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## Regional Development in Japan



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### ABSTRACT

In present world, it is very difficult to find a unique country in terms of culture, history, industrial, transportation and foreign policy and urban planning laws& regulations and a public-private partnership such as Japan. In this paper, a history outlook on regional planning in Japan from Meiji Era till present days will be taken in regards to the militarization, industrial&foreign policy, urban planning, government structure, transportation and social issues that caused socio-economic disparities between the regions. Outcomes of this analysis can help us to understand the reasons behind current regional disparities in Japan as well as conditions that caused a formation of rail-integrated communities.

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## INTRODUCTION:

Japan is the unique country in terms of its culture, history industrial and transportation and foreign policy as well as its urban planning laws regulations and public-private relationship. From the point of view of a regular urban planner, the most unique discovery made in Japan is the Rail Integrated Community (RIC), which has been created by private railway companies along with the government's oppression of automobile. **The RIC** is characterized as the high density, safe, mixed-use, pedestrian-friendly developments around railway stations that act as community hubs, served by frequent, all-day, rail rapid transit and accessed primarily on foot, by bicycle, or by public transit.

In this chapter a cursory view on the regional planning in Japan from Meiji Era to present history of Japan will be described in regards to the militarization, industrial and foreign policy, urban planning, government structure, transportation and social issues that caused socio-economic disparities between the regions that still remain in present Japan will be stated and explained along with their implications on the regional development in general. Moreover, the impact of regional railways on regional development will be examined to understand how they influenced socio-economic disparities between Major Metropolitan Areas and other regions. By understanding impacts of railways and urban planning laws and regulations, industrial policy on regional development along with other factors it would be possible to understand the reason regarding the spatial distribution of rail integrated communities, reasons for their creation by private companies instead of a local government. Government policy's impact in regards to spending as a reason for the poor social structure in regions and degrading **living conditions** will allow understanding the importance of private railway companies as successful real-estate developers along railway lines. Thus, the reasons behind of the present regional disparities as well as conditions that caused RICs formation will be evident.

### 1. 1 Regional planning in Japan before Second World War

#### *1.1.1 Industrialization of Japan during Meiji Period (1868-1912)*

*The most important question of this period is whether government, by coordinating military policy, was a major contributor to technological advance or industrialization, and being responsible for decline of agrarian sector, lack of social policies and destroying Samurai as class. Another major question is whether military stimulation of several sectors of the*

*economy caused a structural gap in technical advance, productivity, and wages between prefectures and municipal regions around 1905?*

An important period of Japan rapid industrialization and militarization starts from 1868 when Meiji constitution was adopted. However, the Tokugawa Shogunate contribution shouldn't be forgotten simply because Meiji advanced reforms could be archived without fundamental reforms implemented by Tokugawa that can be organized in three major categories: *high level of economic development, education-related achievements as well as common culture and social background of the nation*[1]. Negative effects of Meiji restoration can be shortened to five major points: **loss of privileges and rights of Samurais, a downfall of agrarian sector, lack of social-oriented policies, the harm of industrial sector** caused by one-sided militarization policy **and the forfeiture of many aspects of traditional Japanese culture.**

Before Second World War only military-oriented policies of government can be taken into account simply because socially oriented ones have not existed in any of government documents. In other words, military power was the most important goal for government to preserve independent status in order to protect itself from the danger of been colonized by western countries. Japan-China War (1894- 95), Russo-Japanese War (1904 – 1905), as well **as Second World War had proved** government point of view in regard to this matter.

Meiji oligarchs pursued a policy of "rich country&strong army" to catch up with Western countries to gain national strength and wealth. **In reality, mainly, strong army was** imposed by government forgetting the meaning of "rich country". For example, automobile manufactures were pressed by the government to procure trucks for army needs and automobile production until the end of war were stopped. It's important to mention the impact of the military on national economic growth at that time.

During Meiji Period an overestimated role of the military by Meiji oligarchs **caused the most part of government spending be concentrated** on warfare instead of relying on a more **pacifc foreign policy** and lower military expenditure. That **caused the one of a** major loss to the economy rather than was beneficial to the development of the nation. **The government spending for** public works and transportation expenditures was not as large as the allocation for warfare[2]. Because **of the growth** of military demand problems like inflation and higher taxation was emerged which caused social disparities as well as income disparities between

regions. On the other hand, productivity growth of some sectors: automobile manufacturing, steel, and shipbuilding were greatly stimulated by the **military; therefore, influenced total productivity level**. Military incentives, technical knowledge, and production coordination were the methods, utilized by the military in order to facilitate **both the volume and quality** of production in these sectors, **or industries throughout the country**. For example, in 1897, a European-made, steam-driven car was the first car imported to Japan. The military was the main actor, **which introduced technology** from West and encouraging diffusion of companies through lucrative contracts, subsidies, and technological assistance. Military arsenals **and naval shipyards** produced also non-military designated production: **mines-oriented machines** like boilers and steam engines, textile mills, railroads, and **other industries**[2]. The arsenals, in terms of skilled workers and machines, were **greatly superior** to other government-owned plants, as well as privately-managed textile plants. Origin of **steel** and domestic automobile industries lies in the **government's response to requirements** of the military. Major issues of that period **were a dangerous presence of foreign capital, a competition among domestic firms**, the problem of foreign exchange, **and the excessive need of military** vehicles result in close interaction of government and producers. The government also had played an important role in histories of those industries.

The most remarkable example could **be a brief** on automobile manufacturing, which was among mentioned above three industries subsidized by the military: **Despite the third-ranked assembly automobiles** in Japan in 1902 and subsidized the production of military trucks during First World War passenger car production **was negligible till the early 1920s**. In 1897, a European-made, steam-driven car was the first car imported to Japan (Odagiri and Goto 1993). Examples of the earliest Japanese car include the **'Yamaba'** steam car (1904) and the **'Takuri-go'** with a gasoline engine (1907)[3]. Many pioneers disappeared after producing one or two prototypes. Until 1911 (last year of Meiji Period), there were only **43 automobiles produced** domestically. On the other hand, the number of imports in the same period was over 600 [4].

To sum all up, **the stimulation by military of** some national-priority industries has greatly stretched those industries make the ability to compete with foreign market and pursue high profit but **left the other industries** especially the less donated agrarian and social sector rely on government spending, **the cause of income disparities** between regions, **the**

**desappearance of the agrarian sector, and the reverse to the underdeveloped social infrastructure of Pre-Tokugawa Period.**

Because of the most government spending on militarization, difficult of budget **in relation to** urban and infrastructure development must be covered to archive the goal of slogan 'rich country' [3] and agricultural sector was their target. On farmers were imposed land taxes and all their sons were taken to the army **by military**. The second point is evident since **a mandatory military service was based on the** philosophy discussed above. And, the government has **prepared a substitute** for "sons" giving their land rights to others (who have ties to land even if it is samurai). Then, the third point is **the emergence of private property** in Japan, **and a loss of the rights** for farmers. Uniformed land rent tax 3% was forcefully imposed on farmers. They have been required to pay it in form of money instead of rice crops [5], **ignoring an actual natural resources and the productivity** level of each **prefecture with an excessive attention to the harvest potential** of the land. **The rigid undeveloped cultivation land** was required to meet **the similar value of tax**. Thus, farmers lose far more of the capital **than the land** could produce. And of course, land ownership dictated abolition **of rights for farmers** as only official owner-landlord could participate in tax discussion[5]. The landlord could sell land to farmers to another government -approved owner without any **voting; therefore, many** middle-class farmers because of new reform have become no more than resident of landlord's district on their former land[5]. **Following the revolts triggered by this rigid policy, the government was required to lower tax to 2,5% in 1877.** However, the land ownership **remained, and the second step** to develop a base for financial disparities **in the regional level** was archived, as the low-income class of farmers without rights emerged across Japan.

The government (non-military official's) spending was directed to railway lines, roads, bridges, telegraph and telephone systems, 53 consumer industries (**sugar**, glass, textiles, cement, chemicals, and other). **Following the high pressure** on government **imposed by military expenditures** in 1880 most of these industries became **a part** of the private sector, thereafter encouraging such activity through subsidies and other incentives[1]. Some of the Samurai (now business owners) and merchants (previous Samurais), **who** built these industries established major corporate conglomerates called *zaibatsu*, **that control device of the most part of Japan's modern** industrial sector. Another sector except mining, shipping and automobile industry (financed by the army) was left on their own for many years[4].

**In other words, like in the neoclassical approach can be concluded that geographical mobility was an issue, and commoners with the more cheap house in one region and existing family ties were often the determining factor among the commoners. Secondly, Hokkaido region wasn't able to produce anything except agriculture, steam-driven engines, and to adopt a new technology from the other prefectures. In addition, the housing sector, healthcare, and the other attributes of social welfare were removed from government policies; therefore, commoners, some of Samurais in cities as well as farmer and peasants in villages had been forced to move to the other regions. So, the social, economic and even technological disparity between regions were evident during Meiji Period.**

#### 1.1.2 Industrial Expansion in Taishō period (1912-1926)

In this period despite peaceful Japan, foreign policy industrialization and militarization continued. During this time open foreign policy together with industrial weakness **resulted in the attack on Japanese industrial market in Japan, and USA companies have weakened Japanese manufacturers. In addition, in 1919 was developed a first comprehensive urban law that reinforced the housing sector, and the social welfare.** Urban environmental degradation in Tokyo, Osaka, and Nagoya along with emerged slums were a problem that needed to be solved **by the social insurance, health policy and the smart city planing**[6].

Thus, we can emphasize the Taisho Period as a time for industrialization, militarization **and social welfare policies.** As the **military by subsidizing** priority sectors have increased their productivity level and **pursued more profits** in the domestic market. Urban planning system **was underdeveloped because of the government** spending and, especially, structure. All points will be explained in detail below.

**The prior start was made by continuing a trend of militarization advances.** A policy of military continued without changing till the 1918 year when the 'second government' aside from emperor was established. **This military government have been focused, mostly, on the automobile sector.** This sector was seen as one of the major priority sectors till the Second World War **and as the cause of the subsequent** widening gap between the regions. The Military Automobile Subsidizing Law was established in 1918 and removed in 1937 after the Automobile Manufacturing Enterprise Law in 1936. Under this law, the army provided a subsidy **for manufacturers** to produce cars for civilians before Second World War, with the ultimate right on vehicles during wartime. Only manufacturers that annual



production volume was more than 100 cars **annually, and utilized** only domestic auto parts, in cope with satisfying government production standard were eligible for the military subsidy. The subsidies amounted to ¥3,000 for manufacturers and ¥1,000 to owners[9]. Owners additionally were able to receive a maintenance subsidy of ¥400 per year during 5 years. The law had many flaws because the total volume of expected subsidized was 198 units from 1918 to 1921. However, in reality, were subsidized only 56 units. the main reason was the **foreign cars had low prices and quality; therefore,** the foreign market has been taking control of the domestic automobile industry. In the 1924 year manufacturers such as Hakuyosha, Mitata Seisakujyo, and Orient Jidousha Seizou without military subsidy **have been forced** to close due to increased competition with the foreign producer. And, by the end of 1924 was formed Japan Ford corporation in Yokohama. Second big corporation- Japan General Motors was opened the main branch in Osaka in 1925[7].

Industrial growth in that time was even higher than in Meiji era. The main reason was the low export tariff for foreign producers at this time and the unlimited amount of vehicles produced by branches of foreign companies. **Tokyo's great earthquake of September 1923 has damaged railway and tramcar systems.** The domestic industry hasn't been able to provide with-addition substitute[9]; **therefore,** 1000 buses were shipped from Ford corporation (U.S.) The total number of vehicles in Japan in 1923 was 15731. **Following the rapid growth amounted** to 24333 in 1924.

Thus, from militarization and industrialization in Taisho Period can be concluded that pre-war 'commoners' worked in in small automobile companies were thrown away to **became an urban poor and to survive** in condition of free-urban market to search job not only breaking ties with old neighborhood and family but **also to change** specialization to another sector [8]. The second point is the trend on automobile coming in 1920, when it became very popular **with the urban middle-incomeclass was useful in suburbanization process to look for a house in the suburbs** that was more liable then 'urban core of poor' and therefore encouraged this new movement.[8] Just like in the USA second clusters start to develop effectively with the time. Because of the excessive industrial development, a rise of urban population and environmental degradation of urban core areas comprehensive **urban planning were established** through the country. **The environmental degradation** in central areas of Nagoya, Tokyo, and Osaka have to lead to unsanitary conditions and **to the spread** of contagious decease among poor workers in that areas. So, a spread of urban slums was

feared by city officials as a place of **social conflict's emergence**[8]. Central **government reacted** to this problem by infrastructure spending on railways and **major roads** around the country as well as the ways to increase country's GDP. Particularly, **GDP has been doubled** between 1910 and 1930 years. Real output in mining and manufacturing and amount of employees in heavy and chemical were increased by four times[10].

And, centers of urban poor in those cities were ignored by central government, which didn't spend a penny for social infrastructure in those three cities: parks, sewer system, and inner-city roads. Thus, **the quality of life hasn't been a concern of Taishoo government**. During Meiji Era was developed a highly centralized system of government and the local authorities, which had a little legal authority and financial independence **in the Meiji Period, and had totally** lost it by 1920. For instance, Number of government officials have grown from 52,200 in 1907 to 308,200 in 1920. Government spending from 289 million yen in 1903 increased to 600.000 by the 1913 year. **The second point was related** to declining real incomes of factory workers of middle-income class because the inflation period at a time of the First World War **has resulted in** this tendency during years of economic growth, and the **salaries had reached the prewar level only by end of 1919**. Amount of factory workers was doubled by two in the period of industrial growth between 1914-1919 **despite of low incomes**. Large industrial districts called 'city slums' were developed[6]. The reason behind it was land ownership of the emerged new middle class of civil servants, American workers professionals, who owned suburban housing. There was concentration of such land ownership in major cities: 77% of housing in Tokyo, 90% in Osaka. Many small industrial firms of that work in large cities were required **to exit the market due to loss to the foreign market** in technological competition.

Farmers became even more poor and disadvantaged than in Meiji Era. They were required to sell the crop to pay for increased rent and taxes. **And, furthermore**, to buy rice back later at inflated prices. **In addition, their** new formed rural tenant associations were suppressed together with newly formed labor unions. Nonprofit organizations concerning social welfare **have been established** throughout the Japan[6].

It can be concluded that in Taishoo Period was the time when income disparities on regional level became even more evident together with the local government became totally submissive to central power. Government ultimately ignored local infrastructure and social facilities to the point that center slums emerged. Government financed regional level projects

and further industrial **development** to increase GDP. Despite of **the existence of the new class of poor that was shaped from middle income workers. In spite of the lack of local housing policies and privatization of public housing**, diminishing amount of small enterprises **due to the loss in competition** with foreign producer (especially automobile industry workers) and hard conditions to get military subsidy that can be satisfied on by big domestic companies, **there was** no action from official to solve this problem. **In addition, the gradual increase** in rent cost price applied by landlords and amount of tax resulted in shifting them to the same category of factory workers. **Consequently, urban cores** of most populous cities became a territories for low-income workers as well as territories beyond suburbs became agricultural lands of poor tenant farmer class. **Suburbs of Tokyo, Osaka, and Nagoya** became of new middle-income class of civil servants, american workers, and professionals. In suburbs **has also concentrated** foreign upper-income class industry owners - destroyers of domestic industry and **the one of causative factors of income disparities** on the **regional level. Income disparities**, as well as top-down governmental structure, was far away from being solved in this period of time.

### 1.1.3 Militarization, industrialization favor policies and weak local institutional reforms in Early Showa Era (1927-1950)

The early Showa era **had incorporated an important achievement** in industrialization **before the Second World War, which resulted in shifting foreign producer (mining,shipbuilding, steel and, especially,automobile sector) completely from Japanese market. This action allowed** to increase the income of factory workers, related to those key industries, aswell as to render automobiles as well as ship mode of transportation **more popular and more affordable even for degraded middle class of workers.**

The beginning of Showa is was the time when two strongest automobile companies Ford and General Motors emerged. Ford corporation in Yokohama in 1924, General Motors in 1925. Low tariffs were utilized by foreign factories in Japan in their strategy to invade domestic market[11]. Till 1930 Ford and General Motors controlled 85% of Japanese market production. As a result of mass production by Ford and General Motors Japanese small automobile **manufacturers have completely disappeared from the market.** Only manufacturers which received military subsidies (according to Rationalization Council for the Automobile Industry Act in 1931, manufacturers that produced more than 1,000 vehicles per year were subject to military's subsidies) were able to survive in domestic market[11].

Protection from the foreign capital was evident from 1930 **when the government has embarked in the automobile business** with the establishment of national automobile development policy. International monetary crisis and trade dislocation in the late 1920s and early 1930s **has imposed the dependence on the Japanese economy. Because of this import-substitute manufacturing industries with domestic automobile assembly and some parts of industry to reduce the net imports per automobile were initiated.** As the implication, military production requirements gradually grow. The official development of a domestic automobile industry in Japan started from mid-1930 when two major companies - Toyota (1935) and Nissan (1933) were founded. Toyota, Nissan and the newcomer Isuzu in the beginning of 1937 had 80% of entire domestic market share. Specifically, because of a large focus on production of truck units for army supply, in the first month of 1938 passengers car output have reached only 2,000 units.

In the 1936 year government issued Automobile Manufacturing Enterprise Law (Jidosha Seizou Jigyo Hou) aimed at closing foreign production within the domestic market. For foreign producers were restricted to annual production maximum. In addition, import tax rates were raised. Namely, the government issued licenses to Ford and General Motors, and after that annual production volume by those companies were restricted to 12,360 units and 9,470 units respectively. In 1937 with provisional law eliminated import of strategic goods. Namely, tariff rate aimed to fully assembled cars was raised to 70 %.[11]

**Followed by the incident between China and Japan (1937),** the trucks produced by Japanese manufacturers for army needs were accounted for 60 % of domestic production between 1937 to 1944. Substantial depreciation of the yen after the revision of foreign exchange law coupled with complete exchange control forced Ford and General Motors to leave completely the Japanese automobile market by 1939.

GDP due to government incentives has grown to 6% by the 1936 year. By the late 1920s, 23 percent of GDP was composed of manufacture and mining, and 21 percent of GDP was **an agriculture sector**. In the 1930s, despite the Great Depression GDP was expanding by 5 percent of GDP every year. Manufacturing and mining composed 30 percent of GDP, and agricultural sector only 15%. Remaining industrial growth was related to expanding military power.

World War II wiped out many of the **benefits** Japan had made since 1868. About 40 percent of the nation's industrial plants and infrastructure were destroyed, and production reverted to levels of about fifteen years earlier. The people were shocked by the devastation and swung into action. Income per capita was the highest in East Asia amounted to 36% of USA income level, compared to China with 10, 5% of USA income standart[12]. Furthermore, if we insert our estimate of 1934-35 Japanese per capita income was lower than almost all Western European countries (even including Spain, Italy, and Greece) and equal USSR of that time. For example, income in mid-1930 was 1,760 dollars (in 1990 prices) -in comparison with the 1880s, when per capita income of about 600 dollars (in 1990 prices)[12]. In that time in Japan existed a large pool of skilled workers most of which were concentrated in core industries, and, especially, in the automobile industry. Income gaps **are evident due to Japan** three classes emerged during that time: strong entrepreneurial class, bureaucrats (government officials) and low-income factory workers[13].

The focus of highly centralized government was on very limited spending in local public facilities and housing. Ownership fragmentation imposed on farmers resulted in land losing its natural productivity and raising the number of 'farmer-tenants'. And, therefore the urban planning system **has always been influenced** by private development. Local government's urban plans consisted of improvement of roads, water, and sewer systems, as well as parks, playing fields, public markets and squares in cities throughout the country. According to this system, landowners could build within city limits road as long as buildings located in the area were no more than two stories and could be easily removed (wooden)[14]. And after it was built, the land and all building located on it could be sold to other landowner or anyone except low-income workers. As local governments hadn't any independency were required to submit all public facilities plans to be approved local committees of Home Ministry in order to receive the subsidy (partial funding) for facilities out of a local budget, or to buy land for public facilities. **Simultaneously**, the legal process of local planning **designation was a tool Home** Ministry to perform control over implementation. Thus, the local government **has continued** to be a tool of central government. Furthermore, urban plans were relatively weak allowing the different mixture of uses (supermarkets, offices and even factories found be built in residential areas). Only, large factories and theaters were prohibited in the industrial zone. In industrial zones **the contraction** of housing was allowed. Thus, poor-worker's industrial districts consisting of the mix of heavy industry (for example containing chemicals) and unsanitary housing continued to spread in big cities[14].

In this period the focus of central government was to continue the limited spending in local public facilities and housing (as in Taishoo Era) and successfully implement new legislation to force all foreign producers related to the core industry **to exit the domestic market**. This period has contributed to the development of domestic producer of core industries (shipbuilding, mining, steel and automobile industry). Namely, by the 1939 year increased taxes and imposed limits on production volume by a central government and together with depression of yen forced American producers, especially big automobile manufacturers like Ford and General Motors to exit a domestic market. **This policy opened the road** to domestic producers in core industries by providing subsidies to big producers, which flourished in Japanese market[15]. **Moreover, this policy allowed** to increase the income of factory workers related to those key industries as well as make automobiles and ship travel more widespread and more affordable even for degrading an old middle class of workers. However, small firms were not able to survive without military subsidies[12]. And the middle-class workers of these firms were entering class of urban poor of centers and lived in industrial districts of mixed heavy industry and unsanitary housing. The second reason for **the development of those industrial districts was the total submission of local authorities to a central government**, which were financially and jurisdictionally **dependent to a central government**. Those plans were required to be approved by the central government to receive funding, or to buy land for construction of civil facilities[14]. So, due to very limited central government fund remained after military-oriented and regional infrastructure spending only a very little amount of plans for local public **facilities, which local government can partly fund themselves ( therefore not large in scale plan for facilities like streets, parks or sewers ) and which have to carefully prepared in mediation between landowners plans and central government, were the ones with the most of local a territory for urban facilities remained in the paper only**[14]. Thus, most of the local officials that proposed solutions for industrial districts in centers of Tokyo, Osaka, and Nagoya had their projects rejected by the central government. And, therefore, such district not only remained from Taishoo Era but expanded throughout the major cities following the collapse of almost all small producers of coal, steel, ships, and automobiles in all regions of Japan in the 1930s[15].

Landowners have built roads even in subcenters as the wooden two-stored housing of factory workers, **which according to the laws** could be legally destroyed after road was, and then sold to another landowner with built supermarkets and offices. **Thus, some remains of middle class workers wooden housing was presented in industrial zone without long-**

**term guarantee, or poor tenants that emerged from last remains of middle class factory workers**[14]. Thus, it was successfully contributed income and social disparities between regions. Last remains of farmers after fragmentation of their land became farmer tenants, which moved to central cities to expand industrial districts of urban poor and influence income disparities between the city (poor), suburbia (rich), and region (middle class). **Landowners lost profits due to fragmentation of land, and sold their lands to the central government. Government, then,** provided those land to private companies in a core industry or build regional infrastructure if it had a strategic location. In the first case, industrial districts (better planned than in a city) emerged and new middle-income workers settled there. **In the second case, consumer sector, or entrepreneur class migrated from the cities, expanded by building supermarkets and shops.** Thus, middle-income zones of consumer and industrial sector in the countryside were developed along with the loss of the agricultural area. **Central government's bureaucratic policy, unqualified local government and developing private sector were the triggers that stimulated gap in income to become more evident than in Early Showa Era.**

## 1.2. Regional planning in Japan after the Second World War

### 1.2.1 Industrialization and local development innovation in time of Japanese miracle (1950-1989)

#### 1.2.1.1 Period of economic recovery- industrialization recovery (1950-1955)

Japan had recovered own economy without foreign capital. By establishing **the Ministry of International Trade and Industry (MITI)** was initiated Japanese industrial development overseas[16]. **The government ruined remains** of foreign businesses related to core industry in the country. In other words, in this period the USA became dependent on export Japanese automobiles and electronics. Military spending was limited according to San Francisco Treaty. Thus, an era of spending citizen's taxes on militarization **had finally been concluded. And, an era of economic development entered on stage.** This was also the era **of Japan as world exporter.** The Japanese economy was growing by 10% each year in order to reach economic structure and income level as it was in Early Showa Era. For example, GDP had grown by 11% in 1952. Protection from foreign import, **branches** of foreign companies in a domestic market, foreign direct investment (FDI) and government's credit for **domestic firms** related to core industry **formed** new foreign policy. This was a period of free

trade between USA and Japan, following the growth of strong economies together to fight with Japan's commercial trade deficit exceeded 750 million dollars **in 1952 and the Treaty of San Francisco later on**[16].

It should be noted that the United States has facilitated Japan's entrance into the General Agreement on Tariffs and Trade, **and created the free** market zone, which opened American market to Japanese production and permitted Japanese restrictions against imports and investments. Then, **Japan penetrated into** the American market, dilemma, as private companies were done the same as Ford and General Motors in the 1920s. USA has implemented domestic protection law for light industries: textiles and silverware. With validation of Japanese Voluntary Export Restriction 221(VER) program accepted because of easy penetration of USA market. The United States accepted the Japanese central government's intervention in its own economy and the formulation of Japanese semi-cartels (collections of businesses that act as a single producer to influence prices for light industry goods by controlling production, and export **transcations**)[17].

The economic recovery of Japan to the postwar level was a result of smart USA-Japan relations and the Japanese central government's minimal intervention into the areas of the Japanese economy, in which government was qualified to intervene. In postwar time central government turned the focus from labor-intensive, light industries like clothes, shoes toward capital-intensive industries, including heavy-chemical ones. The Ministry of International Trade and Industry, as well as central government, intervened in these core industries in order to promote high-speed economic growth in the 1950s. In 1951, the core industries list has changed as the development priority for central government has changed: to the steel, shipbuilding, and coal was added electric power and maritime transportation excluded automobile manufacturing that has already been a part of the private market with a very strong output. In addition, to this list were added electrical machinery, petrochemical, and synthesized fiber. Heavy industries were a part of the trigger for recover economy during this period. However, until end of 1955 30% of export still consisted of fiber and textiles. Only 14% were related to heavy industry[18].

Companies emerged as strong conglomerates with a monopoly on businesses in each sector within Japan. Japanese government intervened in the economy. The first purpose was to increase the volume of exports. Central government established the Export-Import Bank in 1950 and the Japan Export Trade Research Organization in 1951, to foster, or **to**



**expand** Japanese trade. The government focus was **on economic growth** and trade expansion as well as recovery of military and social welfare[19].

Aside from the central government and USA the third ranked player in Japanese economic recovery was the **Ministry** of International Trade and Industry (MITI), which a third party that coordinated international trade policy with other governmental **agencies (more importantly, between government and manufacturer )**, and have been directed manufacturers to the successful growth and expansion in favor of industrial base according principles of innovation, **knowledge and learning( the networks of close cooperation of government, business, and labor )**[18]. Namely, according to innovation, knowledge, and learning, to develop innovation in each region from linear to interactive model, a continuous interaction among government, large private corporations located in each region and factory workers to balance the innovation process. **This model wasn't an isolated model like a linear one due to the importance** of external knowledge sources, the amount of information that each cluster , receive from the environment in with it operates. Thus, interactive model oriented on one-year interaction between users (factory workers) and producers (government and private companies) of knowledge through spatial co-location. Tokyo, Osaka, Nagoya, Kyoto and Fukuoka due to more strong market and companies and government as well as the technological base. Thus, **they had the largest share in** producing and operating or sailing of innovations to less developed regions. **The MITI was an adviser in government-business relationship in this network of knowledge exchange. The MITI administrative guidance (directives, requests, warnings, suggestions, and encouragement) enterprises allowed them to quickly reorganize, survive and strive, and to acquire a monopoly in the region, where each enterprise located not to mention the control of the export base in USA and import of high tech from there.** The tradition to move away from the center of urban poor to the suburban developments continued even at that time. The economic boom after the war fueled rapid development, which generally lacked coherence and logical order **and advanced the mixed of land uses**. Large public apartment complexes, or danchi, were built to meet the rapidly growing demand for housing in the suburb. Income disparities become also **shifted** to the postwar level. However, urban planning, which was as poor as it was in the prewar period, resulted in mixed land uses even in suburbs to benefit landowners. **The recovery of Japan, including the of income gaps to the prewar level domestic industrial policy, was mainly due establishing of networks of the according to the interactive model, in which MITI provided administrative guidance to reorganize**

**public enterprises and private railway companies. This factor caused the shift of a middle-income population from suburbs to the subcentral areas and a dispersion of the population to the suburbs.**

*1.2.1.2 Rapid economic growth- high the local (urban) and regional reforms and comprehensive urban the effective structural reforms in diminishing disparities between regions (1955-1973)*

Until **the beginning of 60s the population have lived** in rural areas, but after was a migration for the job and higher education purposes from a rural area and provincial small towns into Tokyo, Osaka and Nagoya metropolitan areas. **During the 1960-70 in suburban zone, many housing estates have been developed.** Those people occupied dormitories and wooden apartment houses within city limits than public housing in the center for poor, and small suburban family **houses later on. This conquest caused the shift of population from rural areas and causing rapid development of those metropolitan areas**[20]. **And in the similar way as education sector innovations networks have expanded throughout regional innovation system in major metropolitan areas. And, this process contributed to the rapid shift of urban poor** from central industrial districts to suburban small towns, where due to the weak planning system and sub-division control with the degraded infrastructure allowed them to access land in **low prices, especially, for low-upper income industry workers.** The second reason that in 1968, due to revision by City Planning Law of growth boundary **system, namely the control** of the expansion of urban area to protect remaining agriculture land and farmer rights, more precise zoning **system, resulted** in revitalization of residential developments in city center from mix industry and housing to **middle class condominium settlements** and to ensure the minimum level of infrastructure for those low-upper income industrial workers, which moved to suburbs[20].

At the same time should be noted the decentralization of population within the Tokyo Metropolitan Area **that** resulted in the development of second growth poles, or designated by government subcenters, in order to remove excessive development from a center and growing physical capital by shifted development way from old CBD to subcenters. **The center** of Tokyo of that time was characterized by **the highest in country land values, the high congestion" volume in the center, the high density** of transportation **infrastructure. Moreover, the subsequent** development in many central areas was limited by infrastructure shortfalls. The priority of government was to disperse economic development from the 'over-

congested' core to the suburban regions. Instead, planners have increasingly focused on encouraging a polycentric metropolitan structure[21]. **Tokyo have been transformed** into a city with a good balance between work and living. **The dispersal of functions throughout the Tokyo Metropolitan Region has allowed to change structure of Tokyo from overly concentrated center to a multipolar structure.** Thus, emerged in 1960s concept of satellite cities distant the metropolitan core along with restricting development in the central areas, and has settled since the early 1970s into a pattern of promoting the development of a wide range of subcentres and satellites throughout the metropolitan region. The other goal was to reduce the distance between home and work by promoting the creation of employment centers outside of **core, namely**, Yamanote ring subcentres, the Tama area 'cores', the 'business cores' of Omiya-Urawa, Kawasaki-Yokohama, and Chiba, and other principal cities. The fragmentation of local government units has been an important factor limiting the effectiveness **of development of the Tokyometropolitan area.** Thus, subcenters that can compete with the metropolitan CBD have been formed. Tokyo has lost around 72 108 residents, the suburban municipalities have received around of 29 512, while subcentres in total have gained around of 72 804 residents. Thus, revitalized space in the center, which consisted of retail and offices have increased employment level along with losing population, which migrated to suburbs. In other parts of Japan First, the land use planning system was '**weak**', **because even in Urbanization Control Areas was allowed large-scale developments** of over 20 hectares, and for all public projects such as roads, police stations, and schools; **therefore, those regulations were a reason of land and local government fragmentations** with a dispersed pattern of public and private investments throughout the country[21]. Dispersed population and employment growth in the rural areas outside of metropolitan region formed a more car-dependent metropolitan area where the upper middle-income class from the **city has relocated.** So, a center from industrial district became center of employment activity for upper-middle income and middle-income classes while suburbia due to private railway companies incentives became mix-used land developments for middle-income class residence, and outer rural areas formed car-dependent communities for upper-middle income residents. Poor income **class amounted to much lesser value** due to job availability in **subcenters; therefore,** they have been dispersed around boundaries secondary poles. In other words, government smart revitalization project has been removed the pressure of congestion, infrastructure and poor from the core, and improved basic sector base, that in other hand allowed to increase **the middle class share, and to reduce economic and social gaps** between the regions.

Strategic heavy industries such as chemical have taken loans from government banks to expand their influences in the domestic market. MITI at the same time **has continued** plan oriented market economy system'[22]. By the late 1960s, **the export was** 9.6 of total GNP, compared to Canada of 19.8 %. In the period from 1955 to 1973 MITI have pursued the policy of lowering dependency on export through maintaining GNP on constant prices (exports 11.3% of GNP, imports-10.2 %), **and by setting high tariffs** on foreign producer related to core industries (the same as Early Showa Era) to limit price competitiveness of foreign industry **and to stimulate the supply sector** through lowering taxes and providing consumer credit schemes.

Another important point that should be noted that shift from fibers and textiles were taken out from an investor perspective, and machinery took a leading place in 1960 -39% and metals-26%[22]; **therefore, MITI have reinforced networks of learning** between universities and industries, providing the role of successful mediator by moving industries **major offices or their branches in close proximity to universities to allow collaborative initiatives in learning, and producing innovation and transmit** it to other region network in the same sector of specialization. **Thus, an interactive model has** been evolving in short period of time.

**The another point** that influenced rapid economic **growth was shift of the** labor force from agriculture into manufacturing, construction and facilitating sectors where labor productivity was far higher than labor-intensive farming, which had the only option of labor-intensive rice cultivation[23]. **This shift was due** to large import of USA technology and its adaptation to domestic realities. Thus, employment market had been growing rapidly.

During this time infrastructure investment led by central government have resulted in increased % health, medicine and education, **availability of people coming to work in increased % of industry working with the USA**. It was done by collective central government public and private railway companies spending on sanitation, schools and research laboratories (put in proximity of industrial corporations by MITI) and central government investment in physical infrastructures such as dams and hydroelectric power **grids. Those financial measures have** improved human capital and industries in the same time reducing the costs of transportation, communications and energy supply for workers[23].

**Although** some researches favors only 'free market zone with USA', other favors only central government's human-capital related investment as factor of economic growth of Japan, some industrial governmental policy related to spending on heavy and chemical industry, and some favors MITI power and guidance in **stretching domestic industry and export-related policy, it should be emphasized that those factors weren't the only factors** that stimulated Japan's rapid economic growth, and may not take the biggest part of it. There is strong public-private- research cooperation that forms networks, which becomes the additional to the above force not only in rapid economic growth but also in diminishing economic disparities between the regions. **In addition to the major subsidizers-private railway companies, the central government has shifted its focus from regional infrastructure to subsidize welfare sectors. Also,** central government's incentives in promoting suburban growth in response to the migration of middle class back from suburbs to the centers of big cities, which had congestion, infrastructure and industrial slum as a pressing factor even before, together with precise zoning system have resulted in revitalization of residential developments in city center **and in providing** secure developments for poor workers from former central industrial districts **together with the promotion of secondary poles** in metropolitan areas to minimize transportation cost for poor. And, this was the factor of increase middle class in each region and there closing social and economic gaps between the regions.

The other government policy in creating polycentric structure resulted in transformation of old poor industrial slums in centers into centers of employment activity, decrease of unemployment level, **and formation of the basic** sector base in centers, which contributed to capital-forming base and **increased the employment rate**. By creating secondary poles government provided employment for poor from industrial **districts in basic and retail** sector; **therefore, the** government increased the amount of middle class through the country.

**The relocation from** mix industry and housing to middle-class condominium settlements **has accompanied by the provision of the minimum** level of infrastructure for those low-upper income industrial workers, which moved to suburbs. **Those measures have also contributed to the shift of the significant amount of previous poor industry workers to the areas near poles to increase the** employment rate in non-basic and retail industries; **therefore,** middle-class amount has been increased in major metropolitan areas. Government's organization **MITI have not only** managed administrative directives to industries, but also

stretched interactive networks by putting companies together with universities and transmitting their knowledge to other regions. Therefore it was another unmentioned factor that contributed to a domestic industrial base, **and to the reduction of income** disparities between regions.

*1.2.1.3 Low economic growth -outlook on industrial sector, local and regional institution policies to reduce economic and social disparities between regions (1973-1984)*

This period is **also referred to as the time of oil** shocks and low yen period due to excess demand and rising import prices, when oil supply conditions were in deficit and prices have risen appropriately. **This period characterized by stable growth.** This period is composed from welfare reform (1973-1974), and following it comprehensive technopolis program (enacted in 1983), **which has stimulated the moderate,** or slow growth, of Japanese economy during 1983-1984.

**The welfare reform** elaborated by Economic Planning Agency (EPA) by premier-minister Tanaka cabinet, referred as Basic Social and Economic Plan 1973-1977 adopted in February 1973. **The plan stressed** methods and directives aimed to deal with pollution, old age care, inadequate social capital, incorporating a wide range of social programs such as **excessive** spending on housing, expanding public parks, increasing spending on medical centers and universities, **increase of payment for invalids**[28]. Major goal of plan was to redistribute economic activity more **evenly throughout the country.**

**Japan, in** order to improve transportation infrastructure and Urban Control Areas, **restricted** planning regulations, inducements for the small and medium industry to leave cities, and financial assistance to regional centers to promote development. **EPA predicted** government deficits related to that **plan, namely, the deficit** of 6 trillion yen in 1977[24]. (The actual deficit amounted in 9,6 trillion yen.) **And, this plan included high saving rates to support spending. The plan has been abandoned** by EPA in 1974 due **to the high inflation 23,1% and the recession ( 4,7 billion dollars debt in 1974).** Tanaka's Plan, increase of wages by 27% , which was successfully implemented by labour unions, and the monetary **policy (discount** rate on leading to commercials banks from 4,25% in beginning of 1973 to 9% in December of same year and forceful control on their rate of lending activity of government policies designed to stimulate **demand) contributed to the inflation. The supply sector has been damaged drastically.** In the end of same year (December, 1973) during the first oil

shock and labour-intensive small and medium companies weren't able to apply new technology; **therefore, government's** subsidizing focus was shifted away from heavy industry (steel, aluminum, chemicals, shipbuilding, etc.) and to more knowledge-intensive industries (e.g. semiconductors, electronics, biotech as the key industries)[25]. **Those industries** with the late computers, **and other** technological industries entered period of rapid growth. Most of the small and medium industries of that time were geographically isolated from cities ( in coastal areas) and with a poor domestic technology. Small-size companies couldn't **provide any knowledge transfer** to big companies; **therefore, haven't** contributed to interactive networks established in an earlier period. As those companies were labor intensive, like Mitsubishi, **a relocation** to big cities was essential[25].

Thus, the first major national issue, which became urgent in that period were small and medium-size uncompetitive industries, which were **labor-intensive, instead** of capital-intensive, spatially unbalanced and **with loose** technological base; **therefore,** they were one of the major factors in generation uneven income and population distribution among the regions. Other problems were the high degree of spatial concentration of private sector R&D as well as population and economic activities in three Major Metropolitan Areas. Half of all **population concentrated** in Tokyo, Osaka and Nagoya Metropolitan Areas, and **one-quarter located** in Tokyo. In the capital, **particularly, located** 50% of national private R&D ( 65% of computer firms and 61% of information processing employment by 1983) and manufacturing. 80% of corporate laboratories, 70% of scientists and 60% of all university **professors have been concentrated** in Tokyo and Osaka Metropolitan Areas[26]. Third major problem was that almost all domestic products were uncompetitive on the foreign **market; therefore, the** import rate from USA and EEC were much higher than export rate. This factor caused the mentioned government deficit. Aside from this, those problems have deepened regional disparities in population and economic levels. Furthermore, regions aside three major metropolitan areas had non-perspective local industrial bases with poor technology, unskilled labor and "weak" local government institutions. In other words, to solve those problems after the old plan was canceled in 1974 **have been determined** urgent policy aimed to archive equal redistribution of growth among the regions throughout the country. This purpose thought to be archived by upgrading national technological capacity and promote the development of small towns through an advanced branch-plant economy. It **has been named** by MITI as technopolis program, or a strategy to simultaneously **accomplish an upgrade of the** national industrial structure up to the level of knowledge-

intensive society (upgrading of national innovation capacity), **and** regional development (creation of permanent residential areas), through urban community development based on organic integration of high-technology industry, academic institutions, and residential amenity”[29],[30]. Program objectives were:1) promotion of industrial **development by the** technological level of local businesses and establishing new high - technology industry. 2) **sustainable** regional development through encouraging R&D at local level. 3) the creation of attractive living communities in which people can live and work. ‘Concept of Technopolis’ was announced by MITI in 1980. And then, Technopolis Law (Law for Accelerating Regional Development based on high-Technology Industrial Complexes) was enacted in 1983[25],[26].

Technopolis Law enacted in 1983, can be summarized as following[26]:

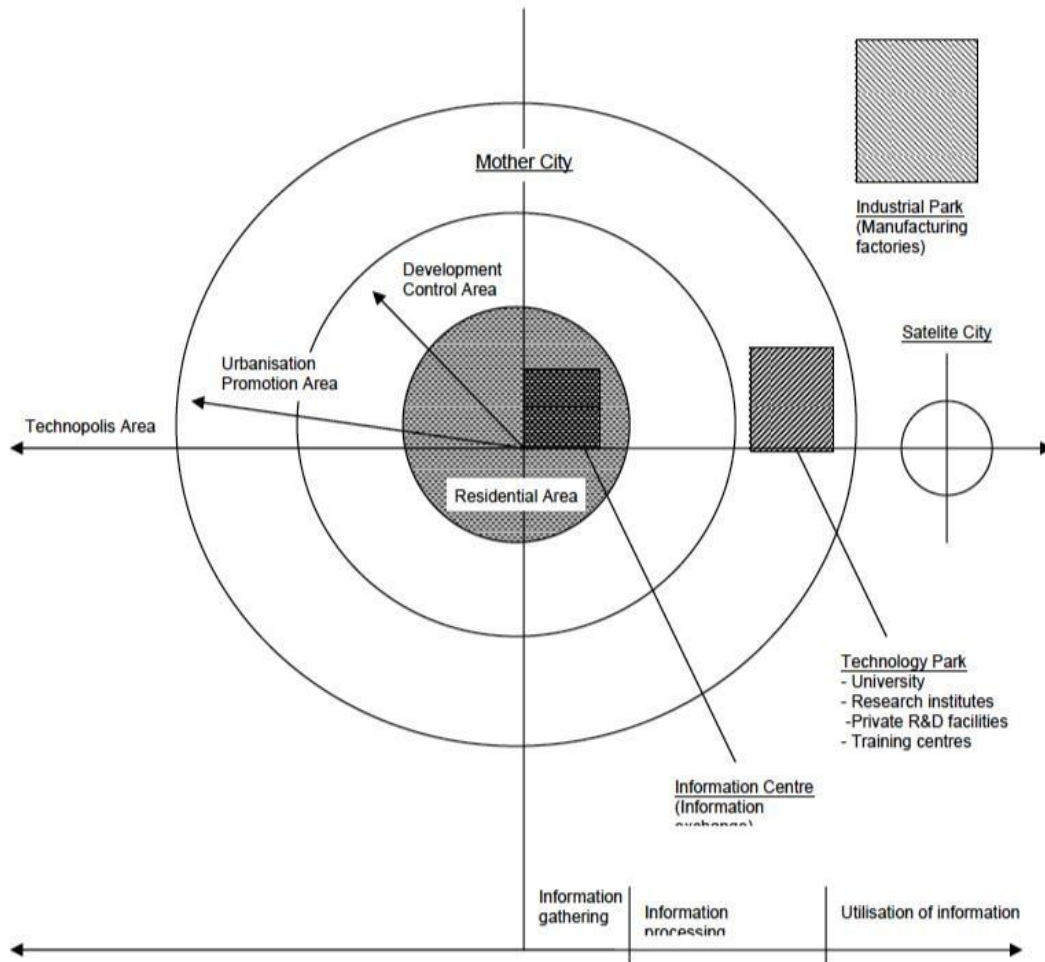
- The integration of industry, academic sector, and habitation in all regions except Tokyo, Osaka and Nagoya Metropolitan Areas.
- A close relationship with a local "old city" with a population of at least 150,000, providing certain urban facilities.
- The formation of industrial complexes by attracting new high-technology industries and the development of existing local enterprises (**only enterprises which are high-technology - oriented or a labor-intensive have the potential for doing so**).
- The creation of new R&D and the transfer of new technologies to existing industries, based on the easy access of industry to a university or other research institute.
- The exploitation of region-specific development potential

Thus, the Technopolis policy has been enacted **to operate as a development policy**: (1) industrial and **technological** policy, (2) spatial dispersal strategy(3) local urban development policy[25],[26].

According to spatial dispersal strategy in the Technopolis programme (see Figure 2), each Technopolis is to be created within an existing regional center whose core population is more than 150,000 (the mother city, or old city). It integrates high-tech industries, academic and scientific research institutions and the housing within growth pole. The mother city should be located within a one-day return trip from one of the three metropolises (Tokyo, Nagoya, and



Osaka) of three Major Metropolitan Areas. Industrial complexes are formed as a result of **incorporation of new** high-tech industries in each town **and the 'self-development'** of existing local industries. Some R&D elaborate innovation competitive in a world market, and the others transfer this innovation to local industries[26].



**Figure 1: Spatial dispersal pattern of the Technopolis**

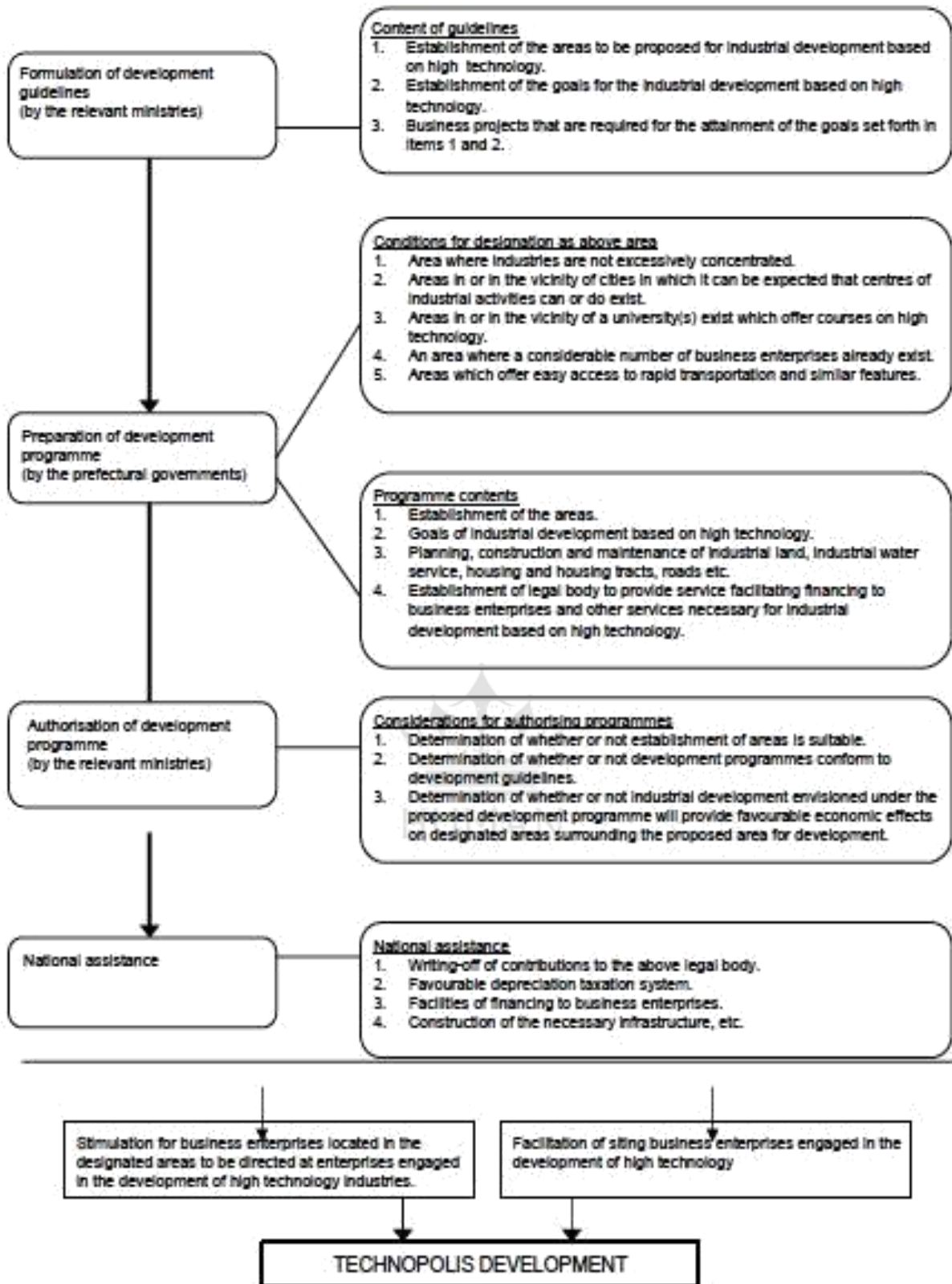


Figure 2: Summary of the Technopolis Programme

Central government's responsibility in this program was composed from the tax allowances to companies (technopolis amortization on buildings and machinery, reduction of local

taxes), subsidies, and provision of infrastructure at national scale such as national road, communication, and railway network.

Although local initiatives for Technopolis development is highly region-specific, common types of infrastructure investment can be identified as follow[26]:

- Basic infrastructure: industrial estates, roads and expressways, telecommunications, high-speed transportation, airports.
- Housing and residential services.
- Enhancement of R&D functions such as the creation of software parks, the establishment of new research institutes and technology centers, new establishment and enhancement of universities, and expansion of public sector laboratory facilities.
- Provision of facilities to promote the high-tech advancement of local **enterprises (such as online technological information systems, training facilities for information technology, electronics etc.) and** education and training services.

For the provision of this infrastructure, regions established Technology Promotion Organisations as the core organs of technopolis construction **that consisted from** representatives from industry, universities and local governments.

Regions influenced the technological development of local industries, between 1982 and 1986 by establishing development organizations funds for new R&D centers or expanded existing research facilities and universities.

Joint research and the development of frontier-type technology **has been subsidized** by the Small and Medium Business Agency of MITI;

**MITI has provided** industrial relocation promotion incentives for industries move to technopolis areas. **In addition, MITI has provided** advice and guidance to the technopolis areas by sending experts and specialists from business, university and public sectors.

The Ministry of **Construction has provided** the hard infrastructure such as roads and **expressways, connecting** the technopolis with the mother city, R&D facilities, universities, industrial parks and airports in each technopolis area. The Ministry **has also**

**regulated** housing and land adjustment of housing areas. The Ministry **has also constructed** the environment-friendly living environments separated from industries[26].

The Ministry of Agriculture **has focused on** financing and development of R&D for the biotechnology industry in the field of agriculture, fishery and forestry. At the beginning of 1983 MITI has changed its vision regarding its policy from industrial maker to spatial distributor of economic activities. In other words, with intend of guiding firms to finance sector of development in order remain competitive on the international arena MITI **has stepped in** Ministry of Construction area related to urban and regional development. Huge government debt to USA in industrial sector, which accumulated from 1955 year hasn't left any possibility to MITI except of changing the focus field of activity. This was powered by changing public opinion towards country's investment in 1983 from industrial development to rebuilding infrastructure, increasing amount of housing stock and the improvement of living conditions. And the last reason was stressed that due to revaluation of the yen manufacturing in Japan became extremely costly in the same year and the large number of manufacturing investments has been made abroad. Thus, losing its position among domestic industry producers and profits MITI were required to shift its role on industry locator in which MITI were incompetent[25],[26]. Power struggle within the ministries of government has led to the failure to **co-ordinate implicit and** explicit spatial policies. Thus, local urban development matters **in designated** to be technopolis provider regions were managed **ineffectively by MITI, which ignored** the region and urban development matters with a simple focus **on industrial policy**. Local investment in the physical development of residential area has been totally neglected in most technopolis sites in 1983-1984. Because of this, most of these industrial **estates had lost their** tenants. In other words, the creation of an attractive community, or 'permanent residential area' hasn't been **initiated during** this period; **therefore, it** was merely industrial policy. During **a single year** industrial shipments in the technopolis area had increased more than the national average. In addition, **an industrial employment has** also **increased faster** than the national average. **On the contrary**, the population growth rate in the technopolis areas decreased more than the national average[26]. **In other words**, in one year period there was in little improvement in the performance of technopolises. Furthermore, migration from technopolis areas have become a normal trend due to **MITI's concern** about industrial policy, **the lack of** coordination between the MITI and Ministry of Construction in physical development policy matter, and **local government's investment in the attraction** high-tech firms instead of

development of residential area. **As a result the majority** of technopolises ( with poorly developed residential area) have been left without sufficient number of tenants. And, new industries **have ignored** those areas as they were attracted transport network and pre-existing social agglomerations only. Lastly, MITI hasn't provided subsidies for developing social infrastructure for lagging regions designated as technopolises. In other words, the third objective of 'the creation of attractive environment in which people live and work" hasn't been initiated **during the** first year of program.

The positive impacts of this program during the first year couldn't be found **because** the three major metropolitan areas continued to concentrate most of the capital, population, R&D, and **to increase wages**, and 50% of high-tech, universities and research institutes and a well-developed infrastructure to be located in those areas[30]. Moreover, industrial employment **was reduced** due to the underdeveloped residential sector and poor transportation infrastructure. **Companies preferred** to ignore location with underdeveloped social infrastructure favoring Tokyo, Osaka and Nagoya Metropolitan Regions and secondary poles located in those regions[30]. Due to lack of social infrastructure service and business sector hasn't showed sigh to develop in those regions. Service **sector, which** represented business **service, has** become underdeveloped because of an absence of local&strategic decision-making functions in each technopolis. Thus, lack of coordination of actions between MITI and Ministry of Construction, superficial knowledge of MITI in spatial policy matters, and 'weak' local governments of each technopolis area **were reasons behind the downfall** of tecnopolis policy during the first year after its implementation.

### *1.2.2 Approaches aimed to weaken income disparities between regions and stretching local government ( major policies on stretching lagging regions ) (1985-present)*

Initially, in 1983 Nine regions were approved as **technopolises**. **However**, the number was increased to 14 during 1984; and later were designated during the late 1980s to produce a total of 26 technopolis regions. So, according to the year of designation Technopolises **have been classified** by MITI into two groups: the First group of technopolises 1983-1986, and the Second group 1986-1996[27].



**Figure 3: Technopolis Development Plan regions (revised as in 1986)**

The reason for designation of 26 prefectures as technopolis sites, **was** the internal conflict between MITI and the Ministry of Construction **that focused on** fierce competition to attract of high-tech **R&D; therefore, a** primary concern of host prefectures has been the attraction of firms and the development of physical infrastructure for R&D. In other words, each designated area has been limited to those related to the attraction of branch plant of high-tech firms, due to the lack of financial support from both central and regional governments[27].Funds couldn't be provided **for many** technopolis areas from central government. In addition, regional governments hadn't incorporated sufficient budget for social infrastructure. In addition, most of the regions designated to the technopolis areas had a 'weak' local government, which had pursued similar type of development strategies, focusing only on the high technology industry specified by MITI: chemicals, information technology, microelectronics computer, applied microelectronics, electric measuring device, electric appliances, pharmaceuticals, optical **instruments [28]. They developed** those

products in the same percentage and other products aside from specified above hasn't been even considered. Thus, there weren't any actions from regional governments except following the industrial policy designated by MITI. Regional governments **were** required to develop their own implementation plan specifying geographical boundaries, development goals, a long-term planning of construction and maintenance of infrastructure and the legal status of the organization responsible for the execution of the plan. Those plans **had to be** approved by MITI. MITI issued guidelines and invite prefectures to submit proposals for coordinated and integrated high-technology based programmes according to specified criteria. Central **government selected** the best proposals out of this competition. However, in reality, implementation plans were neglected in terms of construction and maintenance of infrastructure. As MITI not Ministry of construction, thus incompetent in urban and regional planning matters. But this organization have decided, which municipal development plans to approve based on industrial policy specifications of each region, which were the same as specified by MITI in order to get financial assistance for urban development and revitalization projects. As for implementation plan prefectures were required provide soft and hard infrastructure for which MITI subsidies were very low due to the high number of technopolises to invest. The same lump, which was aired at 9 prefectures, were shared between 26 technopolises. So, **the fierce competition** among 26 designated technopolis **areas forced** regional governments to various tax incentives to attract high-tech firms and financial support for relocated branch plants[27],[28].

Thus, results of technopolis program haven't been archived. **The unification** of production across 26 designated areas fostered competition, **but** limited innovation capability of those regions; **therefore, the strong decline of heavy** and light industries in the country as well as farmland fostered migration of unemployed to metropolitan areas. Furthermore, it fostered disparities between metropolitan areas and remote regions in terms of income, population, employment, R&D and concentration of educational institutions. As the development of transport network and pre-existing social agglomerations were the factor of attracting R&D and formation of technopolises could be concluded that neglecting by MITI physical infrastructure and poor financing of such projects **haven't relocated the hub of R&D, population, employment from Tokyo, Osaka and Nagoya Major Metropolitan Areas**[28]. Those ones, which **had** the large number of high-tech plant establishments - *Koriyama, Shinanogawa, Utsunomiya, Hamamatsu, and Toyama* - are regions that close to Tokyo Metropolitan area. However, those in the remote **area: Hokkaido, Kyushu, and**

Chugoku, Shikoku regions had **relatively little high-tech** plants[27]. In other words, high-tech industries, new R&D establishments **were concentrated** in Kanto region. In this **concept the size technopolises and amount and the output** of high-tech firm decrease with distance from there Major Metropolitan Areas, both in terms of geographical distance and time traveled via railway network. In addition, R&D facilities **have remained heavily concentrated** in the three metropolitan areas (Tokyo, Osaka, Nagoya) and in Pacific coastal area **that was well-served** by high-speed train (Shinkansen) network.

### 1.3. Impact of railway construction on the regional development

The important aspect of neoclassic theory is that it fails to operate in short-term perspective and in specific periods like war. **So, the railway** construction projects devised by private firms during the Meiji Period **failed to** operate in short time period. The government gradually **sold the railway** infrastructure and bridges to the private sector, because **of the** military spending. For example, in 1890, the total length of private lines was 1,364 km, and the government's 885 km. This helped to make the adjustment to railway construction policy -all railways in Japan became standardized under a single set of technological specifications unlike in other Asian countries of that time. As a result of such policy, in 1890, **many** private railway companies went **bankrupt; therefore, private** sector urged the government to take them back. However, instead of government **military, officials** had taken those companies. **In other words, the** railway sector was saved from downfall by the Meiji elite.

Since the Meiji Era (**March, 1906**) the national government passed the Railway Nationalization Act (Tetsudo Kokuyu-ho), nationalizing 17 of the 37 existing private railways during **1906 -07 years**, and electrifying these lines till end of **1909, private** railway companies in biggest cities began diversifying into other business areas related to urban living in order to stimulate ridership on the remaining relatively unpopulated lines[29]. Beginning with the **development of the residential** land along their subway lines, then constructed and operated supermarkets or shops at terminal stations as well as **promoted the construction** of tourist attractions along the route.

By the end of the period of the economic recovery, income disparities were shifted on the postwar level not only because of successful industrial and foreign policy but also due to private railway companies[29]. By the 1955 year (end of the period of economic recovery) those companies developed a compact, mixed-use communities, centered around the transit



**stations that**, by design, invites residents, workers, and shoppers to drive their cars less and ride mass transit more[29]. Although the number of those communities wasn't significant in the national **scale, it** encouraged **middle-class (skilled workers and professionals) to** come to those subcenter locations, and created a little island of middle-income territories in the subcenters although not significant in number at that time. Thus, private railway companies were an important players in economic recovery of Japan, which by developing the rail integrated communities were able to weaken polarization of poor industrial districts in the subcenters of big cities; **therefore, they concentrated the part** of middle income population from suburbs in the subcentral areas around subway stations **and, partly, along their** lines, in which **they were engaged** as developers.

During the period of rapid economic growth private companies by diversifying in real estate development were able to pay for the constructions of new railway lines by **selling profits from housing developments** and offices in proximities of stations. From the 1960 year public corporations have elaborated large-scale housing developments along railway lines in the suburbs such as Tama New Town and Chiba New Town. **Simultaneously, have** been developed a new center **that consisted from the large office** and commercial building. Thus, the center became a business district for the upper class within the region and shifted low-income poor workers from industrial districts to suburbs[30]. However, **the expansion** of biggest cities due to development of housing estates along railway lines in the suburbs that was the major factor in shifting poor beyond those areas to rural zones. So, during this period private railway companies managed suburbs transforming them **into** mixed-use rail integrated **developments. This policy has contributed** to government suburbanization policy by creating communities for middle-class residents. Low-income class amount has become much less due to job availability in subcenters; **therefore, they** have been dispersed around boundaries secondary poles. In other words, government smart revitalization **project removed** the pressure of congestion, infrastructure and poor from the core, and improved basic sector base, that in other hand allowed to increase the middle class amount to diminish economic and social gaps between the regions.

Following the period of low economic growth region with success of technopolis program because of regional **railway connections was** Tohoku. During the 1980s, high-speed railway network (Shinkansen) established by Ministry of Construction **has expanded** into Tohoku region, which greatly improved the access to the region **and fostered** R&D migration[26]. As

can be evident the only regions close to the three Major Metropolitan **Areas**, **due** to developed **infrastructure**, **and ones** with Shinkansen access **showed** industrial value added above national **average**; **therefore**, **can** be concluded that only existing social and developed transportation infrastructure was the reason that **allowed the mentioned** above regions succeed in technopolis program. With those results program was terminated in 1999[28].

In recent Japan Shinkansen became the tool of regional development aimed to reduces social and economic disparities between regions, **and focused** on extending lines to the remote **regions by neglecting**- Koriyama, Shinanogawa, Utsunomiya, Hamamatsu, Toyama, and Tohoku. The strategy was planned from 2000. As can be concluded from Shinkansen Network Scheme (1999) and Shinkansen Network Scheme (**2014**) **that** Shinkansen policy already penetrated Kyushu, and in Hokkaido under construction, and Chugoku, Shikoku according to the basic plan in long-term perspective[31]. Thus, the impact of Shinkansen Program among **the remote** regions can be evaluated only for Kyushu Region (namely his northern part-Fukuoka Prefecture)[32]. Comparison between prefectures with planned Shinkansen lines Kyushu (Fukuoka-existing), Hokkaido (Hokkaido-under construction), Shikoku (Shimane- planned), Chugoku (Kochi-planned). Consequently, it can be compared to other three remote prefectures to **evaluate** the Shinkansen's Impact.



Figure 4: Shinkansen Network Scheme (1999)

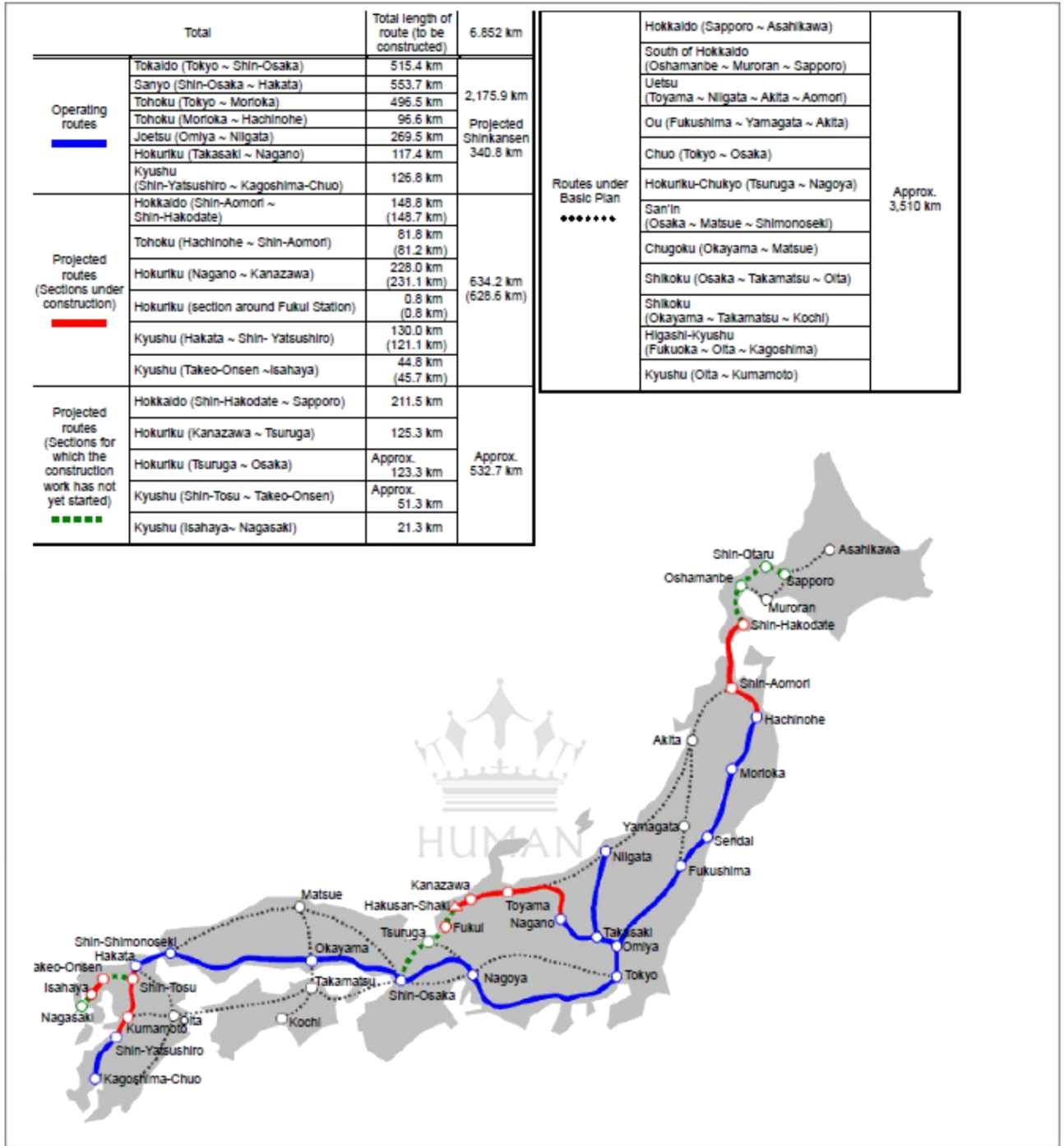


Figure 5: Shinkansen Network Scheme (2014)

**Table 1: Fukuoka Economic Performance (2014)**

Stat	Amount	Rank	Standard Score
Order	Asc Desc	Asc Desc	Asc Desc
Annual Rate of Unemployment	5.0% %	2	71.05
Prefectural Income	1,407,872,700万円 Ten-thousand yen	16	53.37
Average Commercial Land Price	189,400円 Yen/sq. meter	9	52.57
Savings per Household	16,600,000円 %	23	50.79
Minimum Wage	701円 Yen	16	50.50
Gross Production	1,804,200,000万円 Ten-thousand yen	22	50.05
Average Residential Land Price	44,000円 Yen/sq. meter	13	48.93
Fish Catches	93,654トン ton	26	48.14
Average Industrial Land Price	24,900円 Yen/sq. meter	18	47.68
Industrial Production	819,301,500万円 Ten-thousand yen	32	43.58
Manufacturing Industries	5,728軒	42	37.66



**Table 2: Hokkaido Economic Performance (2014)**

Stat	Amount		Rank		Standard Score	
	Order	Asc Desc	Asc Desc	Asc Desc	Asc	Desc
Annual Rate of Unemployment		4.6% %		5	64.60	
Fish Catches		1,292,552 トン ton		4	61.48	
Minimum Wage		719円 Yen		11	54.18	
Gross Production		1,842,800,000万円 Ten-thousand yen		30	46.77	
Average Commercial Land Price		57,200円 Yen/sq. meter		35	46.08	
Average Industrial Land Price		17,000円 Yen/sq. meter		33	45.46	
Prefectural Income		1,343,779,200万円 Ten-thousand yen		36	44.02	
Average Residential Land Price		18,100円 Yen/sq. meter		45	43.79	
Industrial Production		638,514,700万円 Ten-thousand yen		41	40.39	
Savings per Household		13,002,857円 %		42	39.17	
Manufacturing Industries		5,596軒		43	36.33	

**Table 3: Shimane Economic Performance (2014)**

Stat	Amount		Rank		Standard Score	
	Order	Asc Desc	Asc Desc	Asc Desc	Asc	Desc
Fish Catches		142,154 トン ton		6	59.36	
Manufacturing Industries		1,264軒		19	52.34	
Average Commercial Land Price		42,700円 Yen/sq. meter		42	45.36	
Gross Production		232,500,000万円 Ten-thousand yen		35	45.15	
Average Industrial Land Price		14,900円 Yen/sq. meter		36	44.87	
Average Residential Land Price		23,100円 Yen/sq. meter		40	44.78	
Savings per Household		14,302,857円 %		36	43.37	
Industrial Production		100,430,600万円 Ten-thousand yen		34	43.36	
Minimum Wage		652円 Yen		46	40.50	
Prefectural Income		165,722,500万円 Ten-thousand yen		40	40.41	
Annual Rate of Unemployment		2.8% %		45	35.60	

**Table 4: Kochi Economic Performance (2014)**

Stat	Amount	Rank	Standard Score
Order	Asc Desc	Asc Desc	Asc Desc
Fish Catches	99,021トン ton	13	51.50
Average Commercial Land Price	77,900円 Yen/sq. meter	25	47.09
Average Residential Land Price	32,800円 Yen/sq. meter	21	46.71
Manufacturing Industries	1,101軒	31	45.98
Average Industrial Land Price	17,300円 Yen/sq. meter	31	45.54
Annual Rate of Unemployment	3.3% %	33	43.66
Savings per Household	14,344,286円 %	35	43.50
Minimum Wage	652円 Yen	46	40.50
Gross Production	215,800,000万円 Ten-thousand yen	44	38.63
Industrial Production	52,176,800万円 Ten-thousand yen	45	37.09
Prefectural Income	166,529,600万円 Ten-thousand yen	46	36.73

Although Fukuoka Prefecture was the only one connected with Shinkansen to Kanto Area (Tokyo, Osaka and Nagoya Metropolitan Areas) indicated the highest level of unemployment among the lagging regions; therefore, Shinkansen showed the negative relationship between decreasing distance and employment[33],[34]. That means only that along with extending Shinkansen in this area migration from Kanto Area occurred, which it was more than employment capacity of the region; therefore, some of the late migrants became urban poor, the access to the region has greatly improved, and fostered R&D migration. Hokkaido had the highest rate of industrial production and manufacturing industries, regardless of having high-speed railroad under construction[33],[34] Rail road should foster R&D migration and increase industrial capacity and number of manufacturing industries. However, this effect doesn't appear. So, this means if the social infrastructure is underdeveloped and doesn't financed by a prefectural government, the transportation access cannot create a successful technopolis. Moreover, according to gross production indicator, Fukuoka ranked the lowest, and Kochi- the highest[33],[34]. This means rail connection doesn't actually increase regional output. Regional output: capital and labor can increase if a residential area, high-speed rail access, unique industrial policy and the existing interactive regional government -industry-university networks are available for expansion.

Minimum wage **ranked** the highest in Kochi and Shimane, **and lowest** in the most remote Hokkaido **Region due to high rates of migration of the cheap labor** from the developed central region- Kanto to Fukuoka; **therefore, minimal** wages tend to be low[33],[34]. This factor should **contribute to the relocation of branch** plants but it doesn't. The underdeveloped social infrastructure and 'weak' interactive networks and local government make them to chose to relocate to other lagged region with more advanced infrastructure, more close to **Kanto Area, and that already have the** basis for interactive networks. Finally, Fukuoka has the lowest prefectural income among four lagging prefectures, in contrast, the highest one **has indicated Kochi**[33],[34]. This also means the non-basic sector that generates export-led growth hasn't been developed. The most of non-basic sector concentrated in Kanto Area, and all regional governments proposed **those plants indicate the similar key** industrial base plan and similar urban development plans that allow to choose the closest one to which MITI finances allocated. As the export base is not enough, import volume from Kanto Area exceeds export. Thus, **this deficit** in a local budget **base reduce prefectural** income average. It can be concluded that economic potential of Fukuoka Region **is lower than in other regions** with good access to Shinkansen. Its allowed to emphasizes importance of other factors as a unique local government with its own industrial policy, **the local budget availability, the** social infrastructure, interactive networks, together, with the high-speed rail access could diminish disparities between developed and lagging **regions across the country**.

## CONCLUSION:

By taking a cursory outlook on the regional planning in Japan from Meiji **Era to the present time were possible** to construct a full picture regarding **the influence** major factors in creating economic disparities: militarization, industrial and foreign policy, urban planning, government structure, transportation and social issues. This constructed picture has clearly demonstrated, which combinations of factors **have influenced** socio-economic disparities between the regions in each of the historical periods. Based on available data **the impact of those** factors on regional development in each period were stressed.

What is important to note about regional development is that some problems (factors) remain **during the entire period, and cause** socio-economic disparities between regions. Moreover, all government's initiatives aimed to solve those **problems** after Second World War have been failed. Before Second World War those problems **haven't even been formulated** by the



central government. Those problems, or factors, that caused disparities between regions are stated as follows: 'weak' local governments, **the highly** centralized central government, **the unrestricted** urban planning laws and regulations, **the concentration** of capital and labor in the three Major Metropolitan Areas (Tokyo, Osaka and Nagoya) as well as **the geographically** isolated from cities small and medium-sized companies with poor industrial technology. **The militarization** had only existed till the period of economic recovery. **The industrialization** existed much longer till the present era (1985). **The foreign** policy had been an important factor in causing economic disparities till the period of economic recovery. However, from that period **the policy were** strong and its influence became quite **positive; therefore, only the above stated factors** remain major players in causing socio-economic disparities. In addition, by analyzing impacts of regional railways on disparities between regions was concluded that this factor alone cannot possibly diminish socio-economic disparities between regions. Moreover, this factor only in cope with the unique local government with its own industrial policy, **the local** budget availability, **the social** infrastructure, interactive networks, and **the high-**speed rail access will be able to diminish regional disparities.

Appendix A. Negative social & foreign policy effects during Meiji Period A.1. Philosophical fundamentals beneath Meiji oligarch's policy

Japan has **neither feared** China not considered it as the civilized nation (1868-1894).As a barbarous nation that is part of East Asia to which Japan has cultural **debt as well as the debt of a child** to it's to mother". Japan, been able to develop in an independent country in 1868 only because of China's influence in cultural, language, religion and constitutional spheres **have been strictly followed** till Meiji Period. **Japan was the only oneAsian country** that have adopted some aspects of western culture and technology; **therefore, this country** can be considered as " only- one country based on European model in Asia." **The modern Japan** has opposed itself **to the backward** China. However, **the backward** China was essential to Japan in geographical and cultural aspect to unite Asia as a power to oppose **the** West. It should be noted, that Japan admired West above all, **and intended** to be respected and be viewed as 'Western Country", **or as the** essential part of "western world ". The other opinion **in regards to** foreign policy was narrowed **to cultivate China** into Western Economy, **to unify** Asia and, **then, to** colonize **the** West (the USA and Europe) and make Japan as the center **because the knowledge base consisted from** the west technology and Chinese

philosophy **that transformed it into the modern country**[35]. Thus, such ideas were behind **the policy of Meiji oligarchs in the beginning of 1904** Within a short time after Meiji Restoration (1868), the majority of citizens **adopted** many aspects of Western civilization such as ballroom dancing, men cutting their hair, and beef eating. In addition, were adopted western ideas and **Sino-Japanese war (1894-95)** was officially justified. As a result, China was invaded, colonized and made in "western country" as the essential colony of Japan. Even after winning the Russo-Japanese war (1904-1905) Japan **hasn't been** allowed to become a "western country" and fear of this power emerged in the USA and Europe. **Those powers till the end of this period had expressed their worries by the expansion of foreign industrial market into Japanese territory together along with the failure of domestic market.** In short, this philosophical idea contracted **the fundament** beneath Meiji oligarchs policy.

#### A.2. Lose of privileges and rights of Samurais

During the same **period the Samurai** class was eliminated. **The right of the Samurai** to bring katana and his right to kill people showing disrespect to his bloodline **was abolished** as well as "seppuku" and all assortments of traditional closing confiscated (1876), their **allowances, or stipends, as well as their place in a military organization have been lost forever.** Only Meiji themselves, young people coming from lower disadvantaged Samurai class, benefited from this. As from lower Samurai class holding restricted rights they advanced to nobility **that influenced the imperator's** decisions. **It should be noted** that Samurai not only noble warriors that shaped for 300 years before Meiji era 'feudal army' but also **the high** -intellectual part of the administration society of educators **that had shaped Tokugawa Shogunate social and economic policies; therefore, they were** contributors to the successful implementation of Meiji policies[36]. However, Meiji oligarch considered **the Samurai as the obstacle to the industrial growth, and removed the Samurai** from land-based hierarchy and legal ownership to it. In addition, **the Samurai** was an obstacle to establishment of a regular army under government jurisdiction to protect from West, but **the Samurai army consisted of many clans with own land, the internal hierarchy and laws** has not been yet unified and acted according their own beliefs or some few inter-clan agreement rather than emperor's ordinance, and therefore Conscription Law in 1873 was introduced[36].

In 1869 the return of **the land and people belonging to it** from feudal lords to the emperor resulted in placing **the Samurai** of several land registers under control of the central government. Land registers were reorganized in 1870, and in 1871 replaced by prefecture

system. Secondly, **the pension system, introduced in 18 century, was** gradually reduced by 1873, and the establishment of the national army was publicly announced by the government. **And, lastly, along with dismount of feudal system the Samurai had lost their status,** and became ‘commoner’ **as the sword-bearing was against law, the traditional closes and hairstyle became prohibited, and ‘vendetta’ right eliminated**[36].

After that, the most important **part began** that raised social and income disparities between regions in Japan. After that government intention was directed to the assimilation of **the Samurai into society to make them usable force.** It was started from 1870 proposal of the government **to integrate the Samurai** into business and industry. The government **started to fill vacant** positions for the samurai-specialization field such as administration, education, police and military sectors. However, many **warriors haven’t been able to satisfy them due to unqualified ‘clan employment’ law.** The administration showed that **the Samurai became a part of the prefectural and local government.** In a prefectural government by the 1876 year **the number rose by 77,7 % of all prefectural officials.**

**Table 5: Number of Samurai official in prefectural offices, %**

Year	Prefectural offices	Number of samurai official	%
1876	23,135	17,935	77.7
1877	23,694	17,529	77.7
1878	31,898	23,976	75
1879	31,624	23,305	74
1880	36,560	26,970	74
1881	78,328	53,033	68
1882	96,418	59,041	63

Samurais were assigned **to the local administrations** under the jurisdiction of prefectures, because of their knowledge of the land, people on it, knowledge and ability to manage clans **as well as the ability to manage land.**

**Table 6: Number of Samurai officials in local offices, %**

Year	Prefectural offices	Number of samurai official	%
1878	2,984	1,866	57
1879	6,245	4,075	59
1880	6,658	4,299	63
1881	11,567	6,889	65
1882	14,171	8,141	67

In **the police** by end of 1880 throughout Japan 30,000 policemen from **the samurai** clan were calculated. Only, in Tokyo office were around 3000 samurais. In **the military** from 1874 to 1880 around part of Samurai in army increase from **160 to 980**. **Other employees of government-operated railways, industries.** Some were thrown into **the business and the cultivation of the agriculture in the** underdeveloped Hokkaido region. From 1876 to 1882 200 individual private companies emerged across Japan and 100,000 Samurais participated in **those enterprises**. Samurais were engaged in a reclamation of lands, especially, in Hokkaido region that **opened the** new amount of arable land, and government loans allowing them to expand businesses, industries, and banks to the large-scale operations. **Samurai reinforced the administration, education, and the police**[36].

Thus, it's evident that efforts of the government to utilize Samurai class made the positive effect on developing on Hokkaido Island **that** became the only one developed region in the agriculture sector with independent capital across Japan with own government ( like Hong-Kong in China)[36]. However, in **the rest of Japan the occupation of farmer** was giving to **the Samurai** who doesn't understand how to manage land. **The Samurai** became responsible for taxes instead of the farmer in the official paper. **In addition,** farmers **had lost** their lands, sons to manage land that was substituted **on Samurai by officials** as became a poor without right. **The Samurai** moved in far territories for jobs imposed by government and **had lost** their historical attachment families and links, like refugees. Most of **the individuals, who was thrown into the** agriculture, business and **the commerce** sectors were unable to manage them, **and became the** low-income class across Japan. Others were integrated into the system along with commoners- people of previous low class without rights. Thus, **the** fundament for

income disparities was set in this period and **the slogan** 'reach country' was thrown aside. **Commoners that emerged** from underclass were required to pay **the same tax as the Samurai** (in Tokugawa Era they didn't appear in any registry **and were ignored**). The positive aspect of the free market that all social classes except **the Samurai** and farmers were free to choose any occupation, and place to live. So, migration occurred between regions according **to the neoclassical principle**.

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