

CONCEPTS AND METHODOLOGY OF REGIONAL DEVELOPMENT

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THIS ARTICLE IS WRITTEN to present a picture of the concepts and methodology of the regional development in Japan now, in the past, and in the future.

First, the present writer will deal with the regional development actually carried on in the 1950s, the period of recovery after World War II; and also in the 1960s, the period of the remarkably high growth in the economy. Next, an explanation will be given of the new comprehensive national development plan, prepared in 1969 as the guidelines of the future regional development. Lastly, the writer will touch on the new problems of regional development brought about by the recent drastic environmental changes.

I. REGIONAL DEVELOPMENT IN THE 1950s

World War II cost Japan about half of its national wealth, while it had around 80 million population to support. Thus, the increased supply of essential products to maintain the people's living and production, such as food, energy, and iron and steel, was the most urgent problem. With the introduction of the priority production system under which necessary resources were distributed by priority to departments of industry producing these essential materials, it was found necessary to effect regional development for the thorough utilization of domestic resources.

With these circumstances as the background, the Comprehensive National Development Law was established in 1950 and thereunder was prepared the Specified Areas Comprehensive Development Plan.

The Specified Areas Comprehensive Development Plans were prepared over the 1953-58 period for Kitagami and twenty-one other areas. Almost all of them were intended for the development of resources, such as increased food production, development of forest resources, development of subterranean resources, and development of power sources, and also for the conservation of land (forest conservation and river improvement) to protect the devastated land from calamities. Most important of these is the comprehensive development project of river systems, which comprises the construction of multi-purpose dams, waterways for farming, reclamation, grass field improvement and hydraulic power generation. Furthermore, priority was also given to the construction of fishing ports, roads, and railways which may contribute directly to the development of resources.

Also, in order to make as much use as possible of the untapped resources of Hokkaidō which was considered the frontier of development in Japan, the Comprehensive Hokkaidō Development Plan was prepared in 1952.

Thus, regional development in the 1950s was pushed on with major emphasis on industries which might serve directly to increase production, such as agricultural products, timber, fishery products, coal, and power. In this sense, it aimed at the development of resources in the period of postwar recovery.

From around 1952, investment for modernization of production facilities of the metal industry, machinery industry, and chemical industry was pushed on in order to step up the rehabilitation of the manufacturing industry. After the boom of the 1956-57 period (called "Jimmu boom"), industrial production expanded rapidly. And at the end of the 1950s, the per capita national income surpassed the mark of \$300 and was ready to usher in the stage at which Japan at last could emerge from regional development in the period of recovery to regional development, which could be pushed forward from a fresh viewpoint.

II. REGIONAL DEVELOPMENT IN THE 1960s

A. *Concentration in Metropolitan Areas*

The most important goal of Japan's development policy in the 1960s may be said to be the effort to maximize economic growth. And the distribution of resources was given priority so as to attain this goal effectively.

In Japan in the 1960s, the most scarce resource was capital (labor did not yet constitute the restrictive factor in economic growth), and therefore emphasis in policy was laid on the allocation of investment. In other words, it was intended to allocate investment most effectively for the maximization of economic growth. Functionally, the allocation of investment with priority to productive investment, and, regionally, that with priority to metropolitan areas, were promoted.

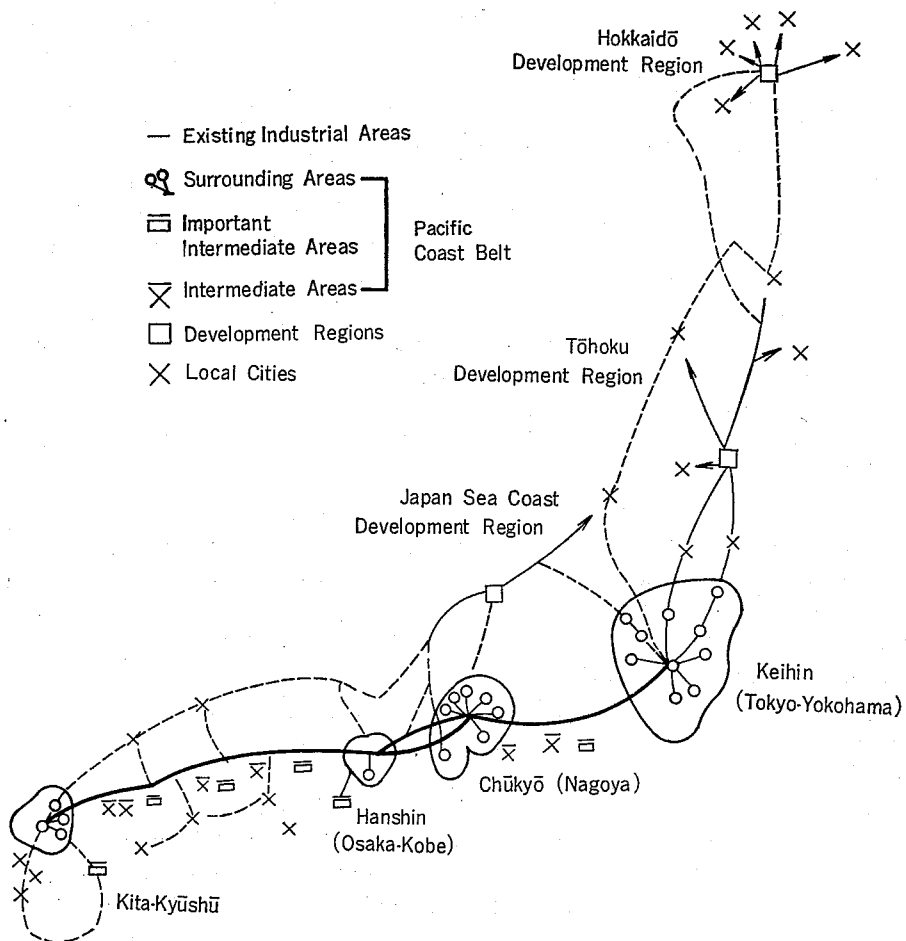
This is clearly indicated also in the Doubling National Income Plan fixed at the end of 1960. The Doubling National Income Plan was an ambitious long-range plan having for its goal the doubling of the scale of national economy in real value. The allocation of investment under this plan was to induce capital preferentially for modernizing facilities and for improving the industrial structure, thereby to increase further capital efficiency. The Doubling National Income Plan took up, as one of its central problems, the repletion of social overhead capital. The emphasis in social overhead capital here is placed on investment which could assist production activities, such as roads, ports and harbors, land and water supply for industry. These can be grasped as productive investment in a broad sense of the term.

Also, the idea of regional allocation of investment with emphasis on the metropolitan area is reflected in the Report of the Subcommittee on Industrial Location attached to the Doubling National Income Plan.

This report deals with nation-wide industrial location in the 1960s, and under this concept the metropolitan area linking up the existing four big industrial

areas, namely, Tokyo, Nagoya, Osaka, and Kita-Kyūshū—called the “Pacific Coast Belt”—is to be made the nucleus for industrial location resulting from the Doubling National Income Plan (see Figure 1). The construction of land for plants, works on water supply for industry, and the replenishment of transport facilities such as roads, ports and harbors, were pushed, by priority, in this metropolitan area, and particularly in the first half of the plan, that is, the 1961–65 period, it was decided that about 70 per cent of public investment be concentrated in this area.

Fig. 1. The Pacific Coast Belt Scheme



Further, Hokkaidō, Tōhoku, and the Central Part of Japan Sea Coast in Figure 1 were still underdeveloped regions in the early part of the 1960s. However, as they had abundant possibilities for industrialization in terms of land, water, and labor, it was decided to start the work of providing the external conditions for industrial location appropriate to a large industrial zone in the

future, in the latter part of the plan period. It was anticipated that these regions would have an important role to play in the ten-year period following the Doubling National Income Plan.

This investment allocation, which lays emphasis on large cities, secures a high productive efficiency of capital by making effective use of the external economies of such cities. However, the concentration of capital in the metropolitan area will bring with it the concentration of various resources other than capital. The increase in the scale and speed of the concentration is liable to cause over-density phenomena, such as traffic congestion and shortage in land and water. For this reason, public investment with even more emphasis on the metropolitan area was made so that the concentration of various resources might not affect the external economy surrounding individual enterprises, but might maintain the high efficiency of the direct production capital.

Of the public investment of all these forms, a considerable portion of the investment in transport and communications was pushed forward by taking full advantage of new technology. Expressways in Tokyo and Osaka, the New Tōkaidō Line covering the distance of 550 km between Tokyo and Osaka in about three hours and the direct dial line network to be laid on a tree pattern centering on Tokyo and Osaka are some instances of this. These projects were initially launched simply to find a way out of the bottlenecks in the metropolitan area, but when completed, increased remarkably the relative convenience of the area, and served to attract various functions to it strongly.

B. *The Problem of Regional Inequality and the Growth Centers Development Formula*

As various resources have been concentrated in the metropolitan area, all other areas have come to possess industrial sectors of relatively low productivity. The more lively the economic activities in the area of high productivity become, the greater the gap in productivity between it and other areas of low-productivity. Hence, the emergence of the problem of regional inequality.

Thus, the narrowing of regional inequality was considered as the new problem in regional development; nevertheless, the way to treat this problem in the 1960s was confined in the sense that the policies to solve regional inequality would be implemented as long as they would not hamper the efficiency of capital.

The problem of regional inequality in a regional development plan was already considered in the report of the Subcommittee on Industrial Location (the conception of the Pacific Coast Belt) referred to above, but this problem was dealt with on a fuller scale for the first time under the Comprehensive National Development Plan determined by the government in 1962.

This Plan (1962) proposed the Growth Centers Development Formula as the development formula to attain the goal of narrowing the regional inequality. This formula may be summarized as follows:

First, areas other than the metropolitan area centering on Tokyo, Osaka, and Nagoya, that is, in underdeveloped areas large centers for growth adapted to the peculiarities of the respective backward areas will be set up, giving due con-

sideration to their ties with these existing large cities. Next, with due regard to contacts with large growth centers and also to the mutual relationship of agriculture, forestry, and fishery around these areas, there will be stationed medium- or small-scale centers for growth whose functions specialize in industry, distribution, tourism, education, and culture or which combine some of these functions. And large-, medium-, and small-scale centers for growth will be linked up with each other, on an organic basis, by transport and communications facilities, thus exerting mutual influence, while exercising favorable effects on agriculture, forestry, and fishery around these areas. Thus, under this formula, development is to be effected in a chain-reacting manner.

Adoption of this development formula will make it easy for areas whose development has been retarded to utilize the accumulation in the existing big cities like Tokyo, Osaka, and Nagoya and also the accumulation of external economies in the large-scale centers for growth formed elsewhere. As the development at medium- and small-scale growth centers is advanced, the area of influence of the respective centers for growth expanded, and eventually a new economic bloc formed, it may be possible to expect the narrowing of regional inequalities.

As to large-scale centers for growth, two kinds of them may be considered: bases for industrial development and bases for regional development. The former, by being provided largely with large-scale industrial and other forms of accumulation, were to have the role of accelerating the development of the surrounding areas, while the latter, by being furnished with the accumulation of large-scale external economies, were to enable the poor access to accumulate the external economies of the existing large cities and attain rapid development.

In supplementing the above explanation somewhat, we may say that the Growth Centers Development Formula is a development formula which has the following three characteristics, in attaining the goal of "narrowing of regional inequalities."

1. *Efficient utilization of capital, a scarce resource*

It is necessary to step up the dispersion of enterprises to overcome the problem of regional inequalities. However, to disperse enterprises on an overall basis will hamper the efficiency of the social overhead capital as well as of private capital. Consequently, it was considered necessary, in dispersing enterprises, to proceed with it on a selective basis, with priority for enterprises with a high investment efficiency in dispersion.

For this purpose, a development formula was adopted under which centers for growth were selected and the private and the social overhead capital were to be concentrated in them. In this sense, the Growth Centers Development Formula may be said to be a method of dispersive development at a stage where capital is scarce.

2. *Utilization of the effects of the external economy*

Under the Growth Centers Development Formula importance is attached to

the effects of external economies on individual enterprises. In large cities such as Tokyo and Osaka, public facilities, including roads, railways, ports and harbors, and water supply, are fully provided, and the production function such as manufacturing industry, and distributional function such as transport, communications, commerce, and financing, and various other functions including administration, culture, education, and research are accumulated to form a gigantic external economy. Enterprises are concentrated in large cities to make use of this accumulation of external economies and they form a new accumulation, thereby attracting enterprises. It may be considered that this mechanism of cumulative expansion has begun to work.

If we are to accelerate the dispersal of enterprises in areas other than the metropolitan area from this standpoint, we must see that these areas are provided with conditions which will make it possible to utilize external economies. For this purpose, it may be considered to connect all these areas directly with large cities, but an enormous amount of capital will be required. Thus, under the Growth Centers Development Formula, the large-scale growth centers were planned to hold large agglomeration of external economy. And it was expected that these centers would exercise the full effects of external economies on the area around them, while maintaining contacts with large cities.

3. *The dominancy in spatial redistribution of manufacturing industry*

The driving force behind the development of the Japanese economy in those days was the manufacturing industry, and the location of it, which may be said to have played an important part in the emergence of the problem of regional inequality. Therefore, it was found necessary to disperse the manufacturing industry, in order to diminish the regional inequality.

Thus, under the Growth Centers Development Formula, the bases for industrial development of three stages, namely, large-scale, medium-scale, and small-scale, and their locations, were considered to hold the key to comprehensive national development. In this way, the Growth Centers Development Formula has as a characteristic the fact that it is a method of regional development of an "industry-led" type.

4. *The government's leading role in the development*

The government has an important role to play in the implementation of the development formula. If we are to attract enterprises into growth centers when "the benefit of agglomeration" in a large city is being kept up, we shall have to construct with precedence the infrastructure for industrial activities in the growth centers and also the transport facilities linking it and the existing metropolises. The public investment designed for this purpose, tax reduction and financing a policy viewpoint for enterprises located at the growth center, will become the driving force to execute the Growth Centers Development Formula. This development formula can be regarded as the method of government leading development in the sense that the government prepared the preconditions to induce the enterprises to growth centers.

As for the industrial growth centers which were held to have important roles to play in the Growth Centers Development Formula, immediately upon the preparation of the Comprehensive National Development Plan in 1962, designation and construction were started.

From 1963 to 1966, large- and medium-scaled industrial growth centers in twenty-one areas were designated and their construction has since been pushed to the present. Of these, fifteen areas are based on the Law for Promoting the Construction of New Industrial Cities (established in 1962) and the remaining six based on the Law for Promoting the Consolidation of Special Areas for

Fig. 2. Distribution of New Industrial Growth Centers

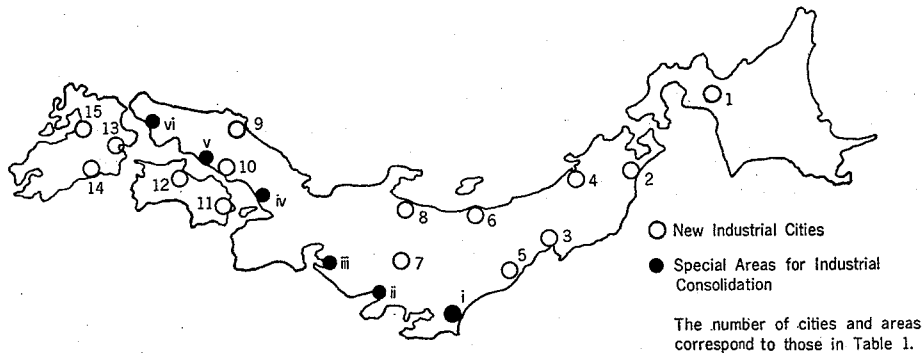


TABLE I
PLANS AND RECORDS OF INDUSTRIAL PRODUCTION IN NEW INDUSTRIAL CITIES

	Industrial Shipment (¥ hundred of millions)				Yearly Average Increase Rate (%)		
	1960	1969	1970 (plan)	1975 (plan)	1960- 69	'60-'70 (plan)	'60-'75 (plan)
1. Dō-ō	1,820	5,800	8,220	10,760	13.7	16.3	12.6
2. Hachinoe	220	1,013	1,080	2,000	18.5	17.2	15.9
3. Sendaiwan	643	2,647	2,740	4,190	17.0	15.6	13.3
4. Akitawan	322	846	1,450	2,510	11.3	16.4	14.6
5. Jōban-Kōriyama	548	2,391	3,770	5,250	17.8	21.1	16.3
6. Niigata	883	2,554	3,110	4,650	12.5	13.4	11.7
7. Matsumoto-Suwa	815	3,498	2,480	3,320	17.6	11.8	9.8
8. Toyama-Takaoka	1,389	4,640	4,210	5,520	14.3	11.7	9.6
9. Nakanoumi	412	1,419	1,380	2,180	14.7	12.8	11.7
10. Okayama	1,892	9,912	9,310	13,650	20.2	17.3	14.1
11. Tokushima	470	1,936	2,750	4,500	17.0	19.3	16.3
12. Toyo	1,166	4,144	3,500	5,084	15.1	11.7	10.3
13. Ōita	420	1,995	3,340	5,250	18.9	23.0	18.3
14. Hyūga-Nobeoka	310	1,034	1,550	2,500	14.3	17.0	15.0
15. Shiranuhi-Ariake-Omuta	1,070	3,207	4,370	6,300	13.0	15.1	12.6
Total	12,380	47,036	53,260	77,660	16.0	15.7	13.2

TABLE II
PLANS AND RECORDS OF INDUSTRIAL PRODUCTION IN SPECIAL AREAS
FOR INDUSTRIAL CONSOLIDATION

	Industrial Production (¥ hundred of millions)				Yearly Average Increase Rate (%)		
	1960	1969	1970 (plan)	1975 (plan)	1960- 69	'60-'70 (plan)	'60-'75 (plan)
1. Kashima	36	481	2,240	7,200	33.4	62.1	42.3
2. Higashi-Surugawan	2,305	8,773	8,070	12,000	16.0	13.3	11.6
3. Higashi-Mikawa	911	3,465	3,340	7,500	16.0	13.9	15.1
4. Harima	3,139	12,400	12,950	20,000	16.5	15.2	13.2
5. Bingo	1,269	5,632	4,310	8,500	18.0	13.0	13.5
6. Shunan	1,788	5,479	5,170	8,740	13.3	11.2	11.2
Total	9,448	36,230	36,080	63,940	16.1	14.4	13.6

Industrial Consolidation (established in 1964).

As to the difference between the two, it may be noted that the former are the industrial growth centers in areas other than the metropolitan area and the latter those which are included in the metropolitan area, or whose development is already under way to some extent. The former are being accorded more preferential treatment by the state than the latter.

The distribution of these industrial growth centers is shown in Figure 2, while the targets of industrial development in the respective cases and the actual progress of industrial development to date are given in Tables I and II. As may be noted from Tables I and II, the development of industrial production at all industrial growth centers is generally favorable, and the increase rate of industrial production in many areas is larger than the planned increase rate.

C. Problems Caused by the Economic Growth in the 1960s

As already noted, regional development in the 1960s was pushed forward on the basis of a way of thinking which evaluates highly the "benefit of agglomeration" in large cities in order to increase the efficiency of capital and maximize the growth rate of economy, and which consequently acknowledges concentration in large cities. Undeniably, the implementation of the Growth Centers Development Formula for narrowing regional inequalities was actually pushed inasmuch as it might not affect the overall efficiency of capital. Naturally enough, while the construction of industrial growth centers was a success, no marked narrowing of regional inequalities was observed.

The actual economic growth in the 1960s progressed at a pace far beyond expectations. Under the 1960 Doubling National Income Plan, the real growth rate of GNP in the decade of the 1960s was estimated at 7.8 per cent. Actually, however, the rate rose to about 11 per cent. Thus, during the decade, against the goal under which the economic scale was to double, the actual figure was nearly three-fold.

The income level rose beyond expectations in tune with the rapid expansion of the scale of economy. Thus, contrary to the estimate of the Doubling National

Income Plan, the number of passenger car owners held increased about four times. The demand for domestic transport rose about 1.3 times for travellers, about 1.8 times for goods and the total demand for energy rose about 1.5 times.

With this economic growth as the background, there was an acute concentration of all resources in the metropolitan area, and the demand for urban services, such as transport, housing, energy, and water supply increased far beyond expectations. Consequently, the supply of the basic urban services in the metropolitan area became incapable of meeting the demand. "The benefit of agglomeration" was impaired, while "the evil of congestion"—the external diseconomy came into existence.

Moreover, it is feared that not only external diseconomy for individual enterprises but also the overall environmental disruption would go on, because various functions have accumulated on the obsolete spatial structure of the metropolises, which have been historically formed during long time.

Thus, economic development and the concentration of resources in the metro-spatial structure and the deterioration of the environment in the metropolitan area and created new problems for regional development which require urgent solution.

III. REGIONAL DEVELOPMENT IN THE 1970s

As already stated, the limitation in the Growth Centers Development Formula for solving basically the problem of regional inequalities was clarified. Also, as environmental disruption in the metropolitan area emerged as a new problem to be solved, it became necessary to reorganize the comprehensive national development from a fresh point of view.

Therefore, the government began to prepare a New Comprehensive National Development Plan in 1967. In May 1969, this plan was decided on at a Cabinet meeting. We shall here present an outline of the plan.

A. *The Goal of the New Comprehensive National Development Plan (1969)*

The New Comprehensive National Development Plan is intended to indicate the course for comprehensive national development for the period up to 1985. Its goal is to create an affluent environment for men through the attainment of the following four objectives:

1. *To make effective use of the whole land*

The fact that the utilization of land is excessively limited to certain areas¹ is considered to be one of the basic causes of regional problems, such as the environmental problem in urban areas, which requires immediate solution. Therefore, on the basis of this view, effective utilization of the whole land, which would expand the possibility of development into the whole territory of Japan,

¹ It is also clear from the fact that, as of 1965, 48 per cent of the population was concentrated in the areas accounting only for 1.2 per cent of the total national land.

is one of the objectives.

2. To push forward the autonomous regional development taking full advantage of the characteristics of the respective areas

This means that development should be pushed on the initiative of the local inhabitants by taking full advantage of the characteristics of the respective areas in natural conditions, historical and cultural conditions, and developmental stage, instead of on a uniform basis.

3. To provide and preserve a safe and comfortable environment both in urban and in rural districts

It was set as one of the basic objectives in human life to secure safe and comfortable environment, thereby preventing economic and social activities from destroying the environment.

4. To ensure harmony between man and Nature for a long period of time

With the recognition that the environmental problem should be considered within the framework of the system embracing both artificial and natural systems, instead of the artificial system alone, harmony between man and Nature on a long range basis is stressed.

B. The Theory of the Network Development Formula

The Network Development Formula is a development formula proposed for the attainment of the goal of the New Comprehensive National Development Plan as an expanded form of the Growth Centers Development Formula. This formula is composed of the three phases: (1) Formation of a national network; (2) Planning and implementation of a large-scale development project; (3) Consolidation of broad livelihood zones.

We shall now give an explanation of each.

1. Formation of the national network

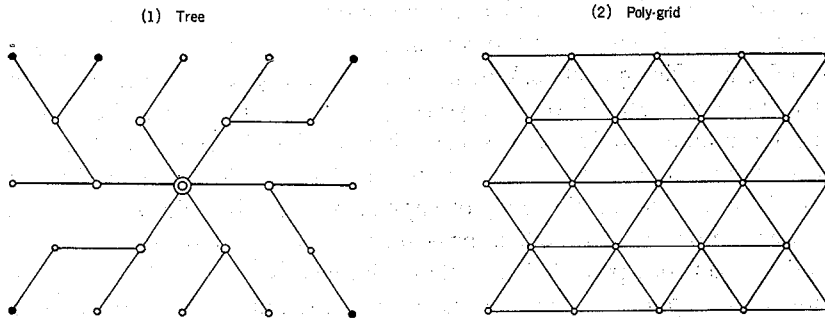
It is necessary, for the effective utilization of the whole land, to provide all areas of the land with development possibilities, and this will be possible only when the following situation has been brought into existence: (1) With regard to basic information, it may be obtained freely in any area of Japan; (2) Persons may move from one place to any other place in a short space of time; (3) It is possible for commodities and energy to be transported between any place in large quantities and in a short space of time.

For the realization of this situation, a new national network will have to be formed, and the network must be provided with a few characteristics different from those of the existing ones.

The first characteristic concerns the pattern of the network, which must not be the conventional tree pattern, but must have a "poly-grid" pattern.

Figure 3 shows the comparison between the network of tree pattern and that of poly-grid pattern. If we indicate cities with nodes, we can distinguish a

Fig. 3. Network Pattern



city linked with all other cities—the first grade city, cities linked with all cities in a sector—the second grade city, and cities linked only with certain cities in a sector—the cities of the third grade, the fourth grade, . . . , as to tree pattern. There exists necessarily a *gradation of cities*, because in tree pattern, the communication between a city and other cities of the same grade have to pass through the cities of higher grade.

The Growth Centers Development Formula corresponded with the forming of a tree pattern network, and large, medium, and small scale of growth centers corresponded with cities of the second, the third, and the fourth grade in this pattern respectively. If the capacity of each link is not very large, and the time needed for communication is not very short, the higher the grade of a city the more will be the convenience of the city, in tree pattern. Since the existing network in Japan is a tree pattern, which has not sufficient capacity and needs considerable time for communication, it is inevitable that resources concentrate in Tokyo and Osaka which are first grade cities, and on the central cities of regions which correspond to second grade cities. On the other hand, we cannot distinguish any gradation among nodes in a poly-grid pattern network (Figure 3).

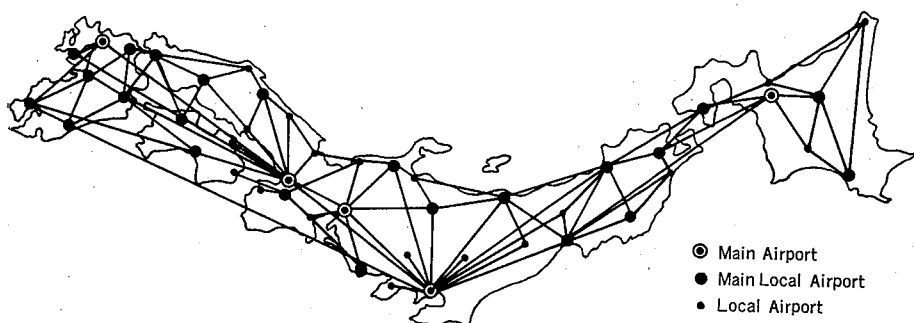
Needless to say, it will be difficult to form such a network in a short period of time, but if we bring it close to this kind of pattern gradually, the accessibility of all places will become gradually balanced and development possibilities will expand all over the land. Furthermore, in the case of the poly-grid pattern, there exist links between two nodes, and therefore it may be said to be an excellent pattern for the safety (reliability) of the network.

The second characteristic is that it is a network employing new technology. Even with a poly-grid type pattern, if the capacity of the link is small, and if much time is required for contact, it cannot be said to fulfill the above-mentioned three conditions. Therefore, it will be necessary for the network to reduce the time for contact and to have sufficiently large capacity. Also, the network for personal contacts must be highly convenient. Furthermore, as the network of a poly-grid type is of a complicated pattern, high control capacity will be necessary if we are to assure efficient contacts. For this reason, for the formation of a new network, we shall have to make use of the latest, advanced technology.

The third characteristic is a more necessary one, which comes with the first and second characteristics, but will need enormous investment. The network of a tree-type was, as pointed out in the explanation of the Growth Centers Development Formula, an efficient network at a stage where capital is a scarce resource. By contrast, the new network of a poly-grid pattern can be said to be a network which can be attained only at a stage when capital is fully available—at a stage when capital is not so scarce. Also, the latter is lower than the former in the immediate productive efficiency of capital, but may be said to be a network attaching more importance to the improvement of safety and comfort.

As a national network provided with these characteristics, the New Comprehensive National Development Plan envisages, for example: (1) Formation of a national data communication network; (2) Formation of an air transport network as shown in Figure 4; (3) Construction of a super-express railway extending about 4,000 km; and (4) Construction of an expressway of about 7,600 km.

Fig. 4. An Air Transport Network (1960)



2. *Planning and implementing of large-scale development projects*

When a new national network is formed, convenience for communication of passenger, freight and information will increase remarkably, not only in growth centers, but also in all parts of the nation.

Thus, the planning and implementing of a large development project making use of development possibilities expanding over the whole land and also taking full advantage of the natural conditions and historical and cultural features of the area become the pillars of the network development formula.

A large development project is a working plan, to create starting conditions employing highly advanced technology. It is composed of industrial development, such as large-scale agriculture, forestry, and fisheries, industry, distribution, tourism, and recreation, and projects for environment conservation such as large-scale nature protection, water sources development, and urban development.

Also, in the planning and implementation of a large-scale development project,

the private sector is expected to perform the leading role.

In regional development, particularly in the construction of industrial growth centers in the 1960s, the government and public sectors took the initiative. In the 1970s, the private sector, which has acquired great capital power and advanced technical capability through the outstanding economic growth in the 1960s, is expected to take the lead in promoting regional development.

The planning and implementation of a large development project by the private sector giving full scope to its initiative and manoeuvrability will, along with the promotion of autonomous development by all areas taking full advantage of their own peculiarities, create new values such as variety and free choice.

3. *Consolidation of broad livelihood zone*

Another pillar of the network development formula is the consolidation of a broad livelihood zone. It was conceived as a new self-governing body matching the widening of the living circle as a result of the popularization of motorization and the provision of the communication network. The roles it performs in the network development formula are mainly the following two:

First is its role as a new agent of regional development. In the network development formula, it is necessary to select, plan, and carry out a creative, large-scale development project taking full advantage of the special features of the respective areas. This may be possible only by the following: (1) Each area should be able to make a creative and characteristic proposal in regard to the development project; and (2) A system should be formed under which creative proposals may be concentrated and realized through research and planning.

It would be extremely difficult for the existing self-governing bodies, particularly many local cities, towns, and villages to build such a foundation or system, and thus there is a need for the new self-governing body to assume charge of future regional development—a broad livelihood zone.

Secondly, it has to perform the role of meeting the demands regarding environmental development.

The major concern and interest of the people who will have a high level of income, much time at their disposal and massive information will be focussed on the outstanding improvement of both the physical and spiritual environment surrounding human life. And the demand for a good environment is expected to rise generally, so much so that there may not be any difference in level between large cities, provincial towns, and rural districts.

In day-to-day life, there will not only be demands for comfortable social facilities (for example, open space recreation centers and various kinds of cultural facilities), but there will also be ever greater needs for environmental development such as advanced medical service smooth disposal system of wastes and improvement of disaster prevention.

In order to meet such needs for general environmental development, it is necessary to set the objects of supply for units of demand of more than a fixed quantity. In other words, it will be difficult to ensure the improvement of the

overall environmental standard for each small municipality, while it will be necessary to proceed with environmental development for each demand unit of a fixed quantity (for example, more than 200,000–300,000 population). Also, in order to proceed with the overall development of the environment, high research and planning ability and the ability to raise sufficient funds will be essential. From this point of view, the need of a new self-governing body—a broad livelihood zone is stressed afresh.

For the formation of a broad livelihood zone, the provision of sub-networks within the zone and the consolidation of central cities in the zone will be particularly important problems. The provision of sub-networks will not only enable the smooth contacts between all communities within the broad livelihood zone, but will also enable contacts with all areas over the land by linking them with the national trunk line network. The central cities in the zone perform the role of providing advanced and varied urban services to all areas within the zone, and each of these may be taken as a sort of growth center if the continuity of the Growth Centers Development Formula is considered. Under the New Comprehensive Development Plan, it is envisaged to reorganize about 3,300 existing municipalities to 100–200 broad livelihood zones.

IV. PROBLEMS OF REGIONAL DEVELOPMENT POST-NEW COMPREHENSIVE NATIONAL DEVELOPMENT

There exists no methodology which can always be applicable, in any area or in any period, in the preparation of regional development plans and regional development policies. The goals of regional development vary according to local or national natural conditions, historical and cultural traits, and developmental stages, and, therefore, the optimum method for the attainment of goals can also vary.

In Japan, regional development adapted to the period of the postwar recovery in the 1950s and also to the period of high-rate growth of economy in the 1960s was adopted. Also, the New Comprehensive National Development Plan (1969) was determined as indicating the general course of regional development after the 1970s.

However, as regards the future course of regional development, there are problems requiring further study. The first is the problem of the correlation between the rapid expansion of international exchange and regional development. The pattern and scale of the international exchange of capital, labor, technology, and information are rapidly exercising stronger effects on regional development, and thus it is becoming increasingly necessary to inquire into this problem.

The second problem is a more thorough elucidation of the problem of environment. For the prevention of the destruction of the environment embracing both the natural and artificial systems and for the conservation of rich environment, it is necessary to create a new comprehensive system of environment. For this purpose, there is left much room for our study. The huge energy of the further developing industrial society is inviting the fear of environmental destruction

on a national or global scale as well as on a local scale. Therefore, it has become necessary to proceed with the international exchange of information on researches regarding this problem.

The concepts and methodology of the regional development in Japan in future will be sought for with their usefulness in the solution of these two problems as the objective.