

Collection of summaries of WAVE studies and research

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Waterfront Vitalization and Environment Research Center

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Coastal Communication Infrastructure Plan for Hitakatsu Port (Fourth District Port Construction Bureau, Ministry of Transport; Nagasaki Prefectural Government; Kamitsushima Municipal Government)</p>	<p>1996</p>	<p>Located only 49.5 km from South Korea, Hitakatsu Port, which plays an important role as a center for economic and cultural activities in northern Tsushima and as a fisheries base, is the gateway to northern Tsushima served by regular ferries to Kitakyushu City's Kokura Port. In order to server large ships and domestic sightseeing ships in the coming years, a plan for offshore wharf construction has been drawn up, and a small ship "Aoshio" has been put into international passenger service to and from Pusan Port, South Korea. Thus, international exchanges with South Korea are becoming increasingly active.</p> <p>In view of the growing momentum, mainly in local port improvement, for community building taking advantage of the characteristics of the sea and each port, a master plan for coastal community building integrated with the use of coastal waters, including the redevelopment of the existing ferry terminal area and the master planning for new wharf construction and the formulation of a policy for project implementation, has been drawn up, in order to contribute to the revitalization of Kamitsushima area and the town of Kamitsushima.</p> <p>A vision for the future described as "A Road of Marine Communication—Kamitsushima" has been adopted, and the development of bases for community life, hubs of transportation and centers of communication has been adopted as the central theme of Hitakatsu Port development. Under the land use scheme, the Nishidomari area has been positioned as a "break bulk cargo and fisheries zone"; the existing terminal area as a "multipurpose zone" intended mainly for use as an event plaza; the existing reclamation area as a "commercial zone"</p>

	<p>that takes advantage of the area's proximity to the urbanized area; and the Ajiro area as a "passenger terminal/ferry cargo zone" consisting mainly of jetfoil and new ferry terminals and large-ship terminals. The existing terminal area, for example, is to be used as the main venue of the town's greatest festival "Oddon Matsuri." Thus, as at present, the area has been positioned as the most important center of communication in the town in the coming years. For this scheme, the importance of the creation of such an event plaza has been shown, and ideas have been developed about nonstructural measures by which to encourage communication activities, such as nonstructural tourism resources, dissemination of information, and public relations strategies.</p> <p>For the purposes of the study, the project was divided into two phases: the first phase, which is the process that ends with the offshore relocation of the ferry wharf to the Ajiro area, and the second phase, which is the construction of wharves for large ships such as tourist ships. Two proposed plans with similar ultimate goals, Plan A, which gives priority to the development of physical distribution functions in the first phase, and Plan B, which gives priority to the development of communication infrastructure, were compared, and the plan giving priority to communication infrastructure development was adopted in view of the municipal government's basic stance. The study concluded, however, that it might be necessary to switch to Plan A depending on changes in time schedule due to financial constraints or changes in social conditions.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on the Coastal Communication Infrastructure Plan for Miyanoura Port (Fourth District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>Located on the northeastern coast of Yakushima (Yaku Island), Miyanoura Port has developed as a port of shipment of <i>yakusugi</i> cedar and a base for inshore fisheries. Regular service ships to Japan's main island, Tanegashima and Kuerabujima came into service in recent years, and Miyanoura Port is now prospering as the gateway to the sea surrounding Yakushima Island. The island has been served by jetfoils since 1989, and the number of visitors traveling by sea reached 340,000 in 1994. Port improvement efforts have been continued more or less on a continual basis since 1953, in which the port was designated in 1953 as a "local port" under the Port and Harbor Act, and so far a number of projects such as the construction of the quay wall on the right bank of the Miyanoura River have been completed. Currently, the landward expansion of mooring facilities for ferries and other ships and the improvement of a waterfront road are underway.</p> <p>Since December, 1993, in which Yakushima Island was registered as a World Natural Heritage site under the Convention Concerning the Protection of the World Cultural and Natural Heritage, the number of visitors traveling by sea has increased until the existing facilities are noticeably overloaded. There is a pressing need, therefore, not only for safe and efficient mooring of a growing number of regular service ships and appropriate separation of passenger ships and cargo ships, but also for the construction of facilities for handling large sightseeing ships and cruising pleasure boats. Miyanoura Port has as its hinterland the urban area of Miyanoura City, the birthplace of the history and culture of Yakushima and a center of industries. Because the port is very close to the city and</p>

	<p>Yakushima Environmental and Cultural Village Center has opened in the hinterland area and because there is also a scheme for a community plaza called "Yakushimakan" (provisional name), the port itself is also expected to play a role as a place for communication. There is a need, therefore, the formulation of a master plan for creating a unique waterfront community by making effective use of a coastal water area with great potential integrated with the shoreline and the coastal area.</p> <p>In this study, the present state was first investigated, and a general future vision was defined taking into consideration the wishes of the local community concerning Yakushima's port improvement. In accordance with the basic principles thus defined about the improvement of Miyanoura Port, a basic scheme for developing facilities such as Topy (jetfoil) mooring facilities, event plazas, parks, beaches, fishing boat basins and various attractive facilities and ensuring safe navigation was developed.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on the Port Network in the Southern Amami Oshima Area (Fourth District Port Construction Bureau, Ministry of Transport; Kagoshima Prefectural Government; Setouchi Municipal Government)</p>	<p>1996</p>	<p>Setouchi-cho (town) located in the southern part of Amami Oshima Island consists of Takeshima main islands and three smaller islands, namely, Kakeroma Island, Uke Island, and Yoro Island. In the town, there are Koniya Port, which is managed by the prefectural government, and ten ports managed by the municipal government. Because the improvement of transportation facilities has lagged behind and because multiple islands are involved, daily activities of the islanders heavily depend on marine transportation. There is strong public demand, therefore, for port improvement such as improving aging port facilities, securing shelters for ships and improving sea routes, and there is a growing need for the improvement of port facilities and sea routes to meet this demand.</p> <p>In view of the above, in this study, problems of the ports (11 ports) in the town were extracted from the wishes of local residents concerning ports and sea routes, an improvement policy for local port networking was formulated, and improvement plans for the Sude area of Koniya Port and the Seso area of Hyo Port (present-day Kakeroma Port) were drawn up as proposals.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Revitalization of the Coastal Area of Miike Port (Fukuoka Prefectural Government)</p>	<p>1996</p>	<p>Located on the Ariake Sea coast in the southwestern part of Fukuoka Prefecture, Miike Port, since its opening in 1908, has greatly contributed to the satisfaction of energy demand in Japan and to the local industries and people's lives as a port of shipment of coal from the Miike mine and a key port for the hinterland centered around Omuta City.</p> <p>In 1951, Miike Port was designated as an important port, and in 1971 the Fukuoka Prefectural Government became the manager of the port. However, because of the increases in the use of alternative energy sources that began in the second half of the 1950s and the changes in industrial structure over the years, the ports have gradually declined and the local economy has been suffering from a long depression.</p> <p>In March, 1997, the Miike mine shut down. Since mining and related industries are of vital importance to the residents of Omuta City, there is a pressing need for the revitalization of the region including the promotion of alternative industries to make up for the loss of the coal industry.</p> <p>The decreases in the volume of coal-related cargo shipment resulting from the closure of the mine can deteriorate the management of Miike Port and can even threaten the existence of the port, it is necessary to take appropriate measures to protect the port as the gateway to the Omuta area and an important port.</p> <p>Positioning Miike Port as a key element of the infrastructure for revitalizing the Omuta area, therefore, this study aims to clarify the problems related to the use of the port and the necessity of making effective use of Miike Port as a key port in</p>

		the eastern Ariake area and define the direction in which Miike Port should be headed and a menu of facilities to be provided.
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Study	Fiscal year when study was conducted	Study outline
<p>Study on Import Promotion Infrastructure of Hakata Port (Fourth District Port Construction Bureau, Ministry of Transport; Port and Harbor Bureau, Fukuoka Municipal Government)</p>	<p>1996</p>	<p>The northern Kyushu area has been closely related to East Asia historically and geographically. The role of this area as part of the Yellow Sea Rim Economic Zone has increased in recent years, and the volume of international container shipment handled at the ports in this area is increasing much faster than the national average. Under these circumstances, the Ministry of Transport formulated a long-range port policy (Ports to Support the Age of International Exchange) to indicate a basic policy for international marine container terminal development, positioning the northern Kyushu area (ports in northern Kyushu: Hakata Port, Kitakyushu Port, Shimonoseki Port) as key international port areas along with the three largest port areas (Tokyo Bay, Osaka Bay and Ise Bay areas) in which international trade functions are concentrated.</p> <p>The increases in the volume of import container cargo have been particularly noticeable at the ports in the northern Kyushu area in recent years, and this tendency is likely to continue. The volume of import of containerized goods handled by the ports in the northern Kyushu area has increased dramatically in recent years, and this tendency is expected to continue at a certain rate. The volume of import of containerized clothing-, food- and housing-related goods is likely to increase considerably in the coming years.</p> <p>In view of these circumstances surrounding the international movement of goods, following the designation of Kitakyushu Port and Shimonoseki Port as "foreign access zones," efforts are underway at these ports to improve physical distribution infrastructure. At Hakata Port, there is also a</p>

	<p>pressing need to upgrade logistic functions for imported cargo by making the most of the capability of the high-standard container terminal being constructed in the Kashii Part Port area.</p> <p>This study took a brief look at the actual state of international economic activities, considered what international logistics should be like in order to realize a port capable of handling imports, and considered the direction of efforts to create an international logistic base in the Kashii Park Port area and a desirable form of public-private cooperation.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on the Conceptualization of a Seaway for Lively Exchange and Communication (First District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>In a study conducted in fiscal 1995, the state of exchange and communication of the Sea-of-Japan coast areas with other areas in Japan and other countries was investigated through a questionnaire survey and interview surveys of local public bodies (e.g., prefectural governments, municipal governments, management associations) in the Sea-of-Japan coast areas, and a basic concept for a seaway for lively exchange and communication was proposed.</p> <p>This study was conducted to analyze the results of the preceding study and identify concrete measures that can be taken to create a seaway for lively exchange and communication. To be more specific, the study proposed concepts and policies for a seaway for lively exchange and communication, the direction of activities, exchange activities in Japan and abroad, the creation of places for exchange and communication, and activities of the Council for the Seaway for Lively Exchange and Communication (established in November, 1995).</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Sea-based Exchange and Networking (Third District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>Funded by the Budget for Coordinating Comprehensive National Development Projects, this study was conducted as a joint study by the Ministry of Transport, the Ministry of Construction, the Fisheries Agency and the Ministry of Health and Welfare. In the study, therefore, the four government agencies focused on ports and harbors, coasts, fishing ports, and health and relaxation, respectively.</p> <p>While the new Comprehensive National Development Plan is being implemented, interregional exchange and networking are being expected to play an important role toward the goal of "creating a regionally diversified and independent country supported by interregional cooperation and independence." A scenic inland sea with many islands, the Seto Inland Sea (Setonaikai) from olden times has been a scene for sea-based exchange by serving as a major seaway, contributing to the creation of many port towns. With abundant natural, social and cultural resources, the Seto Inland Sea has played a key role in creating coastal industrial areas during the period of rapid economic growth. In recent years, however, there has been concern about a possible decline in the vitality of the region because of the changes in the movement of people and goods in the region, the degradation of the water environment, and the hollowing out of the secondary industries. In the areas other than major cities, particularly in island areas, depopulation and the aging of society have become serious problems. There are strong calls, however, for regional revitalization efforts based on exchange and cooperation with other areas and cities, and there is</p>

	<p>a growing need for promoting the development of facilities under an organically coordinated scheme for allocating appropriate roles to different areas.</p> <p>In view of these circumstances, this study was conducted to further develop the concept of "sea-based exchange and networking" in the "sea-based interregional exchange and networking" scheme, foster the budding regional exchange and networking efforts in the Seto Inland Sea area in recent years, clarify the future outlook of multi-faceted exchange and networking making effective use of the sea in the Seto Inland Sea area, and identify measures to be taken to improve public facilities as part of a new networking infrastructure needed to achieve these goals.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on Networking in the Joshinetsu Area (First District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>The three prefectures constituting the Joshinetsu region, namely, Gunma Prefecture, Niigata Prefecture and Nagano Prefecture, have long been regarded as separate areas. The Joshinetsu region, therefore, has not necessarily functioned as a single region.</p> <p>Currently, the improvement of the high-speed transportation network is underway in the Joshinetsu region. It is becoming highly likely, therefore, that the region will assume an important role as the central part of the axis of the country and as a node between the Sea-of-Japan coast region and the Tokyo metropolitan area, and that a large economic region taking advantage of regional potential including geographic conditions, nature, industry and culture will be formed through interregional networking.</p> <p>It is therefore important for the three prefectures of the Joshinetsu region to determine their respective roles, strengthen their cooperative relationship so that the three prefectures can form a coherent region. An important thing to do to achieve this goal is to make the movement of goods and people in and outside the region more active and create an independent society.</p> <p>This study, which was conducted as part of a joint study undertaken by the National Land Agency, the Ministry of International Trade and Industry, the Ministry of Transport and the Ministry of Construction funded by the Budget for Coordinating Comprehensive National Development Projects (study category), focused on subjects to be dealt with by the Ministry of Transport. This study was conducted with the aim of getting a whole picture of the Joshinetsu region</p>

		<p>and, in coordination with the studies undertaken by other government agencies, drawing up a comprehensive development plan for the port and airport infrastructure and tourism and recreation facilities and other facilities that serve as the foundation for regional networking.</p> <p>This is the second year part of a two-year study.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on Regional Networking in the Akita and Central and South Iwate Area (Second District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>The Akita and central and south Iwate area is blessed with vast expanses of land and natural resources has great potential for development. However, because the development of high-speed transportation infrastructure has lagged behind, little exchange and communication has been made across the prefectural borders and the potential of the areas has not been used effectively. In recent years, as the infrastructure for high-speed transportation in the east–west direction, in addition to the north–south direction, has been improved considerably through, for example, the opening and improvement of the Kamaishi–Akita Route of the Tohoku Expressway the opening of the Akita Shinkansen in March, 1997, the area is entering a new era of development.</p> <p>Under these circumstances, if the east–west transportation system in the area is improved, the improved system can be used to expand the hinterland of each port. In addition, an improved east–west transportation system can be used as a kind of land bridge in order to make regionally integrated use of ports for the transportation of, for example, containers for international transportation and unit loads for domestic transportation and enhance the spirit of cooperation among the ports located over a large area. Furthermore, the utilization of the high-speed transportation infrastructure including railways makes it possible to promote a variety of coastal water recreations such as boating and promote the formation of a variety of regional tourist routes, in coordination with the infrastructure development mentioned above, by using abundant natural, historical and cultural resources in the inland areas so as to</p>

	<p>promote interregional exchange and networking.</p> <p>Under this background, this study was conducted for the purpose of drawing up a comprehensive regional development plan for developing the entire region by enabling the areas with diverse geographic characteristics such as coastal areas, inland areas and mountain areas located in the region extending from the Sea of Japan to the Pacific Ocean to perform different functions and cooperate with one another.</p> <p>This study identified various problems and challenges that need to be addressed in order to realize the possibilities mentioned above, such as increasing and securing origin/destination cargo volumes; improving inland logistical hubs to achieve that goal and nonstructural measures to support international trade and goods movement; and upgrading various measures for closer cooperation between coastal areas and inland areas to promote wide-area tourism and various exchange activities that start from or end at the Pacific Ocean side or the Sea-of-Japan side and that connect together the eastern and western parts of the region. Under the main theme of exchange and communication mainly in the areas of goods movement and tourist recreation, this study also drew up a comprehensive plan for achieving closer networking between the coastal areas and the inland areas and between the Pacific Ocean side and the Sea-of-Japan side in the region and achieving and strengthening the integrity of the region constituting the central part of the Tohoku region.</p>
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Study	Fiscal year when study was conducted	Study outline
Basic Study on Port Functions for the Improvement of Fukui Port (Fukui Prefectural Government)	1996	<p>Following the formulation of a master plan for Techno Port Fukui, the port plan to be implemented by 2000 was revised in 1989 to meet the changing conditions such as the diversification of businesses located at Fukui Port. Under the revised plan, the functions of the port as part of the industrial infrastructure that supports the Fukui Coastal Industrial Area and the port's logistic functions are being improved by, for example, facilitating traffic to and from the hinterland. At the same time, green spaces are being created to make the port more people friendly.</p> <p>Although the public port facilities in the port's north area have been nearly completed, the volume of cargo handled by the port has not increased as expected because of the changes in socio-economic structure. It is therefore necessary to take corrective measures urgently to promote the use of Fukui Port.</p> <p>This study investigates the actual state of goods movement in the hinterland, identify port improvement problems by analyzing the causes of the slowdown in the increase in the volume of cargo handled by the port determined through questionnaire and interview surveys of the industries located in the hinterland, and develop measures for upgrading the port functions and nonstructural measures for attracting cargo to the port in order to make effective use of facilities, make investment more effective and make better use of the port.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Community Planning Scheme for the Shinkiba Area (Koto Ward Office)</p>	<p>1996</p>	<p>"Under the rapidly changing socioeconomic conditions, the Shinkiba area has now come to a turning point."</p> <p>With this basic understanding, the Koto Ward Office established the Shinkiba Area Future Vision Conference in 1995 and has been deliberating on the direction in which community planning efforts in the Shinkiba area should be headed. The conference recommended that a phased, systematic approach be taken to community planning and that land use conversion and redevelopment measures be taken.</p> <p>This study identified concrete goals to be achieved and methods for achieving them so that the potential of the Shinkiba area, which is blessed with environmental conditions, can be utilized to the fullest.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Yokohama Port Urban Waterfront Redevelopment Plan (Yokohama Municipal Government)</p>	<p>1996</p>	<p>There is a plan for integrated development of the urban waterfront area of Yokohama City. The plan calls for implementing the Minato Mirai 21 Project, augmenting the business functions of the Kannai areas and the Yokohama Station area and developing the Yamauchi Wharf, Yamashita and Shin Yamashita areas along the waterfront.</p> <p>This study considered ideas for the redevelopment of the Yamauchi Wharf area located in the urban waterfront area, functions to be introduced, infrastructure components and ideas for project implementation while trying to maintain consistency with upper-level plans such as Yumehama 2010 Plan and the Yokohama Business Core City Scheme.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Port Revitalization Methods for Tottori Port (Port and Harbor Division, Public Works Department, Tottori Prefectural Government)</p>	<p>1996</p>	<p>Located in the eastern part of Tottori Prefecture, Tottori Port developed as a hub port in the prefecture's eastern economic zone including Tottori City. In April, 1975, Tottori Port was designated as an important port under the Port and Harbor Act. In March, 1976, the Port Plan for Tottori Port was formulated, and port improvement was carried out in accordance with the plan. In April, 1986, some of the quays in the Sendai area went into service, and in March, 1990, a 10-meter berth went into service to enable to accommodate large ships.</p> <p>It has been a short while since the facilities of Tottori Port were substantially completed, so they are not known widely. Although the Tottori Prefectural Government, the Tottori Municipal Government and the local industries have been promoting the use of the port, the volume of cargo handled by Tottori Port has not increased mainly because of the prolonged depression since the bursting of the economic bubble, the relocation of production facilities to other countries and the changes in production and distribution structure.</p> <p>Today, Tottori Port is beginning to play an important role as a logistical hub for international and domestic trade in sand, gravel, stone, heavy oil, fluted inner sheet, etc. In September, 1996, the import of river sand by use of gravel carriers capable of carrying 10,000 tons (dry weight) of gravel began, and the volume of cargo handled by the port is gradually increasing. The improvement of the arterial transportation network such as the construction of the Tottori Route of the Chugoku Expressway is expected to strengthen the connection to the Hanshin region so that the use of</p>

	<p>the port as a logistical hub for that region increases.</p> <p>Taking major industrial trends into consideration, this study analyzes the cargo movement trends in the hinterland of Tottori Port including the Hanshin region and specific trends in the physical distribution systems for cargo in the manufacturing industry and the transport industry moving to and from the hinterland area, identifies the cargo that can be handled by Tottori Port, and considers concrete methods for promoting the use of the port.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on the Tobi Port Hinase Area (Kakui Island) Development Plan (Okayama Prefectural Government, Hinase Municipal Government)</p>	<p>1996</p>	<p>In recent years, there has been growing public interest in ports, and there have been calls for port projects that not only improve port functions but also create integrated coastal space with a well-balanced combination of port functions and city functions.</p> <p>Because the town of Hinase is flatland poor, the development of the town has been achieved by creating land space made possible mainly by reclamation.</p> <p>Land shortage, however, remains a problem, and the creation of land space necessary for the development and improvement of various facilities is likely to be a big challenge for the town's efforts in the coming years to create a community with vitality.</p> <p>From olden times, fishing and shipping industries have thrived in the Hinase area, and passenger ships and ferries have been used extensively for trips between islands. The port, therefore, is directly connected to people's daily lives, and port improvement is essential in community planning.</p> <p>Under these circumstances, bridges to connect Japan's mainland to Kakui Island and Kashira Island are currently under construction for completion in 2010. These bridges will greatly enhance the potential of the town and the port.</p> <p>In view of this background, this study focused on the improvement plan for Yonago Bay and also on the improvement plans for the adjacent Hinase and Nakahinase areas with the aim of creating a community with vitality and promoting the development of Tobi Port.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Formulation of a Long-range Scheme for Hakata Port (Port and Harbor Bureau, Fukuoka Municipal Government)</p>	<p>1996</p>	<p>A major port in Japan with a 2000-year history, Fukuoka Port is continuing to evolve as the driving force behind the development of its hinterland and is attracting attention as a hub for the movement of goods and people and for culture.</p> <p>As the world economy becomes increasingly borderless, environmental problems become increasingly global and people's values increasingly diversify, Japan, which is entering an age of fully mature society, must not only change conventional frameworks but also coexist with the international community while maintaining vitality and achieve harmonious development through creative and characteristic local efforts. The importance of ports, therefore, as nodes between the sea and the land and between cities and nature and as hubs for the exchange of people, goods and information is increasing.</p> <p>In this study, in view of this background, a series of discussions was held by the Committee for the Study on the Formulation of a Long-range Scheme for Hakata Port. The committee considered a future image in around 2025 of Hakata Port formed taking into account the socio-economic conditions and a basic direction of improvement required to make it a reality.</p>

Study	Fiscal year when study was conducted	Study outline
Study on the Formulation of a Port Improvement Scheme for Shimoda Port (Takegahama Area) (Shimoda Municipal Government)	1996	<p>Because Shimoda Port (Takegahama–Sotogaoka area), which is the area of interest of this study, is close to an urban area, the port area is spatially important. Therefore, there are already many ongoing schemes and plans that are being implemented. The Shimoda Port Marine Town Project Plan formulated in 1990 specified the Sotogaoka area as an improvement priority area, and a concrete plan has been drawn up. For the Takegahama area, however, no such plan has been drawn up because there are large tracts of privately-owned unused land. A study needs to be conducted, therefore, for concrete planning and project implementation.</p> <p>In this study, in order to obtain basic data needed to draw up a concrete plan for Shimoda Port (Takegahama area), existing upper-level and related plans involving Shimoda Port (Takegahama area) were reviewed, a scheme for a project for improving the Shimoda Port Takegahama area was drawn up by coordinating it with the existing plans mentioned above and holding intragovernmental deliberations, and problems to be addressed in order to implement the project.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Kure Port Takaramachi Area Development Implementation Plan (Port and Harbor Department, Kure Municipal Government)</p>	<p>1996</p>	<p>Because Kure City has developed around a port, the creation of coastal space that can meet diverse needs of the 21st century is an important challenge for the city.</p> <p>Aiming to create the Seto Inland Sea Sea-interfaced Communication Urban Area following the designation as a regional core city, Kure City is creating bases for lively activities in the Takaramachi area, which is part of the local core area in Kure's regional core city area as a city coexisting with the sea and is Kure City's gateway to the sea.</p> <p>This study focused on the implementation plan for the development of the Takaramachi area.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Marino Bridge (Provisional Name) (Port and Harbor Department, Kure Municipal Department)</p>	<p>1996</p>	<p>Because Kure City has developed around a port, the creation of coastal space that can meet diverse needs of the 21st century is an important challenge for the city. Among the proposed plans, the development of Aga Marino polis, which is designed to promote interregional communication and cooperation as a logistic hub in the Hiroshima Central Techno polis area and create an environment full of vigor and tenderness as a place for marine recreation, and the construction of the Marino Bridge (provisional name), which is to connect to the Higashi Hiroshima–Kure Expressway, a high-standard road designed to enhance logistic efficiency and convenience, are essential.</p> <p>In this study, the benefits of the Marino Bridge (provisional name) construction project were calculated, and its routing was considered.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Improvement of Nakajima Lock at Fushiki Toyama Port (Toyama Prefectural Government)</p>	<p>1996</p>	<p>In Toyama Prefecture, the Fushiki Toyama Port Renaissance 21 Study was launched in 1987, and efforts have been made to redevelop Toyama Port. In 1990, a basic design of environmental improvement in the channel upstream of the Nakajima Lock was developed, and its construction is currently underway.</p> <p>In this study, in order to restore the functions of the aging Nakajima Lock, basic designs of lock improvement and of a green space in the uncompleted part of the green space, which was positioned as a water event zone in the Port Renaissance 21 Study, were prepared, and a scheme for the Kohjin site adjacent to the lock, which was positioned as a key space in the Port Renaissance 21 Study, was developed. The study area consists of an upstream part and a downstream part of the green space in the Nakajima Lock area and along the Fugan Canal area; the upstream part is the area where the environmental improvement work that was being carried out from upstream down has not been completed and the downstream part is the area consisting of a 3-hectare area leading up to Route 8 in the water event zone defined in the Port Renaissance 21 Study and the Kohjin site adjoining the lock.</p> <p>The Nakajima Lock is located near the midpoint of the Fugan Canal. Built 60 years ago, the lock has deteriorated considerably to the extent of being unable to function as a lock. Since, however, the lock itself is an invaluable structure reminiscent of the days in which the lock was built, it is hoped that the lock is preserved and its functions are restored.</p> <p>With "the creation of attractive canal space making effective use of scenic landscapes featuring</p>

	<p>abundant water and rich greenery and of historical heritage" as a guiding principle, this study aimed to preserve and beautify the Nakajima Lock, the natural stone revetments that still retain their appearance at the time the lock was completed, and the natural features such as the rows of cherry trees. To this end, this study considered various measures including the improvement of the Nakajima Lock and the creation of a lock museum for storing and exhibiting lock parts, promenades, small plazas, planted areas, fish ways, etc., in the Nakajima Lock area; and the creation of promenades, waterside terraces and piers, arbors, flower-viewing plazas, viewing platforms, parking lots, etc., and the creation of amenity-oriented waterside space and canal landscapes where people can enjoy historic facilities such as the Nakajima Lock and the natural stone revetments and the rows of cherry trees in the areas upstream and downstream of the Nakajima Lock.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study for the Onahama View Port Project (Color Scheme) (Fukushima Prefectural Government)</p>	<p>1996</p>	<p>Onahama Port is known as one of the major international trade ports in the Tohoku region. Aided by "new industrial city" designation, Onahama Port has developed greatly as an industrial port as a major industrial area has been formed in its hinterland. With the addition of the fishery port function and the development of marinas, Onahama Port has become a multi-functional port.</p> <p>In view of these remarkable developments, efforts are being made to enhance logistic functions by, for example, improving the capability to handle containers for international and domestic transportation. In addition, the Port Renaissance 21 Study conducted in 1992 and the port plan revised in 1993 called for the creation of hubs for communication by the redevelopment of aging Pier 1 and Pier 2 areas and the creation of a people-friendly port as important goals.</p> <p>Needless to say, in order for citizens to enjoy the port-specific environment, it is necessary to improve landscapes and port accessibility in addition to the improvement of communication hubs. In 1995, therefore, a Study for the Onahama View Port Project was conducted with the aim of identifying concepts and concrete measures for landscaping in the coming years. In the study, the concept for the landscaping of Onahama Port was defined as "creating a landscape harmoniously combining the dignity of nature and a shape characteristic of an industrial port," and various systematic measures were identified.</p> <p>Because of a pressing need in connection with the ongoing efforts, this study explored color requirements and considered specific criteria.</p>

Study	Fiscal year when study was conducted	Study outline
Planning Study on Rivers and Canals in the Keihin Coastal Area (Yokohama Municipal Government)	1996	<p>The land in the area considered in this study, which is part of the Yokohama Port area in the Keihin coastal area, is occupied predominantly by industrial plants. This is an area where the change in manufacturing industry structure often described as the hollowing out of industry began to appear conspicuously and where the reconsideration of land use structure is being called for to cope with these social conditions and structural changes. In order to meet these social needs, a master plan for the redevelopment of the Keihin coastal zone was drawn up prior to this study. The purpose of this planning study is to identify methods for drawing up and carrying out a development master plan for the river and the canal specified in the land use reform master plan.</p> <p>The river and the canal specified in the plan are located in an area closest to the land area and the built-up area that were industrialized early in the process of industrialization of the Keihin coastal area. Because of these site conditions, the redevelopment master plan positioned this area as a zone where measures are to be taken so that land is converted from purely industrial (manufacturing) use to complex land use including not only manufacturing facilities but also research, business and commercial facilities. Because the canals came into being as a result of reclamation that began in the second half of the 1920s, canal-related structures such as revetments have deteriorated considerably. In addition, because the flow rate of the influent river (Irie River) is small and the canal is narrow, the stagnation of water causes degradation of water quality. This zone, however, is close to the land area and the built-up area and to</p>

	<p>the Minato Mirai 21 Area, which is the gateway of Yokohama Port, and is conveniently located from access from urban areas. From the viewpoint of the opening of the waterfront to the public, therefore, the zone has great land use potential.</p> <p>In view of the nature and positioning of the zone in which the river and the canal are located, the site conditions of the river and the canal, and the characteristics of their use under upper-level plans, the goal of river and canal improvement was defined as "creating a stage for 'waterfront and water surface' that supports the communication between and the coexistence of new industrial activities (businesses) and new water-related leisure activities (citizens)," and the development master plan was drawn up accordingly.</p> <p>In order to carry out the proposed development plan, not only public development methods but also methods for providing assistance for revetment rehabilitation, landscaping or other projects carried out by local businesses were also considered because considerable portions of river and canal revetments and space over revetments are privately owned, and problems to be solved for project implementation were identified.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Basic Study on the Introduction of TSL at Sakata Port (Yamagata Prefectural Government)</p>	<p>1996</p>	<p>The Techno Super Liner (TSL) research and development program ended when comprehensive experiment results were obtained in fiscal 1995, and the TSL scheme entered the practical application phase.</p> <p>The Ministry of Transport compiled the Basic Specifications for TSL Operation based on the experiment results and in 1996 conducted the Comprehensive Study on Assistance for the Commercial Operation of TSL. In the study, interregional model routes were selected, and the conditions for commercial operation, problems to be addressed, etc., were studied in detail.</p> <p>In fiscal 1994, the Yamagata Prefectural Government conducted the Preliminary Study on Sakata Port TSL Routes to evaluate the feasibility of TSL introduction at Sakata Port mainly from the viewpoint of demand. As a result, the study concluded that TSL introduction was possible and recommended that the Kinki region be targeted. The study also recommended the Sakata Port–Maizuru Port route, but pointed out that there were many problems to be addressed in view of the existing physical distribution systems. In 1994, there were still many things to be clarified such as requirements for TSL, but the subsequent technical research clarified such matters as the operating conditions and cargo-handling methods.</p> <p>In view of these circumstances, this study determined TSL transportation demand in the Sakata Port area, identified requirements for the provision of transportation systems and logistic functions, and considered methods for the realization of commercial operation. In the study, as the first step, recent trends in efforts for the</p>

	<p>practical application of TSL were reviewed, and the items that can be transported by TSL and the hinterland area were identified. Then, the volume of potential TSL cargo handled at Sakata Port was determined, and TSL transportation demand was estimated by determining the volumes of cargo shipped by the shippers and carriers located in the hinterland area and their intention as to whether or not they would use TSL. Finally, requirements for transportation systems and port improvement at Sakata Port were considered, and matters related to commercial operation were considered.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on the Hitachinaka Port Project (Port and Harbor Division, Public Works Department, Ibaraki Prefecture)</p>	<p>1996</p>	<p>This study considered a basic policy for the management system for Hitachinaka Port as a whole in preparation for the partial opening of the north wharf (domestic shipping wharf) of Hitachinaka Port at the end of 1998. In the study, information on existing management systems in Japan and abroad was collected, and a questionnaire survey of port users was conducted. Thus, the usefulness of the system was evaluated from the viewpoints of port managers and port users. At the same time, basic requirements for a port management system compatible with a port information network likely to be introduced in future were identified, and basic matters to be reflected in the management system development in the subsequent years were studied.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Master Planning for International Transportation Container Facilities (Hitachinaka Port and Urban Construction Office, Ibaraki Prefectural Government)</p>	<p>1996</p>	<p>Focusing on the facilities of the north wharf international transportation container terminal that will go into service in fiscal 1999, this study estimated the volume of cargo to be handled, selected the cargo-handling method to be used, determined the terminal layout and the magnitude of each facility, and estimated business revenue and improvement cost.</p> <p>In the study, plans were developed for three stages, namely, (1) the start of use, (2) the first phase of improvement and (3) the second phase of improvement, for more efficient facility improvement planning. As the basic principles of planning, "24 hours, 365 days a year" and "automation of operations" were adopted in order to complete a container terminal with advanced port service capability.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on TSL Service at Kushiro Port (Kushiro Municipal Government)</p>	<p>1996</p>	<p>Techno Super Liners (TSL), which have been developed under the supervision of the Japanese government since the second half of the 1990s, are super-high-speed cargo ships designed for safe navigation even on rough seas. A TSL has a cargo load capacity of 1,000 tons and is capable of navigating at 50 knots (93 km/h) and for a distance of more than 50 nautical miles (930 km). The introduction of TSL is being awaited as a new mode of transportation that solves emerging problems such as the shortage of truck drivers, traffic congestion and environmental degradation and enables a modal shift from cargo truck transportation to marine transportation.</p> <p>The introduction of TSL in the Kushiro area will make it possible to travel to the Tokyo metropolitan area in half a day. The creation of a new physical distribution system using TSLs can be expected to greatly contribute to regional revitalization including industrial revitalization and business attraction. In May, 1992, the Association for Attracting Techno Super Liner, a public-private association, and the association has been actively engaged in petitions and other organized activities for TSL attraction.</p> <p>In order to attract TSL to Kushiro Port, this study focused on operation methods, facility plans, problems and the direction of efforts with the aim of obtaining data necessary for the realization of TSL service at Kushiro Port on the basis of the study results on the demand for TSL service in the Kushiro and its hinterland areas obtained from the TSL Feasibility Study conducted in fiscal 1995.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Improvement of Port Management (Administration Division, Ports and Harbours Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>In view of the changing conditions surrounding the ports in Japan, it is necessary to become more business- and service-minded than in the past in port improvement and management by, for example, gaining a correct understanding of economic and physical distribution trends and user needs and having users understand reasonable costs to bear while trying to achieve effective port improvement and cost reductions, in order to the Japanese ports internationally competitive.</p> <p>In Japan, too, there have been efforts to improve port services by, for example, maintaining or strengthening the international competitiveness of ports in Japan, reducing port charges and clarifying the rationale for charge calculation as can be seen from recent events in Japan including:</p> <ul style="list-style-type: none"> •Changes in the Basic Policy for the Development, Use and Maintenance of Ports and the Development of "Waterways to Be Developed and Maintained" (Article 3-2, Port and Harbor Act), • Recommendations on Ports and Harbors Based on Administrative Inspection Results (Management and Coordination Agency) and • Movements toward the enactment of the Act on Access to Information Held by Administrative Organs. <p>In this study, therefore, various basic information was collected, prior to a study on requirements for charges of port authorities in Japan, by, for example, conducting fact-finding surveys on fee structure adopted by major ports in other countries, and key considerations in determining the direction of more specific studies were identified.</p> <p>This study was conducted by the Committee on Improvement of Port Management chaired by Mr.</p>

Katsuya Uga, professor of law at the University of Tokyo.



Figure 1 Scope of this study

Study	Fiscal year when study was conducted	Study outline
Study on Port Greening Plan (Environment Division, Ports and Harbours Bureau, Ministry of Transport)	1996	Port green spaces constitute one of the main categories of port environmental measures and are positioned, together with the conservation and creation of the marine environment, the creation of excellent port landscapes, the improvement of public accessibility and the preservation of historic property, as part of the important port environment infrastructure. Port green spaces have attractive attributes that are distinctively different from the attributes of inland parks and green spaces such as amenity-oriented quality and landscape quality. Consequently, design approaches to the layout and magnitude of port green spaces differ considerably from those for urban parks. In this study, in order to meet the public demand for port amenity and create environment-friendly ports (ecoports) with a full understanding of these characteristics of port green spaces, desirable port green spaces were clarified, and the contents of port greening plans to be drawn up when port plans or port environmental plans are formulated or revised and a planning method to be used for such planning were presented.

Study	Fiscal year when study was conducted	Study outline
<p>Study on Effective Use of Clean Energy at Ports (Machinery Division, Third District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>In recent years, there has been growing interest in effective use of the so-called clean energy as a means of tackling the problems related to the depletion or conservation of energy resources and as a global environment challenge for all humankind. Research and development efforts are underway in related fields to make effective use of not only natural energy that is clean and locally available such as solar radiation and light, wind power and wave power but also urban waste heat energy and unutilized energy, and technologies to utilize these kinds of energy are gradually being put to practical use.</p> <p>Under these circumstances of the time, energy is an important theme for ports, and it is necessary to conduct research not only on orientation toward energy saving but also, over a long period of time, on the utilization of new energy sources. Clean energy is still accompanied by various problems that need to be solved if it is to be put to practical use, such as problems related to the quantity of energy that can be generated, cost, and the selection of suitable applications. Nevertheless, clean energy is worth paying attention to as one of alternative energy sources needed in the near future.</p> <p>This study considers ways to introduce clean energy existing in the space between the sea and the coastal zone as an energy source necessary for the management of port facilities and make effective use of such energy. On the basis of the basic study and the fact-finding survey conducted in fiscal 1995, in 1996 mainly case studies were conducted and model layouts were considered in order to implement a practical system.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Methods for Creating a Safety Space Network in the Tokyo Area (Second District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>The Hanshin–Awaji Earthquake of 1995 made people recognize anew the necessity of emergency transportation routes, places of refuge and shelters, emergency activity bases, etc. In trying to strengthen earthquake damage mitigation measures in large cities, it is necessary to systematically develop facilities related to disaster prevention activities. The Tokyo area including Tokyo Bay and its hinterland has a high concentration of key management functions, and if these functions are stopped or delayed, the entire country or even the international community is likely to be influenced. The development of facilities, therefore, is great.</p> <p>Funded by the reserve fund for comprehensive national development projects for fiscal 1995 and 1996, this study was conducted jointly by the National Land Agency, the Fire Defence Agency, the Ministry of Transport and the Ministry of Construction with the aim of identifying measures to be taken to create a safety space network in the Tokyo area.</p> <p>In the study undertaken by the Ministry of Transport, disaster prevention functions that should be performed by emergency activity bases at ports to help ensure the safety of local residents and port users and transport people and goods in the event of an emergency were identified, and requirements for the size and layout of emergency activity bases and requirements for the networking of emergency activity bases were considered.</p>

Study	Fiscal year when study was conducted	Study outline
Study on Methods of Determining the Size of Port Green Spaces (Fifth District Port Construction Bureau, Ministry of Transport)	1996	<p>Calls are being raised throughout the country for the creation of opportunities for enjoying leisure time that has increased as a result of shorter working hours and the development of high-quality amenities as part of the living environment. In order to meet such sophisticated public needs, efforts have been made in waterfront areas, too, to achieve environmental improvements taking advantage of the characteristics of each waterfront area. Further improvements of port green spaces in both quantity and quality are particularly being sought after as spaces where people can enjoy the waterfront and port environment safely and comfortably.</p> <p>Needless to say, port green spaces not only serve as places where people can enjoy water-related recreation activities. Port green spaces also have a variety of other functions such as forming scenic port landscapes, maintaining the basic environment directly affecting people's health and forming an emergency activity base taking advantage of the characteristics of a port green space as a node between marine and land transportation networks. The aim of this study is to roughly identify requirements for efficient and effective sizes and layouts, taking into consideration the multifunctionality mentioned above and paying attention particularly to use by people, and develop planning indicators that can be used to facilitate port green space development planning.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Emergency Activity Base Development in the Ise Bay Area (Fifth District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>In Japan, there are many active faults in proximity to plate boundaries. Because of these conditions, many great earthquakes have struck the country since the dawn of history. In the days when cities were not so densely populated or built up as today, earthquake damage used to be relatively light. As cities began to be densely populated and built up with the arrival of the modern age, earthquake damage became increasingly severe until it became devastating to houses, urban infrastructure and industrial infrastructure, making it necessary to mobilize many rescue/relief personnel and secure large quantities of relief goods urgently.</p> <p>This study identifies the roles of ports in the event of an earthquake from the experience of the Hanshin–Awaji Earthquake of 1995, develops a basic plan for emergency activity base development in the Ise Bay area, considers methods for administering the plan, and discusses the challenges to be faced in the coming years.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Gathering Space Development (Port Planning Division, Development Construction Department, Okinawa General Bureau)</p>	<p>1996</p>	<p>The Tomari Wharf area of Naha Port has long developed as a nodal port, and today the area is the gateway to adjacent islands for many users. In recent years, however, the port facilities including the passenger terminal have deteriorated and become obsolete, making the area less attractive as the gateway to adjacent islands. Because the area is close to the central urban district of Naha City, the role of the Tomari Wharf area as an amenity-oriented coastal space for Naha City is being reconsidered, giving rise to a pressing need for the redevelopment of the entire Tomari Wharf area.</p> <p>In view of these circumstances, in 1986 and 1987 the port authority (Naha City) conducted the Naha Port Tomari Wharf Port Renaissance 21 Study, a master plan for the redevelopment of Tomari Wharf. Under this master plan and other plans, in 1989 Tomari Wharf Development Company was established as a third-sector company, and in December, 1992, the construction of the terminal building "Tomarin" began. Later, the construction of a memorial park, artificial ground, parking buildings, etc., also began, and in April, 1995, Tomarin opened as the first phase of the Tomari Wharf redevelopment project. Naha City plans to start the second phase of the Tomari Wharf redevelopment project, but because of the tight financial conditions, the city is not yet ready to start the second phase. Although similar projects utilizing private-sector vitality are underway at Hirara Port and Ishigaki Port, but these projects, too, are faced with various problems.</p> <p>This study estimates and analyzes problems related to the development method used for</p>

	<p>Tomarin, which went into service as the first phase of the Tomari Wharf development, and other development-related problems and the economic and social benefits of the development project, and identifies and analyzes utilization-related problems. The study results will be used as the basis for the subsequent stages of Tomari Wharf redevelopment and as reference data for the private sector initiative projects at Hirara Port and Ishigaki Port.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on Methods of Development of Domestic Cargo Terminals Designed for Intermodal Transportation (Planning Division, Ports and Harbours Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>Today, Japan is faced with many problems such as labor shortage, environmental problems, road congestion and energy problems. In the area of long-distance mainline transportation, the so-called modal shift from trucking to more efficient means of mass transportation, that is, marine transportation and rail transportation, has become an important issue.</p> <p>This study is a basic study on the configuration of a nationwide network of domestic transportation terminal capable of meeting the intermodal transportation requirements that is considered realistic from the viewpoints of users (shippers and truck carriers) and shipping companies. In the study, the combined transport network models (a transportation mode selection model for shippers and truck carriers, a shipping route selection model for shipping companies) developed in fiscal 1995 was applied to the nationwide network. The study showed that the models are capable of accurately reproducing the volumes of cargo transported between 11 blocks in the country by mode of transportation and the volumes of domestic unit load cargo at 10 ports in the country by block.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Direction of Port Space Development for Improving the Efficiency of Import Physical Distribution (Private Sector Vitality Promotion Office, Development Division, Ports and Harbours Bureau, Ministry of Transport)</p>	<p>1996</p>	<ul style="list-style-type: none"> • In order to identify concepts of port space utilization applicable to import (particularly, the import of manufactured goods), a study was conducted focusing on the following points: <ol style="list-style-type: none"> (1) What kind of physical distribution systems (hubs, distribution network) did shippers construct in the past? (2) How was port physical distribution related to shippers' physical distribution? (3) How has the increase in the "import of manufactured goods" in recent years changed shippers' physical distribution? (4) How has the increase in the "import of manufactured goods" changed port physical distribution? (5) What functions do logistic hubs need to have in order to enhance the efficiency in the physical distribution for the import of manufactured goods? In which direction should the efforts to enhance the efficiency in physical distribution go? (6) What kind of measures needs to be taken in order to enhance the efficiency of the physical distribution of imports by using port space?

Study	Fiscal year when study was conducted	Study outline
Basic Study on Yokkaichi Port Harbor Information System (Yokkaichi Port Authority)	1996	<p>With steady increases in port use and port improvement efforts including reclamation projects, Yokkaichi Port has developed as a representative hub port in the Chubu region. In daily port management, however, there is a pressing need for the establishment of an information system needed to take proper measures for ensuring navigational safety and take proper initial response measures in the event of a port disaster such as an earthquake.</p> <p>In view of these circumstances and other factors such as the planned arrival of a very large LNG tanker in January, 1997, and the automation of the Maritime Safety Agency's signal stations, it is thought necessary to ensure the safety of ships arriving at and departing from the port in the coming years, enhance navigational efficiency and rationalize port management.</p> <p>Under this background, this study was conducted for the purpose of investigating the actual conditions and developing a comprehensive information system capable of handling all kinds of information in the port area including the information on arriving and departing ships.</p>

Study	Fiscal year when study was conducted	Study outline
Kasaoka Port and Community Planning Symposium (Kasaoka Municipal Government)	1996	<p>In fiscal 1994, the Study for the Formulation of the Kasaoka Port Long-term Development Scheme was conducted for (Sumiyoshi and Fushigoe areas), and the Master Plan for Redevelopment of Kasaoka Port (Kasaoka Bay City Scheme) describing the studies made on the reclamation plan and the shoreline profiles and land use patterns under the reclamation plan was formulated. In 1995, the Study on the Implementation of the Kasaoka Bay City Scheme was conducted. In the study, a scheme for Setouchi History Museum was realized as part of the Setouchi Seaway Project, and the schemes for Shogun ate Demesne Kasaoka Port Mansion and Industry and Island Center were developed. In 1996, in order to build consensus and obtain the cooperation of the organizations concerned toward the implementation of the Kasaoka Bay City Scheme, this symposium was held for the following purposes: (1) public relations for the scheme and (2) hearing the opinions of experts.</p> <p>Giving the keynote lecture, Dr. Chuji Mori, Professor Emeritus, Okayama University, explained that the Kasaoka Bay City Scheme shows the city's future envisioned on the basis of a more aged, more information-intensive and more communication-oriented society anticipated 20 years from now. He indicated four aims of the scheme: (1) the improvement of island life and industry, (2) the development of tourist spots, (3) shoreline improvement and (4) the creation of a signature feature of Kasaoka. He also listed three specific objectives:</p> <p>(a) identifying and enhancing superiorities (traffic hub, a port on the Seto Inland Sea, land reclaimed from the sea),</p>

	<p>(b) recognizing and making effective use of characteristics (facing the Seto Inland Sea, many islands, historical and cultural heritage) and</p> <p>(c) finding and overcoming drawbacks (strengthening the terminal function of the port).</p> <p>After the keynote lecture, panelists including local experts stated their opinions from the viewpoints of "the present state of Kasaoka City" and "Community Building Challenges in the Coming Years" and debated on "Creating a Signature Feature of Kasaoka; Creating a New Image" and "Citizens' Initiative in Community Building."</p> <p>A questionnaire survey of symposium participants was conducted to hear opinions about the symposium and concepts and suggestions for community building.</p>
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Study	Fiscal year when study was conducted	Study outline
<p>Study on Revitalization of the Bungo Strait Region (Kochi Port Work Office, Third District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>The western Seto region centered around the Sea of Iyo connects Honshu to Kyushu and is also close to the continent. The region is expected to prosper with the formation of a large international exchange zone based on interregional exchange and cooperation with the Sea-of-Japan Rim, Yellow Sea Rim, East Asia and other regions. Currently, in the western Seto region, various internationalization efforts including both structural and nonstructural measures are underway.</p> <p>In the cities of Sukumo and Saeki located in the southern part of this western Seto economic zone, the development of a high-speed transportation network has lagged behind although both cities are blessed with nature, and more effective use of marine transportation in the movement of goods and people is hoped for.</p> <p>Under these circumstances, the Tosa Kuroshio Railway will be extended to Sukumo City in 1997. In the case of Saeki City, the extension of the East Kyushu Expressway between Oita and Tsukumi, which began in 1994, will shorten the travel time to the major cities in the hinterland area and tourist destinations.</p> <p>In view of these, this study was conducted to consider methods for making effective use of Sukumo Port and Saeki Port, both of which are currently being improved, by taking advantage of the characteristics of those ports and their hinterland areas, make effective use of the existing "Sukumo–Saeki route," create new flows of goods and people, and identify efficient modes of improvement and use of the port functions and hinterland areas, in order to revitalize the Bungo Strait region.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Symposium on Tokyo Bay in the Coming Age (Tokyo Bay Port Liaison Council (Chiba Prefectural Government, Tokyo Metropolitan Government, Kanagawa Prefectural Government, Kawasaki Municipal Government, Yokohama Municipal Government, Yokosuka Municipal Government, Second District Port Construction Bureau of the Ministry of Transport))</p>	1996	<p>(1) Lecture meeting (2) Preparation of proceedings of the meeting</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Eco-friendliness of Ports (Nagoya Port and Airport Construction Office)</p>	<p>1996</p>	<p>(1) Purpose of the study The Ports and Harbours Bureau of the Ministry of Construction compiled a report titled "New Port Environment Policy: Working to Realize Eco-ports" describing the goals of port environment improvement in the coming years. According to the report, port environment improvement efforts in the coming years will aim to create ports that are ecologically friendly and amenity oriented. Measures being taken to realize eco-ports include the formulation of port plans and the development of port environmental infrastructure including eco-port model projects.</p> <p>This study was conducted for the purpose of investigating the state of tidal flats, gentle-slope seawalls, etc., as "eco access" spaces (spaces where living organisms and port facilities coexist) to obtain basic data for setting goals of eco-port creation efforts.</p> <p>(2) Scope of the study</p> <p>1) Classification of eco-access spaces</p> <p>(a) Collection of data</p> <p>(b) Collation of data</p> <p>2) Classification and analysis of the state of eco-access spaces</p> <p>The results of the eco-access space classification were analyzed and studied with respect to the following:</p> <p>(a) Comparison between the state before the rapid economic growth and the state after that</p> <p>(b) Percentage of eco-access spaces at each port</p> <p>(c) State of eco-access spaces in the entire port area</p> <p>3) Surveys and problem-specific studies that need to be conducted to achieve the goals</p> <p>In view of the state of eco-access spaces at each</p>

		port, surveys and problem-specific studies were conducted to set environmental improvement goals in order to make each port eco-friendly.
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Study	Fiscal year when study was conducted	Study outline
<p>Study on the Effect of Green Space Development (Coastal Water Division, Fourth District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>In connection with Port Greening Manual whose revision centering on planning methodology is being considered to cope with the changing social conditions, the effect of green space development on the ecosystem was studied focusing mainly on birds.</p> <p>A set of guidelines was proposed so that it can be reflected in future manual revisions.</p>

Study	Fiscal year when study was conducted	Study outline
Study on Planting Planning for Coastal Green Spaces (Second District Port Construction Bureau, Ministry of Transport)	1996	<p>This study looked at planting planning and improvement of coastal green spaces on the basis of the results of the following tasks:</p> <p>(1) Collecting and putting together basic data on port green spaces in Japan (port green space registry) and classifying and collating improvement data for representative cases</p> <p>(2) Conducting a questionnaire survey of 19 ports (shown below) in Japan concerning the planting of port green spaces, and studying challenges and problems and identifying corrective measures</p> <p>Ports considered: Muroran, Hakodate, Otaru, Akita, Niigata, Aomori, Kashima, Chiba, Yokohama, Shimizu, Nagoya, Mikawa, Yokkaichi, Osaka, Komatsushima, Sakai, Kitakyushu, Miyazaki, Naha</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Regional Disposal of Earthquake-generated Waste (Second District Port Construction Bureau, Ministry of Transport)</p>	<p>1996</p>	<p>(1) Purpose of the study Assuming the occurrence of a major earthquake along Tokyo Bay, this study considers how earthquake-generated widely-distributed waste should be disposed of, paying attention to the following:</p> <ul style="list-style-type: none"> • Regional disposal of earthquake-generated waste (rubble) under the Tokyo metropolitan area's regional disaster prevention plan • How regional assistance should be provided in the event of a near-field inland earthquake • Problems and challenges related to regional disposal • The direction of regional assistance that can be provided by the ports <p>(2) Scope of the study</p> <ul style="list-style-type: none"> • Study on the Hanshin–Awaji Earthquake • Study on waste disposal in normal times • Study on the volume of waste generated by an interplate earthquake and the treatment and disposal of such waste • Study on the volume of waste generated by a near-field inland (intraplate) earthquake and the treatment and disposal of such waste • Study on measures necessary for the disposal of earthquake-generated waste <p>(3) Study method An interview survey of the following organizations was conducted:</p> <ul style="list-style-type: none"> • Port authorities in the Tokyo Bay area • Coastal Water Division, Third District Port Construction Bureau, Ministry of Transport • Hyogo Prefectural government • Osaka Bay Regional Offshore Environmental Improvement Center

Study	Fiscal year when study was conducted	Study outline
<p>Study on Eco-port Development at Komatsushima Port (Public Works Department, Tokushima Prefecture)</p>	<p>1996</p>	<p>In August, 1993, Phase 1 of the Marine Pier Okinosu Project for the development of a place for physical distribution and industrial activities was completed in the Okinosu area of Komatsushima Port. Since then, the work to formulate a plan for Phase 2, designed for the creation of excellent waterfront space, urban redevelopment and the development of a transportation network and other infrastructure, has been underway. In April, 1996, the plan was designated as an "eco-port model project" for implementation.</p> <p>Aiming to draw up a plan for the eco-port project in the area mentioned above, this study proposes a plan for a number of measures including artificial beach nourishment designed to retain the habitat of marine vegetation and the creation of an amenity-oriented artificial rocky beach. The study also considers a port environment plan for the same area.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on the Marine Environment of the Tokushima Airport Area (Tokushima Prefectural Government)</p>	<p>1996</p>	<p>In Tokushima Prefecture, on the basis of the recognition that in carrying out development around Tokushima Airport, it is important to make effort to create a comfortable amenity environment in harmony with the rich natural environment while respecting the spirit of the Act on Special Measures for Conservation of the Environment of the Seto Inland Sea, the Scheme for Development around Tokushima Airport based on the concept of a "Shikoku Communication Frontier" capable of coexisting harmoniously with the natural environment was drawn up in 1994, and the Master Plan for Development around Tokushima Airport was formulated in 1995. In 1996, Tokushima Prefecture started working on the formulation of the Implementation Plan for Development around Tokushima Airport and specified a project area where project implementation should be expedited. This project area includes the 500 m extension of the runway, the airport terminal facilities, waste treatment facilities, etc., on the north side of the runway and the seaside park, part of the artificial beach, sewage treatment plant, etc., on the south side.</p> <p>From the viewpoint of environmental conservation, the concept of environmental conservation was indicated in the master plan, and the Beach Creation Plan was drawn up indicate the basic direction of efforts to create a seaside environment.</p> <p>This study aims to indicate the direction of and requirements for the Tokushima Airport area development project as an environmental plan for the project area in accordance with the Beach Creation Plan.</p>

Study	Fiscal year when study was conducted	Study outline
Study for the Toba Port Landscaping Model Project	1996	For Toba Port, which is widely known to be the gateway to Ise and Shima, a port improvement project has been proposed on the basis of the results of a Marine Town Project study conducted for the Sadahama area. In this study, a basic policy for enhancing the landscape quality of the entire Sadahama area including the sea in the background was drawn up in order to develop a more detailed landscape plan so that not only the functional requirements for facilities are met, but also port space where people can relax is created.

Study	Fiscal year when study was conducted	Study outline
<p>Study for the Nakatsu Port Eco-port Model Project (Fourth District Port Construction Bureau, Oita Prefectural Government, Nakatsu Municipal Government)</p>	<p>1996</p>	<p>Nakatsu Port is located in an area facing the Sea of Suo at the northwestern end of Oita Prefecture. The port has developed as a transportation hub connecting the adjacent areas with the Hanshin and Chugoku regions and the Kanmon area. Because of the rapid economic growth in the postwar years, the port has been playing an important role, through port improvement and industrial development, in the economy of the northern part of the prefecture.</p> <p>Currently, there is a plan for port improvement to cope with changing conditions such as the geographic spread of economic and social activities, the increase in the volume of goods moved, and the increase of large ships used for marine transportation. Most of the shoreline in the port area is a semi-natural coast running along tidal flats inhabited by diverse species of life.</p> <p>In this study, a basic policy, facility systems and other details needed to make the environment of Nakatsu Port what it should be so that the port and the environment coexist harmoniously were determined while coordinating such efforts with the improvement of Nakatsu Port. For the tidal flat in the Oshinden area, a concrete project plan was drawn up as a model case.</p>

Study	Fiscal year when study was conducted	Study outline
<p>Study on Okitsu Port Eco-coast Planning (Second District Port Construction Bureau, Ministry of Transport; Chiba Prefectural Government)</p>	<p>1996</p>	<p>The shoreline of the Okitsu Port coast in Chiba Prefecture began to retreat in around 1977, making the coast increasingly vulnerable. It is therefore necessary to take improvement measures for beach restoration. On the other hand, the coast in the Sotobo region including the Okitsu Port coast is an important area as the northern limit along the Pacific coast of the loggerhead turtle's spawning grounds. In recent years, however, the beaches serving as spawning grounds have become increasingly smaller mainly because of resort development, seawall construction and shore retreat. Turtles themselves are threatened because of accidental capture by nets in coastal fisheries, poaching, crushing by off-road vehicles, etc. Since the loggerhead turtle is a threatened species throughout the country, it is listed the Environment Agency's Red Data Book as a rare species.</p> <p>Because of these circumstances, the improvement of the Okitsu Port coast has been designated as an "eco-coast" project, and efforts are underway to restore and conserve the coast and retain loggerhead turtles' spawning grounds and maintaining protection and rearing facilities for weakened turtles, taking into consideration the diversity of the coastal environment and habitats.</p>

Study	Fiscal year when study was conducted	Study outline
Planning Study for the Takehara Port Eco-coast Project (Planning Division, Third District Port Construction Bureau; Hiroshima Prefectural Government)	1996	In 1996, the Okibe area of Takehara Port was designated as an "eco-coast" for the purpose of augmenting storm surge protection measures and conserving and restoring living organisms dependent on the beaches and tidal flats in the area. In this study, therefore, a master plan for coastal improvement friendly to the natural environment of the Okibe area of Takehara Port in accordance with the objective of the "eco-coast project."