

Environmental Management of the Seto Inland Sea

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The Seto Inland Sea, the largest inland sea in Japan, and its many islands, is world renowned for its unrivaled scenic beauty. Since olden times, the Seto Inland Sea has served as a transportation route, thus bringing about cultural and industrial development.

However, high population density and industrial development led to an increase in waste water, causing the Seto Inland Sea environment to deteriorate to the extent that, by the 1970's, it was referred to as "the dying sea."

Alarmed by worsening environmental conditions, the governors and mayors concerned established, in 1971, the Governors' and Mayors' Conference on the Environmental Protection of the Seto Inland Sea.

In 1978, This conference took a leading role in enacting the Extraordinary Law Concerning Special Measures for the Conservation of the Environment of the Seto Inland Sea.

At the same time, the prefectures and cities concerned jointly financed and established the Seto Inland Sea Environmental Association, to disseminate knowledge relating to environmental conservation in the Seto Inland Sea. This association has been actively involved in environmental conservation in compliance with this objective.

The Seto Inland Sea, Japan's largest inland sea, is bounded by Honshu, Shikoku, and Kyushu, three of the country's four major islands. This approximately 22,000 km² sea area is 37 m in average depth and has a volume of some 800 billion m³, with more than 700 islands and numerous straits, inlets, and reefs of various sizes. Well known both in Japan and abroad for its exceptional scenic beauty, the entire Seto Inland Sea has been designated as a National Park for its richly varied, peaceful and graceful landscape, in which the social environment and nature harmonize.

Historically speaking, the Seto Inland Sea and its coasts have served as both living place and important transportation route since ancient times. Foreign cultures were often introduced into Japan via this route. Buddhism, which became the foundation of the Japanese culture, was introduced from the Chinese continent via the Korean Peninsula and the Seto Inland Sea into Japan's Kinki region, where the capital was located in those days. In fact, it is no exaggeration to say that almost all new forms of culture in Japan, from the seventh to the early 17th centuries, arrived in Japan via the Seto Inland Sea. All Japanese envoys to the Chinese continent in those times sailed off via the Seto Inland Sea and came back bearing word of foreign cultures. Christianity, Japan's second major religion of foreign origin, was also introduced into the Kinki region via the Seto Inland Sea, after originally landing in Kyushu. Given this history background, many port towns developed around the Seto Inland Sea, bringing about industrial progress.

Due to their ideal conditions for industrial development, the Seto Inland Sea's coastal areas were rapidly sites of urbanization and the concentration of industry and population in the last half of the 1960's. As a result, the water quality of the Seto Inland Sea deteriorated drastically due to increased waste water from coastal industries and households, a difficulty compounded by the Sea's low water turnover rate. In the 1970's, the Seto Inland Sea was even referred to as "the dying sea."

In 1971, the Governor of Hyogo Prefecture suggested that actions were taken to restore life to "the dying Seto Inland Sea." In response, the leaders of 11 prefectures and three ordinance-

designated cities along the Seto Inland Sea met in Kobe and adopted the so-called "Seto Inland Sea constitution," the Seto Inland Sea Charter on Environmental Protections, stating that the local governments and citizens of the coastal communities coordinated their best efforts to protect the natural environment of the Seto Inland Sea.

The Seto Inland Sea Charter on Environmental Protection states as follows:

1. The Seto Inland Sea is a precious region we inherited from our ancestors.
2. Times have changed, and while the Seto has become an important region of industrial development, our living environment has been deteriorating considerably.
3. We recognize that we must work to preserve and restore the natural environment.
4. With the aim of improving the Seto region as a zone for new creative living, through frank reassessment, firm resolve and positive cooperation, we pledge to act on our resolution with all resources available to us.

With this as a start, in the same year the government and mayors of the 11 prefectures and three ordinance-designated cities organized the Governors' and Mayors' Conference on the Environmental protection of the Seto Inland Sea as a forum where regional leaders could meet and discuss environmental issues concerning the Seto Inland Sea. In 1972, the Governors' and Mayors' Conference, held aboard a ship sailing the Seto Inland Sea, invited the Director-general of the Environment Agency and observed first-hand the scenic beauty of the area, as well as the state of pollution there. The Conference also discussed the establishment of an environmental protection law and an environmental improvement organization, as well as specific measures for the purification of the Seto Inland Sea. Since then, the Conference has been held in Tokyo, Kobe, Takamatsu, Hiroshima and on the Seto Inland Sea, carrying out various programs and making appeals to the national government for environmental conservation. The Conference has made three major contributions so far.

First, research activities have been promoted. The Environment Agency, with the cooperation of the coastal prefectures and municipalities, initiated a comprehensive survey of water quality to gauge the environmental condition of the Seto inland Sea. The survey, conducted four times a year, has gradually been revealing the actual state of pollution of the Seto Inland Sea. Moreover, the Ministry of International Trade and Industry founded the Government Industrial Research Institute, Chugoku, and there installed a reduced hydraulic model of the Seto Inland Sea. This model, reduced to a scale of 1/2,000, 230 m long and 50 m wide (in the inner sea section), is among the largest in the world. With this model, a variety of researches and studies have been conducting continuously as to the matters related to water quality control, such as ocean currents, large-scale land reclamation and water disposal project feasibility, water mass exchange between the Seto Inland Sea and offshore. As well, the Environmental Science Research Conference of the Seto Inland Sea established in 1978, comprises research organizations dealing with the pollution of the Seto Inland Sea in the coastal prefectures and ordinance-designated cities, for coordination of an suggestions as to research concerning the Seto Inland Sea.

Secondly, the Seto Inland Sea Environmental Protection Division was established within the Environment Agency as a national organization to deal with environmental protection of the Seto Inland Sea. Previously, there was no division in the Environment Agency which concerned a particular locality and bore the locality's name. It is still the Agency's only such division. Thanks to its presence, rapid progress has been made in the environmental protection of the Seto Inland Sea.

Thirdly, special laws were enacted for environmental conservation of the Seto Inland Sea. Since its inception, the Governors' and Mayors' Conference on the Environmental Protection of the Seto Inland Sea has called for special legislative action for environmental conservation. The national government, however, has not shown a positive attitude toward proposing a bill, citing the absence of precedent in proposing a special law exclusively concerning a particular area.

The Governor's and Mayors' Conference then considered the introduction of a bill by a Diet member. While such the practice may not be unusual in other countries, a bill is rarely introduced by a member of the parliament (the Diet) in Japan, and no Diet member's bill had

become law before. The Seto Inland Sea environmental law was, in fact, the infrequent attempt to enact a law based on a Diet member's proposal. First of all, a nonpartisan appeal for prompt systematization of special legislation was made to the Prime Minister by 180 Diet members concerned with the Seto Inland Sea. Later, in response to the efforts and campaigns of many, the special committee for pollution control measures and environmental conservation of the House of Representatives and the House of Councilors began deliberation of the Diet member-proposed bill. As a result, the Interim Law for Conservation of the Environment of the Seto Inland Sea was enacted in 1973.

In 1978, based on a governmental proposal, the law was revised and made permanent as the Law concerning of Special Measures for Conservation of the Environment the Seto Inland Sea.

The content of this Law is as follows:

1. The Seto Inland Sea Environmental Conservation Council was established to deliberate basic matters concerning conservation of the environment of the Seto Inland Sea.

2. The Government recognizes that the blessings of the Seto Inland Sea, a scenic area unrivaled both in Japan and abroad, and an invaluable treasure house of marine resources, shall be appreciated by the every people and be passed on to future generations intact. In consideration of this, a basic plan for water quality control and environmental conservation of the Seto Inland Sea should be devised promptly, so as to allow the execution of effective measures.

Accordingly, the Government first devised a basic plan, in response to which the concerned prefectures drew up concrete plans relevant to their respective areas. The basic plan for the conservation of the environment of the Seto Inland Sea includes:

- Prevention of water pollution
- Preservation of natural scenery
- Preservation of sea-weed bed and tide land.
- Preservation of natural beaches and shores
- Consideration to environmental conservation in land reclamation
- Improvement of sewerage
- Improvement of waste treatment facilities
- Removal of sludge from the sea and river bottom
- Water quality monitoring
- Research and studies and technical development
- Enlightenment and consciousness-raising
- Governmental assistance

3. In Japan, the Water Pollution Control Law requires that of the prefectural authorities are notified regarding the installation and modification of a facility which produces waste water.

In The Seto Inland Sea area, an approval system is adopted instead. Under this system, when pollutant load increase is expected, preliminary environmental assessment is mandatory.

4. The Interim Law for Conservation of the Environment of the Seto Inland Sea required industries located along the shores of the Seto Inland Sea to reduce their pollutant load by half; the Law concerning Special Measures for Conservation of the Environment of the Seto Inland Sea has introduced areawide total pollutant load control.

5. Instruction is provided to reduce the amount of phosphorus released into the Seto Inland Sea.

6. For preservation of the natural coastal scenery of the Seto Inland Sea, remaining natural beaches are designated as natural beach protection areas, in which development is siringently restricted.

These restrictions and regulations are proving highly effective, and the water quality is improving. Yet, it cannot be overemphasized that the parties most responsible for conserving water quality and natural scenery are the industries and citizens along the shores of the Seto Inland Sea. Accordingly, the Seto Inland Sea Environmental Conservation Association was established to encourage such industries and citizens to become involved in environmental conservation activities, as well as to support such activities under the instructions of the Environment Agency. The Association, consisting mainly of coastal prefectures and cities, is a public corporation; it conducts PR activities, research, studies and up surge of the public environmental consciousness, thereby promoting environmental conservation of the Seto Inland Sea, a natural treasure of all the people. Its members include 13 prefectures and five cities of the

Seto Inland Sea area, a concerned fisherman's organization, a public health-related volunteer group and the National Parks Association of Japan, as well as many enterprises, as supporting members. Thus far, the Associations has conducted wide-ranging environmental conservation activities such as enlightenment through the publication of literature on the history and culture of the Seto Inland Sea area, and the production of films featuring the people living there, surveys about the actual condition of the marine life, sea bottom conditions, and red tide occurrence of the Seto Inland Sea, and assistance to various groups pursuing related causes.

Environmental conservation of the Seto Inland Sea is progressing steadily, as the result of the concerted efforts of the public and private sectors. However, further environmental pollution is still anticipated, due to the recently completed Seto Bridge, on-going projects such as construction of Kansai International Airport and Akashi Kaikyo (Straits) Bridge, and numerous resort development projects currently under planning in the Seto Inland Sea.

To counter future deterioration, the establishment of the Seto Inland Sea Research Council, as a think tank consisting of experts and scholars, within the Seto Inland Sea Environmental Association, is being considered; such a council would contemplate the creation of a new environment for the Seto Inland Sea. It is expected that the Governors' and Mayors' Conference will actively support this plan.

As well, a training program is scheduled to commence this year in Hyogo, to provide environment-related knowledge and techniques, which have been accumulated in the process of the research and conservation efforts for the Seto Inland Sea, to developing countries, where environmental destruction is anticipated due to development.