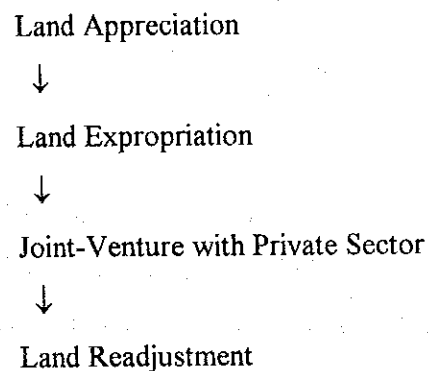


5.2.5 Progressive Improvement of Thai City Planning and Development

The progressive improvement of Thai City planning and development is in sight. Some of the signs are as follows:

- 1) The highly experienced and far sighted governor of NHA suggested to the JICA study team his views of urban and housing development in Thailand, with the order of application of land management measures as follows:



The improvement of the implementation system will be progressively made in that order.

- 2) Effective Utilization of the Existing Systems and Practices

NHA and IEAT have long engaged in land development and management, through which land acquisition techniques and systems have been devised without resorting to expropriation. The effective utilization of the developed techniques, which are not institutionalized yet, should be a part of the improvement of Thai City planning and development.

- 3) Informal Development Practices

In addition to the conventionally developed system as discussed above, development practices which have not been institutionalized, have been made as follows.

- Voluntary Land Readjustment

DTCP has been promoting land readjustment projects on a voluntary basis of landowners, along the Rama IX road. The experience gained through this project will lead to full scale urban area development by land readjustment after its legislation.

- Specific Plan Practice

Although the specific plan in Eastern Seaboard has not been legislated yet by the order of ministry of Interior, planning has started with the budgetary appreciation for land acquisition.

4) Legislation in sight

The legislation of land readjustment act and amendment of specific plan in the city planning act with the aim of the easier application, which both have long been pursued in Thai government, are now in sight

5) Improvement of Bangkok General Plan

The general plan in force, which is due to expire in the year of 1972, is scheduled to be revised. The improvement of the general plan will be made by BMA based on the experiences and lessons of the first enforcement of general plan of Bangkok.

6) Reassessment of the Existing Legislative Acts

Further advancement of Thai City planning and development will be made along with the reassessment of the existing legislative acts as recommended by MRSP study, which is outlined in the preceding section.

In conclusion the improvement of Thai city planning and development will be made, but only in the progressive manner.

5.3 Necessity of an Urban Area Development/Implementation System

5.3.1 Scenario on Urbanization without the Necessary Measures for Urban Development around the Rail Stations

Urbanization which may predictably take place around the stations of an improved railway without the necessary measures for urban development is shown in the Fig. 5.3.1 and outlined as follows:

Case 1. A group of buildings just bordering the SRT property

Without the station plaza and access road, a group of buildings on lands just bordering the SRT property encompassing the station will emerge, thus blocking the access of rail passengers to the stations and also hindering the full scale urbanization around the station. The railway service area will be limited to the areas within walking distance from the station.

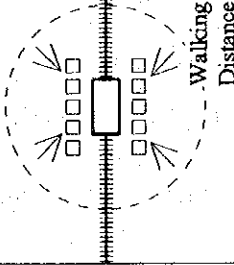
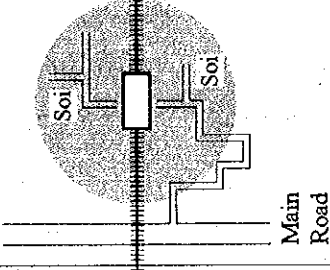
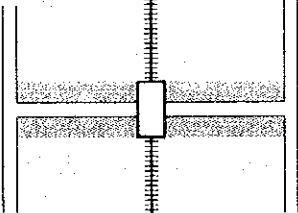
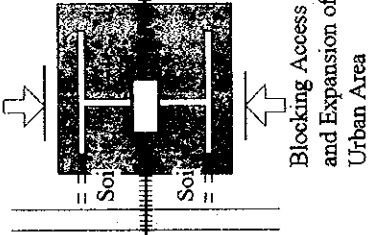
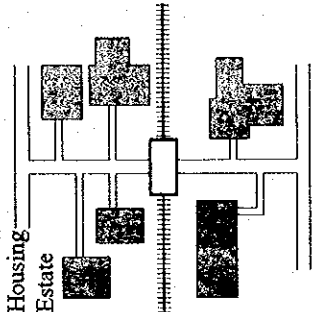
Case 2. A small built-up area clustering around the station — Soi type development

The soi roads leading to the station may be constructed by the land owners or developer of sites adjacent to SRT property. The areas within a limited distance from the station will be developed along the soi, the built-up area clustering around the station will be expanded through the extension of the soi road, which happened in Bangkok.

Case 3. Ribbon-like development along the access roads radiating from the station

It may happen that even with the construction of the station plaza and access roads to the station, only narrow strips of land/properties along the access road will be developed, resulting in a ribbon-like land development as experienced in Bangkok.

Fig. 5.3.1 Urbanization around the Station without Necessary Measure

	Case 1	Case 2	Case 3	Case 4	Case 5
Station Plaza	None	None	Built	None or Small	Built
Access	Walking	Soi Road	Access Road	Access Road only to the Estate	Access Roads
A group of buildings just bordering with SRT property.	A small built-up area clustering around the station. (Soi Type Development)	Ribbon development along the access roads radiating from the station.	Real estate development clogging the access to the station.	Real estate sprawl around the station.	
					

Case 4. Real estate development clogging the access to the station

It may also happen that developers will buy and consolidate all the lands around the station to develop a rail based city. However, the development of such lands may be done in a manner which may block the access to the stations. Moreover, developers are not likely to provide for space within their developed estates required for access road and station plaza to sufficiently meet the demand of railway passengers coming from the broader area around the station in future.

Case 5. Real estate sprawl around the station

It may happen that the real estates such as those of housing estate, subdivision and others will be sporadically developed around the station, resulting in the failure of an integrated urban area centering around the station.

5.3.2 Importance of Urban Development around the Station for Railway Investment and Operation and Urban Land Resource Management

(1) Full and efficient utilization of lands within the railway station service area

This is one of the important conditions prior the railway improvement investment since the volume of ridership enough to operate the improved railway cannot be expected unless the service areas of the station are fully developed into intensive land use with high density.

The urbanization which may take place without necessary measures as foreseen in the preceding section will hamper the full development by means of confining urbanization in a limited area around the station (case 1,2 and 4) and along the access road (case 3). Thus, as MRSP study pointed out, the lack of sufficient urban management and coordination may jeopardized the capital investment on the railway improvement.

(2) Comfortable residential area with high quality living environment and public services

In this railway improvement scheme, the targeted clientele is the growing middle income group or the modern urban citizens massively emerging in Thai society, who are

more conscious about their living environment and conditions. They are the potential group who can shift from the passenger car transport mode to the railway. For this reason, the railway improvement plan is to provide comfortable and high quality transport services so as to attract such targeted population. However, this goal cannot be achieved unless first class residential areas are provided along the railway as these would attract the targeted clientele to locate their houses along the railway.

As such, urban development providing high quality residential areas coupled with the high quality transport service is vital for the success of the railway improvement schemes.

(3) Prime and high value lands around the station.

Due to the huge amount of capital investment on the railway improvement, land and property values will increase tremendously around the station and within the service area of the station. Nevertheless, uncontrolled urbanization as presented in preceding sections will definitely spoil opportunities for such land value increase. It also feared that a large area of the high value lands may be left unutilized or under-utilized. This will result in a waste of prime urban land or more importantly of the capital spend for the railway investment since the fruits of the railway improvement are not fully and efficiently used.

(4) Maximum Value Capturing

One of the essential purpose of an integrated urban and railway development is “value capture” through which the cost of railway improvement is recovered for reinvestment. Uncontrolled urbanization or urbanization without the proper measures is sure to lessen this opportunity of value capture by means of minimizing the development effects and benefits of railway improvement.

5.3.3 Urbanization with Necessary Measures

A typical structure of the urban land management and development around the station or/and within the service area of the station designed to maximize land use/urbanization as well as the effects/benefits of the improved railway is shown in Fig. 5.3.2 and briefly explained below.

(1) Road network radiating from the station

It is natural that one of the important factors affecting urbanization, density and land use is the accessibility to the station. The road network composed of the station plaza, the access road and distributor road is of great importance in the rail-based city than in the road based city. This is because no urbanization proceed without the accessibility to such a specific point as the station in the area along the railway, unlike those based on the road network.

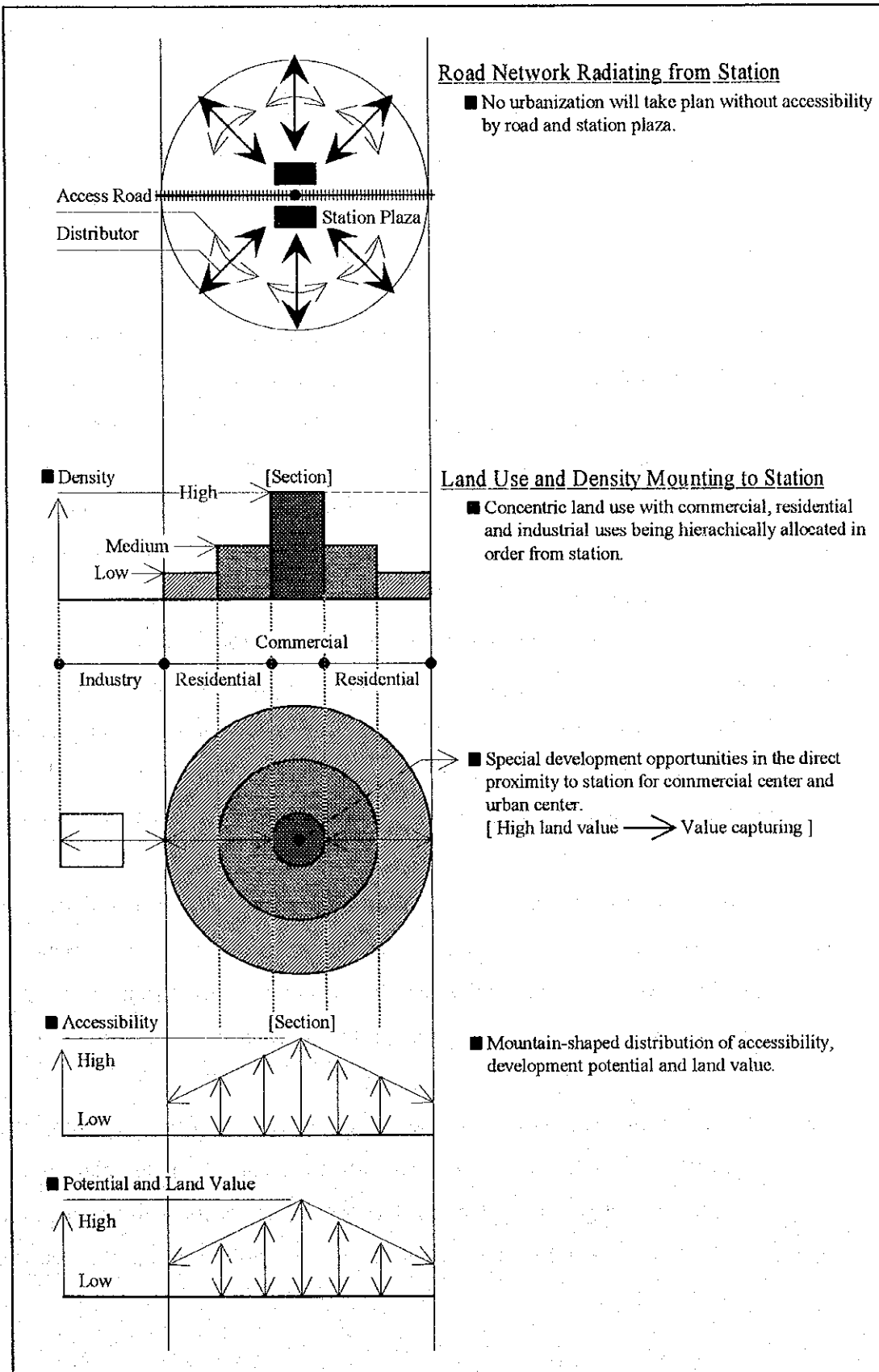
This is the reason why greater and special attention must be given to the access road and station plaza in urban development along the railway.

Also, the distributor roads play a significant role in developing the entire area without leaving un-urbanized areas within the station service area. In other words, spread the development effects of railway to every nook and corner.

(2) Land use and density mounting to the station

In order to make the most of the land resources and the development effects of the improved railway, the structure of land use and distribution of density must be established in response to "the pyramid-shaped accessibility and development potentials with the station being at the apex" as shown in Fig. 5.3.2.

Fig. 5.3.2 Typical Structure of the Urban Land Management and Development around Station [The way to make the most of the land resource and the effects of railway]



The land value would also follow the mountain-shaped distribution pattern with the costliest in the vicinity of the station. The land uses are likely to be formed, reflecting this distribution pattern of convenience, potentials and land value. The land uses with higher productivity and higher added value such as those of commercial uses are located closer to the station and productivity/added value of the land decreases in accordance with its distance away from the station. In this manner, hierarchical land uses will emerge in order of commercial, residential and industrial uses centering around the station.

Reflecting the factors stated above, the density of either population/employment or building will also follow a pyramid hierarchy structure with the higher end found closer to the station and the lower away from the station. In this land use and density structure, special attention must be paid to the areas just in front of the station and in the direct vicinity of the station. In the wake of massive housing development in the station service area, large number of people gather everyday in /around the station for their rides on the improved railway. Thus, this transport node is to greatly raise the development potential especially commercial potentials in/around the station due to the large number of passers-by who are potential clientele for the commercial activities. It is generally the trend for areas in/around the station to be more and more commercialized as the result of development effects of railway. Finally, it will turn out to be the most convenient commercial center richest in service, which in turn attracts more customers.

Through the commercial development mechanism, the areas in the vicinity of the station is likely to grow and function as an urban center or new town center to include not only commercial services but also cultural social and other services. Thus, the rail based commercial center becomes the urban center for the people living in the new town.

This is the development mechanism and development scenario of the area in the direct proximity to the station. In the course of the urban growth, the station plaza is to be used not only for the railway passenger but for the shoppers and visitors to the commercial and urban center for the rest, breathing, enjoying open space or landscape

and others. Thus, the station plaza will no longer be only a station plaza but a central park in the urban center.

Taking into consideration the exceptionally high development potential and the value of land around the station, this area may be the best place for value capturing. In this regard, urban development project including the value capturing system should be implemented in an area within proximity of the station.

5.4 Basic Concept of Value Capture of Railway Development Benefits

(1) Introduction

The development of transport infrastructures contributes to the upliftment of the region and their patronage increases land values to a great extent, providing wide opportunities for profitable land use. This is because of the better accessibility to/from the developed infrastructures such as highway, interchanges of toll-road, ports, airports, railway/subway stations, etc. This is the indirect development benefit of the land.

In Japan, the levy on betterment benefit (or beneficiary charge) has been recognized these years.

Sometimes most of the benefits, which are produced as a by-product of transport facility developments, are enjoyed by a limited right holders, for example, those who just happen to have their land-ownership within the catchment area of the developed new railway stations. This posed various problems regarding the partiality of beneficiaries of the railway development. This was brought up from the viewpoint of 'social justice and impartial distribution of resources' and some reimbursement systems of development benefits were examined.

Since initial investment for the urban railway development in a metropolitan region usually requires a huge amount of budget, the manner as to how to create the finances for railway development was also discussed and various systems for beneficiary charge and/or reimbursement of benefits were studied.

(2) Examples of Value Capture Systems

The development benefits by railway development, in general, are classified into four major types as follows:

- 1) Users' benefits of the developed railway,
- 2) Users' benefits of other railway/transport modes influenced by the project,
- 3) Increase of real estate value, and
- 4) Increase of earnings from the real estate.

Table 5.4.1 shows some reimbursement systems of development benefit applied in various countries, by type of benefit.

Table 5.4.1 Examples of Value Capture Systems

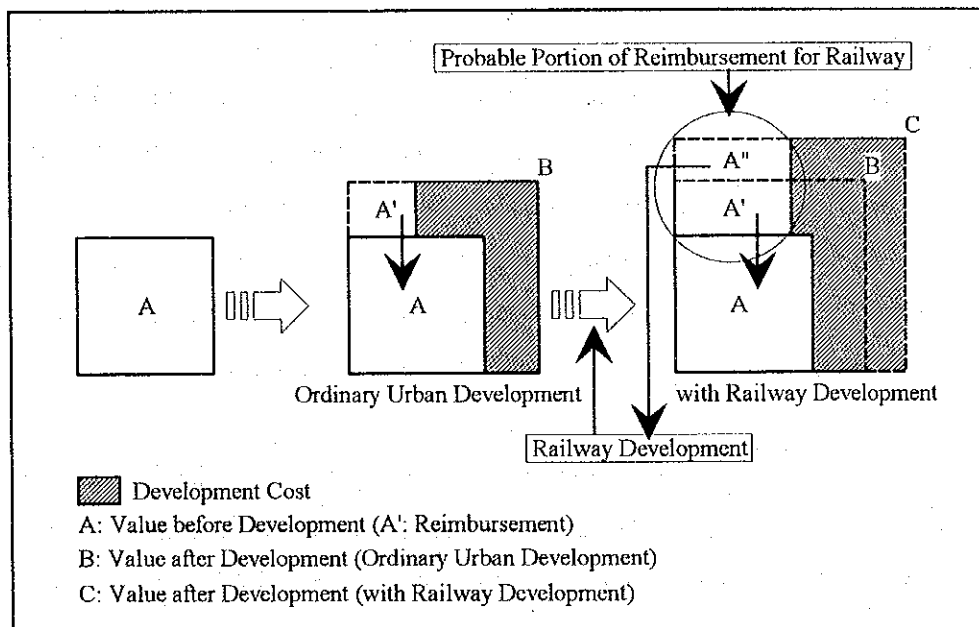
Type of benefit	Financial system	Beneficiaries imposed the burden	Case
Users benefit of projected railway	1. Fare revenue	Railway users	Most countries
Users benefit of the other railway and/or modes	2. Reserve fund system on fares 3. Internal subsidy system among railway lines 4. special account	Railway users Railway users Road users	Japan Most countries Germany, UK USA
Increase of real estate value	5. Congestion tax 6. Discount of the reduction for season ticket 7. New town developer charges 8. Provision of developed land 9. Fixed assets tax 10. Real property acquisition tax 11. Land capital gain tax	Enterprises Individuals Railway users Developers L/R cooperation Local authority Land owners Land owners Land owners	Singapore UK Japan, USA Japan Most countries Japan UK, Taiwan Korea
Increase of real estate earnings	12. Inhabitant tax (for individual) 13. City planning tax 14. Method of claiming new station 15. Inhabitant tax (for corporation) 16. Corporation tax	Inhabitants Inhabitants Enterprises Inhabitants Enterprises Enterprises	Japan Japan Japan Japan Japan Japan, France

(3) Increase of Land Value along the SRT East Line

A case study on the change of land value by the East Line improvement is presented in a separate section of this report, only the basic concept is summarized in this section.

A diagram on the increase in land value is illustrated in Fig. 5.4.1.

Fig. 5.4.1 Basic Concept of Increasing Land Value



A typical urban development, in general, in the suburban areas of Bangkok shows the increase of land value by urban developments (such as new town, shopping center, industrial estate, etc.) through the comparison of prices of land before and after the development. In addition to the urban developments, the railway improvement provides some significant additional benefits especially for the area along the railway corridor, because of the advantageous accessibility to/from the center of Bangkok.

The probability of reimbursement of development benefits will be examined, based on the estimated development benefits, in quantitative analysis, with/without railway improvement.

5.5 Urban Development Program and Implementation System

5.5.1 Prospects of Rail-Utilization, Urbanization and Progressive Improvement of City Planning and Development

The urban development program and implementation system should be proposed based on the following prospects of the development factors:

(1) Prospect of Rail-utilization.

The basic factor which must first be considered in developing the railway in Thailand is that the urban/suburban commuter line is to be developed where/when the railway transport is still unpopular and urban people are not habituated to using the railway. This may require a different approach from those in countries where the railway is already normal or the best used transport mode by many people. In those countries, as soon as the railway is constructed and operated, a reasonable volume of people will start using the railway, or a reasonable degree of urbanization will take place.

It must be admitted that the development plans including railway and urban development proposed in this study are worked out on the condition that the railway is so popular that people choose it, only taking into consideration general transport factors such as time saving, travel cost and others, which are applied to the ridership forecast of railway in this study. The urban development plan is also proposed, assuming that people will prefer the railway in such a manner which was previously pointed out. Therefore, they will be attracted to locate or live along/near the railway.

It may be quite probable that at the latter part of development period, the public will begin to perceive the advantages and benefits of the railway transport due to the knowledge gained through the practical experiences of taking trains on the improved railway. It may be disputable at first, especially at the early stage of development. There may occur a time lag between the railway improvement and the railway utilization (ridership).

Accordingly, special promotional measures in parallel with the railway improvement project must be positively carried out with such aims as follows:

- a) To reduce the time lag to minimum level possible
- b) To boost the rail-ridership being placed on a right track of growth in a favorable circle of supply and demand.

(2) Prospect of urbanization along the improved railway

It is no wonder that the real estate market in Thailand is at present dominated by road transport. Accordingly, the most essential factor determining the land value is transportation condition of road. In this situation, the question is whether the railway improvement can redirect this road oriented real estate market toward the urbanization along the railway, or the railway-favored real estate market.

There seem to be two conflicting notions — pessimistic and optimistic. One side says that Thai real estate market has been historically long rooted on the road transport, so it may be very difficult to change it. Even if change would take place, it will take a long time. The other says that the current serious transport condition of road is making people lose their confidence and belief on road transport. The reason why they stick to it is the fact that there is no other efficient alternative transport system. In fact, it is predicted that a large volume of people will be lured to take the improved railway, hence locate their houses and offices along the railway with the knowledge of the drastic improvement of travel time from 2 to 3 hours by car at present to less than one hour to the CBD from the areas 30 km away from Bangkok, where the housing development is rampant at present. Even in this case, it will take some time for people to know it.

The optimistic side is so confident on the urbanization effects of the railway, which usually happen in the railway advanced countries, that they become pessimistic about other matters of urbanization such as the fear of possible speculations on lands along the railway.

In any case, it is predictable that there may be a time lag between the railway improvement and urbanization along it. Likewise, there may a time lag on the railway

ridership. There seems to be a time lag even between the railway improvement and land speculation since speculators are not confident with urbanization and development potentials along the improved railway. Their speculation is deemed to be too much risky to take.

It is also foreseeable that urbanization along the railway may take place in full swing after the time lag elapse and public popularity for the railway has been gained.

It is natural that land speculation is one of the possible evils of urbanization along the railway which the integrated urban and railway improvement is targeted to achieve. However, are there any effective measures institutionalized for preventing it at present in Thailand? As a matter of fact, a few measures including the strict enforcement of land use rules and regulations, land use and land price freezing and the like have long been proposed in many valuable study reports. The only way left to the government is either being careful or indecisive on the improvement of the specific railway line.

It may be safely said that the measures for urbanization, either promotive or preventive can be reality only in the progressive improvement of Thai city planning and development system as elaborated below.

(3) Prospect of Thai City Planning and Development

As stated in the preceding section of 5.2, quite a lot of proposals for urban development and implementation systems and measures have been made so far. The readers of the study reports may reasonably question whether Thai government have done anything. The answer is apparently "yes" in the face of the extreme difficulties — socially and politically — of giving birth to the innovative city planning and development systems and measures, partially because society is likely to reject the ideas of constructing the individual rights even for the sake of public welfare and interest. Even though it seems natural to the countries who are accustomed to do so.

It is noteworthy that in spite of the difficulties as mentioned above, many useful and effective devices of urban and land development, which are not institutionalized though,

have been socially developed in Thailand. This may have connection, to some extent, with the remarks made by MRSP study quoted as follows;

“Thailand’s famous and widely admired cultural characteristics of making decision “**by consensus**”, will probably need to be reconciled with the changing circumstances of land use controls and the land development process. It will be necessary to consider at what point the majority view and the majority interest represent a **consensus** sufficient to enforce planning and development decision, despite the contrary interest of a few.”

The traditionally developed practices in urban and land development and implementation, among others are:

- a) Voluntary land donation to infrastructure construction, especially road construction.
- b) Advertisement system (public solicitation) for public real estate development without specifying the development sites, represented by the systems applied to the industrial estate by IEAT and the housing estate by NHA.
- c) Land purchasing for public development without exactly specifying the sites for preventing speculation or land price hike and easing the negotiation of purchasing land and so on.
- d) Land appreciation not resorting to expropriation, but with the same result of expropriation.

With great attention being paid to the seriousness of the current urban problems of Bangkok, which seem not to be overcome by the traditional measures, the studies are likely to recommend very aggressive and ambitious innovative measures. Such measures as strict land use regulation, land price freezing, land expropriation by some kinds of public development office and new town development corporation, application of specific plan (which was established in Thai city planning act with strict limitation on its enforcement due to the imposition of rigid and strict regulation on the existing lands and properties) whose enforcement is conditioned with the parliament approval has,

therefore, never been made in Thai city planning and development practices.

Recognizing the difficulties of establishing such innovative measures which are expected to immediately respond to the current urbanization of Bangkok and after some discussions with the locals, the study is inclined to recommend pursuing the informal or traditional systems and measures without having to make legal arrangement. In this manner, the urban development and implementation systems and measures proposed in other studies can generally be categorized as the institutional system and the informal system.

In spite of the difficulties in legal arrangement, improvement of Thai city planning and development system must be made through establishing the institutional system with which to combat the urban problems of Bangkok.

The institutional systems which Thai government is now pursuing, among others, are:

- a) Legislature of Land Readjustment system;
- b) Amendment of specific plan in Thai city planning act;
- c) Others.

The amendment of a specific plan aims at more smooth application through rationalizing the legal procedure. Although it is reported that the legal arrangements for these improvement may take some more years, these can fall in the category of the institutional systems to be established in short term. Many other innovative improvements as proposed in other studies may be made in the long term.

5.5.2 Development Program and Implementation System

Urban development projects must be programmed in parallel with the progressive improvement of the implementation system in Thai city planning and development practice. (Fig. 5.5.1)

It is certain that an innovative implementation system with legal arrangement is one of the essential conditions for the integrated urban and railway development because the large scale of new town development proposed in this study seems beyond the capacity of the existing implementation system. However it is predicted that it will take time to reach consensus and legal arrangement for establishing the institutional innovative implementation systems such as for instance, new town act.

Taking into consideration the lead time necessary for legal arrangement of the institutionalized implementation system as well as the time lag between the railway improvement and urbanization as discussed in the preceding section, urban development is programmed by phase as shown in Fig. 5.5.1 and summarized below;

(1) Progressive Improvement of Implementation System in Thai City planning and development

1) Effective utilization of the existing informed system (Phase 1)

During the lead time necessary for the new implementation system, urban development will be carried out by the effective utilization of the existing systems. As stated before, because of the time lag, the urbanization pressure will not be so intensive in this period of time - Phase 1, that the effective utilization of the existing system will not be able to cope with it.

2) Institutionalized System (Phase 2 and 3)

Within the lead time of Phase 1, an innovative implementation system must be developed into institutionalized system. This will coincide with the full scale urbanization boosted by the improved railway in phases 2 and 3. The institutional development shall be divided into 2 phases, first in the short range, second, the

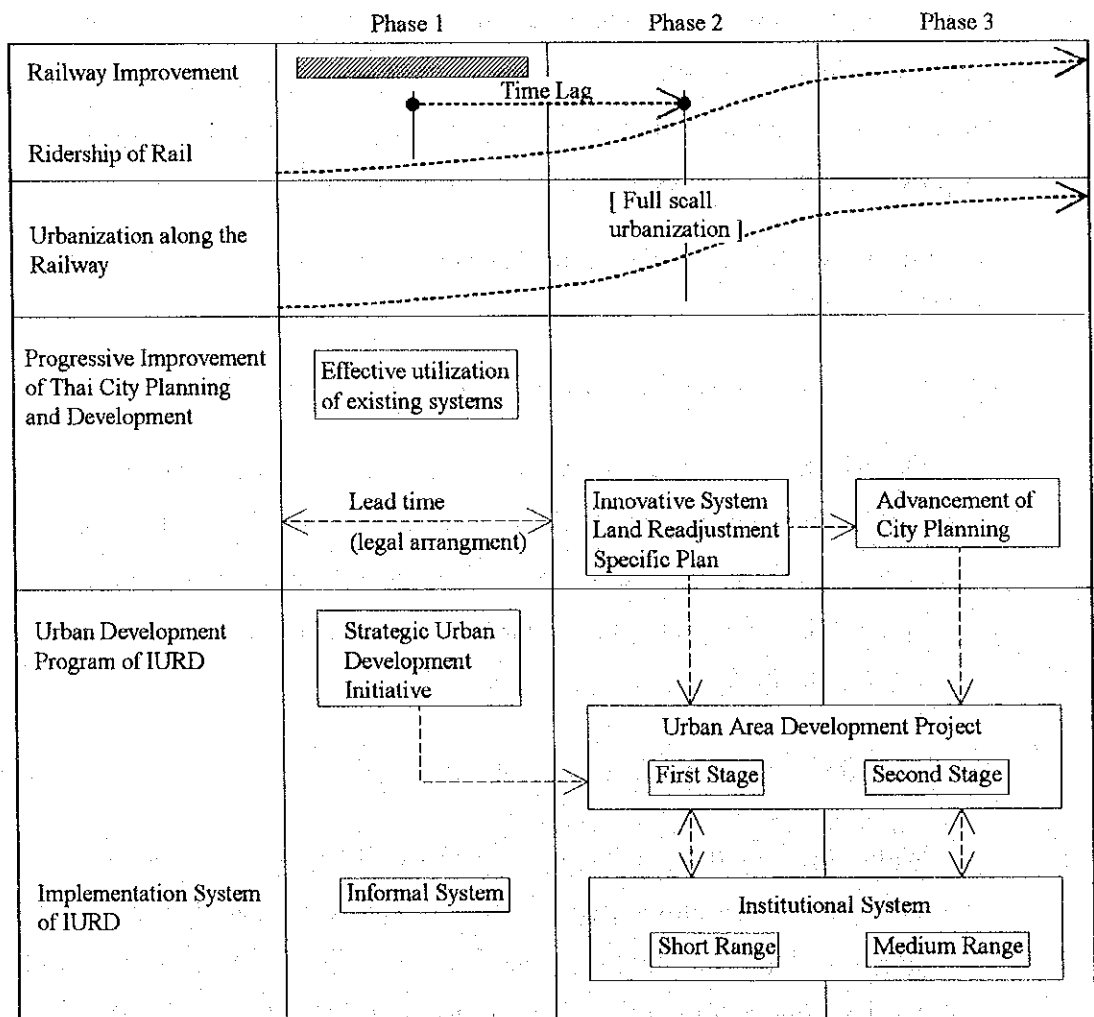
medium range.

The first phase includes the measures the government has been at present striving for, to improve Thai City Planning and Development. Among others are, Land Readjustment.

System and amendment of the specific plan in the city planning act. The second phase includes those measures designed to cope with the further expansion of urban development along the railway.

The preparatory works including studies, administrative arrangements and legislative procedures for setting up the institutionalized innovative implementation must be done in the time period of phase 1.

Fig. 5.5.1 Development Program and Implementation System



(2) Progressive Urban Development Program

Along with the progressive improvement of the implementation systems as envisioned above, an urban development program shall be set forth as follows;

1) Strategic Urban Development Initiatives (Phase 1)

Strategic urban development initiatives shall be executed for the effective utilization of the existing and informal implementation systems. It is anticipated that the existing systems can well respond to the urbanization which will not be large in development size in phase 1. The urban development should target the areas and infrastructure which are strategically important firstly for avoiding the urbanization without necessary measures foreseen in the section of 5.3.3 more importantly for paving the way to the full scale development within the service area of station, as designed in section of 5.3.3, so as to maximize the land use and development benefits of the improved railway.

The strategically important areas and infrastructure, among others, are pinpointed as follows;

- New station and station plaza
- Access Roads
- Land management and development in front and in the immediate vicinity of the station.

Some aspects of the strategic urban development initiatives are discussed as follows;

- a) The location of new station to be constructed should be practically determined just when/where there is a fair prospect of land acquisition for station and station plaza, land development around the station, as well as access road construction.
- b) Land management and development must be carefully carried out with a view to;

- Accommodating future urban growth around the station;
 - Value capturing through the real estate and urban development project;
 - Developing good images of the areas along the railway.
- c) Urban and infrastructure developments in phase 1 are executed so as to provide for the full scale urban development in phase 2

2) Urban Area Development. (Phase 2)

In prospect of the progressive improvement of implementation system that the land readjustment system and the amended specific plan, which shall be legislated in the phase 1 period, will be practically available in the phase 2 period, urban area development shall be implemented in the area around the stations other than those constructed in the phase 1 period, or in the extended area of the phase 1 urban developments.

(3) Proposed Development and Implementation System

1) Effective Utilization of the existing and informal development systems

In the time period of phase 1, more flexible implementation system and measures will be required for the effective utilization of the existing legal systems and well-advised informal systems and techniques. Various techniques and measures for urban and land development including the construction of station plaza, may be envisaged based on the Thai experiences of land development by agencies like private developers, NHA, IEAT and others. Some of them are shown below;

- a) Locating new station where land including land for the station plaza and for development around the station is purchasable.

For this, due attention must be paid to the locational appropriateness of the new station from the viewpoint of effective train operation of the railway.

- b) Advertisement for the consolidated land for the urban development integrated with the railway.

The advertisement is to be made for the landowners or the developers to offer land adjacent to the SRT right of way where new stations can be built at appropriate intervals along the rail line.

c) Voluntary Land Readjustment.

The new stations should be opened where the land owners agree on the land readjustment project including the new station construction.

2) Institutionalized Implementation System (Phase 2)

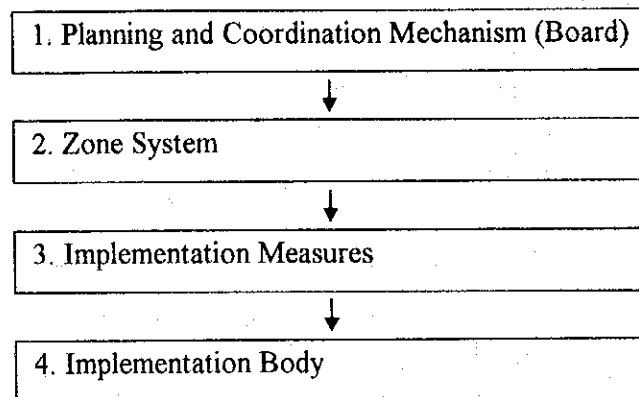
As shown in section of 5.2, a variety of unique development and implementation systems have been presented in other studies. However, questions on them must be assumed as follow;

- Are they really workable in the proposed development project?
- Are they generally applicable?

One particular system is proposed for one particular project, resulting in as many systems proposed as studies made. The great concern of this study is “general applicability” of implementation system. The implementation system is not limited to the Eastern Corridor, but more generally applied to other corridors, northern, western and southern, as proposed in the master plan. In this regard the implementation system must be institutionalized in the Thai city planning and development system.

Thai city planning and development has been pursuing the application of land readjustment and specific plan as discussed earlier. This JICA study proposes the implementation system, following the direction of progressive improvement of Thai City planning and development system in pursuit of the more generally applicable implementation system.

The total system consisting of 4 main components, any one of which is indispensable, is shown in Fig. 5.5.2, and summarized below.



a) Eastern Corridor Development Board

The planning and coordination mechanism and organization specified for Eastern Corridor should be established on the following premises.

- National Interest

Urban development challenges are of national interest so as to enable Thailand to fulfill its full economic and political potential in Southeast Asia. As stressed earlier, it may be safely said that the revitalization of Bangkok capital which needs urban restructuring, relies greatly on the success of the eastern corridor development which includes such national projects as SBIA, central government office relocation, and others.

- Strong need of coordination

The necessity of coordination between agencies or projects is what has been repeatedly emphasized in many of the development studies carried out in the past. As discussed in the preceding section, there are not a few development projects proposed in the Eastern urban corridor areas. However, it is a pity to have to say that many of them are incompatible and not well coordinated in terms of the development theories, development size including population and employment and others. This situation dictates establishment of an administrative mechanism for over-all planning and coordination.

- Positive intervention of government

As the current urbanization and real estate market are road transport based in spite of some conditions favoring rail transport, positive intervention of government is imperative in order to gear them toward the rail-based city. In fact the currently proposed development projects are not well planned and designed to make the most of the improved SRT railways. It is recommended that they must be reviewed and revised so as to make best possible use of the convenient rail transport service. This coordination and arrangement will be one of important tasks of the proposed development board.

b) Integrated Urban and Railway Development Zone System (IURD Zone System)

Legal arrangement

It is suggested that an IURD zone system designating a special zone where integrated urban and railway developments are implemented, be legally set up, independently or jointly with other laws as follow;

- Independent law (Tentatively called IURD act)
- Jointly
To be included in the SRT act or City planning act.
Best recommended is the institutionalization of IURD zone system in the amended specific plan in the city planning act.
- Other alternatives
- It may be legalized by either ministerial decree, provincial ordinance or others.

Designation of IURD zone

IURD zone shall be designated either where urban development is desirable and recommendable from the standpoint of railway developer or operator, or where railway improvement is desirable from the standpoint of city planning and development..

The designation of the IURD zone is designed to work as a guarantee of a certain volume of passenger ridership for the railway development investors, as well as a guarantee of provision of rail transport service for the urban development investors.

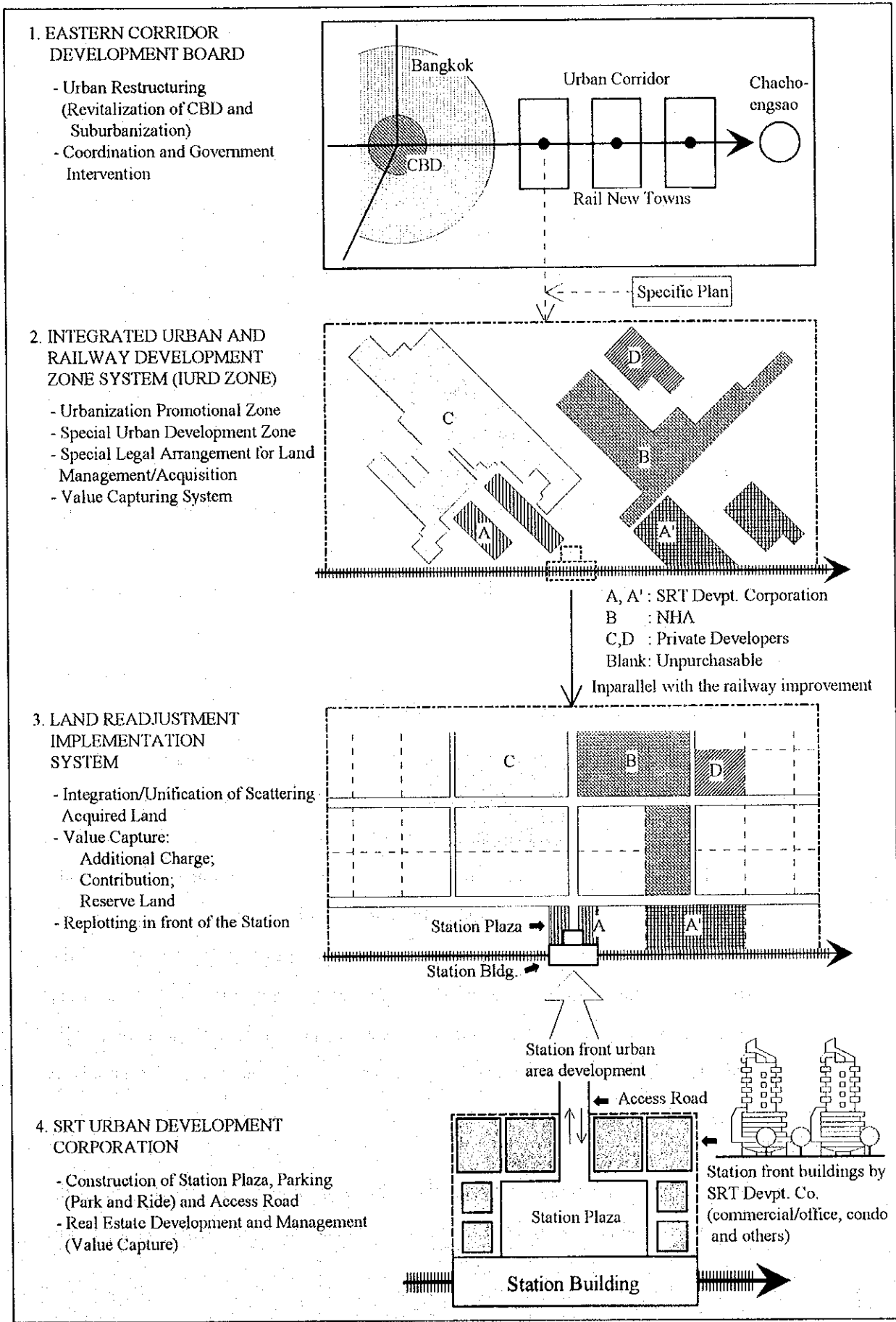
Urban and Land Development in IURD Zone.

The manner and system of urban development in IURD zone is quite dependent on the legal arrangement made for the systems as stated above. If it is included in the specific plan and/or the specific plan is designated instead of the IURD zone, it must precisely follow the procedures stipulated in the specific plan articles of the Thai City planning act.

Incentives in IURD zone and disincentives out of IURD zone.

There may be a necessity of granting some types of incentives (not necessary by monetary terms) to the developers or/and land owners for facilitating urban development in IURD zone especially in the phase 1 period before the full scale urbanization boosted by the improved railway. (In the case that IURD systems scheduled to be applied in the phase 1 period). It is desirable, if possible, to ban large scale urban and housing developments outside the IURD zone in the range from 30 km to 50 km radius.

Fig. 5.5.2 Integrated Urban and Railway Development/Implementation System (Institutionalized System)



Integration and unification of the individual developments into a large new town.

It is unpredictable that one developer, either public or private, can develop all the area designated in IURD zone. Therefore through the coordination among the developers, large tract landowners and subdivision projects as well must be integrated and unified as much as possible so as to form a large urban area like a new town, not merely a collection of fragmented built-up areas. In this case it is advisable to use the relocating facilities from Bangkok such as universities/colleges, hospitals, governments offices, and new developments such as SBIA, international business zones, industrial estate and others as a seed or nucleus for the new town and community development.

The manner and system of the integration/unification will depend on the legal systems applied, such as those of the specific plan, land readjustment or simply voluntary coordination. In any case coordination must be one of obligatory/compulsory conditions for urban and housing development in the IURD zone.

Land management/acquisition in IURD zone.

A variety of ways and systems of land management and acquisition should be applied in IURD system, ranging from voluntary bargaining and sale, barter or exchange, public acquisition of leasehold interest, land readjustment/land pooling, joint-venture agreement or concession to eminent domain and expropriation. It again depends on the legal systems applied in IURD zone. In fact if/when the specific plan is legally applied, expropriation becomes possible but importantly it must be noted that it should not deny other practices, rather they must be used in cooperation with one another. It is shown in BMA-MIT report referring to "Voluntary land acquisition with the threat of compulsory land acquisition".

In the case of voluntary bargaining and sale applied in IURD zone, the incentives and disincentives will be needed as shown in BMA-MIT study report below.

This un compulsory method is the most ideal system of acquiring land. The three main components are 1) the willingness of the sellers, 2) the willingness of buyers and 3) healthy land market where land prices can be determined. In Thailand, the majority of land is held by private individuals (for reasons of speculation) which can impose problems of willing sellers. The willing buyers can be complicated by public procurement procedures, for instance requiring evidence of land titles or drawbacks regarding the governments technical capability.

To encourage the willingness of sellers, the government can provide incentives, such as:

- tax relief mechanisms or tax rebates. Some examples are the following:
India waives a 1% transfer tax when the public is the purchaser,
Sweden has a complicated array of legal and tax-relief mechanisms to encourage sales to the public,
Norway doesn't tax public purchases but heavily taxes land sales made to the private sector.
Guatemala lowers taxes on profit.
- other types of incentives, such as:
preference of titling for other landholdings in return for the sale of a certain parcel of land, or

Or impose penalties for those refusing to sell, such as:

- vacant land tax - for example, Philippines has an idle-land tax of 5%.

It should be noted that the above measures should be dealt with simultaneously with methods of taxation and finance.

However it must be noted that in spite of the incentives or disincentives as listed above, the urban development is placed in a precarious and uncertain situation

because of the possible threat that only one last landowner may refuse selling out his/her land which is located at a crucial point of the development site, resulting in the total failure of the project implementation.

What will happen if this takes place here and there around the station of the improved railway. It will be almost impossible to develop an urban center with the maximum efficiency of land use, thus leading to the waste of a huge amount of investment of public capital fund for the railway improvement, which comes from the public through taxation.

To cite the BMA - MIT study;

Kitay noted that no voluntary land-acquisition program will be effective in a developing country unless it is accompanied with a threat of compulsory land acquisition. Encouraging voluntary sales requires sound land management and taxation policies, which is not evident in Thailand. On the other hand, except for transportation projects, the government has never used the power of eminent domain.

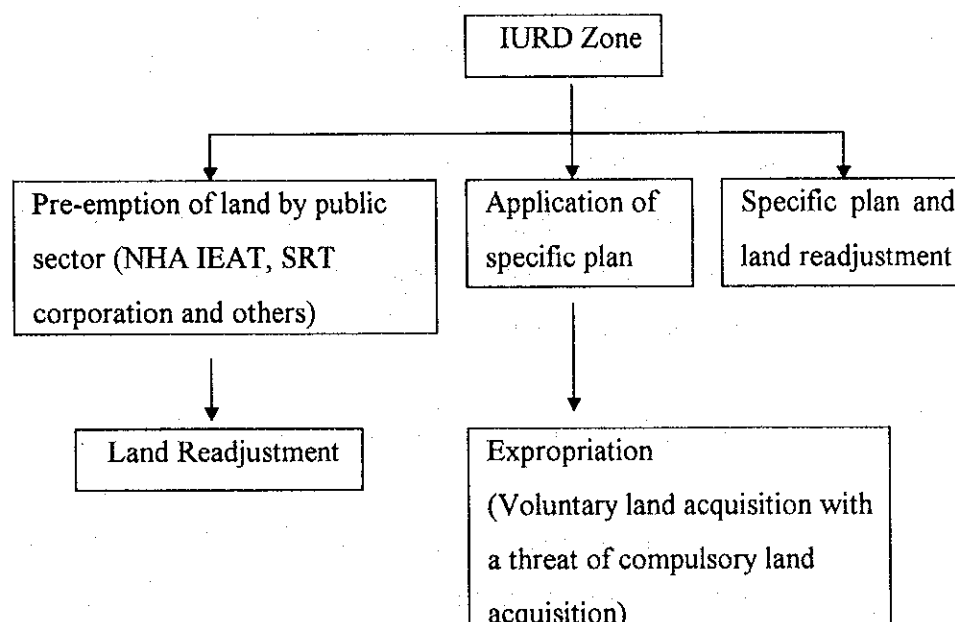
We recommend that the implementing agency use this power in acquiring land for transportation and other "public purpose": The government should clarify what can be categorized as "public purpose".

To cite MRSP study;

It will be necessary to consider at what point the majority view and the majority interest represent a consensus sufficient to enforce planning and development decisions, despite the contrary interests of a few. Of equal importance, it will be necessary to determine what measures the various levels of government will have at their disposal, to prevent the damaging actions of a few in order to securely protect and maintain the protection of the investments which have been made in the interest of a majority, whether that majority is local, regional or

national.

Based on the above discussions, the JICA study recommends the main measures for land management in IURD zone, either of the following or both as shown below;



It must be kept in mind that these proposed institutional systems would not deny the existing systems and techniques of land management and acquisition, rather they must be supported by them.

The first option implies that the public development agencies such as NHA, IEAT, SRT/SRT corporation and others should acquire as much land as possible in advance either by the traditional method of voluntary land acquisition or pre-emption or expropriation if possible before opening up new stations. However it is quite difficult to acquire all the land in the IURD zone. It should be assumed that unpurchasable lands will sporadically remain in the IURD zone. This is a basis for proposing land readjustment which would bring together the fragmentedly acquired lands including the unpurchasable lands into one new town through the replotting devices of land readjustment.

Developing and implementing organization.

A corporation specialized for IURD Development may be established, if necessary. The types of corporation will be either of the followings:

- i. Government Corporation
 - Development arm of SRT (one part of SRT organization)
 - SRT's subsidiary
 - NHA's subsidiary
 - Independent corporation joined by SRT, NHA, IEAT and etc.
- ii. Joint venture by the public and private sector
- iii. Private development corporation

The IURD Development Corporation aims at

- i. Accelerating urban/housing development in IURD zone and materializing the IURD development plan.
- ii. Channeling the development benefits to SRT through urban development business. In this context, it is quite important to strengthen and expand the power of NHA and IEAT, especially in IURD zone as follows;
 - The power of NHA and IEAT should be strengthened and expanded so as to have the capacity for developing large scale new towns in IURD zone.
 - The MRSP study recommends to develop the industrial estate in or close to the urban area. It intend to urge IEAT to pay more attention to industrial town development, not only to industrial estate development isolated from urban activities. Hi-tech new town is a typical example of project to be implemented by IEAT in this regard.
 - To this end the legal power such as those of pre-emption of land and

land expropriation should be granted to the development projects of NHA, IEAT and others, exceptionally in IURD zone.

- IURD legal system must clearly stipulate the authorities and legal power of the urban development projects and implementing organization in IURD zone system.

The following are examples.

NHA, IEAT or other agencies can be implementing agencies of Land Readjustment, new town development and others.

Rail development in IURD zone

The followings are the major ideas of railway development implementation system to be incorporated into IURD system.

< Railway improvement and development plan >

Alignment in the case of new line construction, stations, railway services (passenger and freight) and other shall be discussed and planned through the coordination process, established in the IURD zone system.

<Cost sharing by beneficiaries>

The boundary of IURD zone corresponds to the boundary of locational area of beneficiaries of railway improvement. The cost sharing system by beneficiaries is comprised of the following three (3) measures;

- Taxation(general/special)
- Compulsory or optional contribution from the special beneficiaries like the real estate developers and landowners.
- Development profit created through the urban developments implemented directly by the railway operator.

Skeleton of the proposed IURD system.

- Law: IURD ACT (Loyal Decree)

It should be an independent act, but will be related to and included in Thai city planning and development system in future. The following items should be stipulated in the act.

- IURD zone: The area where railway and urban area are to be developed in an integrated manner.

This designation is designed to stimulate urban development in IURD zone.

- IURD development planning and coordinating mechanism to be set up

There must be 2 kinds of coordination procedure and organization, one within the government, coordinating the agencies concerned with the IURD development, the other between the government and the major beneficiaries such as the private developers and owners of large scale land and others.

The main items for coordination are the followings:

- i. Development plan, Land use plan and Infrastructure development plan centering on the access transport system to the railway.
- ii. Coordination between the railway development and IURD urban development.
- iii. Cost sharing by beneficiaries and government or the railway developers and operator.
- iv. Agreement on IURD Development Plan

The agreements to be made through the coordination process are to cover the following items;

- Major urban development projects and land use.
- Railway development/improvement plan including the alignment, stations, level of railway transport services, construction schedule and others.
- Cost sharing or contribution.

Agreement would be made either between the railway developer/operator and each major beneficiary or a group of them.

v. Development Plan

- Structural plan

At the first stage of the coordination the structure plan is to be presented to the possible main beneficiaries for discussion and consultation.

- Development plan

After the consultation with the beneficiaries, IURD Development plan is to be formulated.

vi. Railway Development Plan

Railway Development plan is to be worked out and finalized in accordance with the development plan set above.

vii. Railway Developer/Operator

The organizations which should be entitled to develop and operate the railway transport are to be specified in this act.

Examples are;

- SRT
- Provincial government
- Joint venture by the public and private sector
- Private sector

Among them the railway developer/operator is to be selected for the IURD zone.

viii. Cost Sharing

The revenue resources for cost recovery of the railway development which are lawfully enforced should be identified in this act.

The samples are;

- Taxation
- Contribution form the beneficiaries
- Contribution by the railway developers themselves through urban development business.

ix. Public fund and subsidy

There must be stipulation on users charge, capital investment by bank and local government, bonds, government subsidy and financial support, loans and others.

x. Urban development implementation

It is recommended to stipulate the following items for strengthening and expanding urban development system.

- urban development system
 - Introduction and application of legal implementation system of New Town Development.
 - Introduction and application of Land Readjustment Implementation System
 - Others
- Implementing organization
 - Legal power of NHA and IEAT should be strengthened and

expanded so that they can implement large scale New Town Development.

The railway developer/operator, and its subsidiary company, and IURD Development corporation and the like are to be entitled to do business in real estate business with the view to facilitating the urbanization in IURD and channeling the development benefits to the railway development.

Land Readjustment System coupled with land acquisition in advance

It is reported that the land readjustment act is coming close to legislation in Thailand although it may take a few more years. The land readjustment system is the most recommendable for implementing the integrated urban and railway development with the aim of value capture.

The raw lands shall be acquired, even scattered, at relatively lower prices ahead of the announcement of location of a new station. The pieces of land can be regularly consolidated into urban land with high quality of public services through the application of land readjustment system with the construction of the new station.

The infrastructure development and the construction of new station on the improved railway are assumed to greatly raise the land value within the service area of the station.

The value capturing will work as follows;

- The developer, either public or private sector, will be charged in accordance with the increased land value.
- Lands for station plaza shall be provided through the L/R system.
- A part of reserve land shall be sold for the cost recovery of the railway

improvement including the construction of the station plaza.

- The pieces of lands which SRT or SRT affiliated corporation acquired in advance shall be replotted and consolidated just in front of the station, where the high commercial potential is expected. The SRT corporation established shall go into the real estate development and management business. The benefits accruing from the real estate business shall be channeled to SRT for cost recovery of the railway improvement.

SRT Urban Development Corporation.

Special consideration must be given to the urban and land development around the station, including station plaza. The station plaza is crucial for railway ridership because it is clear that the capacity of station plaza is likely to limit the volume of the traffic accessing to the railway.

The land use of the district around the station is also crucial for urbanization within the service area as a whole because it must work as an urban center or commercial center regulating and leading the urbanization within the entire service area of the station.

< Station Plaza >

The responsibility for station plaza construction is disputable, namely, which agency should construct the station plaza. On the urban/suburban lines not a few stations and station plazas must be developed. This will be a great financial burden on SRT. It is undeniable that although SRT needs the station plaza for railway passengers, the station plaza is a part, or extension of the road network. In this regard it may be said the station plaza should be constructed by government agencies in charge of road construction, — DOH, DPW, Provincial government and the like. Taking into consideration the degree of necessity and responsibility of both parties the land and construction cost of the station plaza should be agreed to be shouldered half and half as the case in Japan.

If/when the railway transport becomes a popular transport mode, the agencies which are responsible for road transport will no longer be able to pay less attention to the station plaza. The congested traffic of passenger cars, buses, taxis in/around the station plaza may be addressed by the agencies in charge of road transport.

It is suggested that SRT and the road sector of government should cooperate to construct the station plaza. The SRT itself also must seek the way of constructing the station plaza.

< Station Front Urban Development >

The importance of rail-station front area is stressed as follows;

- The station front areas will be the most precious land since they will be located at the most convenient place for the rail passengers, commuters, visitors and inhabitants in the rail town. This precious land should be efficiently and effectively developed. Otherwise the rail new town will become less convenient and less attractive. The development of urban area with high urbanity, amenity and well designed landscape in front of the station is essential to the success of rail-urban corridor.
- High development effects of the improved railway are anticipated especially in front of the station. This tends to yield windfall benefits to the landowners of lands which just happens to be located in front of the station. This is socially unfair and inequitable. With the aim to prevent such (adverse) social effects as well as to recover the benefits of railway improvement, real estate development and management by the public sector would be justified.

< SRT Urban Development Corporation >

The SRT Urban Development Corporation is recommended to be established with the views to achieve the public purposes as stated above — construction of

station plaza and urban development of the station front lands. The corporation shall be engaged in real estate development and management of areas in front of the station, namely construction of commercial/office, condominium, amusement and others.

The existing SRT act in force allows the SRT to invest in a Joint Venture with private sector (less than 49% share holder), but not to have an affiliated company. It is reported the SRT itself sought the revision of this act in order to do it.

The corporation is to purchase the raw lands in pieces around the station in advance. The acquired lands are replotted and consolidated in front of the station, including the site of the station plaza.

The SRT development corporation should be jointed by other agencies such as NHA, IEAT, and others, which have had well experiences and knowledge of real estate development and management in Thailand.

5.6 Necessary Measures in City Planning

The following measures in Thai city Planning and development procedure must be taken in the course of the implementation of the proposed integrated urban and railway development.

(1) Land use plan in general plans.

The general plans of Bangkok, Samut Prakan and Chachoengsao, in force must be revised so as to incorporate the proposed land use plan in the land use zoning system of the general plans. The land use plan for zoning system should be formulated with due attention given to the railway as emphasized in this study.

(2) Inclusion of the railway to be improved into the general plans.

The current city planning of Thailand does not include mass transport systems in the general plan. Actually the proposed mass rapid transport systems such as those of Tanayon, MRTA and Hopewell do not appear on the Bangkok general plan. This may be attributable partially to the following considerations;

- 1) In the days when the city planning act was legislated, and the original draft of Bangkok general plan was formulated, road transport was predominant in the urban transport system with less regard paid to the mass transport systems including the railway.
- 2) BOT System on concession base has been broadly applied to the construction of mass transport systems. Although BOT is an efficient/effective system, it may be said that it involves some degree of uncertainty of project implementation, because of its dependency on the concessionaire. It is possible that mass transit systems would not be included due to the uncertainty.

It is necessary to change this situation in order to transform the road based city to the public transport based city of Bangkok. It is recommended to include the planned mass transit systems in the general plan, because the land use plan in the general plan is

worked out based on them. Otherwise the land use zoning becomes baseless.

(3) Manifestation of access roads and station plaza in the general plans.

Along with the inclusion of the railway as recommended above, the access roads and station plaza should be clearly manifested in the general plans. At the same time the responsibilities of construction and maintenance of the access roads and station plaza should be clearly demarcated.

(4) Designation of specific plan

Specific plan should be designated in the areas around stations, which are important for implementing the proposed integrated urban and railway development.

6. CONCLUSION AND RECOMMENDATION

Best Utilization of Railway

A summary of the integrated urban and railway development schemes examined in this study, as shown in Table 6.1.1 indicates the important effects and usefulness of the railway for the establishment and advancement of “regional and urban transport system”, especially the “urban mass transport system,” as well as “regional and urban development system” in Thailand. In fact, the railway if improved as planned in this study is expected to effectively systematize the traffic movements. The railway is also effective in regional/urban structure building as well as urban and land development/management along the railway. It is, thus, concluded that best utilization should be made of the existing railway for improving and advancing the transport and urban development system in Thailand.

Table 6.1.1 Summary of Integrated Urban and Railway Development Schemes

	Development and Planning Area	Railway Improvement	Regional and Urban Transport System	Regional and Urban Development System
1	<ul style="list-style-type: none"> Metropolitan Regional Development (200 km radius area) 	<ul style="list-style-type: none"> National/regional trunk lines 	<ul style="list-style-type: none"> Inter-urban rail transport system 	<ul style="list-style-type: none"> Multipolitan structure. - multi - model policentric system (Decentralized Regional Structure]
2	<ul style="list-style-type: none"> Bangkok Capital City development (50 km radius area) 	<ul style="list-style-type: none"> Urban/suburban line network 	<ul style="list-style-type: none"> Integrated regional/urban mass transport network and system 	<ul style="list-style-type: none"> Integrated capital city (Centralized urban structure) Public transport based city
3	<ul style="list-style-type: none"> Urban Corridors (Service area of railway) 	<ul style="list-style-type: none"> Suburban commuter line 	<ul style="list-style-type: none"> Integrated urban corridor transport system 	<ul style="list-style-type: none"> Structured urban development <ul style="list-style-type: none"> - Synchronized development of the central district and suburbs - Orderly allocation of new towns and intensive land use led by the railway
4	<ul style="list-style-type: none"> New Towns (Service area of station) 	<ul style="list-style-type: none"> Main stations (Express commuter train stations) 	<ul style="list-style-type: none"> Land transport system converging on the station (access road and station plaza) 	<ul style="list-style-type: none"> One town centralized urban structure centering around the station Concentric land use regulated by the distance from station
5	<ul style="list-style-type: none"> Urban Center (area around the station) 	<ul style="list-style-type: none"> Main stations 	<ul style="list-style-type: none"> District transport system around station plaza 	<ul style="list-style-type: none"> Highly concentrated urban center
6	<ul style="list-style-type: none"> Station plaza front area 	<ul style="list-style-type: none"> Main stations 	<ul style="list-style-type: none"> Safe/comfortable pedestrian way 	<ul style="list-style-type: none"> High value added real estate development and management

Integrated Urban and Railway Development System

Integrated urban railway development is quite essential for realizing the proposed urban development system. Taking into consideration the lead time necessary for the legal arrangement, and the time lag between railway improvement and urbanization, urban and infrastructure development shall be strategically carried out through the effective utilization of the existing systems including the legal and the informal systems.

In time for the full scale urbanization along the improved railway, the institutionalized urban development systems including 1. Eastern Corridor Development Board, 2. Integrated Urban and Railway Development Zone System and Specific Plan System, 3. Land Readjustment Implementation System and 4. SRT Urban Development Corporation should be firmly established.

Necessary Measures in City Planning System

In order to secure the best utilization of the railway for establishing the urban mass transport system and urban development system as proposed above, and the integration of the railway and urban development, it is recommended that the mass transport plans and projects including the intra-urban systems such as Tanayong, MRTA, Hopewell and others as well as the SRT suburban lines should be included in the general plan in addition to the land use plan along the railway. The general plan should also indicate the station plaza and the access roads to the stations. However, before the institutional development systems are set up, the location of stations must be flexibly and carefully determined in such a manner as promoting the infrastructure, especially station plaza and access roads, and land development around the stations to be constructed.

Revision of General Plan

The land use and infrastructure plan for best utilization of railway as proposed in this study must be formulated in order to replace the existing general plans in force. This study proposed the integrated urban and railway development model plan on the eastern corridor only. Studies must also be done for the remaining 3 corridors.

It is hoped that the proposed integrated capital city development plan of Bangkok as shown, in section 3.4.3, be instrumental for formulating the general plans of provinces located within 50 km radius area from the center of Bangkok.

Tasks in Phase 1 period

Major tasks for implementing the proposed urban and railway development during the period of the railway improvement of Phase 1 are listed below.

1) Land acquisition and management by public sector

During this period of time, the positive involvement of the government is required due to the necessity of preventing undesirable urbanization around the stations, and promotion of urban and land development along the railway. Land acquisition should be targeted for the areas around the planned stations. At the locations where sufficient land can be consolidated large enough to construct the station plaza and implement the real estate development, new stations should be built.

It is also advisable that during this period, large areas of land, even scattered within the service area of the station, should be acquired. These lands shall be developed in the phase 2 through the institutionalized implementation system such as land readjustment. They are replotted to the site of planned station plaza and to the areas in the vicinity of the station.

The possibility of voluntary land readjustment should also be examined in connection with the construction of new stations during the phase 1 period.

2) Preparation of institutional development system

As stated earlier the legislation of Land Readjustment Act and amendment of specific plan are in progress. It is advisable to make efforts to expedite this legislation. In addition, preparatory works are needed on the following items:

- a) Setting up the Eastern Corridor Development Board
- b) Legislation of IURD Act
- c) Amendment of SRT Act, enabling the SRT to set up the proposed SRT Urban Corporation

It is recommended that the SRT urban corporation be set up at the earlier stage, since it can be tasked with land acquisition and management for construction of station plaza and real estate development during the phase 1 period.

APPENDIX

EXAMPLES OF THE INTEGRATED URBAN RAILWAY DEVELOPMENT

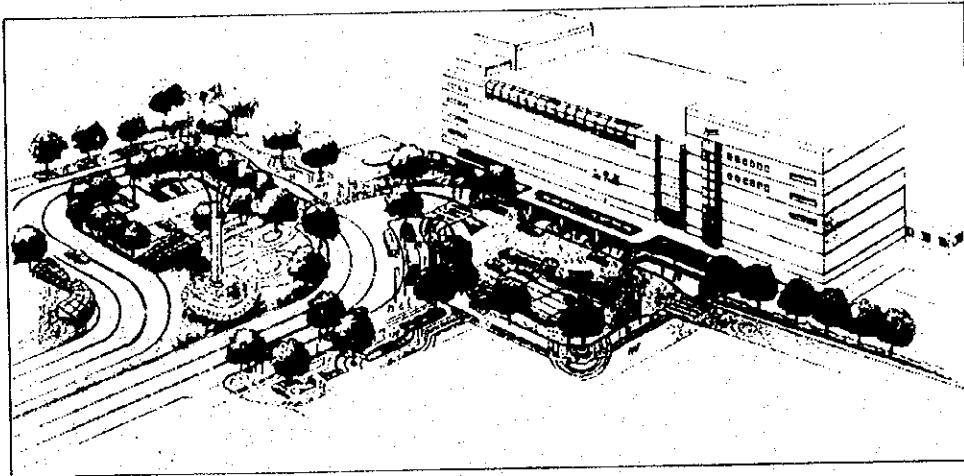
REPORT

ON THE PROGRESS OF THE WORK DURING THE YEAR 1900

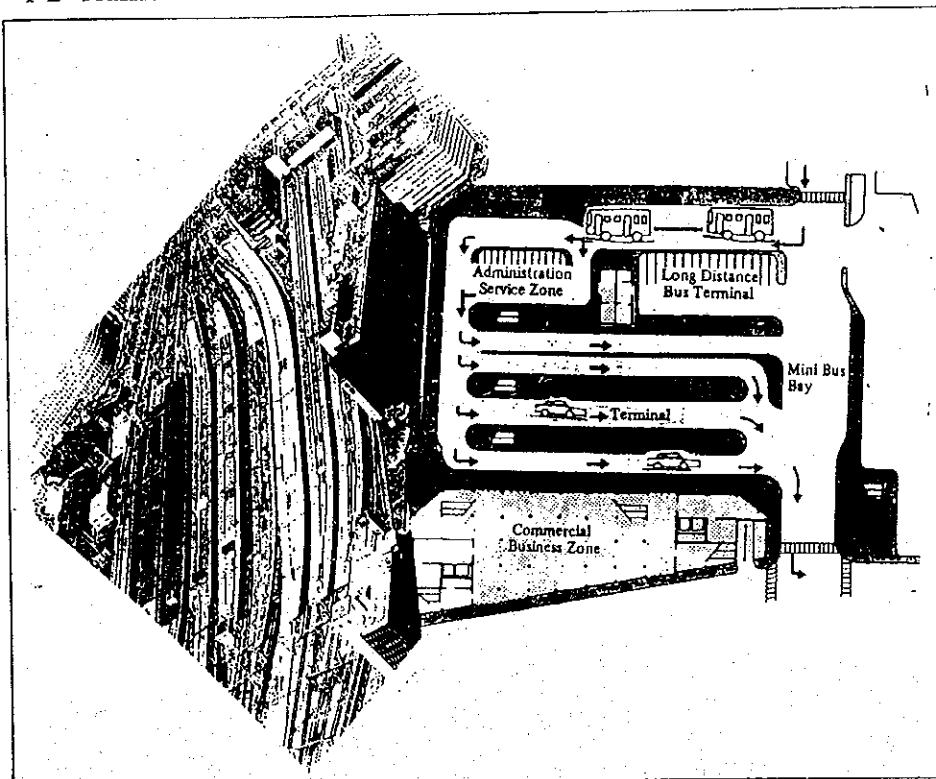
BY THE SECRETARY

1. Railway Station Building and Plaza

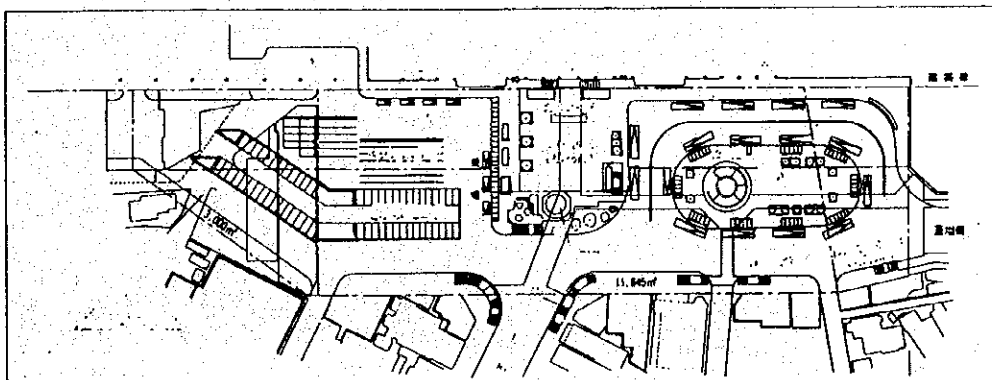
1-1 Station Building and Plaza



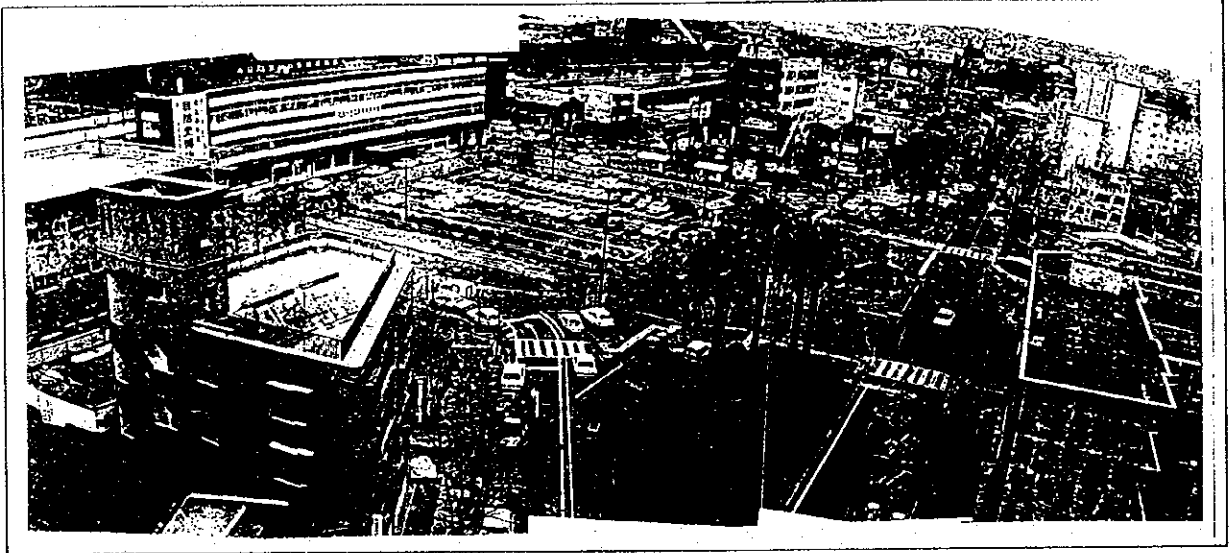
1-2 Traffic Flow in the Station Plaza



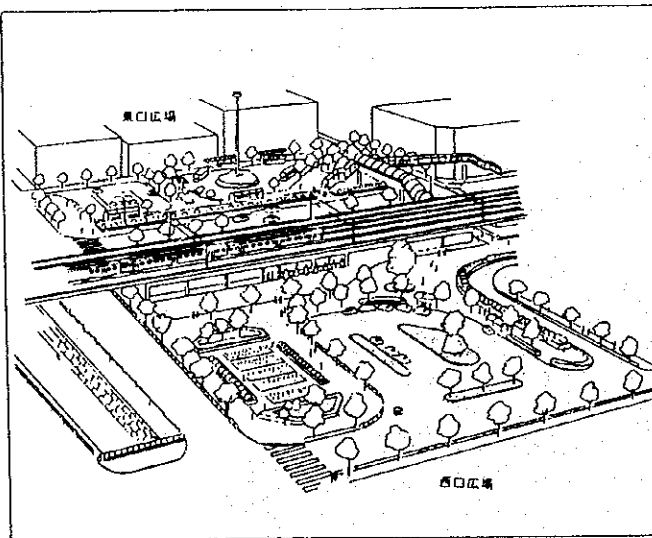
1-3 Site Plan of Station Plaza (Morioka Sta., Iwate Pref.)



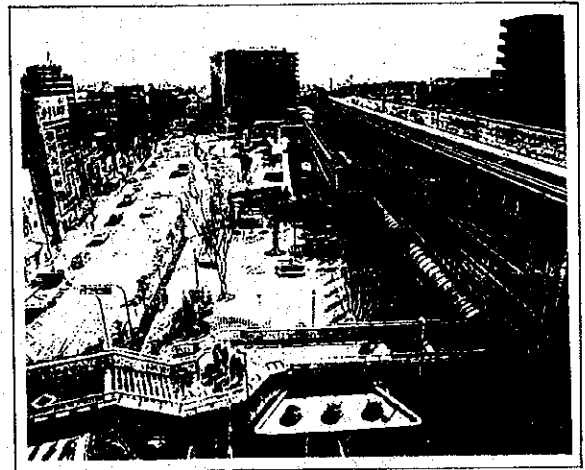
1-4 Car Parking in Station Plaza



1-5 Bird's View of Station Plaza



1-6 Pedestrian Plaza

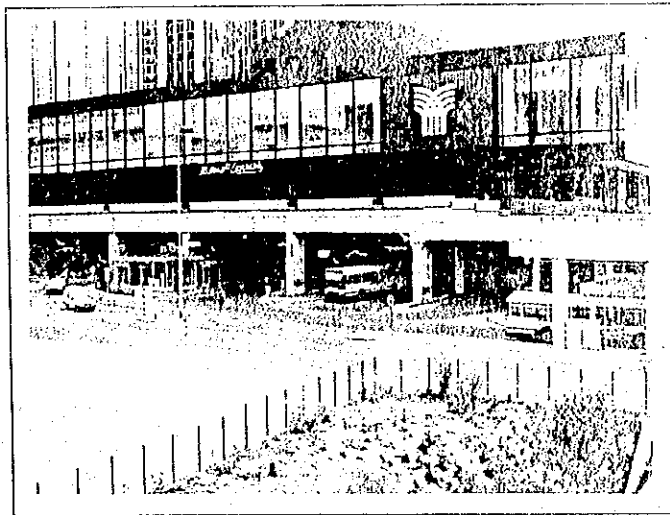


1-7 Bus Station in Station Plaza

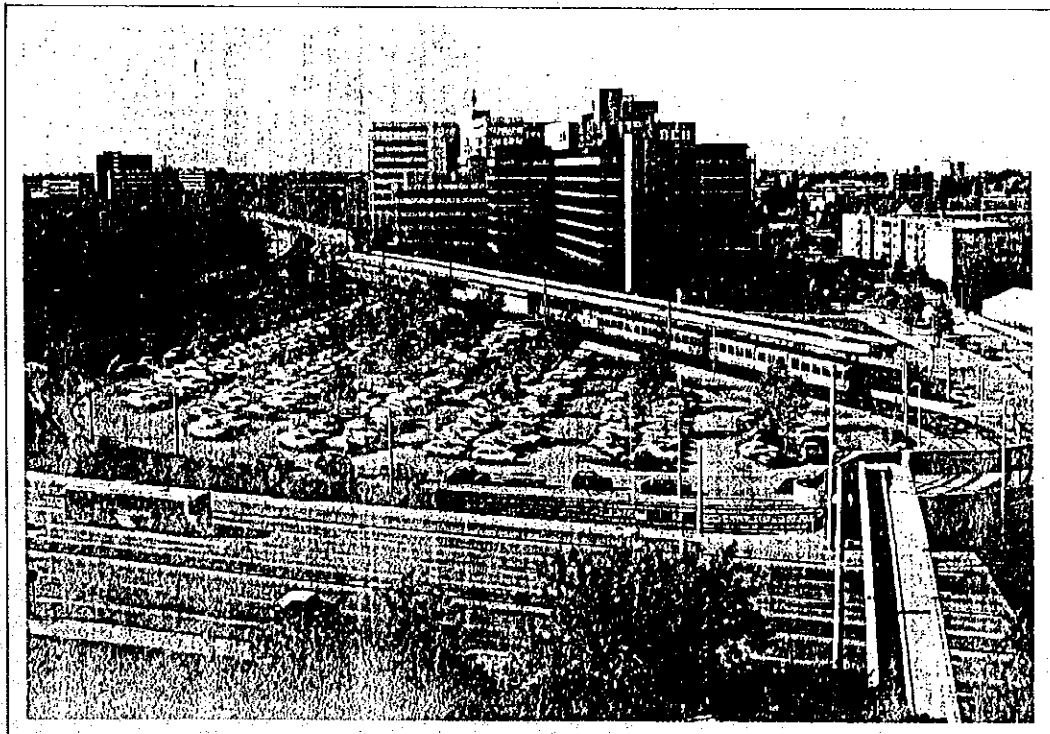


2. Sta. Front Car Parking and Bus Terminal

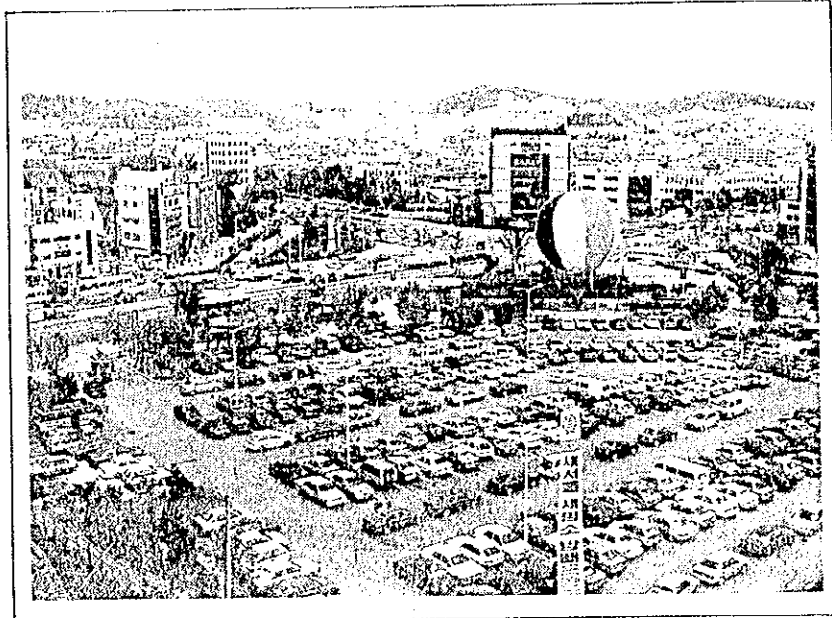
2-1 Bus Terminal



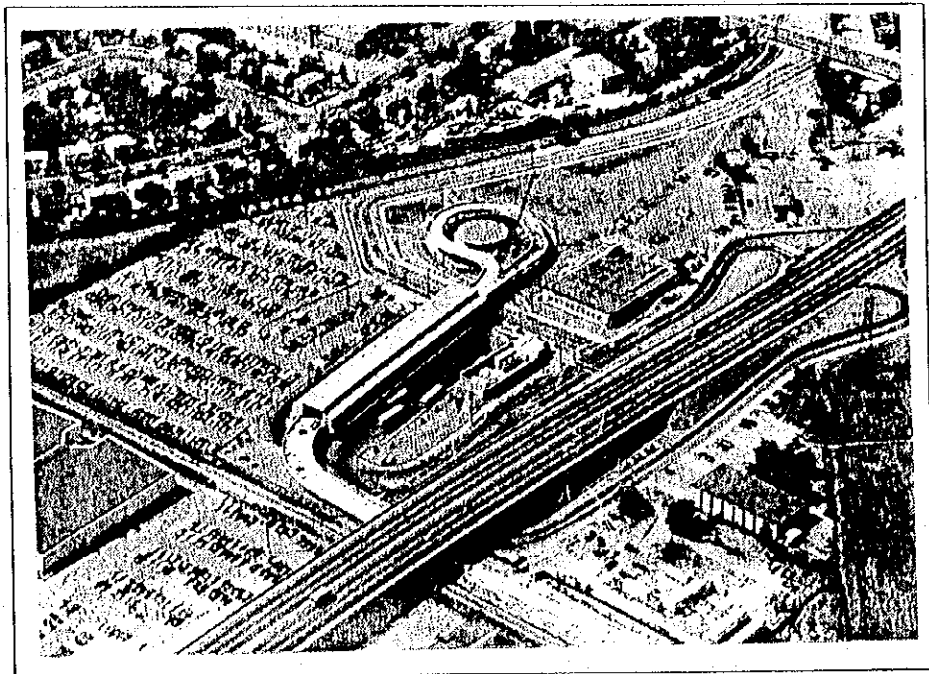
2-2 Parking for Park and Ride



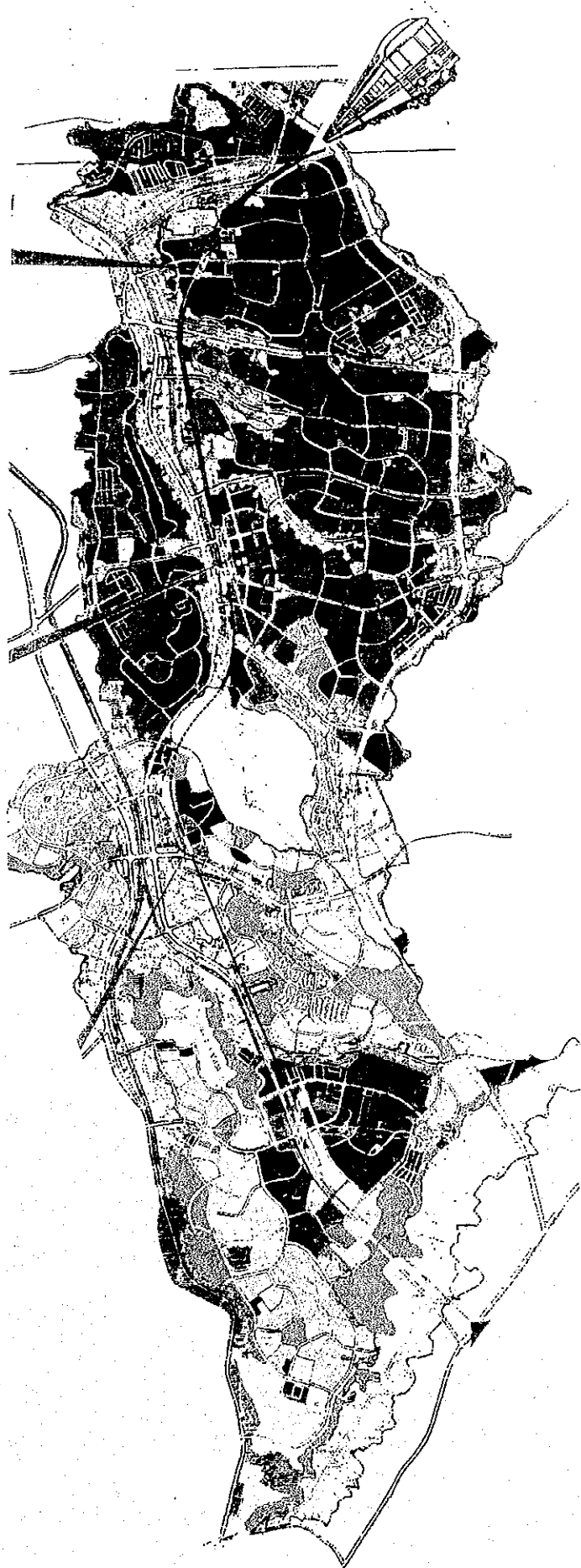
2-3 Parking Lot for Railway Passengers



2-4 Parking for Kiss and Ride

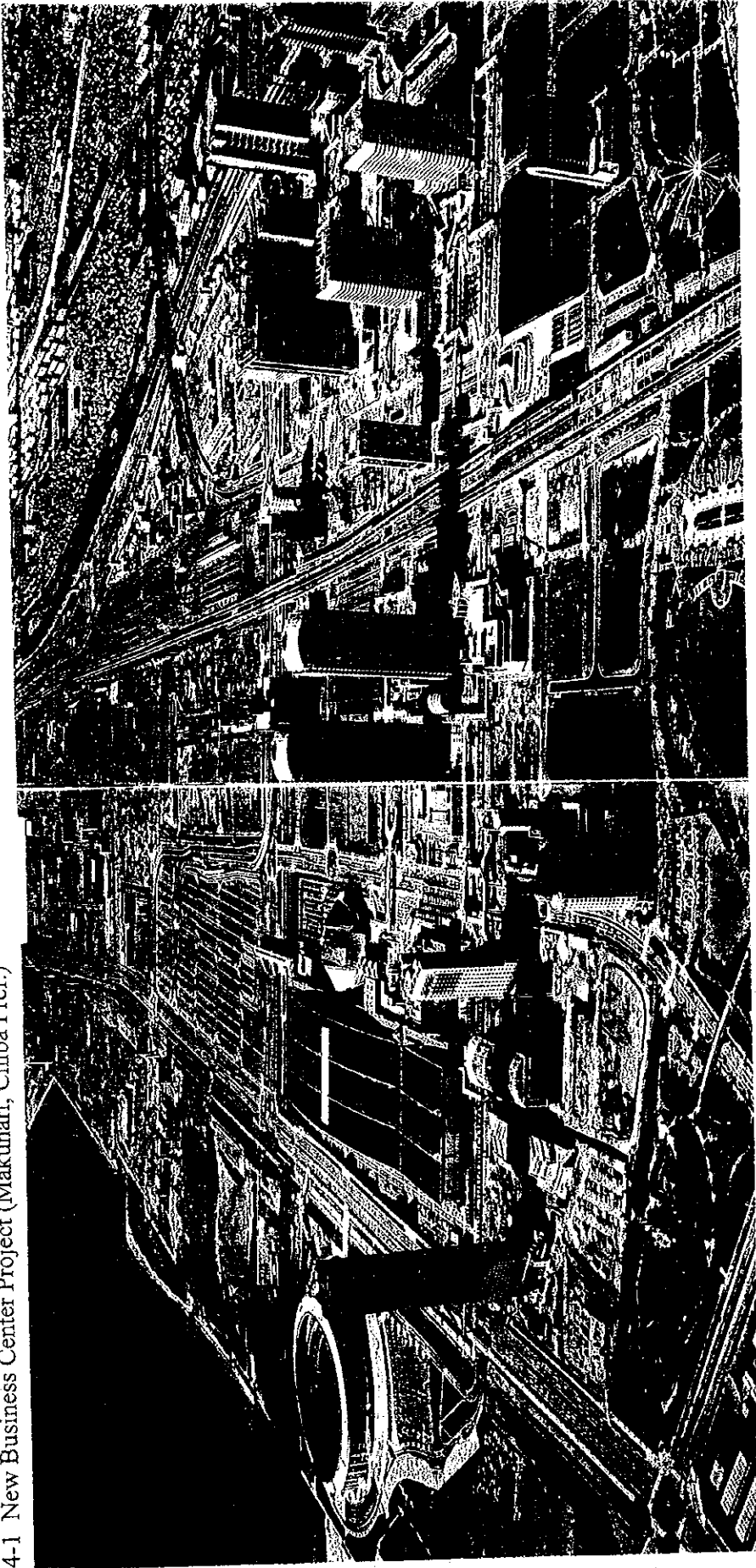


3. Tama New Town

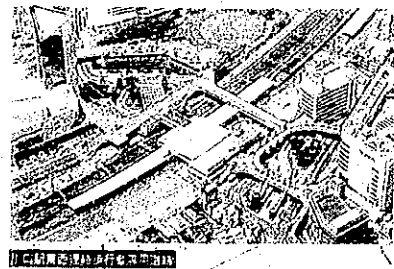
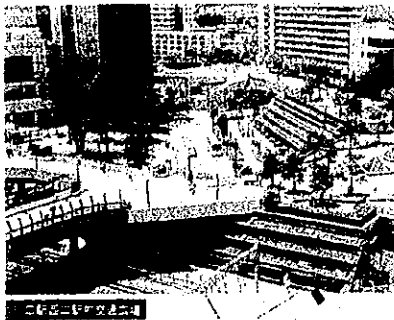
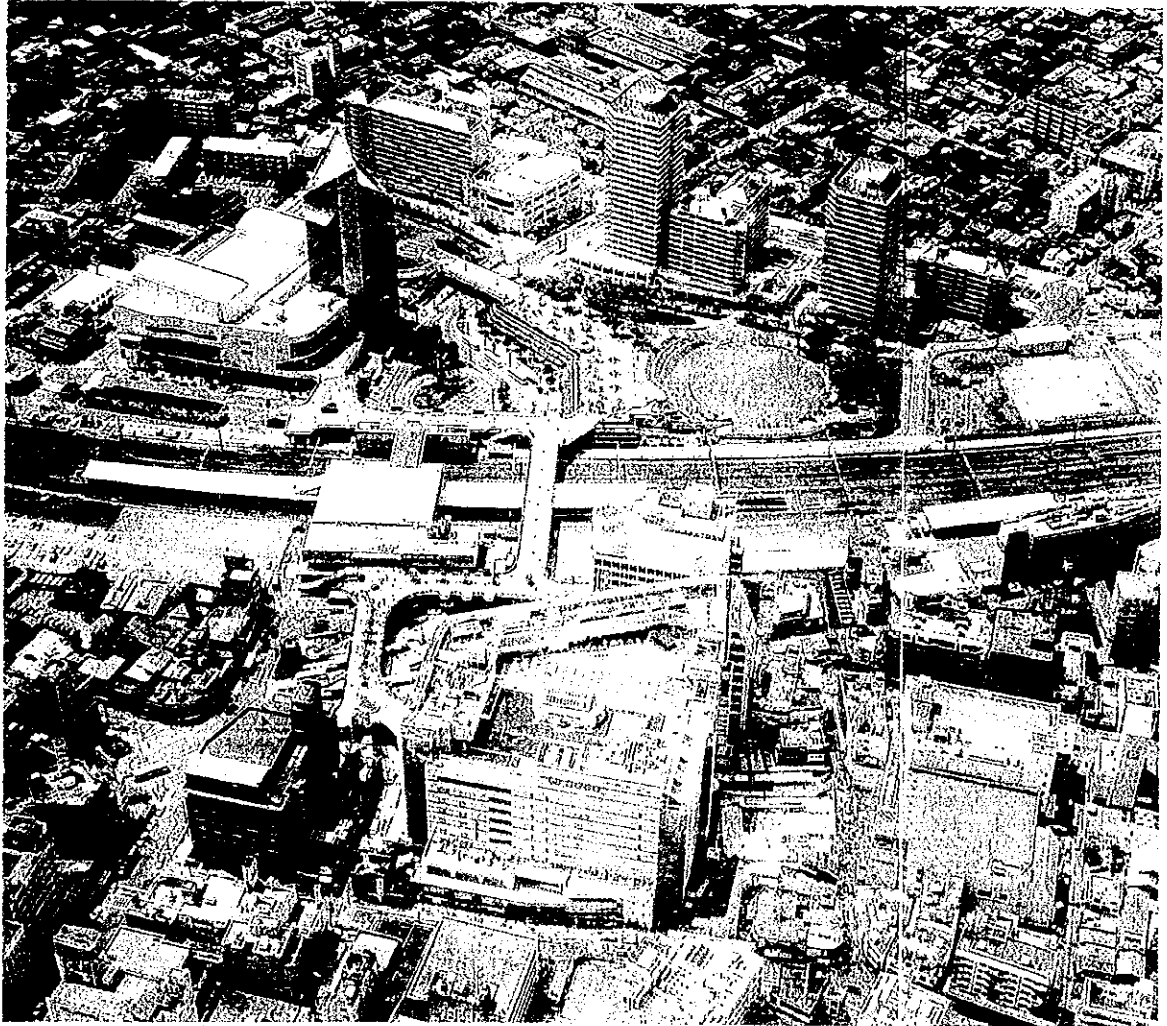


4. Sta. Front Block (District) Urban Development

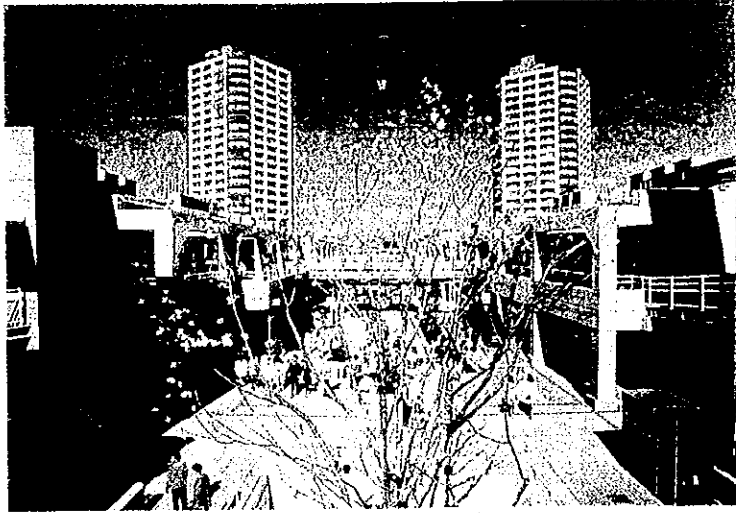
4-1 New Business Center Project (Makuhari, Chiba Pref.)



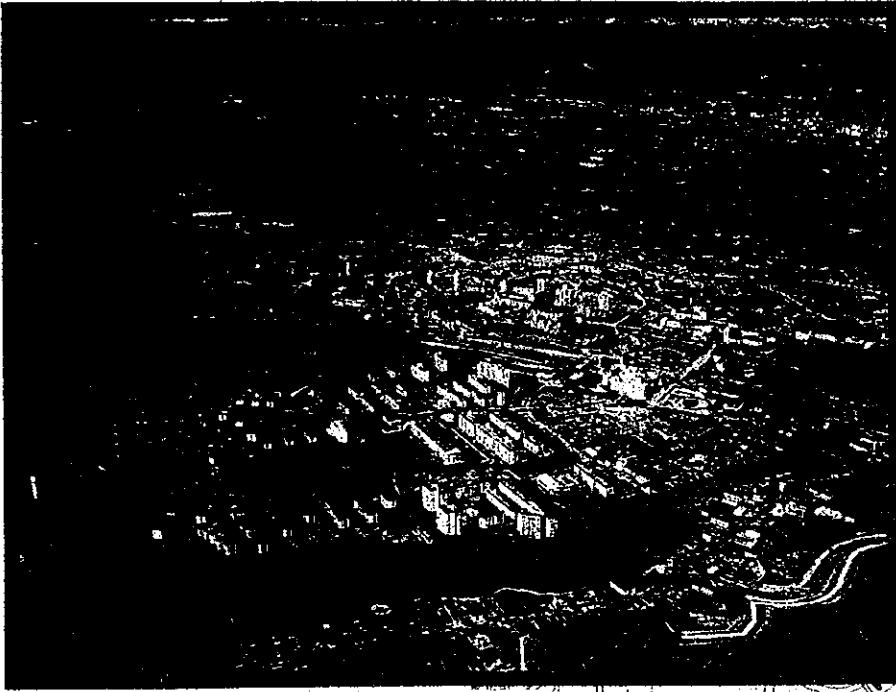
4-2 Urban Core Renewal Project (Kanagawa, Saitama Pref.)



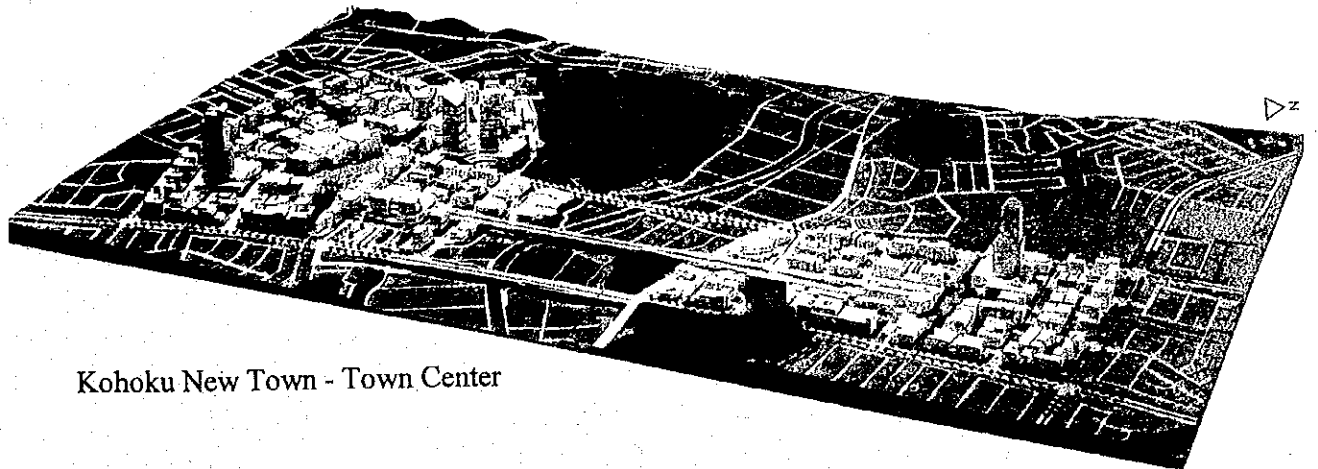
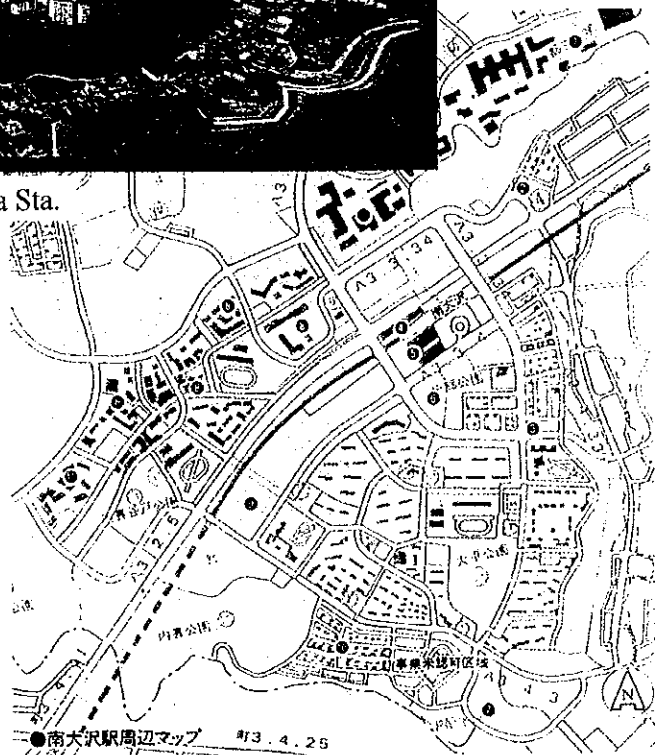
4-3 New Urban Core Development by KUKAKU-SEIRI (Ohi-machi, Saitama Pref.)



4-4 Garden City Development

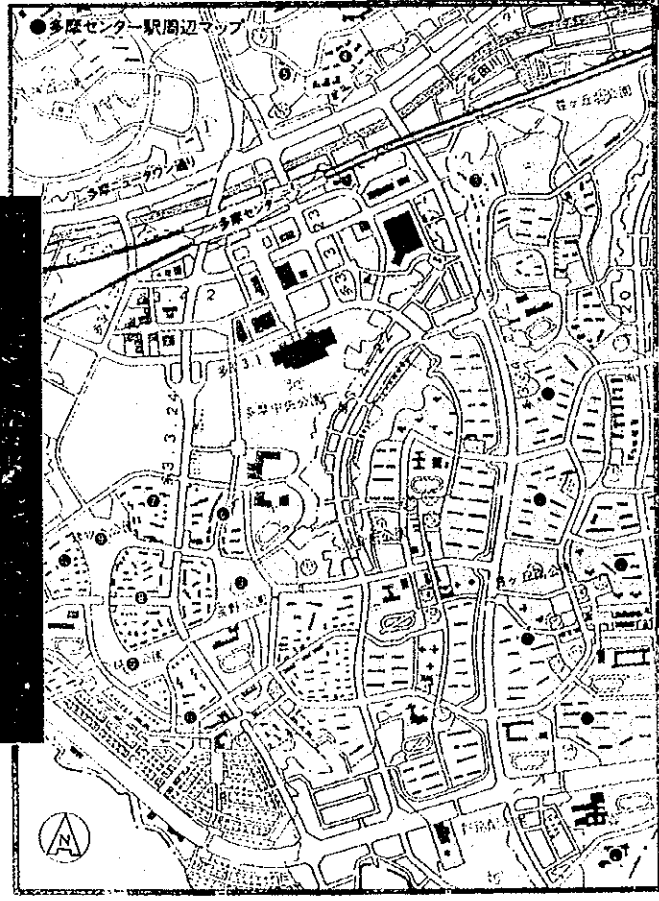
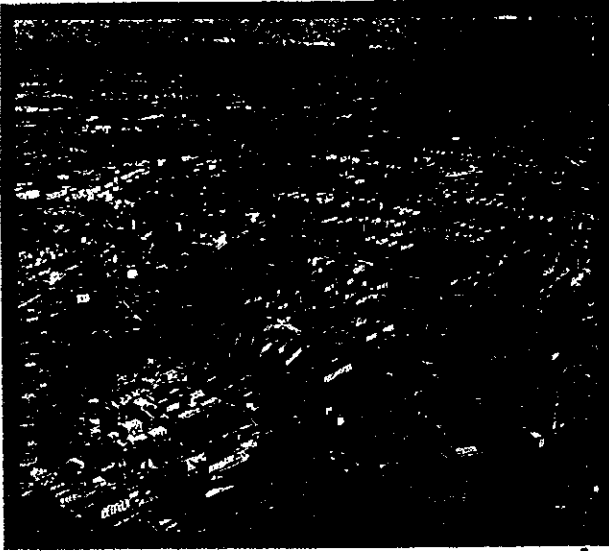


Tama New Town - Minami Ohsawa Sta.

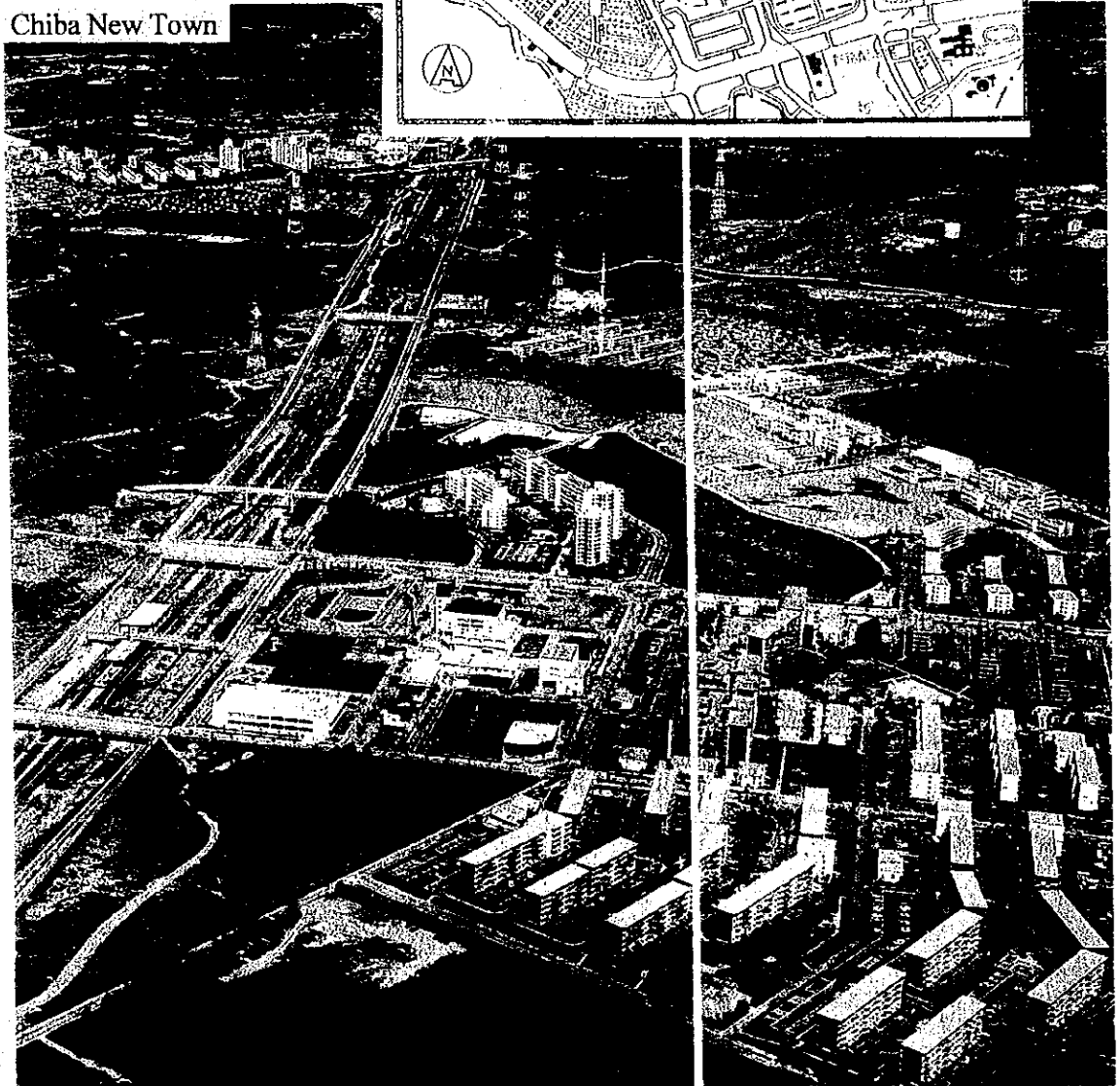


Kohoku New Town - Town Center

Tama New Town - Tama Center Sta.

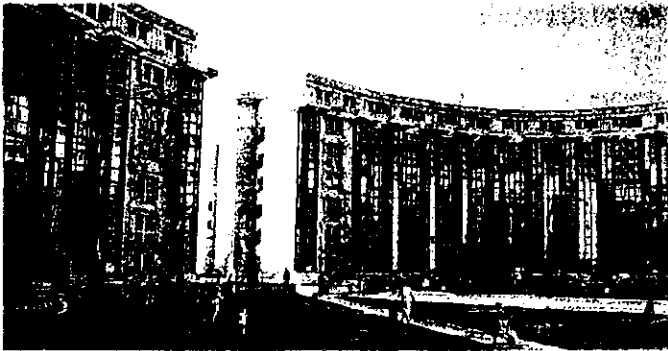
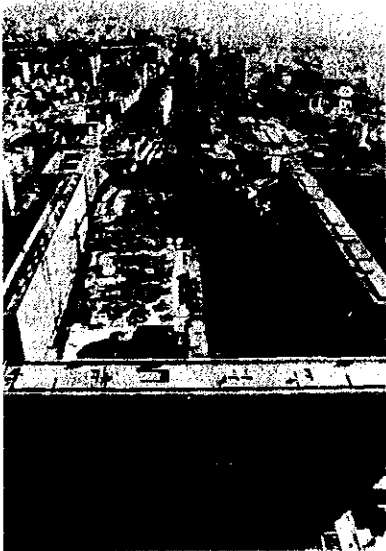
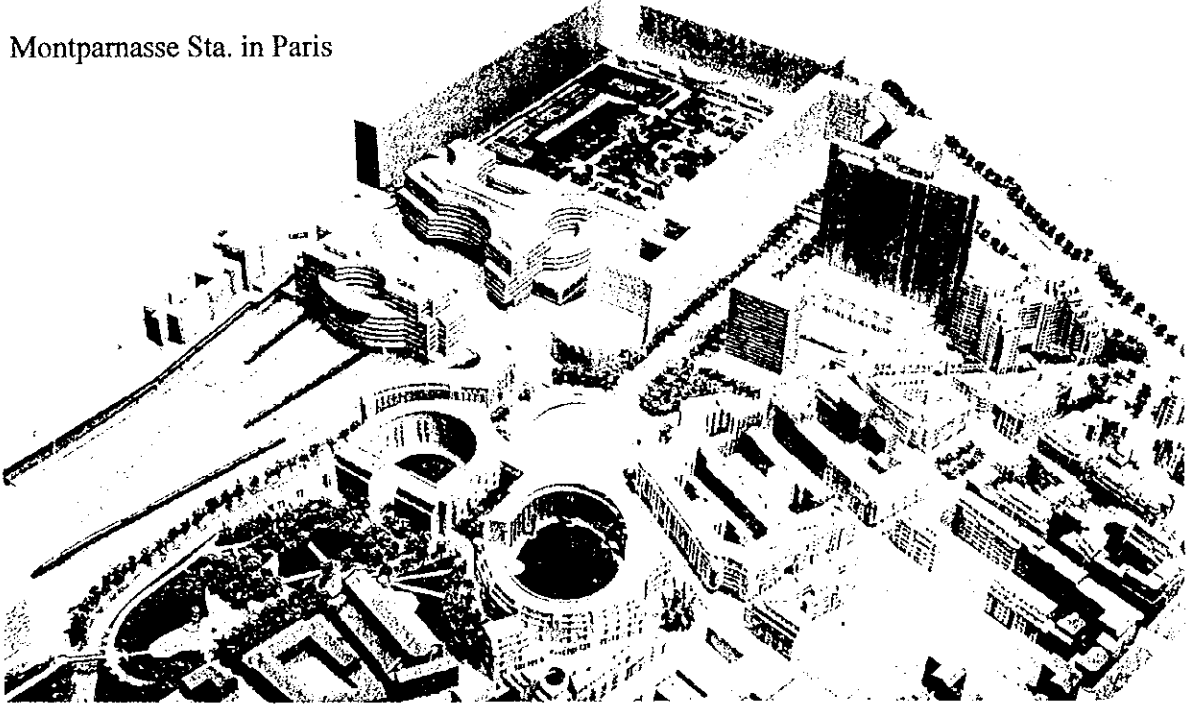


Chiba New Town



5. A Jointed Project with Station and Urban Development

Montparnasse Sta. in Paris



JICA