

DECENTRALIZATION OF CAPITAL FUNCTIONS

BY MEANS OF THE LINEAR EXPRESS

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1. PROBLEMS CAUSED BY THE CONCENTRATION OF FUNCTIONS IN TOKYO.

1.1 A sharp rise of land prices in Tokyo.

Although the wholesale commodity price is stable, the average land price in Tokyo doubled for about three years starting from 1985. The role of Tokyo as an international financial and information center has been growing significantly, and the demand for office buildings has originated from foreign as well as domestic companies. These phenomena brought a sharp rise in land prices in the limited city center of Tokyo. The land price at the best place of Marunouchi district reacted 30 billion yen per m², and the land price of residential areas within a radius of 30km or 50km increased, a situation which was sometimes caused by speculation demand.

The National Land Agency and Tokyo Municipal Government adopted urgent schemes such as the compulsory notification and permission systems of prices in land transactions, tightness of financing land purchase, and there has been a steady increase in land prices since 1988. However, although the phenomenon of increasing land prices became latent by these schemes, the potential problems to cause a sharp rise of land prices have not been solved yet. There is an argument that a high rise of land prices is generally brought about by the sudden increase of demand in comparison with land supply, and therefore the land supply scheme is the most effective to stabilize land prices.

This opinion seems to be persuasive. However, the most important fact is that the potential demand of land in Tokyo is extremely larger than amount of land expected to be supplied.

1.2 Limitations posed to the scheme designed to increase land supply

A fundamental question is placed on the validity of the land supply scheme from a long-term point of view. Land supply aiming at restraining land prices over a short time span accelerates the concentration of domestic central functions such as economical, financial, information and political functions, a situation which is liable to promote imbalanced development of national land.

This concentration causes an increase of demand on land in Tokyo, which requires an additional land supply. This could bring a vicious and endless circle, and therefore the land price scheme based on an increase of land supply is a double-edged sword. Therefore, the land supply scheme should not be adopted to solve land price problem in Tokyo comprehensively in the long-term.

In this respect, an example may be used. The scheme concerning widening urban roads is not usually effective, and causes the increase of traffic volume, which requires additional improvement of road capacity. The concentration of various functions bring the same vicious circle. The scheme, which should be adopted in Tokyo, is one that aims to restraint further concentration and to decrease the demand on land corresponding to the supply level of land.

Although a grand plan, to build a new city at the Tokyo Bay Area, is now under examination, the largest amount of land supply from financial and technological viewpoints cannot satisfy an increasing demand in Tokyo. Additionally, the construction of a marine city will cause water pollution and environmental destruction, which will enlarge the root of evil, i.e. of concentration into Tokyo, and thus digging a tombhole for itself.

1.3 Causality flow to bring problems by the concentration of functions into Tokyo.

Where is Tokyo going as it is now?

Even if trillions of public investment were maintained every year, more than 90 percent of such investments will be spent to purchase land. Out-migration of population from the central area of Tokyo will increase yielding under the burden of fixed property tax and inheritance tax. Although new office buildings will be constructed at vacant lots or redeveloped sites, sufficient infrastructure facilities such as roads, parks and water supply to support those urban activities can not be expected, and living environment for citizens will become more severe. Figure-1 explains the causal relationship generating various problems by the concentration of functions into Tokyo.

Some people might be thrown into ecstasies when looking at Tokyo's increasing emergence as one of the most active cities. Why cannot they notice that they are getting stuck in an irrevocable bog? It is necessary to have the wisdom leading to stopping the concentration into Tokyo for the welfare and survival of the Japanese people.

Tokyo's problem is now a Japanese problem. Although some people propose to reclaim the Tokyo Bay to build a new city on the sea to cope with the land problem in Tokyo, why do they persist in solving this problem from the narrow perspective of the Tokyo region?

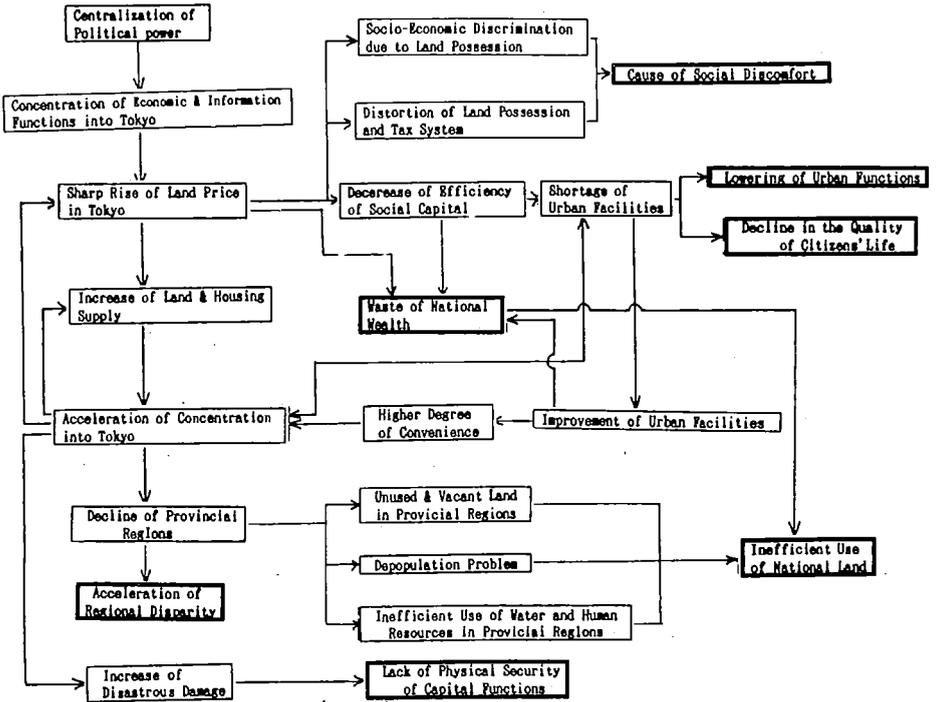


Figure-1 Problems caused by concentration of functions into Tokyo

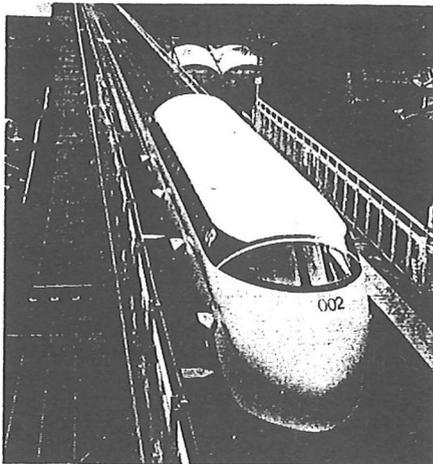
2. DECENTRALIZATION SCHEME OF CAPITAL FUNCTIONS

The Fourth National Comprehensive Development Plan was submitted at a Cabinet council in June 1987, aiming at the decentralization of function in Tokyo, bringing some of them to peripheral core cities. This is a sensible direction. However, the Second and Third National Comprehensive Development Plans, as well as the First one published in 1961, urged the necessity of the growth of core cities and balanced development of Japan. In reality the concentration of all functions in Tokyo has been accelerating up to the present.

The important thing is not to say a "Buddist pray" "to promote the multi-polar, dispersed development" and to propose "the way to realize that." Therefore, the "Decentralization Plan of Capital Functions" (Kakuto-Kousou) is proposed in this paper.

2.1 Technological development of the Linear Express

The basic research of Linear Motor Car started at the Railway Technical Research Institute of Japan National Railway (JNR) in 1962 before the operation of the Tokaido Shinkansen bullet train, and the first magnetically levitated operation succeeded in 1972. The experimentation at the Miyazaki Test Center (the total distance of guideway is 7km) commenced in 1977. The manned speed record of 305km/h was achieved in April 1982, and that of 400.8km/h was achieved in December 1987 (Photograph-1). These achievements may be considered to be as leading in world technology, and showed its practical potentiality as an ultra-express surface transport system.



Photograph-1 Super Express Linear Motor Car <MLU002>

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The superconducted, magnetically levitated Linear Motor Car is anticipated to be completed, technologically, for practical use soon. The remaining subject is to have a running test on experimental line of 40km distance, which will have to be constructed in advance somewhere on planned line of about 500km line between Tokyo and Osaka. This Linear Motor Car is more advantageous than the Trans-Rapid of regular-conductivity system developed in West Germany, because of the astonishing advances made in the field of superconducting materials. The super-conductivity system, which has been developed by the Japan National Railways, will attain technological and economical superiority, when the cooling system with expensive helium gas will come into disuse. The superconductivity temperature is expected to increase more depending on future technological developments.

The Linear Motor System has the following advantages compared with present Shinkansen bullet train :

- a) The super-express locomotion can be realized with the speed of more than 500km/h, because propulsive force is not obtained through the friction between rail and wheel.
- b) The vehicle is levitated magnetically and environmental pollution, such as noise and vibration, is not generated along the line.
- c) The fast locomotion is maintained at the steep slope of 100/1000, which can shorten the length of tunnels, and decrease the total construction cost.
- d) As the vehicle is levitated, the damage for ground facilities is small, which saves on maintenance costs.
- e) The Linear Motor Car can make more than two round trips while the Shinkansen makes a round trip. This high productivity of operations, will decrease carrying cost of passengers.
- f) As the vehicle is levitated without friction with rail and guideway, passengers can get comfortable service.

As mentioned above, the Linear Motor Car has various advantages which include: 1 inexpensive construction costs, 2 convenient and comfortable services, 3 inexpensive operation and maintenance costs, and 4 no pollution for inhabitants along line. Moreover, this system has been developed in parallel with various fields of technology including superconductivity, and an additional effect can be expected that the development of Linear Motor Car will cause large impact upon the development of high-technology in related fields.

2.2 Proposal of "Quadruplet Capitals Project"

2.2.1 Sixty minutes between Tokyo and Osaka

The Linear Motor Car "MAGLEV" developed by JNR has already overcome basic technological problems and the remaining work is related to the running experimentation for practical use.

My proposal is to connect Tokyo and Osaka, along an approximate straight line of about 500km with this "MAGLEV" as shown in Figure-2, which is named "the Linear Express". This line connects Tokyo with Kofu, Nagoya and Osaka and it takes only 20 minutes between cities. This means that the place of Osaka will move to that of Tachikawa as shown in Figure-3, and Tokyo and Osaka would become one city for all practical purposes.

2.2.2 Quadruplet capitals

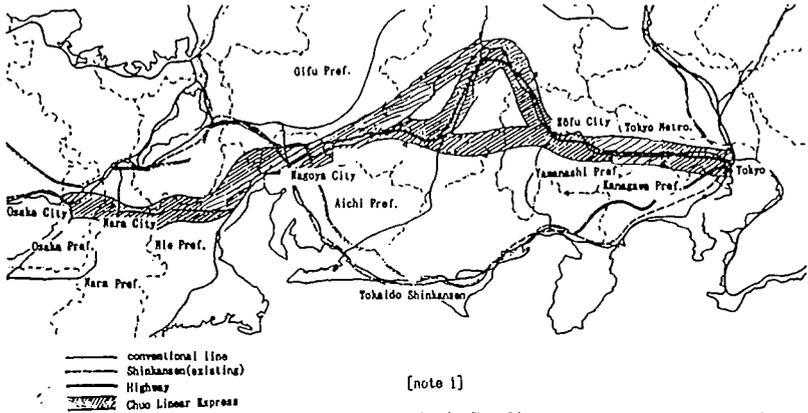
New cities of the high-tech age are built on vacant lands which are 200-300 hectares in area in the suburbs of Kofu, Nagoya and Osaka, and the station for Linear Express is constructed in the center of each city. These areas are designated as Special Districts, which compose the quadruplet "Capital Special City" with Tokyo's Kasumigaseki-Marunouchi district (the "Chiyoda Special District") as shown in Figure-4.

The central government's 12 ministries and 18 agencies headed by state ministers, currently concentrated in Tokyo's Kasumigaseki district, should be dispersed across the 500km region stretching from Tokyo to Osaka. Three or four should be relocated in each of new districts in Kofu, Nagoya and Osaka. The Kasumigaseki-Marunouchi district which has hundreds of hectares in area will be enlarged to twice or three times the present size at the same time.

As the maximum travel time from Tokyo to Osaka, through Kofu and Nagoya, will become 60 minutes, the requirement of each department or agency to locate at specific place would weaken, and we can select the most effective alternative to realize the multi-polar, dispersed pattern of the national land development. Various organizations related with central government such as the Bank of Japan, public corporations should relocate following the movement of the relevant supervisory ministry or agency. For example, the Management and Coordination Agency, Cabinet Secretariat, Prime Minister's Official Residence, and Ministry of Justice could be moved to Kofu.

2.2.3 Governmental buildings wired for the high-tech age

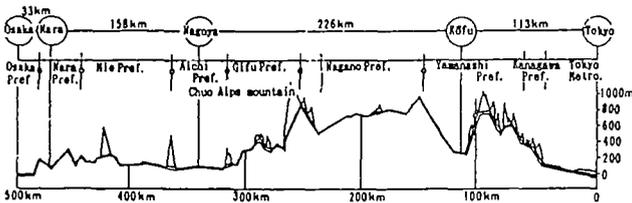
Many of the buildings in Kasumigaseki that house government agencies were built in the 1950s and 1960s. The relocation program would provide an opportunity to transfer the agencies from buildings inadequate to house modern data-processing and from telecommunications equipment into smart buildings wired for the high-tech age.



[note 1]

As the Chuo Linear Express will be constructed through mountainous inland area, it is important to reduce the construction cost to conquer severe natural features when an appropriate route will be examined.

Each station should be constructed at a suitable place in order to activate cities along this line.



[note 2]

planned section : Tokyo-Osaka
 length of rail : about 500km
 planned highest speed : 500km/h
 steepest grade : 40-70%
 total construction cost : about 3 trillion
 construction period : about 7 years

Figure-2 Sketch Map of the Chuo Linear Express

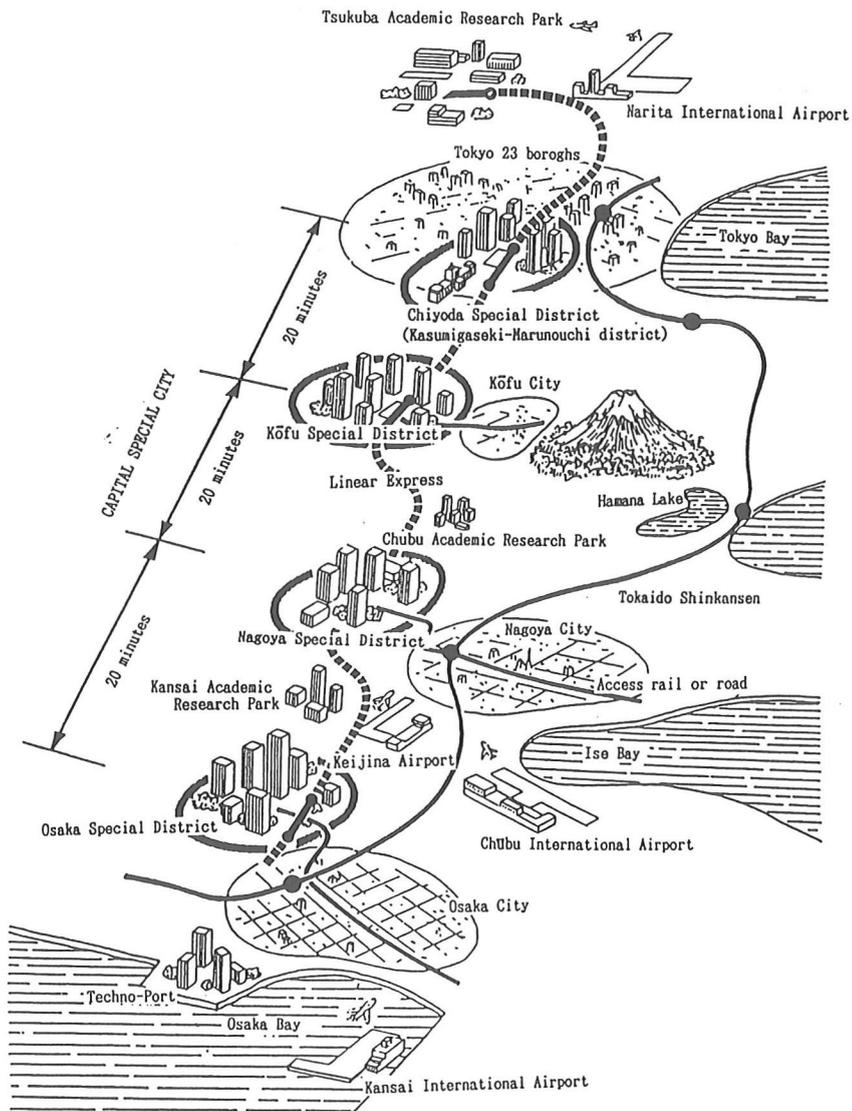


Figure-4 Imaginary Plan of Special Districts in the "Quadruplet Capitals Project"

2.2.4 City building in a new field

These governmental buildings will be rebuilt at the three new Special Districts, which would allow for a spacious layout. The most advanced intelligent buildings will be constructed and enough vacant land should be secured. Civil servants working there could move into congenial residential neighborhoods. Tokyo businesses would also be encouraged to relocate in these areas, thereby alleviating the city's congestion and improving its residential environment.

2.3 Advantages of "Quadruplet Capitals Project"

The advantages of this project are summarized as follows:

a) Drastic improvement of carrying capacity of the Tokaido Line.

The number of passengers carried by Tokaido Shinkansen is more than 150 thousand and about 270 trains are operated per day in both directions. The situation has already reached the limitation of carrying capacity. The best way to solve the sclerosis of 600km trunk artery in Japan is the introduction of the most advanced railway technology "MAGLEV".

b) Decrease of time consumption.

At present, it takes three hours to travel between Tokyo and Osaka by Shinkansen "Hikari". Almost the same time is required by plane, including access and egress transport. This travel time will be decreased into one hour by "MAGLEV", which will save 320 thousand (persons hour) for 160 thousand passengers a day.

c) Appeasement of the sharp rise in land prices in Tokyo

The sharp rise in land prices can be appeased and the basic factors causing land problems in Tokyo can be solved.

d) Extension of prosperous period in Tokyo

More concentration into Tokyo and severe urban environment can be prevented in advance, which would prevent the decline of Tokyo and extend its prosperous period.

e) Balanced development of national land.

Even if "clear decentralization of urban functions" found in West Germany cannot be expected in Japan, the multi-polar, dispersed pattern of national land, proposed in the Fourth Comprehensive National Development Plan will be realized, and various conditions will be provided with each region to enjoy its economical and cultural properties.

f) Security of capital functions

Japan is covered by earthquake belt and the possibility of a "Second Kanto Big Earthquake" cannot be denied completely. Although the dispersal of some capital function from Tokyo might decrease the agglomeration advantages slightly, we can prepare against the case of emergency with a payment of small amount of "Disaster Insurance Fee."

g) Impacts to promote the development of high-technology.

The practical use of Linear Express would provide large impacts upon technological development in various fields including super conductivity. Visible and invisible benefits can be expected by this system to promote the living and economical level in Japan.

h) Enlargement of domestic demand

The construction of Linear Express stimulates the activities of construction, steel, cement and wheel-production industries directly. It also enlarges domestic demand in every field of industries indirectly.

Moreover, the completion of Linear Express provides a convenient travel service between Tokyo, Nagoya and Osaka, and accelerates urban and industrial developments at various cities along line, including Hachiouji, Kofu, Iida, Nakatsugawa, Suzuka and Nara. Furthermore, if some of capital functions will be moved into three Special Districts, the construction project of infrastructure facilities such as road, water supply, subway would cause large economical demand, which will contribute the relaxation of economical friction with foreign countries. Therefore, the "Decentralization Plan of Capital Functions" is an very effective plan to hit eight birds with one stone.

3. CONCLUSIONS; WORKING TOWARDS A COMFORTABLE LIVING

The concentration of urban functions into Tokyo has contributed to the growth of Japanese economy in the period of rapid economic growth. However, various environments surrounding Japan has been changed drastically, when foreign trade gain of 100 billion dollars a year in Japan causes economical friction with foreign countries. One of the largest reasons to cause this problem may be said to be the Japanese search for economy for economy's sake, that is the attitude to seek efficiency and rationality, neglecting "humanity." The idea to promote the concentration of urban functions into Tokyo corresponds to the acceleration of financial panic and tensions in the world.

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The world environment requires Japanese society to change from a workers' society to a comfortable and humanistic society. The rigid illusion of "Tokyo is Japan", neglecting the spirit of the times, should be weakened. The sharp rise of land prices in Tokyo can be understood as an alarm bell for this illusion.

Tokyo is a typical city where all urban functions including political power, economy, information and culture are concentrated. Other cities besides Tokyo can be seen, which have various problems because of excessive concentration. If Japan proposes a solution for this problem and executes it by herself, it can become a valuable contribution for the welfare of human beings in the world.