

**PLANNING AND MANAGEMENT OF TRANSPORTATION
INFRASTRUCTURE FOR THE DEVELOPMENT OF
OSAKA BAY AREA- STRATEGIC ANALYSIS**

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1. INTRODUCTION

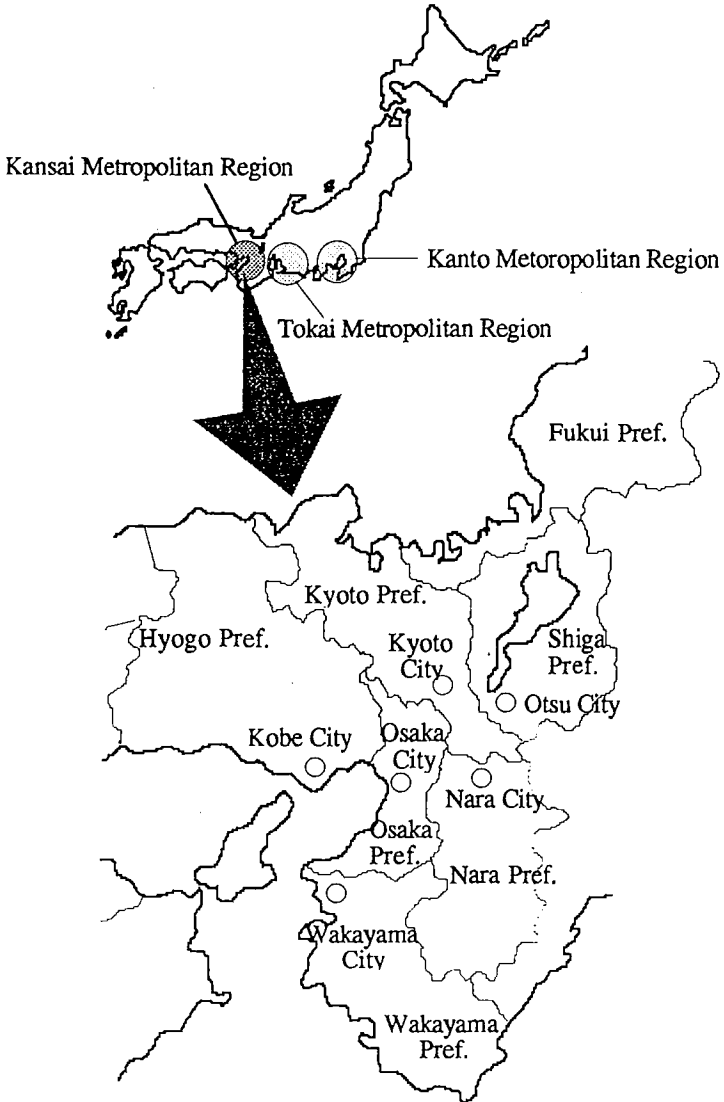
There are many large-scale and long-range projects going on to vitalize the Metropolitan Region of Kansai, one of the largest metropolitan regions in Japan. The region consisting of Osaka, Kyoto, Hyogo, Shiga, Nara and Wakayama prefectures is the largest in the western part of Japan, and in many ways, the second largest after the Metropolitan Region of Kanto with Tokyo as its center. The most conspicuous among these developments is the so-called "Osaka Bay Area Development (OBD)" which refers collectively to a set of challenges for urban and industrial restructuring, especially in the old industrialized zones along Osaka Bay. However the exact scope of area to be covered by the OBD is not the kind of thing that has been strictly defined or commonly agreed on. In the broader sense of the term it could mean all kinds of large-scale and long-range challenges for the revitalization of the Region of Kansai, in which case the name of the "Osaka Bay Area" symbolically represent those challenges. We will discuss the OBD in its broader sense of the term because we intend to stress the need for bringing in a broad and long-range perspective to plan and manage this extensive spatial restructuring from the viewpoint of transportation infrastructure. Our position is that the planning and management of the transportation infrastructure for the development of Osaka Bay Area in the narrow sense of the term should not be discussed for its own sake but be examined within a much broader planning framework of national, regional, urban and further local levels.

2. KANSAI REGION AND OSAKA BAY AREA

2.1 General Background

The region of Kansai (see Fig. 1) used to be the center of politics and culture in Japan and a major gateway to foreign countries until the turn of the 16th century when the Government of Tokugawa Shogunate moved the then capital of Japan from Kyoto to Edo (Tokyo). Even during the Tokugawa Era (1603-1867) Kansai maintained much of its leading position as Kyoto and Osaka served as the center of culture and that of economics, respectively. Since the end of World War II Kansai has been losing much of its leading position especially to Kanto which has increasingly attracted population as well as economic and socio-cultural activities flowing into the region. Excessive centralization of public decision making functions assigned to Tokyo in postwar days

Fig. 1 Kinki Region and its Location



has persistently been claimed most responsible for this continued decline of Kansai and other metropolitan regions in Japan. This has constantly led to an increasing number of leading Kansai-based companies moving their headquarters to Tokyo.

2.2 Kansai Region and Osaka Bay Area

Economic and social changes coupled with technological innovations which took place in the last decades have also contributed to the decline of Kinki, especially in the manufacturing industry which had been taking a principal role in the industrialization of the post-war Japan. By providing them spaces for location and by building supporting port and harbor facilities in the reclaimed lands along the Osaka Bay, industrial zones grew up extensively into what is called the "Osaka Bay Area" in the narrow sense of the term, or rather sarcastically called now the "old industrial zones." With production cycle becoming much shorter and logistical revolution favoring a more value-added approach, most of the manufacturing industries are currently being forced to change their production structure in one way or another. One of their concerns now is how to make a better use of large-scale spaces which became (potentially) idling due to unavoidable decline or shift of production.

Ongoing changes in people's way of thinking and life-styles may well be symbolized in the increasing concerns about environmental quality and urban amenities. This again has forced the conventional harbors and ports in the Osaka Bay Area to make a critical shift: from "block-out-citizens" policy to "let-in-citizens" policy. New demands of society: citizens should be allowed to come in and take part in port and harbor areas as people have come to think that the places should be regarded as a part of the city in the holistic sense, and not in the sense of urban spaces for a specialized function. People should have the right of way to waterfronts to enjoy their environmental qualities. Port and harbors in their real sense of the term should be considered a kind of meeting place or communication forum.

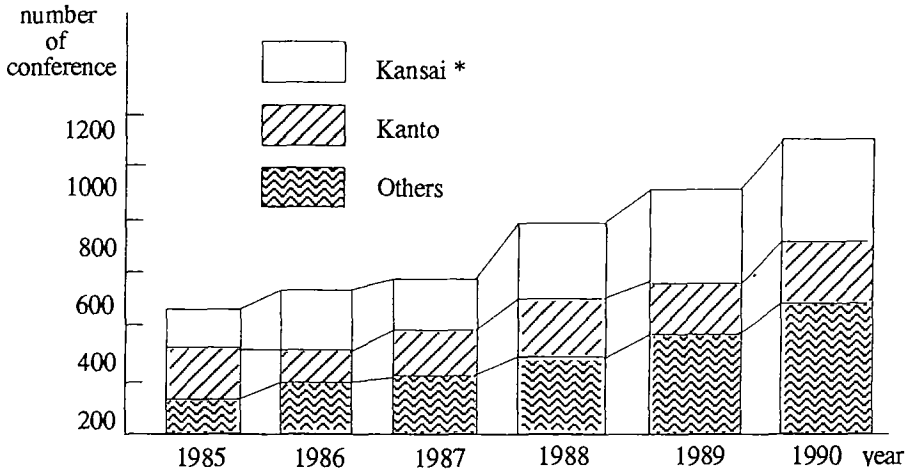
For above reasons the Osaka Bay Area has been demanding drastic challenges to overcome the difficulties. Notably challenges are being initiated and organized by various groups from industry, governments and academic arenas. They engage in carrying out various studies to investigate problems to be solved, to discuss development strategies, and to enhance people's awareness of the significance and implication of the Osaka Bay Area Development. For example the Association for Promoting the Bay Area Development has been established at the initiative of the local business circle, to discuss the grand design of the Osaka Bay Area Development. We will refer to it later.

2.3 Kansai Region

Obviously the Osaka Bay Area in the narrow sense is a part of Kansai Region. The development and restructuring of the OBA should not be merely discussed per se but be linked with the rest of Kansai Region. Table 1 compares Kansai Region with Kanto and Tokai Regions. (Mase, 1992) From this we learn that Kansai runs after Kanto and before Tokai. Basically the differences between Kansai and Kanto are rather crucial, especially in terms of financial activities (amount of drafts exchanged.) The gaps are slowly expanding over time; again at financial activity level the situation is the worst.

However not everything is like that. As Fig. 2 illustrates (Mase, 1992), the region

Fig. 2 Trend in Numbers of Conference per annum by Region



* Kansai = Kyoto, Nara, Osaka and Kobe
 Kanto = Tsukuba, Maebashi, Chiba, Tokyo, Yokohama,
 Oiso Cities and Fuji-Hakone Area

Source : Convention Statistics 1990 by Convention Bureau of
 " Kokusai Kankou Shinkoukai "

has become more active in gathering people there to take part in cultural and communication activities. This is an encouraging fact to reconfirm our common image of Kansai having a more attractive cultural setting that has long been fostered and stratified historically, as compared to Kanto. This is especially the case when people seem to give a higher priority to cultural activities than they used to.

By comparison with Kanto, we may legitimately say that Kinki Region is more conspicuous in the following: (i) There are three principal cities, Osaka, Kyoto and Kobe, and some supporting ones such as Nara, Otsu and Wakayama. The three are uniquely different and have charming points of their own. Commerce and industry are to Osaka, so as old culture and history to Kyoto, and so as modern port-and-harbor culture is to Kobe.

(ii) Geographically Osaka and Kobe have coasts and waterfronts, whereas Kyoto lies inland behind Osaka. Osaka enjoys a rather extensive plain behind coastal zones, whereas Kobe is confined by narrow urban spaces available behind their coastal zones.

(iii) Their strengths could easily become their weaknesses, as coordination among them at local government level has proved to be very difficult, and conflicts commonly occur

Table 1 Major Economic Indices of Kansai*Region
as Compared to Kanto*and Tokai*

Index	Year	Kansai	Kanto	Tokai
Area	1985	7.2	8.6	7.8
Population	1970	16.6	28.4	11.3
	1990	16.5	31.2	11.5
Gross pref. product(GPP)	1970	18.6	34.6	12.2
	1988	16.9	36.6	12.1
Per capita income(PCI)**	1970	115.3	121.8	106.1
	1988	102.7	117.1	103.4
Amount of shipments (manufacturing industry)	1970	22.7	34.7	16.6
	1989	17.9	33.1	20.2
Sales of commerce	1970	24.0	38.7	12.2
	1988	19.3	40.3	12.8
Amount of drafts exchanged	1970	24.5	53.7	9.3
	1990	9.1	84.7	3.1
Investments	1970	18.2	37.4	15.0
by private sector	1990	14.9	39.9	16.7

* Kansai=Shiga,Kyoto,Osaka,Hyogo,Nara and Wakayama Prefs.
Kanto =Ibaragi,Tochigi,Gumma,Saitama,Chiba,Tokyo and Kanagawa Prefs.
Tokai =Shizuoka,Gifu,Aichi and Mie Prefs.

** numbers represent values relative to level of national average(=100),
elsewhere numbers represent shares in nation total (percent)
source: Nikkei Shinbun 1992,January,14.

to prevent them from working together to achieve a common goal.

(iv) At private sector level and individual citizen level, boundaries are very loose and there have been extensive and high mobilities in the region; people, goods, money and information have increasingly been reciprocating between the cities, either at everyday level or otherwise. From this we may fairly interpret that people rely on more than two central cities or "mother cities," and that their spheres of life (either at everyday or non-everyday level) extends to cover more than two of them.

(v) With specific reference to transportation we should note that the new international airport now being built off shore of the southern coast of Osaka and will be in operation in a few years. This Kansai International Airport is expected to serve as an around-the-clock and hub airport open to outside of Japan. Benefits will be enormous and above all the positive impact of the Osaka Bay Area becoming a gateway to the rest of the world will be most noteworthy.

3. Towards a Grand Vision of Kinki and Osaka Bay Area

3.1 From "Catch-up" Approach to "Dream-up" Approach

At this point we will turn our discussion to look into future.

Our position is that given the present socio-economic position of Japan, we should now switch from our conventional approach to an entirely new one in nature. That is, our conventional approach has been to develop infrastructure in order to catch up with the constantly-maintained growth of economy. We call this conventional approach the "catch-up approach." Although this approach has contributed to the quantitative development of infrastructure, it has now come to hit its limit. For this reason we propose to take a new approach: we first figure out what kind of "quality of life" we should eventually achieve in future, and what kind of social system we ought to develop. We call this the "dream-up approach."

3.2 Design of a Grand Vision for Future Kinki and OBA

In the context of long-range transportation planning for the development of the Kinki Region and Osaka Bay Area, we may more specifically illustrate the points as follows.

(i) For fairness and equity sake, the Kinki Region has to be revitalized to sustain much of its identity and attach new dimensions to it. This is very important for each metropolitan region including Kinki to attain its sustainable development and to keep Kanto from becoming excessively gigantic and centered upon.

(ii) For the residents of the Kinki Region it should offer a different (and higher) quality of life than Kanto, in one way or another. To attain this goal, strategies should be developed to improve infrastructure in qualitative sense, so as to strengthen its advantageous points as compared to Kanto.

(iii) As Andersson (1990) points out, we are entering the fourth stage of "logistical revolution." The ongoing socio-economic and technological changes are so revolutionary that our social systems are becoming by far closely interlinked with their conventional borders being less effective and more eroded, and that cities (and their residents) tend to communicate more easily and frequently with those outside of their places, irrespective of its physical distance. This means that in such a new era there will be more demands for the development of transportation infrastructure in qualitative sense, whereby "transportation" may not be any more distinct from "communications" but should be discussed in a broader concept of "logistical (network) system."

(iv) For above reasons we should envisage that future residents of Kinki be guaranteed at least the following specific living qualities.

Principle 1: 60 minute-maximum for commuting.

Principle 2: diversity of choices for living and working environment, including the choice of "walking distance to office from home."

Principle 3: let residents be allowed to rely on multiple places as their "base cities" or "mother cities." For example, in everyday life a family may live or work in a nearby big city but over weekend they can frequently visit and stay in another city. As mentioned in 2.3, the residents of Kinki has been accustomed to this way of life and regarded this opportunity as an attractive point.

Principle 4: let residents enjoy a variety of cultural and environmental amenities. Therefore

waterfronts in the Osaka Bay Area should be made more open to public, and higher quality of environment as well as urban amenities be fostered as a part of infrastructure development.

Principle 5: we make great account of the logistical system which the existing manufacturing industry has long been building up so we should encourage them to restructure its production system by letting them take part in full-scale spatial restructuring in the Osaka Bay Area. Thereby we should also allow new industries to come in the OBA. They may be either secondary or tertiary industries to constitute new urban waterfront zones part of which should be made available to either residents or visitors.

Principle 6: The Kansai International Airport should be developed and operated to full scale possible, in order to serve as an around-the-clock and hub international airport. We expect them to be closely interlinked with domestic networks of transportation and to provide a gateway to the international arena leading from the surrounding regions, let alone the entire Kinki.

4. DESIGN OF STRATEGIES: DEVELOPMENT OF LOGISTICAL SYSTEMS

4.1 District Level Approach

By "district level" we mean that focus is placed on the Osaka Bay Area in the narrowest sense of the term. As Fig. 3 sketches, the Osaka Bay Area in this sense consists of the three-layer crescent strips facing the Osaka Bay. (Osaka Science and Technology Center, 1991) The farthest front among them is what we may term the "bayfront crescent strip (BFCS)" which corresponds basically to the (newly) reclaimed area with modern port and harbor facilities. One layer inside the BFCS lies the "inner-bay crescent strip (IBCS)" which corresponds basically to the old port and harbor area. The third layer which lies most behind the coast is termed the "outer-bay crescent strip (OBCS)" which roughly corresponds to the sites of conventional manufacturing industries. Farther behind the third layer lie the inner city areas and its urban center, which is accompanied behind by its suburban areas. By comparison we may roughly state that Kobe and Wakayama have more limited spaces behind their IBCS's than Osaka. Furthermore Osaka is distinct from Kobe and Wakayama in that way behind the suburban areas of Osaka is situated Kyoto.

From the viewpoint of logistical network a set of three-layer areas which is encompassed within their "mother city" is handicapped by the following bottlenecks.

- (i) No smooth access through the strips between the inner city and its closest waterfront.
- (ii) No adequate horizontal (along the waterfront) through-traffic access
- (iii) No adequate horizontal within-traffic access (especially recreational)

Therefore the above three types of accesses of high quality need to be developed so that the residents, visitors and industries may be best supported by the logistical system within the districts (see Fig. 4).

4.2 Metropolitan Level Approach

The "metropolitan level" means that we place focus on the Kinki Region or especially on its Pacific side. As is clear from our previous discussions, the above-stated

Fig. 3 Bay Districts and Inner City Area

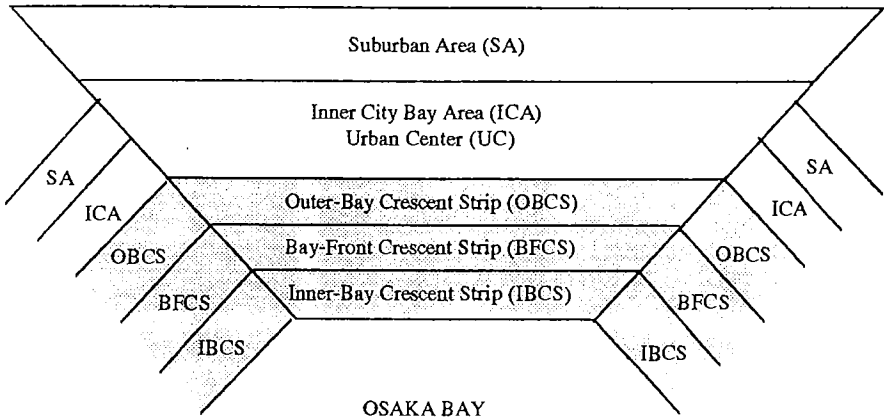
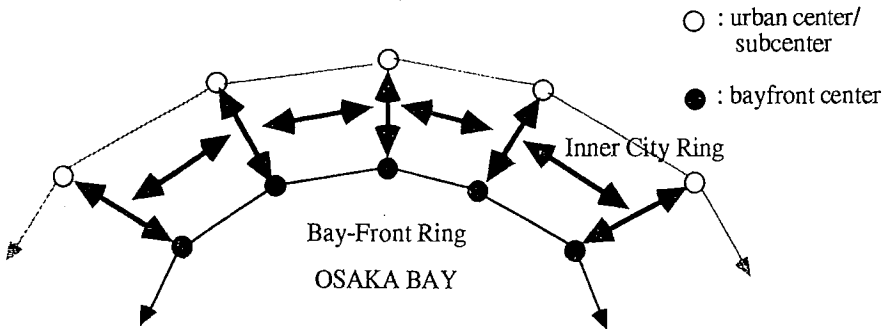


Fig. 4 Future Logistical System Needed (D-Level)



district level approach per se cannot totally be self-contained. Instead, development strategies to be designed at district level need to be examined within a broader regional perspective. This is a reason why we bring in the planning perspective of metropolitan level, although this broader perspective is developed not merely for this purpose.

Fig. 5 sketches the present state of the logistical system of the Kinki Metropolitan Region. A mere glance at this diagram will show that the skeleton of the system is by far short of a ring structure but still remains a crescent one. The crescent skeleton consists of three major cities, Osaka, Kobe and Kyoto (which may be interpreted as a handle of the crescent by analogy), accompanied by several sub-major cities such as Nara, Otsu and Wakayama.

Fig. 5 Current Logistical System (M-Level)

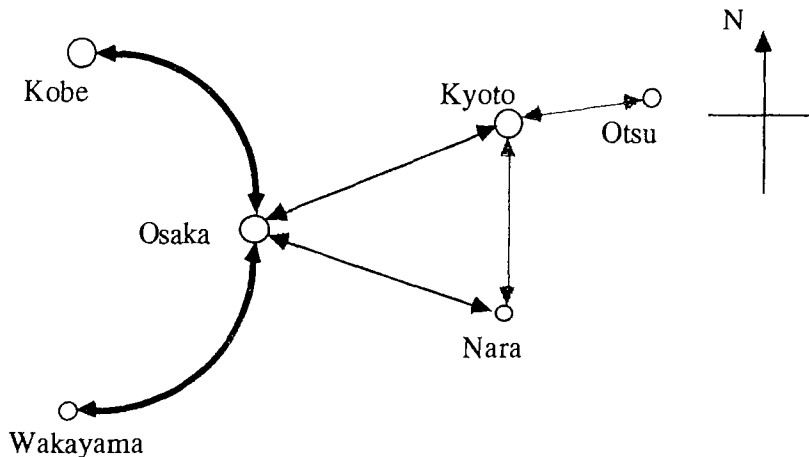
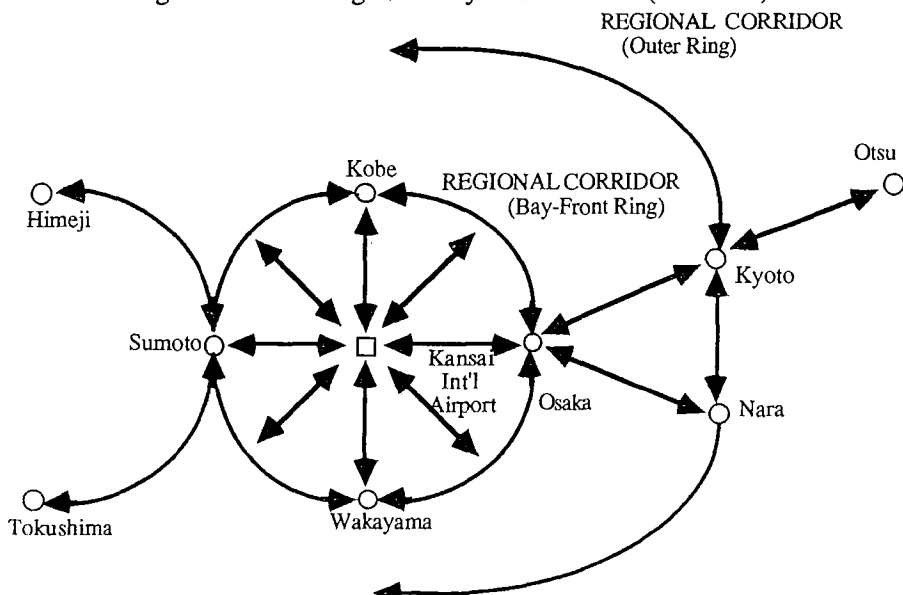


Fig. 6 Future Logistical System Needed (M-Level)



At this point in our discussion we should remark that there are several proposals or ongoing projects to interconnect ocean channels such as the ongoing one between Akashi (west of Kobe) and the northern tip of the Awaji Island. Since on its southern side the Awaji Island has already been spanned by a newly-built bridge to connect with the northeastern tip of Shikoku Island, all this could constitute not merely a part of the loop line around the Osaka Bay and a part of another loop to cover the eastern portion of the Seto Inland Sea. At the level of conceptual planning, a proposal is now being studied to interconnect the channel between Wakayama and the southern Awaji. If materialized, this could also constitute the loop around the Bay.

In somewhat detailed and more microscopic manner we need the around-the-waterfront corridor (called the "inner-ring") to interconnect the Osaka Bay Area, whereby the proposed horizontal through-traffic access within the three-layer zone of each city constitutes a part of the corridor. (see Fig. 6) Now we should make another point that in order for us to achieve the grand vision, the sub-major cities such as Nara, Otsu and Wakayama should be more closely knit with the future logistical network system of the region. This suggests that we need another ring corridor which lies farther inland (called the "outer-ring.") In this connection we add that a new type of city to exclusively pursue scientific and cultural activities is now under way halfway between Kyoto and Nara and between Osaka and Nara. This is expected to constitute a core city of the outer-ring.

4.4 National and International Approach

Finally we turn our attention to national and international perspectives. Figs.7 and 8 illustrate our points. The former shows the basic strategies proposed for the region by the Association for Promoting Osaka Bay Area Development (1991) . The latter shows our strategies which are similar to the former in the following: In addition to the national corridor (central) a new corridor (called the "national corridor (southwest) need to be developed. This is indispensable to consolidate the integrity of and mobilities along the peninsular area, and to interconnect the neighboring spheres of life which are now cut off from each other either by a channel or mountain.

Our proposal stresses the international dimension of the logistical network which can be offered by the Kansai International Airport which is designed to operate for twenty-four hours and to serve as a hub international airport located in the Pacific Rim. We propose also to add the third national corridor (called the "Sea of Japan Corridor.") We should not forget that the Kinki Region has coasts on the side of Sea of Japan which is more sparsely populated and rural. For the same reason as the southern Pacific side needs another national corridor, we may legitimately add this third corridor.

5. CONCLUSION

In the above discussions we have merely discussed development strategies for logistical systems needed in the future of the region. Obviously, for more detailed and specific planning of transportation systems to be installed in the region, we have to study modes of transportation, institutional and organizational questions to operate the systems and many other things. The part of task may include "demand forecast." However our major point is that it is the high time for us to switch from "catch-up approach" to "dream-up approach" and demands should be studied in a more qualitative manner. To

conclude, we add that in the century to come its adjacency to the Sea of Japan coasts may possibly become a big advantage to Kinki as compared to Kanto as we can realistically expect increased communications and trades with the Continent. This is symbolically represented by the arrows coming up from the coasts of the Sea of Japan as illustrated in Fig. 7. In a sense we are tracing back the old routes developed by Japanese envoys to China in the Tung Dynasty. The same thing applies to the Seto Inland routes which are basically the same as the part of the proposed loop passing the Seto Inland Sea. This may imply that in the next century we should take a new look at the old ocean routes in developing logistical systems required in future.

Fig. 7 Proposed Transportation Development Perspective

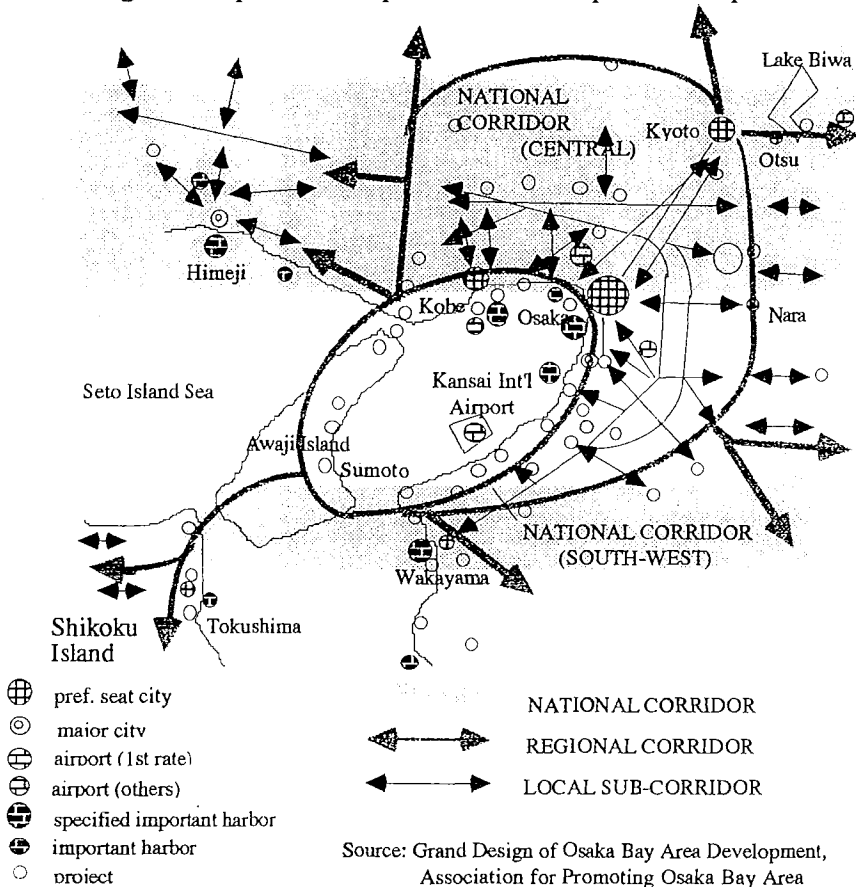
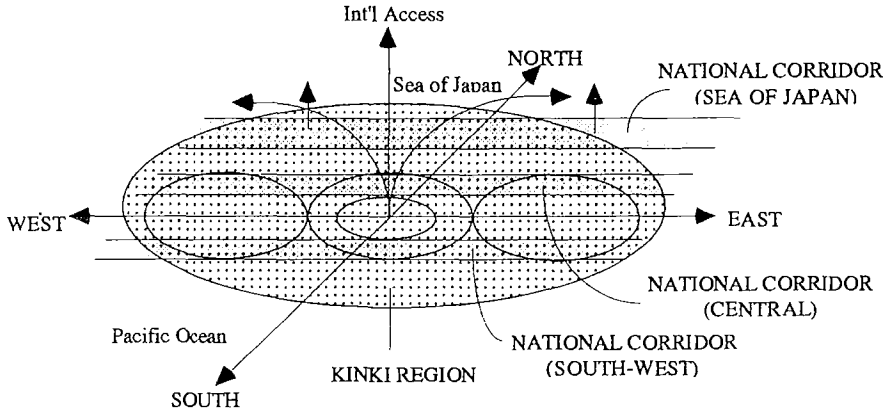


Fig. 8 Future Logistical System Needed (R- and N- Levels)



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