advanced environmental protection technologies, and provide corresponding financial subsidies; and the real-time monitoring of the production activities of enterprises.

In order to ensure the enterprise production behavior conforms to the requirement of law, improve the enterprise malicious the cost of environmental pollution, the Japanese government in “atmospheric pollution prevention law” and “water pollution prevention law”, the introduction of the civil law “no-fault liability system” of the liability for damages, namely “residents due to air pollution and water quality pollution damage to health, the regardless of any fault, both parties are determined to be liable for compensation”. From a practical point of view, “no fault liability” is the most powerful deterrent among the regulations on the punishment of enterprises for damage to the ecological environment. In the litigation cases were victims of public hazards Sue polluting enterprises, the plaintiff wins.

### **3.4 Actively participate in and promote the cause of global environmental protection, and improve Japan’s international discourse power**

The Japanese government attaches great importance to and participates in the cause of global environmental protection, and actively promotes its experience and ideas in environmental protection to the rest of the world. From the perspective of specific environmental governance practices and implementation effects, Japan’s environmental governance has been at the forefront of the world.

On the one hand, the Japanese government has taken an active part in international environmental and development conferences held by international organizations such as the United Nations, participated in and formulated international environmental standards, and significantly improved the international discourse power of the Japanese government in the field of global environmental protection issues. On the other hand, the Japanese government has also actively carried out environmental diplomacy activities by strengthening cooperation with other countries in the field of environmental protection, which has not only enhanced Japan’s international image, but also benefited the promotion of domestic environmental protection experience and the overseas business expansion of environment-related enterprises in Japan.

### **3.5 Improve environmental legal system and clarify government responsibilities**

The Basic Law of the Environment is the main legal basis for the Japanese government to carry out environmental governance. Based on the Basic Law of the Public Hazard Countermeasures in 1967, the Basic Law of the Public Hazard Countermeasures was thoroughly revised in 1970 and formally promulgated in 1993, which lasted 26 years. The Basic Law of the Environment of Japan takes the three basic concepts of “building a society with low environmental load and sustainable development”, “enjoying and inheriting the benefits of the environment” and “actively promoting the protection of the earth’s environment under the framework of international coordination”. It stipulates that the main responsibilities of the government include the establishment of environmental standards, the formulation of plans and the settlement of disputes, as follows:

First, in terms of environmental standards established, the relevant departments of the central government shall also involve air pollution, water pollution, soil and environmental conditions of noise pollution, from the perspective of protecting people's health and maintain the living environment, organization related fields such as medical experts through consultations to determine standards, clear policy goals of environmental protection, and implementation of detection.

Secondly, in terms of planning, there are two categories: "environmental basic plan" and "environmental hazard prevention plan". The central government draws up a "basic environmental plan" that lays out specific policies and measures to implement the concept of a basic environmental law, as well as the division of responsibilities between central and local governments. "Pollution prevention plan" has suffered serious pollution hazards mainly for the region, to ensure that achieve environmental basic law to determine environmental standards for the purpose, by the central government to local governments express basic guidelines and indicating the environmental protection to develop local "pollution prevention plan", the plan by the related prefectures governor after approved by the cabinet prime minister, to formulate specific policies and measures for the prevention and control of public hazards.

Finally, in terms of dispute settlement, on the one hand, the specific support items for disputes between residents suffering from environmental pollution hazards and emitters should be clearly stipulated. On the other hand, local governments set up consultation Windows and committees of experts to carry out the actual mediation work, most of the actual costs incurred by the government.

#### 4. Conclusion

Both economic society and natural society are holding high the banner of "sustainable development" and taking it as the basis for development. And for today's society, the construction of environmental engineering is very important, in this process, the need to pay attention to environmental engineering construction, pay attention to the industrial full analysis of the various problems in agricultural production, combined with the actual situation analysis of various pollution problems, according to the specific condition of the pollution problem, put forward the corresponding solutions, Promote sustainable economic and social development. It will take a long time, it will not happen overnight, it will take a long time to repair, a long time to recover. In this process, the relevant departments should strengthen the environmental protection awareness of the relevant personnel in agriculture and industry, pay attention to the participation of all personnel in environmental protection, promote the harmonious development of man and nature, leave enough resources for the development of the future generation, and realize the sustainable development of the society.

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