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THE LEADING FACTORS FOR THE URBAN DEVELOPMENT IN ASIAN CONTEXT
~CASE STUDIES OF MAKATI, CEBU, TAIPEI, AND BANGKOK~

Akiko KISHIUE
Research Associate
College of Science and Technology
Nihon University
7-24-1Narashinodai, Funabashi, Chiba,
274-8501 Japan
Fax: +81-47-469-5507
Email: kishiue@trpt.cst.nihon-u.ac.jp

Primitivo C. CAL
Professor
School of Urban and Regional Planning
University of the Philippines
Diliman, Quezon City, 1101 Philippines
Fax: +63-2-920-9501
Email: pccal@up.edu.ph

Koichi AMANO
Professor
College of Science and Technology
Nihon University
7-24-1Narashinodai, Funabashi, Chiba,
274-8501 Japan
Fax: +81-47-469-5507
Email: amano@trpt.cst.nihon-u.ac.jp

Hussein S. LIDASAN
Associate Professor
School of Urban and Regional Planning
University of the Philippines
Diliman, Quezon City, 1101 Philippines
Fax: +63-2-920-9501
Email: hussein.lidasan@up.edu.ph

Abstract: This study has adopted a historical approach in tracing urban development of selected urban centers in Asian cities: Makati City, and Cebu City, Philippines; Taipei City, Taiwan; and Bangkok, Thailand. The study selects the certain time periods of each study area where rapid or intensive urban development was experienced. Focusing on the dynamic movements of the major urban areas, the study seeks factors which are necessary for and effective on the urban development in the Asian context. Through the study, followings were found out: i) transportation infrastructure development was basically the leading factor of the development where comprehensive planning system was existed; ii) "autocratic" planning system is also applicable approach to improve the planning system and functions of transportation infrastructure in urban development, and iii) initiatives of private sector in urban development enhance the output of investment as well as lighten the load of national and local government. (148)

Keywords: transportation infrastructure, urban development, autocratic planning system

1. INTRODUCTION

The question on how cities develop continues to interest researchers and practitioners of urban and regional planning. History can provide valuable information and lessons on the interplay of factors that shape urban growth and development. The study is the historical perspective of the relationship between transportation infrastructure development and urban development of selected urban centers in Asian Cities: Ayala Planned Area, Makati City, Philippines; Tōa-tiū-tiâ, Báng-kah, Castle in Taipei City, Taiwan; Cebu City, Philippines; and Old Castle, Sampheng, 4S Area, and Dusit in Bangkok, Thailand. The study was carried out in order to i) be aware of the history and relationship of urban planning and transportation infrastructure development of selected major urban centers in Asia, and ii) provide further understanding of the forces which have shaped planning in the selected areas of Asia. The study areas were selected considering historical background since the influence of colonization was expected on the development of Southeast Asian countries.

The data used in this study was based on secondary data generation and key informants interview (KII) on the development of the areas. Although, due to the nature of the study, time constrain in terms of data collection is not be avoidable, the study covers the following time frame of each study areas, categorizing into four to five development stages: Taipei (1895-1990), Bangkok (1782-1990), Cebu (1898- 1990), and Makati (1945-1990s).

2. CONCEPTUAL FRAMEWORK OF THE STUDY

2.1 Transportation Infrastructure and Urban Development

Derived from the concept discussed by Owen(1987) and Simon(1996), etc., in this study, it is considered linkage or system to make transportation infrastructure development work effectively in urban development process. More so, efficiency of the linkage and system will define the impact of transportation infrastructure on urban development. It is considered that the urban planning can be the linkage or system. On the context laid previously, the following hypothesis is prepared for this study: the relationship we can find between urban development and transportation infrastructure development varies according to planning pattern. Urban development, in this study, will be defined as "advance and improvement of sufficiency of urban system through the process of new events and activities".

2.2 Planning Pattern

Planning is a system to support the process of development by proving the directions. Focusing on the efficiency and coverage of the planning as well as integration of plans, planning patterns are classified into either type of "Comprehensive" or "Fragmented". Evaluation criteria/materials used to examine if the planning pattern of the city can be considered comprehensive or not are as follows: 1) Master plan; 2) Vision; 3)Scope and coverage; 4) Implementation agency and development leader; 5) Planning tools; and 6) Frequency of revision of plan.

"Comprehensive" pattern indicates the availability of vision and master plan/s which cover an entire area for its progress. The area is highly imageable as the whole owing to good coordination among the plans. The transportation infrastructure development is incorporated into the plans as one of major growth factors rather than the answer to the demand. We can clearly find the 'guide-development' interrelation between urban development and transportation infrastructure development in this planning pattern. On the other hand, "Fragmented" pattern denotes that vision and master plan/s are partially available in the area, but there is no means to integrate them. The area has several development directions and its image as a whole is vague. As the result, developments have been undertaken in places without enough linkages among them and unexpected urban problems would be caused by losing the balance of city elements. The relationship of urban development and transportation infrastructure development tends to be 'mending' rather 'guide-development'. If the planning pattern of the city does not fall into the "Comprehensive", it is considered as "Fragmented".

3. CASE STUDIES- PLANNING PATTERN

3.1 Background of the Study Areas

a) Ayala Planned Area, Makati, Philippines

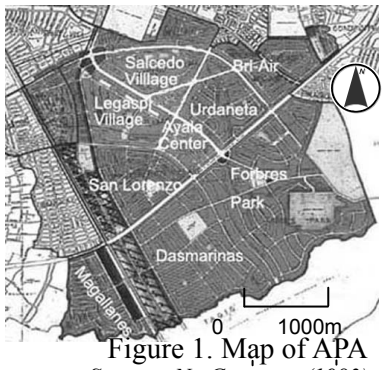

Figure 1. Map of APA
Source: N. Gaevara (1983) Modified by the Author

The Ayala Planned Area (APA) (Figure 1.) is the hub of business center in the Philippines, located in the Makati City, approximately eight km south of Greater Manila, the capital city of the Philippines. The APA was planned as an integrated community of a multi-zone sub-city with a twenty-five-year master plan. It was established by the Ayala Corporation, which is one of the oldest Spanish business houses in the Philippines. APA was basically raw land belonging to Ayala y Roxas family when the project started. Although the area contained Nielson Airport for ten years, from 1937 to 1947, only the Nielson Tower and two runways (today's Ayala Ave. and Paseo de Roxas) were built. A few existing Military structures, however, remains at the background of Nielson field (Expressweek -May 16, 1974). APA is only about 50 years old since the start of its development. The development of the APA can be categorized into four development stages through its development characters.

b) Taipei, Taiwan

Taipei was developed with the migration during the Quing Dynasty. Báng-kah served as the leading center around middle 17th century for the Han Chinese and Ketagalang. The opening of Danshui in 1788 to Fuzhou and Quanzhou, encouraged the influx of the Fukienee and the Quanzhou into the Báng-kah. After 1856, conflict between the ethnic groups broke out, and the Quanzhou moved out from Báng-kah and built in Tōa-tiū-tiâ, in the north. Taipei was established under the Quing Dynasty in 1875, and in 1881 the construction of Taipei Castle started. The Castle was built on the undeveloped land, locating between Báng-kah and Tōa-tiū-tiâ. The Castle, Báng-kah and Tōa-tiū-tiâ were the center of Taipei before the Japanese occupation. Today, it is said that the Taipei still has the same basic city structure which was developed during Japanese occupation. The study focuses on the development and transportation infrastructure of Old Castle, Báng-kah and Tōa-tiū-tiâ (Figure 2.) in five development phases, especially during Japanese occupation.

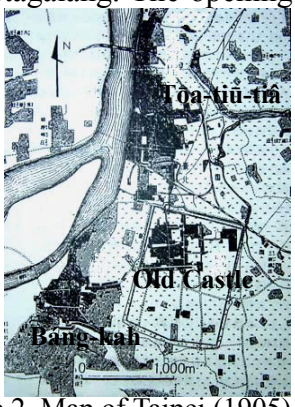

Figure 2. Map of Taipei (1905)
Source: Y. Goto(1999)
Modified by the Author

c) Cebu, Philippines

Cebu City has been called "Queen City of the South". The development of Cebu began when the Spaniards arrived in the 16th century. For four years since the declaration of occupation, Cebu was the base of Spanish operation in the Philippines. The set of Royal Ordinances, known as Law of Indies was enacted in 1573 by Philip III for the Spanish colonies and implemented also in the Philippines. It established uniform standards and procedures for planning and administration. Features of the law were grid-iron street pattern, plaza complex, settlement concept of "de bajo de las compañas - under the bell", ethnic segregation, among others. After 300 years' occupation by Spain, the sovereignty of the country moved to United States, and the Americans provided different approaches from the Spaniards in managing the Philippines. The main concern of the American government on the colony was to develop basic foundation of the country. Today, Cebu plays significant roles in the economic and social activities of the country as one of the leading regional centers, forming metropolitan. The study covers the core of the city (Figure 3.) in five development stages.

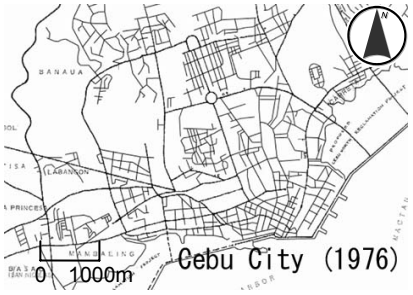

Figure 3. Map of Cebu (1976)
Source: "Framework Plan of Cebu City"
Modified by the Author

d) Bangkok, Thailand

Bangkok had been developed along the Chao Phraya River. Since its establishment in 1782, land transportation had not been developed well in Bangkok for first 60 years. Water transportation was mostly developed, allowing the city grow along the Chao Phraya River. However, through the decline of the role of water transportation since the 1950s, land transportation has become the main mode of preference. Systems relying only on land transportation have already caused urban problems, such as urban sprawl, traffic congestion, pollution, etc. Therefore, the role of water transportation in Bangkok is being discussed again nowadays in search of better transpiration system. The research is composed of four study areas in five development phases: Old Bangkok, Sampheng, Dusit, and 4S (area surrounded by Surawong, Si Phraya, and Sathon roads) (Figure 4.), focusing on the 1860s, where construction of road network started in a full scale in Bangkok.

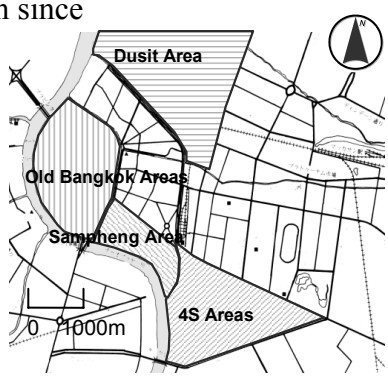

Figure 4. Map of Bangkok
Source: Tasaka et al(1998)
Modified by the Author

3.2 Planning Patterns of the Study Areas

The summary of the planning pattern of each study area is presented in Table 1.

a) Ayala Planned Area, Makati, Philippines

1. Master Plan

In the first stage of the development, Master Plan for the APA with 25 years time frame was prepared. It was revealed that the plan as a set of document did not exist but several articles in 1950s discussed the contents of the plan as follows: a) an industrial area all along the length of the railroad with the industrial school; b)residential areas of various categories; c) a commercial zone for multi-story office building with restrictions for the parking facilities; d) regional commercial center with affluent parking space; e) institutional development; and f) restriction for entire area to promise the orderly development (Manila Chronicle, 23 March, 1969). At the same time, it is confirmed that initial study for the development was conducted for two years and the Ayalas started working for the detailed plan in 1952 (Gaevara, 1983). Master plans for Central Business District (CBD) have been prepared since 1990.

2. Vision

Clear vision was prepared for APA as self-contained, and a modern multi-zone sub-city by Col. McMicking. APA has also been developed as an integrated community with 11 land uses.

3. Scope and Coverage

Landuse prepared by Ayala Corporation covered the entire APA. The restriction in the residential area as well as business districts let us understood that the plans comprised of zoning, transportation planning, townscape planning, security management, etc. Also, the fact that the Ayala Group had worked for the installation of infrastructure in the area, is enough to be considered that infrastructure development was also incorporated in the development plan. Master plan prepared in the 1990s limited its coverage to only the CBD since the surrounding residential areas were already developed and maintained by each village association.

4. Implementing Agency and Development Leader

Col. McMicking was the father of APA who had vision for the area and drew it on papers after he became the family member of the Ayalas. With the corporation with Enrique, and Alfonzo Zobel de Ayala, the first stage of the development was undertaken. Also, more importantly, the Ayalas has been supervising over all control on the development (Villamayor, 1973). They created the association in each districts in order to maintain the environment as well as to implement the necessary projects to each district in coordination with the Ayala Group.

5. Planning Tools

Zoning was placed in the entire APA. For the residential subdivision of Forbes Park, height control, bulk ratio, and minimum construction cost were imposed. For the business strip, Ayala Avenue, minimum open space ratio, and building control (setback, office use, building design, etc.), were further applied. For other areas, more relaxed restrictions were imposed. Floor area ratio replaced with height control in the business districts later. Most of the restrictions were firstly applied in the APA throughout the Philippines. Also, transportation planning tools such as one-way scheme, on-street parking and entry control are observed.

6. Frequency of Revision of Plan

Although revised plans as documents were not found in this study, the following information obtained from the articles enabled us to trace that plan for the APA had been revised:

- Maximum height of building was up to two stories since they would just be torn down when new technology became available;
- Land use of Legaspi and Salcedo Villages were changed when the demand for both residential and office uses were increased in late 1960s. Also, taking land use changes into consideration, the road network of the two villages were revised;
- With the increase of land value, violations on the deed restriction imposed by Ayala Group were observed. Although the Ayala argued significance of the deed restriction for the further development of the area, considering the balance with infrastructure and density, floor area ratio was adopted in lieu of maximum height control in 1990;
- For the Ayala triangle, a master plan was prepared later to add the significance of APA as the integrated community; and
- To alleviate traffic congestion as well as to provide the functional walking environment,

master plan was prepared for the pedestrianization in the APA,

From above, the consistent and integrated planning philosophy and implementation are recognized in APA. At the same time, it should be comprehended that planning for APA by Ayala Group has been demonstrating the norm and leading the standards of the Philippine urban planning. Consequently, planning pattern of APA is classified as "Comprehensive".

b) Taipei, Taiwan

1. Master Plan

There was the castle plan with traditional Chinese approach during Quing Dynasty. In the first stage of Japanese occupation, poor sanitary condition, narrow/inadequate road network, lack of open space, poor lightning and ventilation were observed and drainage installation and road widening were planned (Koshizawa 1987). A series of urban improvement was carried out in the early 1900s in Taipei. Urban improvement was the planning system utilized in Tokyo from late 1880s. It included road network development and zoning for civic center and parks. The Greater Taipei City Plan was prepared in 1932 during Japanese occupation.

2. Vision

The Japanese Government aimed to assimilate Taiwanese with Japanese through the occupation (Huang 1992). By enhancing the migration of Japanese and building of Shrines, Japanese government tried to penetrate Japanese spirit into the Taiwanese and considered the modernization indispensable. However, the policy focused only on the cultural aspects.

3. Scope and Coverage

A series of urban improvement included the development of drainage/sewage and park, partial zoning, road network improvement, and target population. Though the first urban improvement was only done within the Castle, existed all three districts were covered by 1905. Moreover, after urban improvement was completed by 1910, the Greater Taipei Plan of 1932 which cover 9.5 times bigger urban area than that was defined in 1905 plan focusing on hierarchical road network and parkway system (Goto 1996). Land readjustment scheme and zoning were incorporated after the enactment of urban planning code in 1936.

4. Implementing Agency and Development Leader

The development of Taipei was funded with national budget of Japan until 1920 when the local government system was reformed. Therefore, the first stage of development was directly controlled by the Government-General. During the first phase of Japanese occupation, three strong leaders, G..Kodama (Governor-General), S.Goto (Secretary- Bureau of Welfare), and K.Yoshikawa (Secretariat -Taiwan, Governor-General) had profound knowledge in urban planning field and strong influence on the development policies on the Taiwan (Tanaka 1996).

5. Planning Tools

Partially, land uses for parks, civic center, etc. were designated in the first stage of development of Taipei. Also, modified land readjustment approach was found in the reclamation project in 1910s. However, planning tools which had legal bases were available in Taiwan only after the enactment of Urban Planning Code of 1936 (Koshizawa 1987). Land readjustment scheme utilized in Japan was introduced through the code. Acts before the 1936, were Ritsuryo No. 30 (1899) and Building Code of 1900. Ritsuryo No. 30 controlled the use and development of lands that were designated for park, road, drainage, and some declared area from General-Government. It means that land use and development was certainly under the control of the Governor-General. Meanwhile, the Building Code was still simple regulation, providing such as building line, open space ratio, building material guidance, and building of traditional arcade along the roads (Koshizawa, 1987).

6. Frequency of Revision of Plan

Absence of the plans during 1910s to 20s was comprehended due to missing strong leaders. The first half of 1940s was under the W.W.II and the sovereignty over Taiwan was returned to China in 1946. Though any plan was not officially prepared during the second half of 1940s, a draft for the city plan was prepared in 1946 by the Taiwanese and remaining Japanese experts.

Table 1. Planning Patterns of Each Study Area

	Development Phase	Master Plan/plans	Vision	Scope and Coverage	Implementation /leader	Planning tool
APA	I Exclusive Residential Dev't (1945-1960)	Master Plan (25 years)(MP)	Integrated community, self-contained sub-city	Entire APA	Col. McMicking and Ayala Group (associations)	Zoning Height control (Mim. Max) Open space Set back
	II Business and Commercial Dev't (1956-1970)					
	III Wall-less Village (1970-90)					
	IV Ayala Triangle (1990-)	Walkway MP Ayala Triangle MP, Landscape MP Evaluation/preliminary Report for MACEA		CBD		Zoning FAR Set back
Taipei	I Quing Dynasty (16th C –1895)	Castle plan	Capital	Within castle	Quing Gov't	Feng Shui, Grid-iron road network
	II Lineal Urban Improvement (1895-1905) Japanese Regime	Urban Improvement (1st and 2nd)	Capital of Taiwan	-1905 Castle	S. Goto G.Kodama K.Yoshikawa General –Gov't	Ritsusyo No.30-1899 Gird-iron road network Building code (1900) Planned density, Open space ratio, Building line
	III Urban Renewal and Area Dev't (1905-30s) Japanese Regime	Urban Improvement (3rd , 4th, and 5th)		Castle/ Báng-kah Tōa-tiū-tiâ	General–Govern/ Gov't of Japan	
	IV Urban dev't with Urban Planning Code (1932-1945) Japanese Regime	Greater Taipei Plan (1932)		Entire City (with planned area)	General–Govern or, Gov't of Japan	Urban Planning Code (1936) Land readjustment Levy System
	V After Japanese Occupation (1945-)	Draft of 1946 Plan MP for Comprehensive Dev't (1980)	-	Entire City (with planned area)	Chinese Gov't	Revised Urban Planning Code 1964 Building Code (1971)
Cebu	I Spanish Occupation (1521-1860)	Law of Indies	First Hispanic settlement	Ciudad	Governor general, Friars, Church	Road network (grid-iron) Plaza complex Settlement segregation
	II First Transformation of the City (1860-1899) Spanish Regime					
	III Estabsihment of City Foundation (1900- 1942) American Regime	Dev't Plan (?)	Provincial capital, Trading center	Cebu (city and province)	Insular Gov't Province of Cebu Bureau of Engineering	Boulevard Road Law (1906) Height control Zoning (partially)
	IV Dark time and Recovery from the Destruction (1942-1970)	None	Rebuilding of the city	-	Cebu City Planning Board National Gov't	-
	V Modernization towards Metropolitan Cebu (1970s-1990)	Framework Plan (1976) MCLUTS (1978)	Metro Cebu-core Queen City of South	Metro Cebu	City Government National Gov't	Zoning Master Plans
Bangkok	I Establishment of Original Bangkok (1782-1852)	None	Rebuilding of Ayutthaya	Old castle	Kings, Royal Gov't of Thailand (RGT)	Smoke control (temples and factories)
	II 1st Modernization wave (1853-1885)	Chakri Revolution (1867-)	Modernization of Bangkok	Bangkok	King, RGT	Height control (partially)
	III City Expansion with Transportation Infrastructure (1886-1934)	Plan for Dusit Area	Modernization of Bangkok	Dusit Area	King, RGT	
	IV Road network Dev't (1935- 1959)	Road network Dev't Plan (1935)	-	Nationwide	King, RGT	Building code Min. pen space ratio, Material control Height control
	V Suburb Dev't and Land use Change (1960-1992)	Greater Bangkok'90 Social Economic Dev't Plan (1960-) General Plan ('92)		Bangkok	King, RGT	Zoning (1992)

Subsequently, it can be summarized that plans were prepared and implemented extensively in the first stage of Japanese occupation with the strong power of General-Government and, limited to Japanese regime, planning pattern of Taipei can be classified as "Comprehensive" type.

c) Cebu, Philippines

1. Master Plan

Under the Spanish rule, Law of Indies was enacted in 1573 and applied in Cebu as in other Spanish colonial cities. During the American rule, intra- and inter- city road network plans were observed. Although the documentation as the plan was not found, records of the study for the development plan of Cebu with beautification and the modification of the submitted plan were confirmed. Though Master Plan was not prepared for the Cebu under American rule unlike Manila and Baguio, projects were carried out. After the W.W.II, planning system in the Philippines was institutionalized and zoning ordinance took into effect. A framework plan was prepared for Cebu City in 1976, and the first comprehensive study with plan, Metro Cebu Land Use and Transportation Studies (MCLUTS) was produced in 1978.

2. Vision

One of the objectives of the Spanish colonizers in Cebu was the establishment of the first Hispanic settlement in the Southeast Asia (Mojares 1983). No statement of visions, specifically for Cebu City during American Regime was found. However, Cebu was developed as a provincial capital and major trading center under the American Policy. The framework plan of 1976 stated a vision as 'a more healthful, safe and orderly environment'.

3. Scope and Coverage

The Law of Indies concerned physical environment, and produced the settlement pattern in Cebu. However, it was limited within the ciudad and did not have the concept of urban growth. Meanwhile, American government prioritized pubic improvement, including the infrastructure and communication facilities, education, civil service system, and legislative and executive system. The projects which were carried out incorporated improvement of accessibility and mobility, and beautification of the City. Framework plan of 1976 covered entire city with zoning, and MCLUTS covered Metro Cebu providing land use, and transportation planning.

4. Implementing Agency and Development Leader

Planning during the Spanish regime was carried out by friars for the magnification of their power in the communities (Corpuz, 1999). On the contrary, projects during the American Regime were implemented with the supervision of American Government (Roshlau, 1985). All the significant events and accomplishment from 1900 to 1914 were recorded in the Report of Philippine Commission annually. Since information on transportation infrastructure development during 1920s and 30s are limited, it is hard to recognize the condition of plan and implementation. Yet, it was reviewed that basic transportation infrastructure such as boulevards, port improvement, railway, etc. were completed by middle 1910s. After the W.W.II, planning responsibility was transferred to the local governments of Cebu.

5. Planning Tools

Planning tools observed in the Spanish time were settlement segregation, and plaza complex. Several planning tools were partially observed during American Regime. In the urban renewal project of 1905 in downtown, height control, and modified type of land readjustment were already applied. Locational pattern of civic centers was utilized as the planning tool. It was in the late 1970s that zoning was applied in the City of Cebu.

6. Frequency of Revision of Plan

Assessing from the degradation of Cebu during Spanish rule, it is doubtful that Law of Indies were modified. In the first phase of the American Regime, on the other hand, transportation infrastructure development in Cebu was reported to Washington annually and necessary modifications had been provided to adjust situations. This means that, transportation infrastructure of Cebu was constantly developed during the time period from 1900 to 1910s. It was, however, only late 1970s that the multi-sector plans were prepared and recorded in Cebu.

Thus, it can be grasped that each evaluation materials are observed in the process of development of Cebu, but it should be recognized as partial and fragmented. Consequently, planning pattern of Cebu is classified as "Fragmented" though it is also observed that it was moving towards "Comprehensive" during the American regime and after late the 1930s.

d) Bangkok, Thailand

1. Master Plan

It was under King Rama V that urban planning emerged in Bangkok. Avenue plan, road network plan and design control were included in the plan for the Dusit area. Prior to it, beautification along Bamrung Muang road which included widening, height control of building, and façade design control was carried out during 1870s. District plan or single component plan had been prepared until 1960 when the Greater Bangkok Plan (GBP) was prepared. However, the GBP did not have any enforcement power and implementation (Tasaka *et al.*, 1998). Economic development plans have been prepared since 1960 and transportation infrastructure projects have been carried out with the multi-component plans. Yet, it was only 1992 that the comprehensive urban plan with legal bases became available.

2. Vision

Establishment of Bangkok in 1782 was aimed to rebuilt the former capital, Ayutthaya. Since then, vision for the entire Bangkok has not been observed in the urban planning in this study.

3. Scope and Coverage

Though district plans and single component plans were prepared before 1960, coverage of the plans was limited for the specific areas. Development of Bangkok was undertaken on a project basis such as road construction, canal construction, streets beautification, etc. The first multi-sector plan which covers Bangkok in its entirety was the GBP 2533 (1990) in 1960.

4. Implementing Agency and Development Leader

Implementation of transportation infrastructure projects and urban planning projects in Bangkok was introduced by the Thai government and led by Kings. In terms of urban planning, King Rama V was the strong leader in accelerating the modernization of Bangkok.

5. Planning Tools

Planning tools utilized in Bangkok during the 1800s were designation of date and temple for the cremation, and the regulation of factories with steam engine, to control the smoke. Height control, design control were first applied in Bangkok along Bamrung Muang Avenue in 1870s. Building code enacted in 1936 included the sanitation and environmental aspects, and building line standards. In addition, minimum open space ratio, height control in accordance with road width, building materials, and building permit were introduced through the resolution of Bangkok in 1941 based on the Building code 1936. Planning tools had been applied in specific areas to crate the particular character of the zone in its townscape. Zoning to control the land use of Bangkok became available only in 1992.

6. Frequency of Revision of Plan

Until the preparation of the GBP 2533, development of Bangkok had been carried out project by project. Though the GBP 2533 was revised into the First Metropolitan Plan and the GBP 2543, none of them were officially accepted (Tasaka *et al*., 1998). The plans streamed through the National Economic and Social Development Plans (NESDP). The first NESDP, which was prepared in 1960 with six years timeframe, was reproduced every five years since then. However, it focused on the economic growth of the country, not the physical framework.

Consequently, it should be understood that development of Bangkok has been undertaken piece by piece, and the controls and plans which support the development have also been partial. Hence, the planning pattern of Bangkok is categorized as “Fragmented” through the five development stages in this study.

4. CASE STUDIES - TRANSPORTATION INFRASTRUCTURE DEVELOPMENT AND URBAN DEVELOPMENT

4.1 Ayala Planned Area, Makati, Philippines

Major transportation infrastructures in the APA are roads, terminal, walkways, underpasses,

and covered walks. As seen in Table 2, the constructions of Ayala terminals, walkways, underpasses, and covered walks started only in 1990s. The entire APA was a privately owned hacienda and roads in the APA were all planned in a network before the development of the area. The role of road construction in the APA had been not only to connect one place to another but to build the city drawn from its vision. Land use of the entire APA was designated prior to transportation infrastructure development. Therefore, the roads in the APA were designed to meet the function and to produce the environment for the designated land use. A good road hierarchy is observed in the APA, and main avenue and arterial roads were designed with enough width and aesthetics.

Table 2. Historical Development Review of Ayala Planned Area

Dev't Phase	Transportation Infrastructure Development	Urban Development	Urban Planning &Other Development
I (1948 - 1953)	Road network Plan (Ayala Ave.-Main Ave.) Installation of street lights along EDSA starting Buendia (1948) Full-width, paved street (14-18meters) in Forbes Park Subdivision Installation of Wall and Gates in the villages for further security (1950s)	Removal of anticipation towards darkness and image of isolation First physical development in APA emerged in 1948 Establishment of the most expensive luxury residential village Emergence of the first exclusive residential subdivision in the country Lead other exclusive residential village development in the area Residences for executives and foreign representatives	Vision and 25 years Master Plan by Col. McMicking (total area 972.9 ha) 11 land uses Integrated community Plan Targeted population 59,245 in '90 Detailed land use and architectural restrictions Security patrol Creation of Village association for each residential subdivision
II (1954 – 1970)	Opening of Ayala Avenue (6 lane, with center greenbelt)	Emergence of Business strip and Business hub of the Country Modern Townscape Offices for the multinational corporations and the embassies Pop.16,341 ('69)	Deed Restriction (setback, height control, minimum open space ratio, parking space requirement, etc) Model Buildings by the Ayalas Creation of Makati Commercial Estate Association (MACEA) Public Transportation entry control (no Jeepney along Ayala Avenue until early 1970s)
III (1970 –1990)	Building of additional service roads in Salcedo and Legazpi Village, in accordance with the land use change	- Land use change (1970s) - Mixed use Development Pop.54,738 ('80) - Establishment of CBD - High-rise Buildings in CBD - Increase of Traffic volume - Emergence of high-rise buildings	- Deed Restriction - Maintenance by MACEA - Traffic Control Scheme - Street on Parking - Creation of Makati Parking Authority (MAPA) Traffic Study (1980) Revise of Restriction (1990)
IV (1990 -)	- Ayala Terminal (1992) - Walkway Network - Underpass - Covered Walk	- Minimize traffic congestion produced by unloading and loading Pop. 55,621 ('90) - Segregation of Pedestrian from vehicles in CBD	Under Pass and Walkway Network Master Plan (1999) Ayala Loop- Air-con Jeepney

Transportation infrastructure development since the 1990s aimed at improving the existing situation, in addition to encouraging further development. The emergence of traffic problems in the APA may be deemed as the result of being attractive to people and entrepreneurs through the successful development since no other urban area in the Philippines has better planning, implementation, and monitoring system than APA does. Development of additional service roads with the land use change in the Salcedo and Legazpi Villages also supports this view. As found in the summary table, transportation infrastructure development was able to be the leading factor in APA because it had been supported in the planning system indicating as arrows from plans to transportation infrastructure project. All of transportation infrastructure

projects of the area were carried out under the master plans. Since the APA was private property, it was easier to empower plans to be implemented. Plan-supported transportation infrastructure development led APA to be the most successful business and commercial center, and residential areas of the country. Without the foundation of sufficient planning system, the transportation infrastructure in the APA might not be able to have the same effect on the urban development. Target population to 1990 in 979.2 ha of APA was 59,254 (Villamayor, 1973) and 55,621 of population was recoded in 1990, according to Census.

4.2 Taipei, Taiwan

Through the table and historical review of Taipei City below (Table 3), we may say that the city foundation of three districts in Taipei was formed during Japanese occupation. Focus of transportation infrastructure development was, limited to during Japanese rule, also placed on road network development in Taipei as found in the case of APA. The roads in Old Castle were developed with six classifications. Also, boulevards (*San sen Road*), imperial highways *(Chokushi Kaido)*, and parkway were developed as upgraded highways (Huang, 1992).

Table 3. Historical Development Review of Taipei

Dev't Phase	Transportation Infrastructure Development	Urban Development	Other Development
I (17th – 1895)	Major transportation - via sea Railway Hsinchu – Taipei 1893	Development - concentrated in south of Taiwan Building of Taipei in 1875 as a provincial capital	Tea Industry ↓ Establishment of trading arms in Taipei by Foreign merchant
II (1895-1910)	Arterial road development, Road improvement through urban improvement (1905) Road improvement within the Castle (wall) Road improvement south and east part of outside gate Road improvement in Báng-kah, Tōa-tiū-tiâ (by 1910) Belt parkway	Population growth 81,040 (1904) from 54,028 (1895) ↓ urban area 703 ha in 1905 Establishment of city foundation Ignore Feng Shui layout Park development (7.83 ha) Taipei Park (1st western style) ↓ Shrine buildings	Ritsuryo No. 30, 1899 Urban improvement (1st and 2nd –1899) - Drainage and sanitary Urban Improvement (3rd 1900-) Urban Improvement (4th 1901) Urban improvement (5th 1905) Target Pop. 150,000 in 1929 Taipei Shrine (1908) Monopolization
III (1910-1930s)	Railway (Hua-Shan –Taipei, 1.2 km) 1912	Suspension of municipal improvement (1920s) Rapid urban growth ('20) 171,002 pop	- Dike Construction (1913) - Reclamation project (1914-) - City Plan 1918 (not implemented) ↓ - Increaser of green space - Implementation of municipal improvement by LGUs (1920-) (from national gov't) - Establishment of financial support system for LGUs
IV (1930s –1945)	Road hierarchy (6 classification within the old castle) Road network Parkway system Imperial highway (Chokusi Kaido (1936-))	- Urban sprawl (late 1920s) → 2 years Survey for city expansion - Zoning Pop. 255,382('30) - 600,000 to 1955 (plan of '32) - Urban area 6676 ha (9.5 times bigger than that in 1905 plan) - 17 new parks / Riverside park will be 8m²/person (total 473 ha) Improvement of townscape	Greater Taipei City plan 1932 Urban planning code 1936 1039ha of land Readjustment for east part 296 ha were completed by 1945
V (1945-1990)	4 parkways were completed by 1978 removal of green island for bigger road capacity 31 roads and 4 expressways	Pop. 335,397('45) Targeted population 1,000,000 Targeted urban area 46,200 ha Pop.503,450 ('50) Existed urban area 27,180 ha in 1996 (58% of '46 plan) Became special municipality (1966)	20,800 Japanese remained in Taiwan ↓ Draft of City Plan 1946 Revised Urban Planning code (1964) Public work Development Plan (1967-70, 71-74) Road System development Plan (1976) Master Plan on the Comprehensive Development of Taipei City (1980)

Moreover, the necessity of planning was recognized for the road network development and improvement. During the Japanese occupation, all transportation infrastructure developments were carried out as projects that were derived from plans. In a series of urban improvement

completed by 1910 in three districts, main component was the development or upgrading of roads. Several researchers considered Parkway system in Taipei with boulevard (*San sen Road*) and imperial highway *(Chokushi Kaido)* was influenced by the U.S. where it was developed by early 20th century. Since Japan was under modernization stage after the Edo era when it started ruling in Taiwan, westernization was also incorporated into the city planning system as a necessary condition for modernization. Hence, it is clearly comprehended that transportation infrastructure was utilized as a leading factor in Taipei.

Urban development resulted from transportation infrastructure development in Taipei during Japanese rule was the modernization, rapid urbanization and expansion of the city. The urban area of Taipei in 1905 was recorded as about 700 ha (Goto, 1996). It was planned into 6676ha in the Greater Taipei Plan of 1932. Moreover, target population prepared in 1905 for 1929 was 150,000, but the population level of Taipei already reached 176,521 in 1920. The target population level of 1932 plan increased into 600,000 for 1965 (Koshizawa, 1987).

4.3 Cebu, Philippines

Until the opening of Port to World trade in 1860, the development of the City was limited to the Ciudad, similar to the other cities in the Philippines and in South America. Moreover, since the development was carried out by the friars, not enough attention was paid on the transport infrastructure development though urban planning through the Laws of Indies was applied. Also, the transfer of capital to Manila was another reason for the limited development and expansion of the City during the period of 16th to middle 19th centuries.

As found in the table 4, the opening of the Port resulted in the influx of people and goods into the City. Not only foreign firms, but also counselor agents from the U.S.A. and European countries were located in the City (Mojares, 1983). Urbanization level by the Filipinos increased after the opening of the Port. At the start of the 20th century, foreigners composed of five percent of total population in Cebu City. However, these changes did not lead to any distinguished infrastructure development.

The transport infrastructure drastically improved and developed under American sovereignty over the Philippines. The Americans prioritized the transportation development including road network, port facilities and railways. Roads connected the east and west coasts of the Cebu Island, and port facilities were remarkably improved to make the City serve as a main trading center of the country. A reclamation project was also carried out, and changed the form of Cebu port. A railway line linked the north and south of the City over 59.4 miles and also ran its line directly into the port. During the almost 40 years of American regime, more road development within the City was done than during the more than 300 years of Spanish occupation. The basic backbone of the city's road network was completed by 1913. It is, therefore, understood that transportation infrastructure development was considered one of major significant leading factors for the modernization and development of Cebu City in American policy unlike it was considered one of major causes to threaten the colonial policy for Spaniards. This extensive transportation infrastructure development produced rapid urban growth as well as established well city structure of Cebu. According to Census, 45,994 of population level as of 1903 increased to 65,502 in 1918 and 146,817 in 1939 respectively. Also, the volume of export in the port of Cebu recorded 211 percent of increase from 1932 to 1936. Cebu became the most populated island in the country in 1939 and the leading trading center of the country through transportation infrastructure development.

Through the record of the preparatory works for the city plan in the Commission Report of the Philippines in 1912, one can analyze that the American Government first developed the basic transportation infrastructure, and then tried to link it into the urban development of Cebu by preparing future plans. Also, from the location of the Provincial Capital hall, it is possible to assume that there was a vision to establish the new CBD as well as to expand the City. The approach taken during American Regime was not only to install the infrastructure, but also to guide the development of the City. However, it should be noticed that plans during this time frame were still fragmented. Examining details, it is revealed that road network development

of Cebu during American Regime was limited to old city district and only backbone roads were built in the expanded area where the inner corridors were not yet developed. Roads developed later in the expanded city neither had pattern nor network without enough linkages. This may be analyzed due to the absence of a master plan for Cebu. More attention by the national government during American Regime was paid on the development of Capital, Manila and summer capital, Baguio, rather than on that of Cebu. Master plan was never prepared for Cebu while it was prepared by Daniel Burnham for both Manila and Baguio.

Table 4. Historical Development Review of Cebu

Dev't Phase	Transportation Infrastructure Development	Urban Development	Other Development
I (1521-1860)	Grid-iron road network within the City Tartanilla	- Limited development Ciudad - Segregated settlement Pattern	- Law of Indies (1573)
II (1860-1899)	Inter-island steamer	- Population growth - Influx of foreigners and foreign Offices	- Opening of port to world trade (1860)
III (1899-1941)	Road and Bridge construction and improvement (32,314 mile-1904, 3,052 miles –1905) Boulevards construction Railway (59.4 miles 1907) Port (1904-1913) First Automobile (1910-) 5 transportation companies and taxicab service in the City	Connection between east and west Establishment of City structure - Urban growth 45,994 (1903) to 65,502('18) 142%up, 146,817 ('39) 224%up ('18-'39) - Increase of export volume (1932 to 1936, 211% up) - Offices of international trading company in Cebu by 1937 - Trade center of Visayas and the country - Vice-consulates (U.K., Japan, China, Spain, Netherlands, Norway, Sweden) - Became most populated island in 1939	- Road Law (1906) - Future dev't plan and beautification plan (1913-) - Urban Renewal (13ha in downtown) - Educational development (public school and English education) - Other infrastructure (water, power)
IV (1942-1970s)	- Damage on the Infrastructure 1945 (railways and road, etc.) - Infrastructure Rehabilitation - Lahug Airport - MIA (1967) - Mactan Bridge (1973- - Port Development & North Reclamation (160ha, 1969) - Diversity of Transportation	W.W.II. Destruction of the City (more than 50 %) - 180,000 homeless - Establishment of foundation for the planning system in Cebu Commercial and industrial space Job opportunity Pop. 167,503 (1948), 348,163 (1970) Cebu City (area) 27945 ha - Increase of traffic Congestion	- Copper, coal dev't by Japanese firm - Japanese invasion - Philippine Rehabilitation Act (1946) - Nat'l Urban Planning Commission (1946) - Nat'l Planning Commission (1951) - Local Autonomy Act of 1959 (R.A. 2264) - City Planning and Development Board (1950-1960) - Zoning Ordinance 102 (no trace found) - Registration system for Tartanillas
V (1970s-90)		- Emergence of concept of Metro Cebu Pop. 488,255 (1980) 140% up 604,407(1990) 128%up	- Framework Plan of 1976 - MCLUTS ('78), CVURP ('81) - SAPROF('89), MCDRPFS ('89) - MCDP('89)

Regarding immediate post war development, it is considered that the reconstruction of living space was a priority but the Cebu city government did not have the financial and institutional capabilities to place the vision on its reconstruction works. Moreover, the absence of a master plan for Cebu City is deemed to affect the post war development of Cebu since the basic transportation infrastructure once destroyed by W.W.II. was built again without much change from pre-war condition. Strong leader/s who had good sense of planning and could devote himself/herself in its development for the long term did not emerge in the City in this phase.

The development of large-scale infrastructure from the 1960s to 70s established the foundation of Metro Cebu. These projects were undertaken to improve accessibility, which was lacking in the area. However, it is uncertain if it aimed to form Metro Cebu. Serious traffic congestion and excessive competition within the City due to the rich diversity of land transportation modes during 1960s and 70s indicate the lack of control over transportation modes. The reclamation project since 1969 changed the structure of the port again. It created new job opportunities, and expanded business and commercial space in the City. During the 1960s and 70s, Cebu city experienced rapid urbanization (251,146 to 348,163 from 1960-70, 138.6 % and 488,255 in 1980, 140.2% up).The creation of the Cebu City Planning Board (CCPB) and enactment of zoning ordinance remained as highlights in the planning history of Cebu City but their strong effect on the transformation of the City during this time was not evident without enough guidance and implementation. Under the fragmented planning system, therefore, transportation infrastructure development in Cebu tended to be sporadic and did not have sense of integration nor power to guide proper development during 1960s and 70s.

The necessity of a master plan was finally recognized in the late 1970s. Short, medium, and long-terms plans had been prepared for Cebu City and Metro Cebu in 1980s and 90s. By 1990s, the development of Cebu City had clear directions and transportation infrastructure development has been positioned as one of the key growth factors.

4.4 Bangkok, Thailand

Historical development review of Bangkok is summarized in Table 5. Transportation infrastructure development in Bangkok has been carried out project by project. Canal construction and the first phase of road construction were undertaken to connect one place to another as well as expand the city proper since the development of Bangkok started from swamp. Since Bangkok relied on water transportation via canals for more than a century after its establishment, canal construction had defined the size of the city. Area of old Bangkok was 346 ha in 1785 and became 640 ha in 1851(IER, 1989).Rapid and long distance canal constructions were enabled by the military service under the absolute power of the Kings.

Interest of European countries on the colonial empire in Southeast Asia in the 17th and 18th Centuries was also a threat for Thailand. Kings Rama IV and V considered modernization was indispensable for the maintenance of its independence. It was in the middle of the 19th century that foreign firms were allowed to locate their offices in Bangkok, and the Bowling treaty was signed. The emergence of foreigners led realized the necessity of land transportation in Bangkok and roads were simultaneously constructed along with canal.

The construction and operation of railways established the status of Bangkok as a trading center in the late 19th century. Modernization through Chakkri revolution improved the transportation infrastructure facilities in Bangkok such as street lights. King Rama V's tour to Europe resulted in the emergence of urban planning and westernized townscape in Bangkok. The first development plan for new area, Dusit, was prepared in which London and Hyde Park became the model. The widest road of Bangkok, Ratchadamnoen Nok road was inspired by Champ-Elyéese of Paris. Road network plan for 50 roads was also prepared in Dusit and transportation infrastructure started functioning to guide the development. Moreover, Sathon, Surawong, and Si Phraya roads with Silom road established a class A residential area in the suburb of old Bangkok since the late 1880s due to their accessibility.

Although nationwide road network development started in the 1930s, it also declined role and function of canals in Bangkok. It was 1936 that building code was enacted and it controlled townscape of Bangkok. Moreover, by offering the sanatorium to U.S. during Vietnam War (1951-75), financial aid to upgrade the transportation infrastructure were provided.

After W.W.II, Japanese firms started building their offices along Silom road, and the land use of the area changed from residential to commercial. Greater Bangkok Plan was prepared by a U.S. consultant but it was not implemented. The first Socio-Economic Development was prepared in 1960, and the plan has been revised every five years. Urban planning code was

prepared in 1975 as the accomplishment of the third development plan. But it was only in 1992 that urban planning was prepared for Bangkok. Land use control was available only for specific limited areas in Bangkok until the middle of the 20th century and it produced juxtaposition of different land uses in one place. Emergence of large shopping center in the suburb accelerated urban sprawl in Bangkok since the 1960s. Floor area ratio (FAR) was introduced into certain areas in 1981. FAR for the high-rise building (more than 23 meters) and large scale building (total floor area is more than 10,000 m^2) was increased into 10:1 in 1992 which further produced traffic volume in the city. In the case of Bangkok, thus, the emergence of new land use and altered land use, not the transportation infrastructure development, except Dusit area, has guided the urban development whatever its effect is.

Table 5. Historical Development Review of Bangkok

Dev't Phase	Transportation Infrastructure Development	Urban Development	Other Development
I (1782 – 1852)	Only Lod Canal and Chao Phraya River in 1782 as transport means under King Rama I (1782-1809) Bang Lumpoo Canal (1782) Mahan Canal (1780s) Rathabophit Canal under King Rama III (1824-1851) Phadung Krungkasem Canal (1853)	Define the Palace, walled city (7.23 km in length) 346ha for old Bangkok (1785)* Building of temples Sampheng as commercial district - Area of old Bangkok double - Wall destruction along Bang Lumpoo	Built of temple along each canal Military service for the construction of general infrastructure
II (1853-1885)	- Private sector in infrastructure development (through the ending of monopoly of the government on trade) 1880s - Rama IV road and Canal 1853 - Silom canal 1861 - Charoen Krung Road, 1861 by King's assets thru the request from westerns	- Emergence of trading firm; embassies along Chao Phraya - Emergence of foreign firms Urban area 640 ha (1851)* Population 404,000 (1854)* Modernization of Bangkok 370,000 Chinese migrants	Foreign residence in Bangkok (1852) Bowring Treaty (1855) Chakkri Revolution **1869-** - Infrastructure development - Shop houses - Abolition of slave system (1874) - Electric facility - Public school - Mail services - Increase of Foreign Populace - Open of direct route to China 1882
III (1886-1934)	- Railway construction 1886-1892 open 21km Bangkok – other cities - Tramway in Bangkok 1894-1934 - Street lights - European fund - First automobile sometime in 1900 - Sathon Road and canal – 1888 - Surawong road and canal – 1897 - Si Phraya road by 1903 Emerge of 4S Area - Ratchadamnoen road 1899 - Road network plan for Dusit (50 roads, by 1906) - Road rehabilitation and construction in Sampheng	Bangkok became the hub of freight move of Palace to Dusit Development of 4S area since 1887 by private Sector Class A residential Removal of wall in Old Bangkok Population 527,000 (1919)*	Interest of Europe on Southeast Asia - King Rama V, tour to Europe 1897, - Necessity of modernization - Development plan for Dusit incorporation of town planning of London and townscape of Hide park - New political system under King Rama VI (1932) - Irrigation Plan by Dutch Engineer - Control of building material control in Sampheng
IV (1935 – 1959)	- Infrastructure development - Development of Road network - Canal remained for irrigation purpose - Commercialization of railway - State Railway of Thailand 1951 - Decline of railway business	Urban area 4300 ha in 1936* - Control of Townscape in Bangkok - Lost of role of Sampheng as a Trading sectors - Prohibition of trade between China and Thai Landuse of 4S- residential to commercial Pop. 1,831,000 ('57)*	- Financial aid from U.S. - Building code 1936 - Resolution 1941 - Public Housing Construction Plan 1947 - Nationwide Road Dev't Plan 1935 - Job restriction for Chinese - Commercial buildings in Silom
V (1960 - 1990)	-Construction of highways and circumferential roads	- Suburb development - Emergence of large scale shopping centers (1960s) 200% - Residents in Old Bangkok and Silom moved out to suburb - Starting of sprawl of Bangkok - Emergence of high rise buildings in 4S Pop. 3,659,000 (1971)*	- Industrialization - Greater Bangkok Plan '60 - 1st Dev't Plan (Socio-Economic) 1961- - Urban Plan Code 1975 - New Building Code 1979 - Condominium Act 1979 - FAR (10:1) - Technology development - General Plan 1992 - Zoning

*population and urban area data were obtained from Tasaka, T., *et al*.(1998) **Sekai no Daitoshi (Mega Cities in the World)**

5. SYNTHESIS AND CONCLUSION

Functions of transportation infrastructure development, population and area size in each study area are summarized with their planning pattern in Table 6.

Table 6. Functions of Transportation Infrastructure Development relation to Planning Pattern, and Population Levels and Area Sizes of Study Areas (actual and target*)

		Function of Transportation Infrastructure in the Urban Dev't	Planning Pattern	Population(*target)	Area (ha)
APA[1]	I	Guide, Support, Enhancement	Comprehensive	59,254*(1948 to 90)	Total 979.2 CBD 188
	II	Guide, Modernization,	Comprehensive	16,341(1969)	
	III	Guide, Support, Enhancement	Comprehensive	54,739(1980)	
	IV	Guide, Support, Mending	Comprehensive	55,621(1990)	
Taipei[2]	I	-	Fragmented	54,028(1895)	-
	II	Mending, Guide, Modernization	Fragmented to Comprehensive	81,040(1905) 150,000*(1905 to 1929)	App. 700(1905)
	III	Mending, Guide, Modernization	Fragmented to Comprehensive	176,521 (1920)	-
	IV	Guide, Modernization, Westernization	Comprehensive	255,382 (1930) 600,000*(1932 to 1955)	6,676*('32)
	V	-		335,397('45) 503,450('50) 1,000,000*(1946)	46,200*(1946) 27,180 (1990s)
Cebu[3]	I	Exploitation, Hispanicize	Fragmented	11,000(1850)	-
	II	-	Fragmented	13,000(1860) 14,099(1891)	-
	III	Guide, Exploitation, Area Expansion, Modernization	Fragmented to Comprehensive	45,994(1903) 65,502(1918) 146,817(1939)	-
	IV	Exploitation, Break, Rehabilitation,	Fragmented	167,503('48) 251,146('60)	-
	V	Guide, Mending, Modernization	Fragmented to Comprehensive	345,004('70) 488,255('80)	27,945(1970)
Bangkok[4]	I	Area expansion,	Fragmented	50,000(1822) 77,300(1828) 160,154(1843)	346(1785) 640(1851)
	II	Modernization and Westernization	Fragmented to Comprehensive	404,000(1854)	-
	III	Area expansion, Modernization, Guide	Fragmented to Comprehensive	527,000(1919)	-
	IV	Break, Rehabilitation, Enhancement	Fragmented	1,831,000(1957)	4,300(1936) 9,600(1958)
	V	Mending, Guide	Fragmented	3,659,000(1971)	18,500(1971)

Source (population and area):from [1]villamayor 1973, census; [2] Koshizawa 1987, Goto 1996, Political System of Taipei Historical Collection Vol.3 ; [3]Mojares 1983, census; [4] Sekai no Daitoshi 1989

In viewing effects of transportation infrastructure development on the urban development in the study area focusing on its planning pattern, there was clearer distinction between the 'Comprehensive' type and 'Fragmented' type. In the 'Comprehensive' planning pattern, it is more likely that transportation infrastructure had the function of guiding and leading factor in urban development. In the case of the APA, for example, transportation infrastructure was developed not only to increase the accessibility to/from and within the area, but also to guide and support the designated land uses for the first forty years. At the same time, in Taipei during Japanese Occupation, transportation infrastructure development was a requisite for the better environment as well as elements for the modernization and westernization of town.

Meanwhile, transportation infrastructure in the 'Fragmented' planning pattern tended to be just a result of patching-up existing situation and concerns. It is observed, during the fourth and fifth development phases of Bangkok, that road network development was considered as a solution to catch up the less developed road infrastructure. Also, upgrading of roads and large allocation of funds on transportation infrastructure development through NESDP were as the key factors solving the traffic problems that facilitated the progress of Bangkok (The Royal Thai Embassy, 1997). Moreover, in the case of Cebu, large-scale transportation infrastructure projects during 1960s and 1970s were placed without total coordination as a result of the unsubstantial foundation of planning system. Transportation infrastructure development under 'Fragmented' planning system had happened project by project as found in Cebu during American Regime and postwar and Bangkok.

Furthermore, integrating the above idea with the findings of autocratic planning and individual leaders in the specific development phases in the study areas, it is comprehended that autocratic planning approaches improve the existing planning system as well as make

transportation infrastructure the leading factor in their urban development especially when it is associated with the individual leader who has passion, profound knowledge, and experience in the urban planning.

Summarizing the above synthesis, following are stated as the conclusion of this study:

(i) Transportation infrastructure development is basically the leading factor of development in the comprehensive planning system while in the fragmented planning pattern, it has functions of mending and fixing existing situations rather than of leading;
(ii) When modernization is observed as one of the functions of transportation infrastructure development in urban development, planning pattern can be classified as "Comprehensive" type or moving from "Fragmented" towards "Comprehensive" type;
(iii) Leaders or visionaries on the development initiatives are other key factors for urban development of study areas;
(iv) "Autocratic" planning system, which in this study is defined as the presence of strong interventions by persons or institutions, is also an applicable approach to improve the planning system and functions of transportation infrastructure in urban development; and
(v) Initiatives of private sector in urban development enhance the output of investment as well as lighten the load of national and local governments in urban development.

Based on the conclusion, several recommendations are stated below. Although large scale transportation infrastructure projects are necessary, it is still uncertain whether they will yield the maximum benefit and accrue them due to the planning system of Asian Cities. In terms of the effort and attention on the transportation infrastructure development, less is observed for the improvement of efficiency in the planning system. Given the seriousness and complexity of the problems faced by the cities of the 21st century, the importance of a sound planning system is further emphasized. It is influential and essential to maximize the role of transportation infrastructure in urban development. Therefore, town building with "Comprehensive" planning pattern and high level of focus on urban planning in which transportation infrastructure and urban development are controlled under one integrated management system is recommended for Asian Cities. The study likewise raised the potential of "autocratic" planning system in the Asian countries where the capabilities of national and local governments are still low and where it is difficult for them to improve the efficiency of their planning system in a short period of time to keep pace with rapid urban growth. Instead of the bureaucratic approach in planning, adopting autocratic approach could be advocated as one of the solutions for the sustainable development of Asian countries. Development is, most of the time, a painful process as the beneficial outputs for the general welfare sometimes raise the conflicts among individuals. To control and minimize them, strong power should be given to the planning arm of each country even though the planner is not the decision-maker.

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