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# Existing Institutional Arrangements and Implications for Management of Tokyo Bay

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## NATURAL BOUNDARIES OF TOKYO BAY

Tokyo Bay is approximately at the center of the Japan archipelago. Its mouth opens to the Pacific Ocean. Although Tokyo Bay is in the temperate zone, between 35 and 36 degrees north latitude, it is significantly affected by the warm current, Kuroshio, that flows along the southern coastline of the Japan archipelago. Tokyo Bay is the body of water surrounded by the line connecting two headlands, Cape Kannonzaki and Cape Futtsu Misaki, and the egg-shaped coastline. The surface area of the bay is 955 square kilometers (km) with an average depth of 15 meters (m) and a volume of 15 cubic km of water. The southern adjacent water is Uraga Channel, the width of which is only six km at the mouth of Tokyo Bay. The bay and the topography of its bed are shown in Figure 1. Generally speaking, the seashore consists mainly of sand and is gently curved like a bow. Now, however, it looks like a jigsaw puzzle because of manmade lands. The bottom bed consists mainly of fine sand and silt. A notable bank, Nakanose Bank, is near the mouth of the bay and forces big vessels which pass through the mouth to practice somewhat complicated maneuvering.

Meteorologic and hydrologic conditions are important factors affecting management of Tokyo Bay. In winter, a north wind is most frequent, while in summer a south wind often occurs. The water, however, is surrounded by land, and inside the bay the waves are not rough even during typhoons. Boats can find refuge in the bay when the Pacific Ocean is too turbulent to navigate. The range of tide is rather small, 2.0 m at most, but the tidal change causes a slow clockwise tidal current in the bay. The water exchange between Tokyo Bay and the Pacific Ocean through Uraga Channel is limited because of the narrow mouth of Tokyo Bay.

The principal rivers which flow into Tokyo Bay are the Edo, the Ara, and the Tama. The catchment area of the bay is about 7,200 sq km, or seven times as large as the bay. The volume of fresh water that flows into the bay through the rivers totals some 10 cubic km on the average, which is equivalent to about two-thirds of the volume of water in Tokyo

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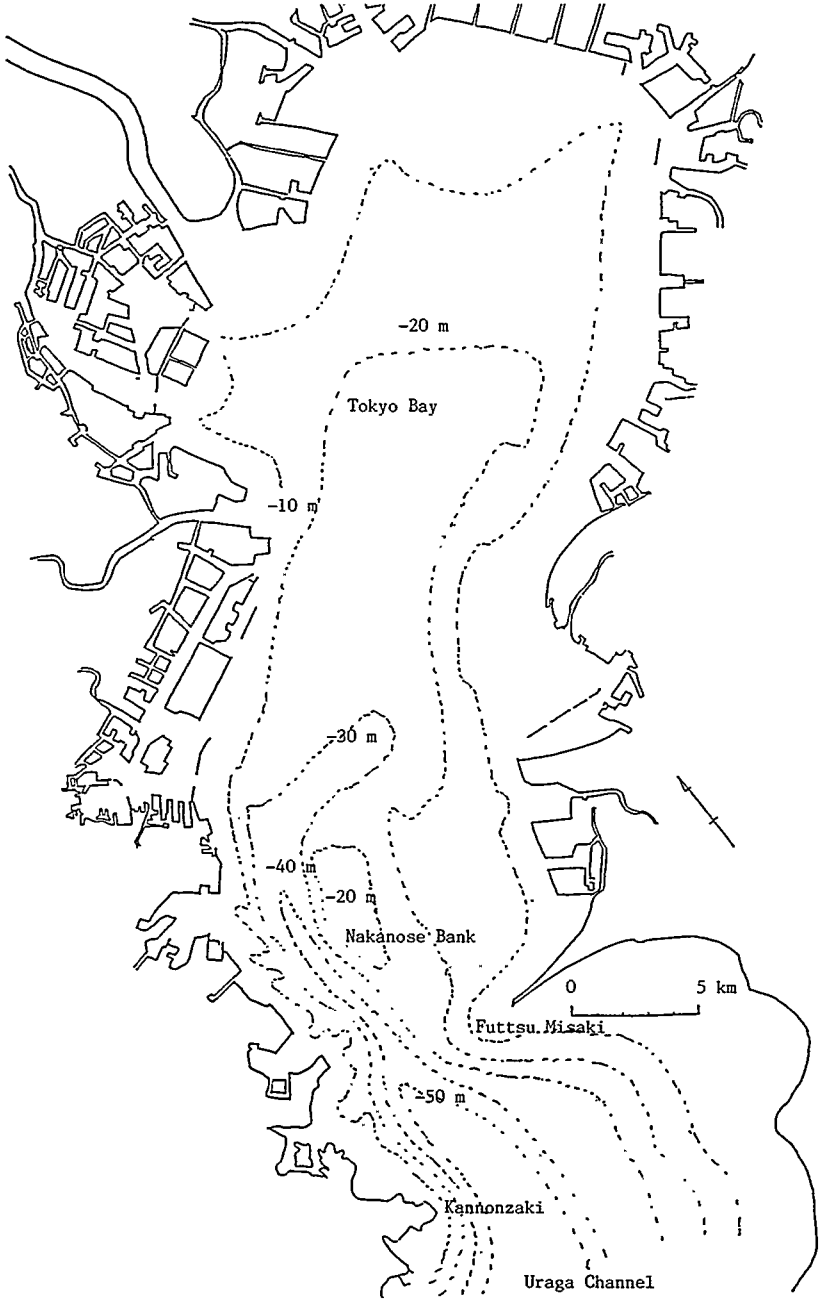


FIGURE 1

TOKYO BAY AND THE TOPOGRAPHY OF THE BED OF TOKYO BAY

Bay. The estuaries of the rivers and the adjacent water are the most biologically productive parts of the bay because of the influent oxygen and nutrients carried by the fresh water.

## HISTORICAL DEVELOPMENT OF TOKYO BAY

Until the end of the sixteenth century the alluvial plain, the Kanto Plain which comprises a large portion of the catchment of Tokyo Bay, was an underdeveloped area. The foothills beneath the plateau, however, had been inhabited since the Stone Age, as indicated by a number of shell mounds found in the area. In 1590, Ieyasu Tokugawa built his castle near the estuary of the Sumida River. Since then the city surrounding the castle has developed rapidly, particularly after Tokugawa's success in dominating Japan and founding his shogunate there. Edo, as the city was called, was expanded by excavating canals and reclaiming land. In the middle of the eighteenth century, the population of Edo was more than 1.3 million, making it probably the world's largest city at that time. Tokyo Bay was crucially important for the people of Edo City because fisheries in the bay provided the population with needed animal protein, and large amounts of commodities were transported on ships from all parts of Japan via the bay to the city.

In 1853, an American squadron led by Admiral M. C. Perry entered Tokyo Bay and pressured the Tokugawa shogunate to open Japan's door to the United States. In 1860, nearby Yokohama was chosen as the port to accommodate foreign ships. The change from the closed-door policy resulted in the Meiji Revolution. The Meiji government moved the capital from Kyoto to Edo and changed the city's name from Edo to Tokyo. The new government of Japan was very enthusiastic in promoting modern industries, and a number of large factories were built along the coastline of Tokyo Bay. A modern harbor was constructed in Yokohama where a small fishermen's hamlet was once located. A huge naval base was built at the mouth of Tokyo Bay at Yokosuka for defending the metropolitan area.

At the beginning of the twentieth century, the populations of Tokyo and Yokohama were 2.2 million and 0.3 million, respectively, and Tokyo Bay was very important in the daily lives of these populations, playing the same role it did in the Edo era. Additionally, it provided good recreational opportunities such as fishing, and bathing in summer; shell gathering in spring was particulary popular among the people. Both Tokyo and Yokohama as well as Kawasaki City, which connects Tokyo and Yokohama and was characterized by its dense location of heavy industries, had been developing rapidly and industrializing prior to their destruction by American air raids during the Second World War.

Japan's economic growth after the war often is called "a miracle" in

which Tokyo Bay again played an important role. On reclaimed land along the coastline of Kawasaki City an industrial complex was rebuilt and consisted of steel works, a petroleum refinery and a series of petrochemical plants, and a huge fossil-fueled electric power station. Japan is so lacking in mineral and energy resources that these industrial operations depend totally upon imported resources which arrive on ships. Tokyo Bay's natural condition is ideal for constructing a deep harbor to accommodate very large vessels which generally have economies of scale in transportation costs. Similar industrial complexes were built all alog the coastline of Tokyo Bay, one after another, as shown in Figure 2. During the 1960s and 1970s, 221 sq km of new land were created by reclamation. This area represents about 19 percent of the original area of the bay. On this reclaimed land many large industrial operations were established, including three steel works, 13 oil refineries, six petrochemical plants producing ethylene feedstock, 12 other chemical plants, ten shipyards, two automobile factories, and 14 electric power stations.

The Tokyo Bay area, including reclaimed land and immediate hinterland but not including the whole catchment, now is one of the most densely industrialized areas in the world. Industrial output in 1980 totaled 34 trillion yen (136 billion U.S. dollars), 22 percent of Japan's total. The energy consumed in 1980 totaled 667 trillion kilocalories, 24 percent of Japan's total or, in terms of primary energy, 58 million kiloliters of petroleum, 12 million tons of coal, 8,000 tons of LNG, and 83 billion kilowatt hours (kwh) of electricity which were transported from outside areas. Cargo which was transported from outside areas, including overseas countries, by vessels and unloaded in Tokyo Bay in 1980 totaled 400 million tons. The number of ships that passed through Uraga Channel in 1980 totaled about 240,000, including about 7000 large vessels of ten thousand dwt (dead weight ton) or more. The population of the bay catchment area has increased to about 27 million as of 1980. Water intake by households and industries was about 52 trillion cubic m in 1980, which is almost half of the volume of fresh water that flows into the bay through rivers.

In short, today's Tokyo Bay has been and is much affected by human activities inside and around it. Accordingly, the biosphere in the bay has been greatly changed from its natural condition.

## INSTITUTIONAL SETTING

Although the central government is located in Tokyo, its influence on Tokyo Bay is rather indirect at present because most of the important decisions which immediately affect the biosphere of the bay are made by local governments. Some explanation is necessary about local govern-

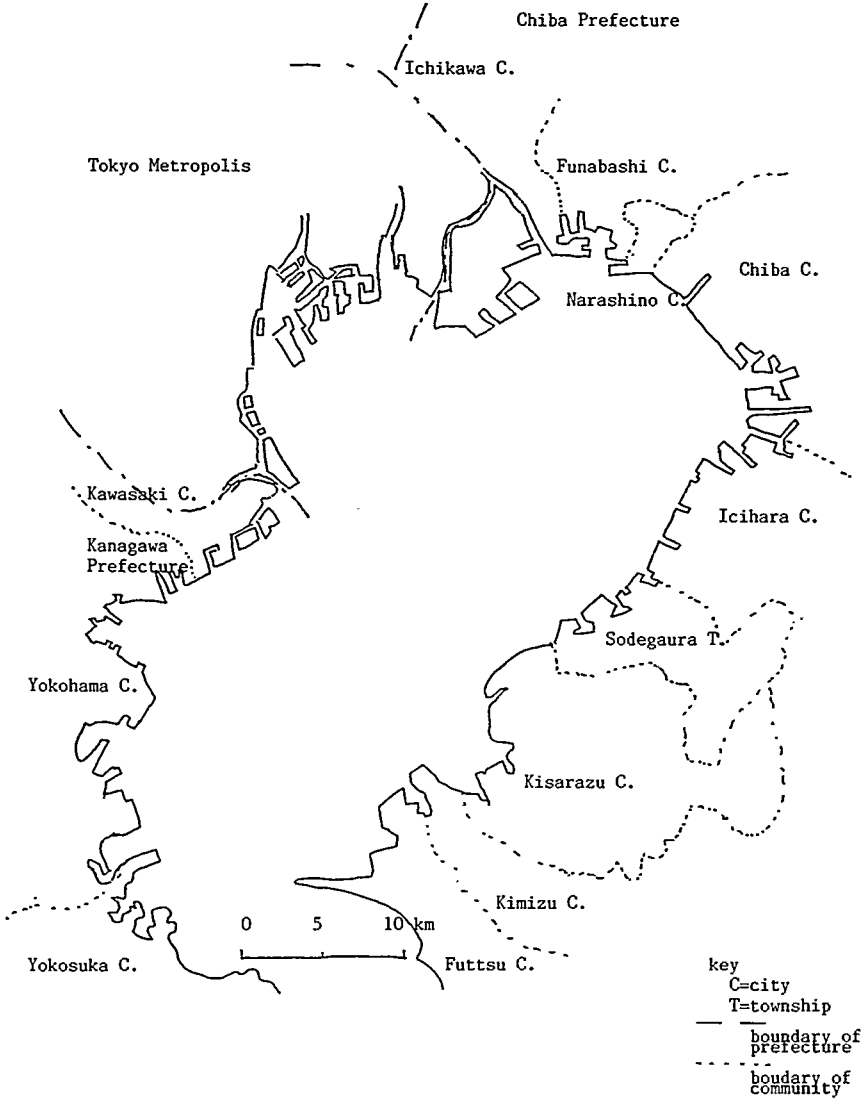


FIGURE 2

THE SIX PORTS OF TOKYO BAY AND LOCATIONS OF SELECTED INDUSTRIES ON RECLAIMED LANDS IN TOKYO BAY

ment, and hence local autonomy. A federal system of government exists in Japan with three levels: national, prefectural, and local. The structure of local government is two-level: prefectures and communities. The communities are composed of cities, townships, and villages. A community is a fundamental autonomous unit which has legislative and administrative sections. Members of the legislature and the head of administration are elected by the people. The three categories of the communities, city, township, and village, indicate only the size of the population of the unit; they do not indicate any difference in legislative or administrative authority. Several major cities such as Yokohama and Kawasaki, however, were given more authority in certain respects by the prefecture and became almost equivalent to prefectures.[1] The prefecture also is an autonomous unit but covers several communities. The prefecture is responsible for wider administration of land use control and water resource development, problems which individual communities cannot always afford to resolve. Sometimes a prefectural legislature preempts a community's ordinances or other regulations, while the national legislature sometimes preempts prefectural ordinances and regulations.

Tokyo Metropolis is an exceptional case. This autonomous unit is equivalent to a prefecture and incorporates what was the City of Tokyo during the Second World War. At present no autonomous unit called the City of Tokyo exists because the city was subdivided into 23 wards which are controlled by Tokyo Metropolis. A ward is also a kind of autonomous unit, but its authority is much more limited in comparison with other cities which are within the Tokyo Metropolitan area. Hereinafter, however, Tokyo Metropolis is considered a prefecture whenever the distinction between the two types of autonomous units, prefectures and communities, is necessary.

The catchment of Tokyo Bay consists of all or part of eight prefectures. Two prefectures, Saitama and Gunma, are totally included. Three other prefectures, Tokyo, Kanagawa, and Chiba, adjoin Tokyo Bay, but the major portion of each lies within the catchment. The other three prefectures, Tochigi, Yamanashi, and Ibaragi, contain small peripheral fragments of the catchment. As shown in Figure 3, eighteen communities are on the coastline of Tokyo Bay: the three cities of Yokosuka, Yokohama and Kawasaki within the Kanagawa Prefecture; the six wards of Tokyo Metropolis; and eight cities and a township of Chiba Prefecture.

## DECENTRALIZED MANAGEMENT SYSTEM FOR TOKYO BAY

The system for managing the marine environment and resources of Tokyo Bay is characterized by a complex network of *ad hoc* measures

1. CHIHŌ JICHI HŌ (Local Autonomy Law), Law No. 67 of 1947, art. 252(19).

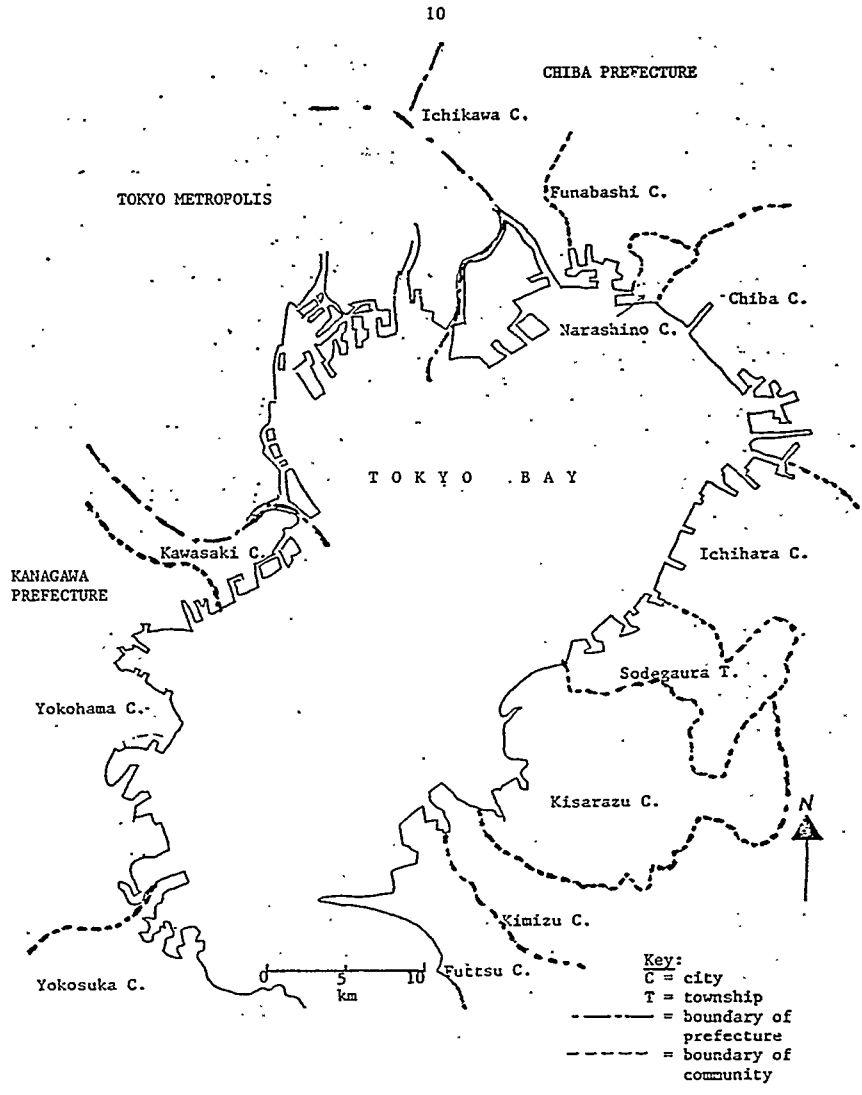


FIGURE 3

COMMUNITIES SURROUNDING TOKYO BAY

taken by the central and local governments with respect to different uses of the bay. Most measures taken deal only with particular uses, primarily land reclamation, fisheries, and navigation. The existing situation involves a multiplicity of agencies at different levels of government with varying and sometimes overlapping responsibilities, as reflected in Table 1.

The past and the current approach is not a comprehensive, but rather a sectoral, one. Therefore, the past institutional mechanism, characterized by a haphazard network of *ad hoc* measures, cannot cope with emerging problems and changes of public concerns. The management system, based on a patchwork quilt covering specific aspects of uses of the bay, is extremely diversified and fragmented. It cannot effectively deal with the problems of coordinating the multiple demands and uses of the limited space and resources of the bay. Moreover, a uniform system of data collection and analysis does not exist. Information relevant to the management problems is not collected systematically and in forms useful for management decisionmaking.

With regard to land reclamation, prefectural governors are authorized to issue licenses for such reclamation under Article 2 of the Reclamation from Public Waters Act, enacted in 1921.[2] With respect to port areas, however, mayors of selected cities, as port managers, are entitled to make reclamation decisions under the Port Law, enacted in 1950.[3] Each has almost discretionary power to decide which coastal areas under his jurisdiction are to be reclaimed and to whom licenses to reclaim land should be issued. In this regard, it must be added that although the Port Law requires port managers to request local port council opinions in formulating and changing the port plan, and to submit the plan to the Minister of Transportation, who acts with concurrence of the central port council, for approval, the councils and the Minister have exerted little substantial influence upon activities of port managers. Decisionmaking on reclamation in port areas, therefore, is almost totally in the hands of port managers.

With regard to fisheries, prefectural governors are authorized to grant fishing rights to fishermen's cooperative associations under the Fishery Act, enacted in 1949.[4] Once fishing rights are granted, revocation is difficult. If the fishermen's cooperative associations voluntarily abandon existing fishing rights, the governors are empowered to issue licenses for land reclamation from public waters pursuant to Article 4 of the Reclamation from Public Waters Act. The Public Waters Act does not require the consent of inhabitants living in the related area, other than members

2. KŌYŪ SUI MEN UMETATE HŌ (Reclamation from Public Waters Act), Law No. 57 of 1921.
3. KŌWAN HŌ (Port Law), Law No. 218 of 1950.

Table 1. Decisionmakers and Related Laws Relevant to Tokyo Bay

| Subject Matters | Local Government | National Government | Related Laws |
|---|---|---|---|
| 1. Fishery | Prefectural Governor | Minister of Agriculture, Forestry and Fisheries | Fishery Law (1949) |
| 2. Reclamation | | | |
| (1) Port Area | Port Manager | Minister of Transportation | Port Law (1950) |
| (2) Port Area in River Estuary | Port Manager<br>Prefectural Governor | Minister of Transportation<br>Minister of Construction | Port Law (1950) |
| (3) Fishing Port | Prefectural Governor | Minister of Agriculture, Forestry and Fisheries | Fishing Port Law (1950) |
| (4) Other Public Waters | Prefectural Governor | Minister of Construction | Public Waters Reclamation Law (1921) |
| 3. Construction of Port Facilities | | | |
| (1) Port Area | Port Manager | Minister of Transportation | Port Law (1950) |
| (2) Fishing Port Area | Prefectural Governor | Minister of Agriculture, Forestry and Fisheries | Fishing Port Law (1950) |
| (3) River Estuary | Prefectural Governor | Minister of Construction | River Law (1964) |
| (4) Coast Protection Area | Prefectural Governor | Minister of Construction<br>Minister of Transportation<br>Minister of Agriculture, Forestry and Fisheries | Coast Law (1956) |
| (5) Navigational Aids | | Minister of Transportation | Navigational Aids Law (1949) |
| 4. Maintenance and Management of Port Facilities | | | |
| (1) Port Facilities | Port Manager | Minister of Transportation<br>Minister of Treasury | Port Law (1950)<br>National Assets Law (1948) |
| (2) Fishing Port Facilities | Port Manager | Minister of Agriculture, Forestry and Fisheries | Fishing Port Law (1950) |
| (3) Navigational Aids | | Minister of Transportation | Navigational Aids Law (1949) |
| (4) Facilities Related to River | Local Governor | Minister of Construction | River Law (1964) |
| (5) Facilities Related to Coast Protection | Coast Manager<br>Port Manager | Minister of Transportation | Coast Law (1956) |
| (6) Facilities Related to Customs Area | | Minister of Treasury | Customs Duties Law (1954) |
| 5. Prevention of Marine Pollution | | | |
| (1) Control and Discharge of Oil and Wastes | | Commandant of the Maritime Safety Agency | Marine Pollution Control Law (1970) |
| (2) Construction of Waste Oil Disposal Facilities | Port Manager<br>Fishing Port Manager | Minister of Transportation | Marine Pollution Control Law (1970) |
| 6. Control of Total Pollutant Load | Prefectural Governor | Environment Agency | Water Pollution Control Law (1970) |

of a fishermen's cooperative association, to reclaim land. It is by this decisionmaking process that large coastal areas of Tokyo Bay were reclaimed by local governments. Past coastal land use policies by local governments were biased toward reclamation for industrial sites at the cost of ecological, recreational, and aesthetic values. In this respect, the central government could not, and cannot, exercise an effective coordination function.

## DECISIONMAKING AT THE NATIONAL LEVEL

The greatest concern of the Japanese national government after the Second World War was to revitalize the economy. To achieve this objective, the Comprehensive National Land Development Law was enacted in 1950.[5] The main purpose of this law was to coordinate multiple land uses and to optimize the locations of industrial sites. The Prime Minister promulgated the First Comprehensive National Development Plan in 1962[6] with emphasis on the promotion of economic development activities and the enlargement of industrial sites. Together with this plan, the Capitol Sphere Planning Act was enacted in 1956.[7] In accord with this Act, the Minister of Construction developed in 1958 an infrastructural arrangement plan for the Capitol Sphere in which the Tokyo Bay area was given an intensified developmental role. The central government revised the First Comprehensive National Development Plan in 1969, but the fundamental philosophy of the revised plan was almost identical to that of the first plan.[8] Its stress remained on the promotion of economic development activities, without sound environmental consideration. The national government promulgated the Third Comprehensive National Development Plan in 1977.[9] Although the basic aim was unchanged, this plan placed much more emphasis on environmental considerations. In the Third Plan, new policies for promoting economic development, including land reclamation, in Tokyo Bay and in Seto Inland Sea should be minimized.

A number of pollution problems occurred in many areas of the country as a result of environmentally unsound developmental activities. In order to cope with these problems, the Basic Law for Environmental Pollution Control was enacted in 1967.[10] This law classifies "environmental pol-

4. GYO GYŌ HŌ (Fishery Act), Law No. 267 of 1949, art. 10.

5. KOKUDO SŌGŌ KAIHATSU HŌ (Comprehensive National Land Development Law), Law No. 205 of 1950.

6. KOKUDO CHŌ (National Land Agency), DAIICHIJI ZENKOKU SŌGŌ KAIHATSU KEIKAKU (First Comprehensive National Development Plan) (1962).

7. SHUTOKEN SEIBI HŌ (Capitol Sphere Planning Act), Law No. 83 of 1956.

8. KOKUDO CHŌ (National Land Agency), DAINIJI ZENKOKU SŌGŌ KAIHATSU KEIKAKU (Second Comprehensive National Development Plan) (1969).

9. KOKUDO CHŌ (National Land Agency), DAISANJI ZENKOKU SŌGŌ KAIHATSU KEIKAKU (Third Comprehensive National Development Plan) (1977).

10. KŌGAI TAISAKU KIHON HŌ (Basic Law for Environmental Pollution Control), Law No. 132 of 1967.

lution" in terms of six categories: air pollution, water pollution, noise, vibration, ground subsidence, and offensive odor. The Basic Law for Environmental Pollution Control spells out general principles regarding "the responsibilities of the enterprise, the State and the local government bodies—in order to promote comprehensive policies to combat environmental pollution—thereby ensuring the protection of the people's health and the conservation of their living environment."[11] Comprehensive environmental policies, including the establishment of environmental quality standards, formulation of pollution control programs, and measures for the relief of pollution-caused damage are contained in the law. In this sense, this law is the legal umbrella for pollution control. In 1970, the national government's environmental policy took a decisive turn with a special session of national Parliament devoted to environmental problems. Parliament made sweeping changes in the system of pollution control laws, amending the Basic Law for Environmental Pollution Control and enacting or amending a total of 14 laws.[12] As a result, not only many regulatory standards and other control measures became more stringent, but also the policy goal for the protection of living environment was given a weight no less important than that of the protection of human health.

Under the Basic Law for Environmental Pollution Control and in order to give effect to the International Convention for the Prevention of Pollution of the Sea by Oil,[13] adopted in 1954, the Marine Pollution Control Law was enacted in 1970.[14] It provided that, except for specific cases, "no one shall discharge oil from a ship on the sea areas"[15] and "no one shall discharge wastes from a ship on the sea areas."[16] Moreover, a port manager shall, when necessary to prevent marine pollution by the discharge of wastes from a ship or from an offshore facility in his port area or its surrounding sea areas, make provisions for these matters in a port plan.[17]

In 1974, a serious oil leakage accident occurred in Seto Inland Sea. A huge amount of oil leaked from the Mitsubishi petroleum refinery in Mizushima, Okayama Prefecture. To prevent future maritime pollution disasters, the Marine Pollution Control Law was modified and a new law, the Marine Pollution and Maritime Disasters Control Law, was enacted

11. *Id.* at art. 1.

12. Among others, important are the enactment of the Water Pollution Control Law, the Marine Pollution Control Law and the Pollution Control Public Works Cost Allocation Law, and the amendment of the Basic Law for Environmental Pollution Control, the Air Pollution Control Law and the Noise Regulation Law.

13. 1 INTERNATIONAL PROTECTION OF THE ENVIRONMENT 332–57 (1975).

14. KAIYŌ OSEN BŌSI HŌ (Marine Pollution Control Law), Law No. 136 of 1970.

15. *Id.* at art. 4.

16. *Id.* at art. 10.

17. KŌWAN HŌ, art. 3(3), para. 1.

in 1976.[18] The Marine Pollution and Maritime Disasters Control Law provides measures to be taken in cases of heavy oil spills and discharges of inflammable and dangerous substances into bodies of water.

Another important law was promulgated in 1970. The Water Pollution Control Law[19] provides for the setting of uniform national standards for plants and business establishments which discharge effluents into public water bodies.[20] The law directs that the prefectural governor may set stricter discharge standards when he rules that application of the uniform national standards is insufficient to obtain compliance with the ambient water quality standards.[21] The conventional pollution control system under the Water Pollution Control Law, however, had the following defects: (a) in spite of the importance of reducing the overall pollutant load which affects water quality in large closed water areas, it is difficult to establish the relationship for cooperation between coastal and upstream prefectures; (b) because the law only covers plants and business establishments having specified facilities, the law does not give sufficient consideration to domestic effluents, one of the main sources of loads; and (c) because the law only concerns compliance with ambient water quality standards, it cannot effectively cope with increases in pollutant loads due to new or additional installations of specified facilities and drainage after dilution.

Therefore, in 1978, the concept of reduction of the total pollutant load into a water body was incorporated into this law. The Prime Minister shall formulate the basic guidelines to reduce the total pollutant load for specific areas, and the prefectural governors shall make plans for total pollutant load reduction pursuant to the basic guidelines.[22] The prefectural governors may issue orders for improvement of the situations in cases of non-compliance with total pollutant load control standards.[23] Presently, areawide total pollutant load reductions, in terms of chemical oxygen demand (COD), are underway for Tokyo Bay, Ise Bay, and Seto Inland Sea. In prefectures associated with these three areas, plans for areawide total pollutant load reduction in terms of COD were promulgated on March 18, 1980.[24] The objectives of these plans are shown in Table 2.

In 1971, the Environment Agency was established to administer environmental policy with greater vigor and to coordinate the environment-

18. KAIYŌ OSEN OYOBI KAIJŌ KASAI NO BŌSHI NI KANSURU HŌRITSU (Marine Pollution and Maritime Disasters Control Law), Law No. 136 of 1970 (amended 1976).
19. SUISHITSU ODAKU BŌSHI HŌ (Water Pollution Control Law), Law No. 138 of 1970.
20. *Id.* at art. 3, para. 1.
21. *Id.* at art. 3, para. 3.
22. *Id.* at arts. 4(2) & (3).
23. *Id.* at art. 13.
24. ENVIRONMENT AGENCY, QUALITY OF THE ENVIRONMENT IN JAPAN 163 (1981).

Table 2. Targets of the Prefectural Plans for Areawide Total Pollutant Load Reduction in Terms of Chemical Oxygen Demand, for 1984

| TOKYO BAY | | | | |
|---|---|---|---|---|
| Prefectures concerned | Target reduction level (ton/day) | | | |
| | Residental | Industrial | Others | Total |
| Saitama | 86 | 39 | 16 | 141 (91.0) |
| Chiba | 59 | 45 | 8 | 112 (95.7) |
| Tokyo | 178 | 50 | 52 | 280 (91.2) |
| Kanagawa | 63 | 46 | 18 | 127 (88.8) |
| Total | 386 (90.2) | 180 (90.0) | 94 (100.0) | 660 (91.4) |

| ISE BAY | | | | |
|---|---|---|---|---|
| Prefectures concerned | Target reduction level (ton/day) | | | |
| | Residental | Industrial | Others | Total |
| Gifu | 37 | 60 | 9 | 106 (93.8) |
| Aichi | 115 | 94 | 23 | 252 (88.2) |
| Mie | 27 | 54 | 7 | 88 (94.6) |
| Total | 179 (90.4) | 208 (92.4) | 39 (84.8) | 426 (90.8) |

| SETO INLAND SEA | | | | |
|---|---|---|---|---|
| Prefectures concerned | Target reduction level (ton/day) | | | |
| | Residental | Industrial | Others | Total |
| Kyoto | 39 | 24 | 6 | 69 (92.0) |
| Osaka | 148 | 74 | 10 | 232 (89.6) |
| Hyogo | 80 | 65 | 20 | 165 (91.2) |
| Nara | 22 | 8 | 3 | 33 (97.1) |
| Wakayama | 18 | 33 | 3 | 54 (91.5) |
| Okayama | 37 | 64 | 12 | 113 (95.0) |
| Hiroshima | 47 | 56 | 7 | 110 (94.0) |
| Yamaguchi | 25 | 94 | 6 | 125 (94.0) |
| Tokushima | 16 | 41 | 7 | 64 (91.4) |
| Kagawa | 19 | 22 | 7 | 48 (98.0) |
| Ehime | 28 | 85 | 8 | 121 (96.8) |
| Fukuoka | 16 | 44 | 4 | 64 (86.5) |
| Oita | 22 | 56 | 7 | 85 (93.4) |
| Total | 517 (90.9) | 666 (93.9) | 100 (92.6) | 1,283 (92.6) |

Note: Values in parentheses are the percentages target pollutant loads of 1979 pollutant loads.
Source: Environment Agency, Quality of the Environment in Japan, 1981, pp. 164–65.

related functions of various government ministries and agencies.[25] In the same year the Environment Agency issued an ordinance establishing ambient water quality standards pursuant to Article 9 of the Basic Law for Environmental Pollution Control.[26] These standards represent a policy goal and are divided into two categories: (1) the protection of human health and (2) the conservation of the living environment. The former category applies to all public waters, while the latter applies selectively to different types of waters such as rivers, lakes, and sea areas, according to the uses of the waters and the current state of water quality.

The Seto Inland Sea legislation was the culmination of years of struggle against declining productivity of fishery resources caused by deterioration of water quality. Specific events made this deterioration particularly apparent. In August 1972, large quantities of red tides occurred throughout the eastern part of the Inland Sea, causing unprecedented damage to the yellowtail farms in the area. In September of the same year, many shellfish, such as round clams, died in the central part of the Inland Sea due to lack of oxygen in the bottom layer of water. This oxygen deficiency was attributed to pollutant discharges. Against the background of these events, the national government decided to take special measures for Seto Inland Sea. In 1973, the Interim Law for Conservation of the Environment of the Seto Inland Sea was enacted.[27] The purpose was to reduce the pollutant load discharged into the Seto Inland Sea in 1972, as expressed in terms of COD of industrial effluents, to one-half by November 1976. In 1978, the Basic Plan for the Seto Inland Sea Environment Conservation was formulated pursuant to Article 3 of this law.[28] In order to extend the validity of this interim law and to make it permanent, a new law, the Law Concerning Special Measures for Conservation of the Environment of the Seto Inland Sea, was enacted.[29]

For Tokyo Bay, however, the type of law cited above and a basic plan for conserving the marine environment do not exist. There are two reasons for this lack of protection of the marine environment. Tokyo Bay is not a national park, whereas the Seto Inland Sea is. In Tokyo Bay, moreover, few fishermen and fishermen's cooperative associations remain which could form the nucleus of a strong movement against marine pollution.

25. The Environment Agency is not a ministry, and reports directly to the prime minister. This, however, does not mean that its status is inferior to that of a ministry. As a matter of fact, the director general of the agency ranks high in the cabinet and enjoys the title of Minister of State.

26. SUISHITSU ODAKU NI KAKAWARU KANKYŌ KIJUN NI TSUITE (On the Environmental Quality Standards Relating to Water Quality), Ordinance No. 59 of 1971.

27. SETO NAIKAI KANKYŌ HOZEN RINJI SOCHI HŌ (Interim Law for Conservation of the Environment of the Seto Inland Sea), Law No. 110 of 1973.

28. SETO NAIKAI KANKYŌ HOZEN KIHON KEIKAKU (Basic Plan for the Seto Inland Sea Environment Conservation), Ordinance No. 11 of 1978.

29. SETO NAIKAI KANKYŌ HOZEN TOKUBETSU SOCHI HŌ (Law Concerning Special Measures for Conservation of the Environment of the Seto Inland Sea), Law No. 110 of 1973 (amended 1978).

Such dramatic pollution events as oil spills or red tide destruction have not occurred in Tokyo Bay to arouse the attention of the public. Occasional occurrences of red tides, however, have been detected. Undeniably, red tides have adversely affected the fishing industry and the health of bathers, generated offensive odors, polluted coastlines, deoxygenated the bottom water, and otherwise caused widespread damage to the living environment.

As indicated above, the national government has taken some action to prevent or reduce deterioration of water quality and to protect the marine environment. Areas where ambient water quality is not good, however, still remain. Such areas include rivers which run through cities with heavy concentrations of population and industrial activities, and coastal waters, especially bays and inland seas where waters are confined within a given area. One of the recent achievements in water quality improvement in large closed water areas is the introduction of a system of areawide total pollutant load control. In spite of its usefulness for water quality improvement, pollution control only relates to COD and does not prevent these areas from suffering eutrophication and red tides. In particular, for Tokyo Bay and Ise Bay, in April 1980 the Environment Agency, together with the relevant prefectures, established liaison meetings. The agency has been continuing information exchange, reports, and coordination for measures against eutrophication.[30] Few effective measures, however, have been taken. In Tokyo Bay, moreover, little attention has been paid to other environmental aspects such as natural, aesthetic, and recreational values.

Because of the incompetence of the Environment Agency, few effective measures have been taken to improve water quality or to protect the marine environment. That agency has had definite limitations imposed upon its administrative activities and authorities.[31] Other agencies of the national government have not been willing to confer on the Environment Agency sufficient powers to fulfill its designated functions. As a result, the division of powers among agencies has prevented the national government from undertaking comprehensive and integrated management activities. Illustrative of the complexity and fragmentation of the coastal management system are the following allocations of decisionmaking: fishery matters are under the jurisdiction of the Ministry of Agriculture, Forestry and Fisheries;[32] navigation matters are under the jurisdiction of

30. ENVIRONMENT AGENCY, *supra* note 24, at 166.

31. For an enumeration of the powers and functions of the Environment Agency, see KANKYŌ CHŌ SĒCHI HŌ (Law Concerning the Establishment of the Ministry of Agriculture, Forestry and Fisheries), Law No. 88 of 1971.

32. *See* NŌIN SUISAN SHŌ SĒCHI HŌ (Law Concerning the Establishment of the Ministry of Agriculture, Forestry and Fisheries), Law No. 153 of 1949.

the Ministry of Transportation;[33] land reclamation matters are under the jurisdiction of both the Ministry of Construction and the Ministry of Transportation;[34] and marine pollution matters are under the jurisdiction of both the Environmental Agency and the Maritime Safety Agency.[35]

In addition, the Environment Agency is not the only national governmental agency interested in environmental policy. For example, the Ministry of International Trade and Industry (MITI) has created a specialized directorate which is called Industrial Location and Environmental Protection Bureau. The Bureau has played an important role in the formulation and implementation of environmental policy. Other agencies, such as the Ministry of Transportation and the Ministry of Construction, also have similar sections. Finally, the Central Council for Environmental Pollution Control and the Council for Development of Marine Resources, advisory organs to the prime minister, have had some influence on environmental policy-making. Until now, however, these councils have not made any specific recommendations for management of Tokyo Bay.

## DECISIONMAKING AT PREFECTURAL AND COMMUNITY LEVELS[36]

Japan is a highly centralized country with only recent experience with local autonomy. Laws and cabinet orders provide for all cases and all places but, when necessary, the central government is able to introduce localized standards. The Water Pollution Control Law is an example.[37] *Prima facie* there is little apparent room for local government intervention, but such a superficial observation would be a mistake. In decisionmaking processes, the central government has always taken ideas pioneered by or measures undertaken by local governments into consideration. In this sense the role of local governments in environmental policymaking, particularly in setting pollution abatement standards, is significant, at least as significant as that of the central government.

In some cases, especially in pollution control, local governments have been more innovative and more severe than the central government. This is partly due to the fact that prefectures and communities are closer to the needs and demands of local people and partly due to a purely political

33. *See* UNYU SHŌ SĒCHI HŌ (Law Concerning the Establishment of the Ministry of Transportation), Law No. 157 of 1949.

34. *See* KENSETSU SHŌ SĒCHI HŌ (Law Concerning the Establishment of the Ministry of Construction), Law No. 113 of 1948.

35. *See* KAIJŌ HOAN CHŌ HŌ (Law Concerning the Maritime Safety Agency), Law No. 28 of 1948.

36. In this paper, the term "local governments" denotes not only governments of cities, towns, and villages, but also governments of prefectures.

The situation at prefectural and community levels with respect to decisions concerning Tokyo Bay is indicated by descriptions below of decisions actually made at these levels in the period since the Second World War.

37. SUISHITSU ODAKU BŌSHI HŌ, art. 3, para. 3.

reason of demanding local autonomy. As history shows, pollution control in Japan actually was initiated by local governments at a time when the central government did not take measures to abate pollution. The "total mass emission" concept, that is to say, the idea of placing a ceiling on the total emissions allowed over a given area, was pioneered by local governments as was the concept of "administrative compensation."[38] Many local governments have set "quality standards" or "emission standards"[39] stricter than the standards set by the central government. Local governments often go further than the mere setting of generic standards which apply to all plants or to all plants of the same type. They conduct detailed negotiations with individual plants and enter into pollution abatement contracts in which specific standards of achievement are set for each plant. Another example of local initiative is the Environmental Impact Assessment System. The central government has not yet succeeded in enacting a nationwide law relating to assessing environmental impacts. Some local governments, however, have established ordinances or guidelines for the assessment of environmental effects.[40]

A strong reason for local government intervention is the application of "administrative guidance" which characterizes the Japanese approach to pollution abatement. Detailed "administrative guidance" cannot be carried out entirely by the central government. Therefore, local governments flexibly set and implement pollution standards. It is also important to note that enforcement activities are more concerned with guidance than with punishment. According to the Water Pollution Control Law:

> When there is threat that discharged water does not satisfy the emission standard, the prefectural governor may order the person who discharges it to improve, by fixing the period, the structure of the

38. In contrast with private and judiciary compensation, the scheme of administrative compensation is operated by the National Administration under the "Pollution Related Health Damage Compensation Law," enacted in 1973. The law was preceded by measures taken by local governments. Kumamato Prefecture initiated grants for financial support to victims of Minamata diseases as early as 1958. Yokkaichi City decided to aid asthma victims in 1965.

39. In Japan, "standards" represent an important tool to carry out environmental policies. There are two kinds of "standards." One kind, usually called "quality standards" or "ambient standards," lays down the levels of pollution not to be exceeded in a receptor medium. Although they are merely desirable administrative goals and pollutors cannot be fined or punished because these standards are not met, they play an important role as a weapon in the hands of the administration. The other kind, called "emission standards," specify the quantity of pollutants which may be discharged from a given source per unit of time. They have binding force and can be enforced. In this sense, they are direct policy instruments.

40. In 1976, Kawasaki City promulgated the Kawasaki City Environmental Impact Assessment Ordinance. In 1978, Hokkaido enacted the Hokkaido Environmental Impact Assessment Ordinance. In 1980, the Tokyo Metropolis Environmental Impact Assessment Ordinance and the Kangawa Prefecture Environmental Impact Assessment Ordinance were promulgated. Furthermore, some local governments, including Kochi, Nagasaki, Chiba, Saitama, and Shiga Prefectures and Yokohama City, have established guidelines for the assessment of environmental effects.

> utilizing method of the facility, the method of treating polluted water, or to stop for the time being the use of the facility.[41]

It is only in the last recourse, when the polluter does not want to comply, that penalties are applied.[42]

Generally speaking, however, Japanese environmental policies, both at national and local levels, have largely concentrated on pollution abatement. They have not, however, successfully dealt with the maintenance and enhancement of environmental quality or, as it is often called, "amenities." In the latter field, the setting of standards certainly will not be sufficient. Careful comprehensive planning, especially land use planning, is needed. Lack of this kind of planning at the central government level has led to environmentally undesirable developments in Tokyo Bay at the initiative of prefectural and municipal governments. Presently, there is strong discontent among people opposed to limiting access to the beaches. This reduced availability was a result of large-scale land reclamation in Tokyo Bay. In order to accommodate this public discontent, prefectural and municipal governments have tried to create manmade beaches, but such undertakings doubtfully can meet social demands.

Neither national nor local governments have succeeded in the organization of public participation, a key element in the development of environmental policies. In spite of the importance of citizen input, the public is not allowed to participate in the decisionmaking processes affecting developmental activities in Tokyo Bay.

*Tokyo Metropolis*

At the end of the Second World War, the Tokyo port area was requisitioned by the occupation forces for a short period but was gradually returned to the jurisdiction of Tokyo Metropolis. In that period, the Governor of Tokyo Metropolis decided to enlarge the port sites by land reclamation and to modernize the port facilities. Given this objective, the Governor promulgated the First Port Plan for the Port of Tokyo in 1956.[43] Under this plan, large-scale land reclamation was initiated with most of the reclaimed land used for industrial sites. What should be noted, however, is that the Metropolis government did not issue permits for construction of industrial activities, but rather first defined a criterion for deciding which industrial activities would be permitted in the reclaimed area.[44] The criterion was whether the invited industry was indispensable

41. SUISHITSU ODAKU BŌSHI HŌ, art. 13.

42. *Id.* at art. 30.

43. TOKYO METROPOLIS, TOKYOKŌ DAIICHIJI KŌWAN KEIKAKU (First Port Plan for the Port of Tokyo) (1956).

44. Interview with Masayoshi Ebata, former executive director of the Department of the Port Affairs of Tokyo Metropolis.

to the residents of Tokyo Metropolis. According to this criterion, applications for gas and electric power plants were accepted, but applications for petroleum refineries and shipyards were rejected.[45] In 1961, the Governor undertook a revision of the Port Plan for the purpose of promoting land reclamation. In the following year, the fishermen's cooperative associations in the Tokyo Bay area abandoned all fishing rights conditioned on payment of appropriate compensation. The largest roadblock to land reclamation, therefore, was removed, and the way paved for further large-scale land reclamation. Toward this end, the Second Port Plan for the Port of Tokyo was promulgated in 1966.[46] In the 1970s, some modifications were made to the Port Plan. The Tokyo Plan for Open Space and Blue Sky, promulgated in 1971, established a new objective. The reclaimed lands should be used to ease the congestion of human settlement in the area and to enhance amenities.[47] Along this line, the Third Port Plan for the Port of Tokyo was issued in 1976.[48] The plan provides that the reclaimed lands should be used not only for industrial sites but also for manmade beaches, parks, and refuse handling and treatment operations.

With respect to the problem of water quality of Tokyo Bay, the Governor of Tokyo Metropolis promulgated in 1980 the "Plan for Total Pollutant Load Reduction in Terms of Chemical Oxygen Demand."[49] The target levels for reducing pollutant loads from domestic sources, industrial activities, and other sources, are shown in Table 2. In order to achieve these targets various measures are now being implemented. In the case of domestic effluents, steps are being taken to improve the sewer systems and to install and properly maintain septic tanks. For industrial plants and business establishments, the Governor determined total pollutant load control standards.[50] These standards apply to plants and establishments which discharge effluents in an amount greater than an average of 50 $m^3$ daily. For newly constructed plants and establishments, these standards have applied since July 1, 1980; for existing plants and establishments, the standards have applied since July 1, 1981. For small-scale establishments not covered by these standards, the Governor of Tokyo Metropolis is giving guidance necessary to achievement of the plan's objectives.[51]

45. *Id.*

46. TOKYO METROPOLIS, TOKYOKŌ DAINIJI KAITEI KŌWAN KEIKAKU (Second Revised Port Plan for the Port of Tokyo) (1966).

47. HIROBA TO AOZORA NO TOKYO KŌSŌ (Tokyo Plan for Open Space and Blue Sky), Tokyo Metropolis, 167–73 (1971).

48. TOKYO METROPOLIS, TOKYOKŌ DAISANJI KAITEI KŌWAN KEIKAKU (Third Revised Port Plan for the Port of Tokyo) (1976).

49. This plan was made and promulgated pursuant to SUISHITSU ODAKU BŌSHI HŌ, art. 4(3).

50. These standards were established pursuant to SUISHITSU ODAKU BŌSHI HŌ, art. 4(5).

51. TOKYO METROPOLIS, KAGAKUTEKI SANSO YŌKYURYO NI KAKAWARU SŌRYŌ SAKUGEN KEIKAKU (Plan for Total Pollutant Load Reduction in Terms of Chemical Oxygen Demand) (1980).

In order to cope with the degradation of water quality by eutrophication of Tokyo Bay, the Tokyo Metropolis government issued "the Guidelines for Controlling Eutrophication in Tokyo Bay" on July 1, 1982.[52] These guidelines provide various measures for the reduction of nutrients, such as nitrogen and phosphorus, in domestic, industrial and other effluents. The guidelines include the improvement of sewer systems and the installation and proper maintenance of septic tanks. In addition to these guidelines, the Tokyo Metropolis government has informed the public of the proper use of non-phosphorus or low-phosphorus detergents and soaps to reduce phosphorus loads of domestic effluents by the target year of 1984.

*Kanagawa Prefecture*

Most of the coastal areas of Kanagawa Prefecture facing Tokyo Bay are administered by the governments of Yokohama and Kawasaki cities. The mayors of these cities, as port managers, have exercised jurisdictional powers with respect to land reclamation within the port areas. Therefore, as far as these areas are concerned, the governor of Kanagawa Prefecture has no substantive powers. From a jurisdictional point of view, the prefectural governor is entitled to exercise some degree of power relating to port areas in river estuaries under the River Law.[53] In practice, however, the prefectural governor has not interfered with land reclamation activities.

In regard to Tokyo Bay water quality, the governor of Kanagawa Prefecture issued the "Plan for Total Pollutant Load Reduction in Terms of Chemical Oxygen Demand" in March 1980.[54] The target reduction levels for residential, industrial, and other effluents are shown in Table 2. The measures and standards are almost identical to those of Tokyo Metropolis.

With respect to the problem of eutrophication, the governor of Kanagawa Prefecture promulgated the "Guidelines for Controlling Eutrophication in Tokyo Bay" on July 1, 1982.[55] Under these guidelines, the prefectural government is carrying out the detailed administrative guidance necessary to reduce nitrogenous and phosphoric loads by 1984. The measures are almost the same as those of Tokyo Metropolis.

*Yokohama City*

The Port of Yokohama was returned to the jurisdiction of the City of Yokohama in 1951 after its requisition and use by the occupation forces

52. TOKYO METROPOLIS, TOKYOWAN FUEIYŌKA TAISAKU SHIDO SHISHIN (Guidelines for Controlling Eutrophication in Tokyo Bay) (1982).

53. KASEN HŌ (River Law), Law No. 167 of 1964.

54. KANAGAWA PREFECTURE, KAGAKUTEKI SANSO YŌKYURYO NI KAKAWARU SŌRYŌ SAKUGEN KEIKAKU (Plan for Total Pollutant Load Reduction in Terms of Chemical Oxygen Demand) (1980).

55. KANAGAWA PREFECTURE, TOKYOWAN FUEIYŌKA TAISAKU SHIDO SHISHIN (Guidelines for Controlling Eutrophication in Tokyo Bay) (1982).

in the post-Second World War years. The first project of land reclamation for industrial sites after the war was undertaken in the coastal area of the Tsurumi district in 1955. In 1956, the mayor of Yokohama promulgated the Basic Plan for the Construction of the International Port City.[56] A large-scale land reclamation project in Negishi Bay for industrial sites was incorporated in the Plan. In 1966, the mayor of Yokohama reformulated the Basic Plan under the name of the Integrated Plan for Construction of the International Port City.[57] In the amended plan, a new large-scale project of land reclamation in the Kanazawa district was added.

What is characteristic of Yokohama is that most of the reclaimed land is for industrial sites. Moreover, in contrast to the procedure in Tokyo, no criterion for selection of industries was established. As a result, a wide range of heavy industrial activities have been constructed in the area, including steel works, gas and electric power stations, shipyards, petroleum refineries, and petrochemical plants.

*Chiba Prefecture*

Most of the land of Chiba Prefecture was reclaimed after the Second World War. Interestingly, Chiba Prefecture is the best illustration of how the public and private sectors cooperated to promote economic activities in reclaiming land from public waters. The Governor of Chiba Prefecture was very eager to secure heavy industries because this prefecture was less economically developed after the Second World War than Tokyo or Kanagawa prefectures. Both Tokyo and Kanagawa had a number of modern industrial plants and plenty of opportunities for employment while the main industries in Chiba Prefecture were small-sized agricultural operations and old-fashioned fishery activities. Chiba Prefecture per capita income in 1960 was only half of that in Tokyo Metropolis and 60 percent of that of Kanagawa Prefecture.[58] The low per capita income provided a rationale for the enactment in 1952 of the Ordinance for Invitation of Industries.[59]

In 1961, the Governor of Chiba Prefecture announced a very ambitious "industrialization plan" to catch up with the neighboring prefecture.[60] First, in order to provide inexpensive land to heavy industries, the governor promoted land reclamation all along the prefecture seashore of Tokyo Bay. Second, the governor established a public corporation for

56. YOKAHAMA CITY, YOKOHAMA KOKUSAIKOTO KENSETSU SŌGŌ KIKAN KEIKAKU (Comprehensive Basic Plan for the Construction of the International Port City in Yokohama) (1956).

57. YOKOHAMA CITY, YOKOHAMA KOKUSAIKOTO KENSETSU SŌGŌ KEIKAKU (Integrated Plan for Construction of the International Port City in Yokohama, 1965–75) (1966).

58. CHIBA PREFECTURE, JŪKAGAKU KŌGYŌKA KEIKAKU (Development Plan in Heavy and Chemical Industries) (1961).

59. CHIBA PREFECTURE, KIGYŌ YŪCHI JŌREI (Ordinance for Invitation of Industries), Chiba Prefecture (1952).

60. *See* JŪKAGAKU KŌYŌKA KEIKAKU, *supra* note 58.

implementation of that plan, and reclamation licenses were given to that corporation exclusively.Third, the public corporation compensated the fishermen's cooperative association and finally, as in the case of Yokohama, no criterion for the selection of industrial activities was established. The legislature of the prefecture welcomed this plan but imposed a condition that the public corporation had to operate on a self-paying basis. The corporation could expect no financial aid from the prefectural government until taxes from new industrial activities would enable the prefecture to invest in the infrastructure. This condition automatically drove the corporation to the capitalists who believed that steel and petrochemical industries most effectively promoted local economies. Hence, the public corporation eagerly sought to persuade the executives of these industries to move to the newly built lands of Chiba Prefecture. Fortunately or unfortunately, executives of these industries thought it necessary to expand their plants, and the existing sites in Tokyo and Kanagawa Prefectures appeared to be too small. They decided to invest in Chiba Prefecture if Chiba Prefecture would prepare the necessary conveniences (infrastructure) for the industries.

The public corporation sold the sea to the industries, although the sea itself was not a commodity. As the first step, the public corporation was required to pay compensation for fishing rights in order to obtain the consent of the fishermen's cooperative associations, as required by the Reclamation from Public Waters Act.[61] Having no funds for this purpose, the public corporation negotiated directly with the executives of the steel and petrochemical industries to pay money in advance for land reclamation. The corporation, moreover, wanted to contractually ensure that the industries would come to the prefecture. Under these circumstances, it was rather natural for the Governor of Chiba Prefecture to approve the industry-oriented plan of reclamation and neglect its environmental consequences.

Some of the reclamation was done outside the port area. In such cases, the governor is the last decisionmaker. Another portion of land reclamation, however, was done in the port area, thereby requiring the Minister of Transportation of the national government to examine the plan on a broader basis. The Minister of Transportation actually encouraged the governor rather than reminding him of the importance of environmental impacts. The minister's behavior was indicative of the national government's eagerness to pursue economic growth and its near blindness to environmental issues. According to the Port Law, prefectural and national port councils may give advice to the governor and the minister, respec-

61. KŌYŪ SUI MEN UMETATE HŌ, art. 4, para. 3.

tively, but in this case they functioned merely as "yes-men." When the local citizens became aware of the environmental consequences, it was too late to stop or change the plan.

Actually, no citizens have dared to go to the court to protect their rights to enjoy the beauties of nature in the Tokyo Bay area. Some citizens, however, did ask the court for an injunction to stop reclamation in other locations.[62] The court, however, rejected the request, ruling that the plaintiffs did not have standing because the reclamation did not impinge on the plaintiff's rights as protected by law.[63] Development activities without environmental consideration caused many pollution problems and gave rise to anti-pollution movements among citizens. For this reason, the Governor of Chiba Prefecture declared in 1972 that he had no intention of undertaking the new reclamation project.

With regard to the problem of water quality of Tokyo Bay, in 1983 the prefectural government of Chiba continued to take some measures under the "Plan for Total Pollutant Load Reduction in Terms of Chemical Oxygen Demand" and the "Guidelines for Controlling Eutrophication in Tokyo Bay." Most of these measures are similar to those of Tokyo Metropolis and Kanagawa Prefecture.

## PUBLIC PARTICIPATION

Past experience with decisions regarding use of Tokyo Bay shows that public participation was extremely limited, especially at the important stage of issue formulation. Public participation, moreover, was relatively limited in the implementation and enforcement of governmental decisions at the national, prefectural, and community levels. In 1973, the Reclamation from Public Waters Act was partly revised, and a provision was added to allow persons interested in and concerned with land reclamation from public waters to submit a statement to the governor of the relevant prefecture.[64] Whether the governor considers the statement, however, is solely at his discretion.

Article 16 of the Urban Planning Act, enacted in 1968, stipulated that

62. *See, e.g.*, Okada & Nakagawa v. Mayor of Nagahama, Hanrei Jiho (no. 889) (Matsuyama Dist. Ct., May 29, 1978).

63. In the above mentioned Nagahama case, plaintiffs claimed that if the port were to be built, much of the natural beach would be destroyed, thus violating the people's "environmental rights." The court, however, ruled that:

> Swimming beaches and the water surface are natural properties owned by the State [national government]. The people can use and enjoy these beaches and waters only as the State permits. Such use does not constitute a right of the people but is rather a privilege allowed them by the State.

*Id.*

64. KŌYŪ SUI MEN UMETATE HŌ, art. 3, para. 3.

governors or mayors can, but are not required to, hold public hearings when they judge it necessary in order to formulate an urban plan.[65] Until 1983, however, few public hearings were held. One unsuccessful case for public hearings can be cited.[66] The government of Kanagawa Prefecture planned to construct a highway along Tokyo Bay. A number of residents of Yokohama and Kawasaki cities were against the construction of the highway and asked the governor of Kanagawa Prefecture to hold public hearings. The governor was reluctant to hold public hearings. In the meantime, 12 residents living in Yokohama and Kawasaki cities sought a court injunction against the governor's decision to build the highway. The plaintiffs based their claim not only on the concept of "environmental rights" but also on the governor's failure to hold public hearings. On February 27, 1980, the Yokohama District Court handed down its ruling supporting the governor's decision.

In order to develop and promote environmentally healthy development policies, the use of mechanisms to incorporate various land use planning opinions is indispensable. Doors must be opened to public participation in the decisionmaking process.

## NECESSITY FOR AND CONSIDERATIONS IN DEVELOPING NEW INSTITUTIONAL ARRANGEMENTS

One of the most serious problems of the past and current systems of management of the marine environment and resources of Tokyo Bay is the lack of integration and comprehensiveness. Such an absence is caused by the complex patchwork of *ad hoc* measures covering specific matters—all culminating in a general inability to deal with new problems arising from rapid economic and technological developments and from changing social concerns.

Both a new philosophy and some new or modified institutional arrangements must be introduced into the bay management system in order to: (1) recover and maintain the health of the marine environment, especially the living marine resources of Tokyo Bay and (2) be able to decide among competing demands about the integration of uses of the bay. The new philosophy must adopt a comprehensive and an integrated approach to management of Tokyo Bay. A single comprehensive agency must be established to direct the diverse functions involved in effectively managing the marine environment and resources. In the future, this agency could be the most important mechanism for formulating regional management strategies relating to economic development activities and en-

65. TOSHI KEIKAKU HŌ (Urban Planning Act), Law No. 100 of 1968.

66. Oguri v. Governor of Kanagawa Prefecture, Hanrei Jiho (No. 958) (Yokohama Dist. Ct., Feb. 27, 1980).

vironmental considerations as well as to the collection and analysis of data.

The establishment of a single comprehensive agency, however, is not necessarily a realistic approach under the present situation. In the past, an unfruitful effort was made by Keidanren, the Japanese Federation of Economic Organizations, to create such a new comprehensive organ.[67] In 1979, the Commission of Marine Affairs of Keidanren proposed to enact a new law called the Basic Law for Marine Developments. In that proposal, the establishment of the Committee for Marine Developments was suggested as a permanent advisory organ to the cabinet. The prime minister would submit a report concerning measures to be presented to the Diet on an annual basis. The suggested main functions of the Committee were to formulate the Basic Plan for the Research and Development of the Marine Resources and for the Protection of the Marine Environment. The Committee would also determine and promote large-scale national projects for implementation under the cooperation of the public and private sectors. In spite of its significance, that proposal met stiff resistance from governmental agencies. The existing agencies were very reluctant to support the comprehensive proposal because they did not want to be deprived of traditionally acquired powers. As a result, a good chance was lost to enact the new law and to establish the new comprehensive organ.

An alternative institutional arrangement, which is more practical politically, is the establishment of an inter-prefectural forum to coordinate the policies and programs of the national, prefectural, and municipal governments. The forum could provide a good opportunity for exchange of views. The forum should also be empowered to recommend individual or joint measures to be undertaken by prefectural and/or municipal governments. Such measures should be based upon the analyses of integrated research activities of the marine environment and resources of Tokyo Bay.

Such an inter-prefectural forum already has been established in an embryonic form to combat eutrophication. On December 1, 1979, the "Liaison Meeting for Secondary Pollution Problems in Tokyo Bay" was established by six prefectures and cities: namely, Tokyo, Kanagawa, Chiba, and Saitama Prefectures and Yokohama and Kawasaki cities. Information about water quality degradation by eutrophication and the conduct of joint research activities on the mechanisms of eutrophication in Tokyo Bay was exchanged.

Parallel to this meeting, on April 18, 1980, the Environment Agency

67. KEIDANREN (Japanese Federation of Economic Organizations), KONGO NO KAIYŌ KAIHATSU NO SUSUMEKATA NI KANSURU WAREWARE NO TEIAN (Our Proposal on How to Carry Out Future Marine Developments) (Oct. 17, 1979).

established the "Liaison Meeting for Measures against Eutrophication in Tokyo Bay" together with the above-mentioned six prefectures and cities.[68] The group of six prefectures and cities promulgated the "Guidelines for Controlling Eutrophication in Tokyo Bay" on July 1, 1982 based on the results of joint research activities and integrated analytical studies. Present loads, projected loads, and target loads for phosphorus and nitrogen in Tokyo Bay, in the relevant prefectures and cities, are shown in Table 3. The Environment Agency went on to establish ambient standards concerning eutrophication in 1984. Based on this step, emission standards will be set in the near future on nutrient discharges, such as those of phosphorus and nitrogen.

The inter-prefectural forum in the field of eutrophication is a starting point for cooperative efforts among relevant governmental agencies, at both national and local levels, to cope with the degradation of water quality in Tokyo Bay and to seek ways to use nature and its resources wisely. The expansion of this mechanism to other Tokyo Bay marine environment and resources concerns will be useful. The sooner steps are taken, the easier it will be to revitalize the life-force of Tokyo Bay.

68. *See* ENVIRONMENT AGENCY, *supra* note 24, at 166.

Table 3. Present Loads, Projected Loads, and Target Loads of Phosphorus and Nitrogen to Tokyo Bay (all values in tons per day)

**PHOSPHORUS**

| Prefecture/ City | Present loads (1979) | | | | Projected loads (1984) | | | | Target loads (1984) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | Industrial | Other | Total | Residential | Industrial | Other | Total | Residential | Industrial | Other | Total |
| Saitama | 5.9 | 1.9 | 2.5 | 10.3 | 6.5 | 2.7 | 2.8 | 12.0 | 4.3 | 1.8 | 2.8 | 8.9 |
| Chiba | 3.4 | 1.0 | 0.6 | 5.0 | 4.5 | 1.2 | 0.6 | 6.3 | 3.0 | 1.0 | 0.6 | 4.6 |
| Tokyo | 11.4 | 2.1 | 3.0 | 16.5 | 11.6 | 2.3 | 2.9 | 16.8 | 8.3 | 1.8 | 2.9 | 13.0 |
| Kanagawa | 3.9 | 4.4 | 0.9 | 9.2 | 4.4 | 4.8 | 0.9 | 10.1 | 2.9 | 3.1 | 0.9 | 6.9 |
| Yokohama | 2.4 | 1.3 | 0.6 | 4.3 | 2.6 | 1.4 | 0.6 | 4.6 | 1.7 | 1.0 | 0.6 | 3.3 |
| Kawasaki | 1.1 | 2.9 | 0.2 | 4.2 | 1.3 | 3.2 | 0.2 | 4.7 | 0.9 | 2.0 | 0.2 | 3.1 |
| Others | 0.4 | 0.2 | 0.1 | 0.7 | 0.5 | 0.2 | 0.1 | 0.8 | 0.3 | 0.1 | 0.1 | 0.5 |
| TOTAL | 24.6 | 9.4 | 7.0 | 41.0 | 27.0 | 11.0 | 7.2 | 45.2 | 18.5 | 7.7 | 7.2 | 33.4 |

**NITROGEN**

| Prefecture/ City | Present loads (1979) | | | | Projected loads (1984) | | | | Target loads (1984) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | Industrial | Other | Total | Residential | Industrial | Other | Total | Residential | Industrial | Other | Total |
| Saitama | 44.4 | 10.3 | 19.9 | 74.6 | 48.6 | 14.8 | 20.0 | 83.4 | 43.9 | 10.4 | 20.0 | 74.3 |
| Chiba | 24.5 | 21.7 | 8.5 | 54.7 | 30.8 | 26.3 | 8.5 | 65.6 | 28.3 | 22.2 | 8.5 | 59.0 |
| Tokyo | 89.3 | 15.5 | 26.9 | 131.7 | 90.0 | 17.4 | 26.6 | 134.0 | 83.3 | 14.3 | 26.0 | 123.6 |
| Kanagawa | 26.8 | 47.0 | 7.5 | 81.3 | 30.4 | 51.5 | 7.5 | 89.4 | 26.6 | 46.3 | 7.5 | 80.4 |
| Yokohama | 15.6 | 6.3 | 4.9 | 26.8 | 17.4 | 6.8 | 4.9 | 29.1 | 15.5 | 5.9 | 4.9 | 26.3 |
| Kawasaki | 8.6 | 40.0 | 1.6 | 50.2 | 9.7 | 43.9 | 1.6 | 55.2 | 8.4 | 39.8 | 1.6 | 49.8 |
| Others | 2.6 | 0.7 | 1.0 | 4.3 | 3.3 | 0.8 | 1.0 | 5.1 | 2.7 | 0.6 | 1.0 | 4.3 |
| TOTAL | 185.0 | 94.5 | 62.8 | 342.3 | 199.8 | 110.0 | 62.6 | 372.4 | 182.1 | 93.2 | 62.0 | 337.3 |

Source: Tokyo Metropolis, Guidelines for Controlling Eutrophication in Tokyo Bay, 1982, appendix.