

Comprehensive System to Renovate Cities and Towns into Sustainable Ones with Their Attractive History

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Summary

This report tries to introduce the total urban development and management system for sustainable urban growth with the attractive culture and history. It is said that a long-life city lasting more than one thousand years should have the breath of the god, the advantage of geographical location and the good harmony of human beings.

The study was made over Tokyo, Kansai, London, Paris, Shanghai and Singapore as cities in metropolitan areas, Fukuoka, Hamamatsu, Rotterdam, Akita, Naha and others as the examples of polar and core cities, and Yokote, Yufu, Dubrovnik, and others as the examples of local cities and towns.

Matrix of planning and development keys, Leading Body, Planning Tools, Development Method, Management and Money Resource, for above three groups, by the time axis of the past, at present and in the future, has been made up.

Finally, "The Rotation Network System" to realize sustainable cities and towns is proposed.

It is proposed that the core group of all round players, namely π -type human resources, should control the linkage of "Evaluation and Planning", "Development and Management" and "Finance" in order to realize sustainable cities and towns. Moreover, 3 dimensional master plan should be introduced to make better environment and landscape and to help the citizens' understanding.

Key words: master plan, sustainable development, publicly issued bonds

1. Introduction

Cities and towns, which can be lasted for more than 1000 years, would be said that those cities and towns have been well sustained by the will of god, geographical advantages on the globe and the good harmony of human beings. In those cities and towns, the authorized citizens with right and duty created good urban environment by means of balanced development of manufacturing and farming.

This report tried to categorize these cities into three groups. They are metropolitan areas, polar and core cities and local cities and towns. Metropolitan areas are Tokyo, Kansai, London, Paris, Shanghai and Singapore regions. Polar and core cities studied here are Fukuoka, Hamamatsu, Rotterdam, Asahikawa, Akita, Morioka, Kohriyama, Nagano, Toyama, Takamatsu and Naha. Local cities and towns here are Yokote, Ohdate, Kosaka, Toga, Tsumano, Obuse, Yufuin, Tonko, Dubrovnik and La Grande-motte.

Based on these studies, three matrixes of planning and development keys for above three categories were proposed. Also the study derived the rotation network system to realize sustainable cities and towns.

2. Brief introduction of selected study areas

Tokyo Capital Region has the population of over 30 million and is a mono-focus type megalopolis. This area was useless swamp until 16th century and developed by Tokugawa Governance since 17th century by means of the change of river routs and land cultivation.

Kansai metropolitan region contains the Japanese ancient capital areas such as Asuka, Nara and Kyoto. Osaka has been the capital of business and economy for over one thousand years and Kobe had been the largest port-town for international trade in Asia.

Greater London Plan was made by Sir Howard in 1924 and contains garden satellite towns and ring green belt. Urban renewal projects in Dock Land started in 1981.

Greater Paris region was completely renewed during the age of improvement, by Napoleon III and Georges-Eugene

Houssmann, from 1853 to 1870 and raised the aesthetic level. Buildings facing main streets should use the local stones for their building material and keep the balance between street width and building height such as beautiful streets stretching from the Arch of Triumph. Neo Paris Plan carried out since 1960 completed La Defense (Parallel City), Rungis Guidor, Les Halles and etc.

In Greater Shanghai region, the construction of castle town started in 1291 and the harbor was opened in 1842. Along with the change of the national policy to open the market in 1990, special development zone system was introduced and Pudon special zone (350km²) was started to be an eccentric civic center with the new airport. The area is aimed to be the center for international finance and trade, manufacturing area of exporting goods, place of science education and the site for 2010 EXPO. But the area has the problems of air and water pollution and the lack of car parking.

Singapore region has been developed since 1954, the year of independence, by the slum clearance and land reclamation. Many projects such as Jurong Industrial Park, large high-raised apartment areas, railway systems and new airport have been completed and Singapore became the model of medium sized urban nations in the world. But the area has the problem of water supply. Most of water is now imported from Malay Peninsula.

Fukuoka city is the capital of Kyushu Island and completed the large-scale land readjustment project in front of the Fukuoka Station that connects to Tokyo by bullet train, the maximum speed is 300 km/hour, by 5 hours. Fukuoka airport is served by subway system to go to down town by 10 minutes and connects to Tokyo Haneda airport by about 100 minutes. Many urban development projects such as the replacement of Kyushu National University, redevelopment of down town, construction of national park and the grade separation of road and railway have been carried out.

Hamamatsu city is located just between Tokyo and Kansai region and served by bullet train and super highways. ACT City is the major project of redevelopment in down town with a super tall building.

Rotterdam is the city that enjoys the important location in EU and as the center of the city chain in Holland. United urban region bears leading industries such as water-front oil chemical combination and higher urban functions. Master Plan of Rotterdam after the war rehabilitation program introduced traffic cell, housing estate in suburbs and tall trees.

Dubrovnik was born in 4th century as “Theatre town surrounded by old castles” in lovely resort area facing Adrian Sea and managed by citizens' self-government keeping its beautiful townscape and regional brand such as traditional hand-made industry.

Grande-motte was constructed as a model resort town in Languedoc-Roussillon with the 180km of coastal line by DATAR 1962. This town has a stylish townscape, an airport for general aviation, huge camp places for 30 thousand persons, permanent residences for retired people, international R&D parks, and then reasonable resort areas for the French domestic laborers.

Akita area started for its comprehensive development plan since 1952, and resulted in the model town of IFHP. The area contains a new site for governmental functions, waterfront industrial estate along with Omonogawa River, land reclamation in Hachirogata Pond and airport parks for R&D.

Naha area is the capital of Okinawa Island and a monorail system was finally installed in 2003 after 31 years for its construction. A big urban center of about 200ha was completed on the vacant lot of American Base.

Lille has a cluster type urban area in the north east of France, and on the midway to the Strait of Dover. The two routs of subway system have Museum Station in the civic center and the University Station in suburbs and connected by loop-bus system. The French government gave a special grant for this transportation management.

3. Matrix of planning and development keys

3-1 In metropolitan areas

The matrix shows the change of leading bodies, planning tools, development methods, management and money resources by the time span of the past, the present and the future.

Leading body in the past was municipalities and other public bodies such as National Housing Corporation. Leading body in those days should be the side of authority anyway. At present, authorized groups such as “Redevelopment

Union” or “Non Profit Organizations for City Planning” have been come out. It is expected in the future that many volunteer groups such as “Veteran Team of City Planning” may come out. This stream suggests that the leading body of city planning is changing from the authority to the citizens.

Planning tools in the past were the development of special areas such as national capital region, Tokyo, Isewan and Osaka bay areas, large industrial development areas and Tsukuba research and academic city. At present, such large areal development projects were disappeared and revitalization plans mainly in downtown areas are welcomed. In the future, planning tool will become actual tool such as computer graphics or 3 dimension miniature models. Planning itself should be also 3 dimensioned.

Development method was large-scale public construction such as super highways, bullet trains, ports and airports, huge suspension bridges, water and energy supply stations, and large new towns. In these days, such large-scale construction will not be recognized by journalism and public and only small district developments are welcomed. In the future, development method should be focused on the emphasis of regional characteristics and inter-regional cooperation.

The management of metropolitan areas was supported by the management of each public facility such as highways, railways and power plants. But, according to the difficulty of public finance, such individual management was found not efficient. Then the integrated regional management was introduced gradually and public-private cooperation is expected in the future.

Money resource for urban development was mainly national subsidies for each project in the past, but because of the public demand of deregulation, subsidies for each project have been reformed into the bundled fund for designated purposes. It may be reinforced by the publicly issued bonds in the future.

Table 1 Matrix of Planning and Development Keys in Metropolitan Areas (About 5 million or over)

| | Past | Present | Future |
|---------------------------|--|--|--|
| Leading Body | (A) Municipality and Other Public Bodies | (B) (A) plus Authorized Groups | (C) (B) plus Volunteer Groups (4th Sector) |
| Planning Tools | Areal Designation of Development and Zoning | Revitalization Plan | Master Plan by 3 dimensions |
| Development Method | Public and Basic Large-scale Construction | Small District Development | Emphasis of Regional Characteristics and Inter-Regional Cooperation |
| Management | Kind of Facilities | Regional Cooperation | Public-Private Cooperation |
| Money Resource | Subsidies by Individual Projects | Public Fund for Designated Purposes | Publicly Issued Bonds |

3-2 In polar and core cities

In case of large cities with the population of about 200 thousands to 5 millions, the matrix will be different from metropolitan areas as follows.

Leading bodies like redevelopment union were the main body together with the municipalities from the past in this category. Because the project size was not so large as in metropolitan areas and some projects were good for authorized groups to be managed. At present, tertiary sectors such as special purpose companies invested by public and private finance by half and half are playing important role in development and redevelopment. In the future, it seems to come out that some regional or district communities will start to play important role in urban management.

In these cities, infrastructures are usually not enough, if compare them with those of metropolitan areas. Then urban

facility planning was an important planning tool. In these days, the designation of development promotion area and control area has become another important planning tool. In addition, master plan by 3 dimensions will become an important planning tool in the future.

Development method for these cities was also areal development by means of land readjustment and the project size is shrinking in these days. In the future, more integration of different features such as the attachment of nursery homes or the homes for elderly will be needed.

Management has been performed by individual project or each development site but expected to put more importance on environment in the future. And regional cooperation groups will join into the management bodies.

Money resource has been mainly subsidies and public funds but publicly issued bonds are expected to play an important role.

Table 2 Matrix of Planning and Development Keys in Large Cities (About 200,000 or over)

| | Past | Present | Future |
|---------------------------|--|---|--|
| Leading Body | (A) Municipality and Authorized Groups | (B) (A) plus Tertiary Sectors | (C) (B) plus Regional Communities |
| Planning Tools | (A) Areal Designation of Development and Urban Facility Planning | (B) (A) plus Designation of Development Promotion Areas and Control Areas | (C) (B) plus Master Plan by 3 Dimensions |
| Development Method | Areal Development | Small District Development | Integrated Small Development Projects |
| Management | Individual Project | By Each Development Site | By Environment and Cooperation Groups |
| Money Resource | (A) Subsidies by Individual Projects | (B) Subsidies and Public Fund for Designated Purposes | (B) plus Publicly Issued Bonds |

3-3 Local cities and towns

The leading bodies of these rather small cities and towns has been municipalities and local communities, but volunteer groups are expected to be future planning bodies.

In these cities and towns, urban facility planning has been the main tool of urban planning. Designation of special districts for urban revitalization or Tokku, exceptional areas where the existing control laws and rules are not applicable. In the future, exchange programs between metropolitan areas and local areas, such as pupil and student education in local area during vacations, supplying of second houses for the people in metropolitan areas and the exchange of local products and information, will become also a planning tool.

Development method in local cities and towns were rehabilitation of railway station front and district redevelopment in down town. But, nowadays and in the future, regional or local branding and their special events will become more important.

The supervising of subsidy bodies has made management of these cities and towns. But the regional communities are now aware of the management, and in the future, the exchange or immigrated people will play more important role in regional management.

Money resources for these cities and towns has been subsidies by central and regional governments but publicly issued bonds will become more useful in the future.

Table 3 Matrix of Planning and Development Keys in Local Cities and Towns (About 10,000 ~200,000)

| | Past | Present | Future |
|---------------------------|--|--|--|
| Leading Body | (A) Municipality | (B) (A) plus Local Communities | (C) (B) plus Volunteer base Cooperators |
| Planning Tools | (A) Urban Facility Planning and etc. | (B) (A) plus Designation of Special District | (C) (B) plus Exchange Programs |
| Development Method | Railway Station Front Rehabilitation & District Development | Regional Branding & Special Events | Regional or Local Branding & Special Events |
| Management | Subsidy Supervisor | By Regional Communities | By Exchange People & Immigrated Ones |
| Money Resource | Subsidies | Subsidies and etc. | Publicly Issued Bonds |

4. Proposal of rotation network system for sustainable cities and towns

This study came to the conclusion that three big sectors and one strong core group will support the sound urban development and keep the cities and towns sustainable for more than 1000 years.

The three big sectors are "Space Evaluation and Planning" sector, "Investment and Management" sector and "Finance" sector. One strong core group is consisted by all round experts, called π -type human resource in Tsukuba University.

SEP sector has been the field of city planners and going to change to put more importance on environment land culture. IM sector has been supervised by national and local governments by means of two-wheel method such as development control and development promotion, and has a tendency to involve citizens not only in planning process but also in development and management.

Finance sector has been mainly supported by governmental money but the private money resources such as publicly issued bonds are getting more importance.

Finally, strong core group should exist. This group should be consisted by all round players like supermen and control above three big sectors.

The strong linkage of these sectors and core group will realize the long-life sustainable cities and towns.

This is shown in Fig. 1.

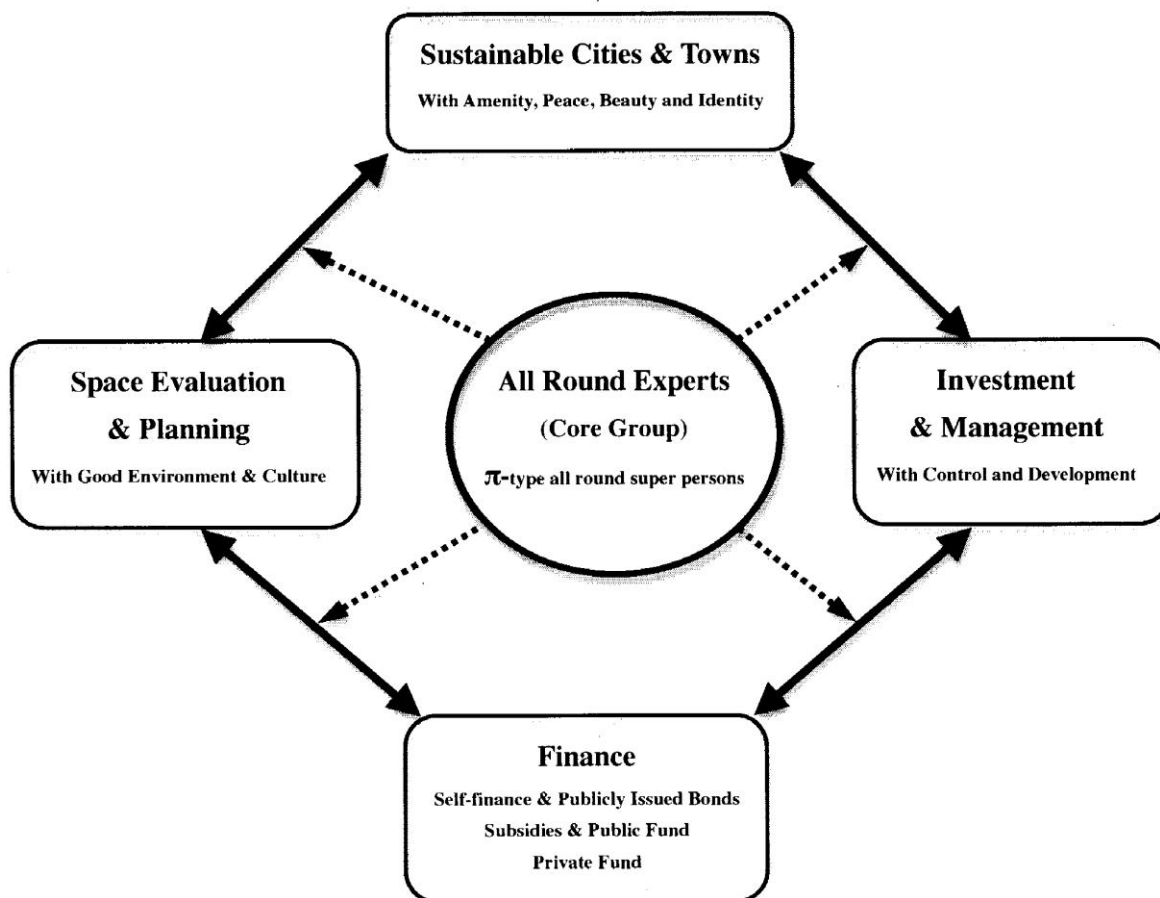


Fig. 1 Rotation System to Realize Sustainable Cities and Towns

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