Morphogenesis and Layering of Southeast Asian Coastal Cities: Re-conceptualization of urban and environmental model

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Morphogenesis and Layering of Southeast Asian Coastal Cities: Re-conceptualization of urban and environmental model

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Abstract:

The morphogenesis of the human settlements initiated by the human habitation and articulated by design, following a certain ordering principles. Universally human believes that they live at the middle in-between two poles of the universal order: the divine and the evil, upper and lower, mountain and sea, sunrise and sunset, conceptualized as the tripartite divisions of space – horizontally and vertically. Settlement morphology in Southeast Asia follows this cosmological pattern in different scale levels, from urban scale to urban-segment down to building/dwelling scale.

Southeast Asian cities, which developed around the “Mediterranean of Asia” (coastal areas around South China Sea, Java Sea, and Malacca Strait) since the beginning of inter-insular and inter-continental trades from the 1st century until today, are formed by complex layers of various cultures, ideologies, economics, and ecosystems, manifested in the hybridity of urban morphology and architectural typologies.

For more than two millenium of its urban history, many cities in Southeast Asian region have demonstrated their ability in preserving some of its primary elements, basic morphological patterns and layers, both tangible and intangible (such as: the cultural collage, interweaving of community diversity, hybridity in the built-forms and the material culture, persistence and permanence of urban patterns and artifacts, etc.).

The paper intends to present the morphological study of urban forms, its formation and transformation in Southeast Asian context, especially on the coastal cities and settlements, where different cultures have been transplanted, adapted, and localized along history through migrations and maritime trades.

Looking from the Sea: conception of “Mediterranean of Asia” entity

Looking from the sea towards the land, Southeast Asia is seen as a continuum of physical and cultural environments. Sustainable cosmopolitan settlements in Southeast Asia have been developing around the “Mediterranean of Asia”, referring to the coastal regions around the South China Sea, Java Sea, and Malacca Strait, since the establishment of the inter-insular and inter-continental maritime trading activities from the first century until today.

The cosmopolitan culture has been formed through complex layering processes of various cultures, ideologies, economies, and ecosystems sustained over a long extended historical period and clearly manifested in the complexity and hybridity of the production of its settlements’ morphology and architectural typologies. Southeast Asian societies and cities are characterized by rich and complex collage and interweaving of cultural diversity, hybridity in the built-forms and variety in material culture.

In Southeast Asia the cultural and geographical boundaries are always blurring, overlapping, or intersecting, and cannot clearly be defined. People in different places, islands or continents have kept moving, communicating, and intermingling from past till present, influencing each other and producing hybrid, fused, diverse architecture and material culture.

In the 1980s, Sutan Takdir Alisyahbana – an Indonesian esteemed scholar – proposed a geographical term for this dynamic region “Bumantara”, literally means “region in between”, located at the centre of international maritime and commerce, and in-between corridors for trades, migrations, and exchanges, between Asia and Australia continents, and between the Pacific the Indian oceans. For centuries, this region was politically unified under Funan,
Srivijaya, and Majapahit, and now ASEAN\textsuperscript{2}. It was continuously shaped and enriched by various cultural layers, constantly nurtured and developed along its long and intermingling historical timeline.

![Mediterranean of Asia (image source: Google Earth)](image-url)

**Figure 1 – Mediterranean of Asia**

**Protection of natural resources and integration of human settlement into nature**

Rivers and fresh water springs are the lifeline of the human settlements, and its origin can be traced back to these primary water elements. Early settlements that bore the seeds of urbanity appeared on the waterfront at the connection point between the outside worlds with the interior hinterland. This waterfront settlement in many areas in Southeast Asia is known as *Kampung*\textsuperscript{3}. The forested hills and mountains provided steady supply of fresh water through the rivers to the community living in these settlements for their daily life and cultivations. Therefore to ensure the continuous flow of this lifeline, the forests were protected against violations and destructions, through rituals and social rules. The choice of location for the built-up area of the settlement is carefully considered against natural and supra-natural factors, in order to ensure the harmonious relationships between human, nature, and the spirits. In rational sense, it is also to ensure the survivability of the community’s existence and its livelihood for perpetuity.

The vernacular building tradition in Southeast Asia is the results of adaptation to local climate, innovation in building materials and techniques, and creative integration of belief system. Steep pitch roof, wide eaves, raised floor, breathing roof, and porous walls are the responses against the equatorial tropical warm-humid climate, affected by monsoon with plenty of rain, and to ensure comfort for people who lives within it. The timber construction system using flexible joints are reactions against earthquakes, especially in the Indonesian

\textsuperscript{2} Association of 10 Southeast Asian Nations, comprises of Singapore, Indonesia, Malaysia, Thailand, Philippines, Brunei, Vietnam, Cambodia, Laos, and Myanmar

\textsuperscript{3} According to local resources, “Kampung” (in Malay or Indonesian), or “Kompong” (in Cambodian) originally refers to the area on the riverbank near the landing point and on the path to the settlement a bit further uphill from the waterfront. Later the term “Kampung” is picked up by the European and associated to the terms “Compound” and “Camp”
archipelago, which are continuously rocked by active volcanoes and the movement of continental plates.

On the land based farming settlement in Southeast Asia, there is a strong indication that the vernacular stilt-house was developed out of the rice growing culture in the warm-humid tropical region, originated from granary architectural typology, which was then further developed into dwelling places. The attic under the roof works as a storage for rice, goods and valuables, while the middle space is meant for living. It is a direct respond to the forces of nature, creative innovation in using available resources, and manifestation of belief in supra-natural powers by special ornamentations placed on the roof.

From the earliest vernacular traditions of Southeast Asia, we learned that local architecture and native urbanism are able to offer the best and integrated solution towards human needs in their relation with nature, social, and supra-natural environments. It is the medium for human survival in both mortal and spiritual worlds, for reconciling the power of nature and the desires of human being.

![Figure 2 – Preservation of natural resources in a fishermen’s kampung off-coast of Papua, Indonesia (Source: Lam, Dana (ed), Indonesia from the Air. PT Humpuss & Times Editions. Singapore: 1996, p. 208)](image)

**Harmonious coexistence: order, hybridity, and cultural sustainability**

People of Southeast Asia had been learning from Indian philosophy and cosmology since the first century, and applying the formal and spatial ordering principles – known as *Mandala*⁴ to their architectural typology and settlements morphology. This is understood as the tri-partite

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⁴ Mandala is a Sanskrit word meaning a hierarchical order of concentric circles. In geometrical sense, it could be visualized as a square subdivided into 9 sub-squares. It could be perceived as two superimposed hierarchy of space (upper-middle-lower) towards North-South, and the East-West (two primary orientations of sunrise and sunset). The middle space is considered as the neutral ground, the navel, the womb, or the center. A city, a village, a house, or a room can be arranged according to this tri-partite hierarchy of values and meanings.
divisions of the cosmos in macro-, meso-, and micro- levels. This tri-partite cosmological divisions or hierarchy corresponds to the metaphor of the human body (the head, the torso, and the feet), and to the metaphor of the universe: the sky where the divine spirits reign, the ground where the human lives, and the underworld where the evil spirits dwell. It may be seen in two-dimensional plane, or applied to three-dimensional space and form.

Traditional planning of the settlements in many local contexts in Southeast Asia follows this ordering principle, by situating the village in between the mountain and the water body (sea, lake, or river). The most important building or function (like temple of origin, chieftains’ house, or ancestral graves) is placed on the vantage point of the village or towards of the mountain. Functions associated with death or impurities (like temple of death, or waste disposal) are placed down towards the opposite direction. In many cases the rice barns – the most important function for the rice growing community – are situated on the eastern side of the village facing the sunrise, symbolizing life.


Islam entered and spread throughout Southeast Asia through two different main trading routes: through the Asian mainland (“Silk Road”) and through the Indian Ocean (“Ceramic Road”). The Arab, Yemeni, Gujarati, and Tamil traders from West- and South- Asia were the earliest catalysts for “Islamisation” in Southeast Asia, followed by the Chinese Muslims particularly during the voyages of Admiral Zheng He to Southeast Asia and the Indian Ocean during the Ming dynasty in the 15th century. Islamisation processes in Bumantara started from the urban centers along the northern coast of Java (Gresik, Tuban, Demak, Semarang, etc.) and the northern tip of Sumatra (Samudra Pasai in Aceh), then spread to other coastal port cities in the peninsular Malay and Indonesian Archipelago including the Philippines.
The fusion process of the new Islamic design principles with the existing buildings and urban spatial typology was evident. The transition and transformation processes took place peacefully and naturally through absorption of the old craftsmanship and building traditions and integration with the new architectural and structural vocabularies. The artists and builders from different racial and cultural groups worked together and blended their artistry and skill into new and unique building tradition and architectural totality. Community groups of different religions and origins lived together side by side in close-knitted settlement fabric.

![Figure 4 - Multi-religions settlements of Tanjung Benoa, Bali (Indonesia). (Source: Google Earth, with annotations by author)](image)

The Chinese Diaspora had been passing through and many had settled down in Southeast Asia since the establishment of the maritime trading route between China, India, Arabia and Africa. During the cyclone periods of the changing monsoon seasons, the traders stayed in Southeast Asian ports, while waiting for their trading partners from other parts of the world to come. During their stay here the crew and passengers of the ships populated the city and mingled with the local population. Many of them settled down and formed early waterfront towns and coastal cities with a cosmopolitan character. Trade came together with the promulgation of Islam in this region. Therefore it was a common phenomenon in coastal Southeast Asia that an old Chinese temple was situated adjacent to an ancient mosque within the historical urban core, in close proximity to the waterfront in the middle of a multi-racial community.

The voyages of Ming dynasty’s Admiral Zheng He (1405-33) to Southeast Asia and the Indian Ocean (Ma Huan 1997 [1433]) had left tangible traces along the coastal regions of Southeast Asia in the form of Chinese trading posts and colonies, and strengthening the

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5 In many cases we can even find Muslim’s tombs inside the Chinese temple, and worshipped by both Muslims and Chinese devotees (e.g. in Mazu Temple in Palembang, Ancol Toapekong Temple in Jakarta, etc.), or several different religious buildings clustered together in a single site (e.g. Loyang Toapekong Temple in Singapore).
cosmopolitan characters of the coastal settlements here. Some of these early settlements then grew into flourishing entrepots, and some of them grew into bigger emporiums.

The generic urban core morphology was a double nucleus of the native’s and the foreigner’s settlement areas. Both settlements were interconnected by the main market close to the harbor or the shipyard. The market was the meeting place for different people and functioned as the heart or the common space of the town. Locals and foreigners mingled in the marketplace and within the urban neighborhoods. Unique identity and belief of each group would be preserved and nurtured, and at the same time a new communal hybrid identity was created. The layering process of vernacular, Hindu, Buddhist, Chinese and Islamic cultures and its materialization had been going on peacefully since the creation of these cosmopolitan settlements and communities around the Mediterranean of Asia.

One example of the transplantation and indigenization of coastal Diaspora’s morphological construct is the Mazu worship. In every southern Chinese immigrant’s boat a special shrine for Mazu was installed to guard the compass or the steering wheel, the sailing direction, and all passengers aboard. Once the ship reached a good place and they decided to settle down, the ship would be dismantled. The memory embedded in the spatial-cosmological concept remained and transplanted into the new adopted land to form a new urban nucleus. The settlement’s new spatial structure was in fact a reconstruction of the cosmological geometric pattern of the immigrant boat, as the Mazu temple was placed at the end of the axis facing the harbor and two masts were placed in front of the temple (Widodo 2004:35-38). A small community of Chinese fishermen and traders was then formed around the harbor, living together side by side with the local population and other foreign communities with a hybrid urban culture and architecture.

As an expression of respect to the local or indigenous spirits who guarded the place, the newly arrived Chinese immigrants paid their tribute to local objects such as a sacred stone, an old tomb, an ants’ mound, or an old tree. Later these kind of objects were manifested as a person by a statue of a local “deity”, known as Datuk-Kong – a peculiar combination of the Malay honorific title “Datuk” and the Chinese holy-man “Kong”. The Datuk’s shrine is located next to the thresholds or entrances to the town, neighborhoods, temples, and houses, even until today.

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6 Entrepot is from the Latin words *inter* (in-between) and *postitum* (location), meaning a place located in-between. An entrepot is a small town without or with very little local commodity. Almost all goods to be exchanged there were international goods in transit.

7 Emporium is from the Latin word *emporos*, meaning marketplace. An emporium has a strong component of the native’s ruler city and the foreigner’s settlements, while the market is the place of exchange of local commodities and international merchandises.

8 Mazu is the patron goddess of fishermen, seafarers and immigrants from Southern China. Mazu worship spread out of China together with the Zheng He voyages and with the flows of Fujianese, Chaozhou, Cantonese, and Hainanese immigrants to Southeast Asia in the fifteenth century and after.

9 This Datuk is portrayed as a Muslim native old man sitting in a throne holding a walking stick or a traditional weapon “Keris”. He has different names in different places, such as Datuk Awang, Datuk Haji, Kyai, or other local names across coastal regions of Malay Peninsula, Kalimantan, Jawa, and Sumatra.
In later periods other popular vernacular deities from Southern China would also appear in the expanding diaspora’s settlements. They were followed by the Taoists and Buddhists who converted (or “colonized”) the pre-existing temples or built new temples and monasteries. These, again, were followed by the Confucians and other cults and sects, in a continuous hybridization and layering process within the multi-racial settlements and assortment of religious temples. All developments resulted in a mix of various elements from different belief systems and production of a richer blend of cultural artifacts.

On the building typology level, one good example of this cultural blending process is the typical trader’s house in Palembang. The house plan and some of its construction method are of the southern Chinese courthouse, but the saddle roofs, open veranda, timber material, and its raised floor were definitely local. From different cases of the same locality, visible and easily recognizable elements of Arab, Indian, and even European origins were blended into the Chinese and local-vernacular fusion typology. In many instances, the Chinese simply used and adopted the local architectural typology for specific functions, such as temples, association halls, or dwelling. The new building typology has an eclectic nature especially in details and ornamental levels.
Figure 6 - House of the Chinese Captain in Palembang. The plan follows Chinese courtyard house pattern, the roof and main structures are of local Palembang vernacular style, the façade is Dutch. (Source: author)

**Modernity: contextualization, modernization, and innovation**

The Europeans began to spread out their hegemonic ambition since late 15th century, initiated by the Portuguese (to India, Malaka, Jawa, eastern Indonesia, Philippines, Taiwan, Japan), followed by the Dutch (to India, Malaka, Indonesia, Taiwan, Japan), British (to India, Malaya peninsula, Bengkulu, Jawa, China), Spanish (Philippines), French (to Indochina, China), and German (to China).

Numerous new typologies and functions were introduced into the urban infrastructures, urban design, and architecture, such as boulevards, streetscapes, façade, building techniques, and new functions (military establishments, public buildings, churches, urban squares and plazas, markets, railroads, stations, plantation houses, and many more).

At the very beginning, the European design was directly applied into tropical Southeast Asia with minor modifications, resulted in a not so comfortable living condition within the building. Responding to this, then a more responsive design solutions were invented, by adapting building and urban design into local climatic, aesthetic, and social-cultural conditions. European style buildings with deep verandah and ventilation holes, mixed with Chinese, Indian, Malay, Arab, and others design features, evolving into unique and rich regional styles. Similar to the previous process, the European influences were naturally and openly accepted and absorbed into the vocabulary of Southeast Asian architecture and urbanism.

On the later period of European colonization, the segregation policy of dwelling areas according to different races was implemented almost in all colonial cities in Southeast Asia. The urban population was racially segregated, generally divided into three classes: the European, the ‘oriental’ (Chinese, Arabs, and other Asians), and the native population groups. Usually there was no clear physical boundary which separated the different racial zones, although in some cases there were rivers, walls, or roads which functioned as the physical boundaries. Nonetheless the non-physical legal boundaries had caused an internal densification process within each restricted zone especially in the non-European quarters. The
over-densification would later push the colonial cities into environmental disasters and worsening of public health conditions.

In early twentieth century the colonial governments’ policies shifted to a more ethical approach towards their colonies, parallel to the rise of ethics and socialist movements in Europe. New housing areas were planned and developed inside and around the city, to accommodate the rapid increase of urban population. Infrastructure and housing improvement programs were implemented to improve the well being of all segments of the urban population. Garden cities and hygienic housing typologies were developed in the capital cities, municipalities and smaller towns. Modern building codes and regulation were introduced in order to improve sanitation condition and public safety in the inner city. New building types were invented and old building typologies were improved following the new regulations to provide pedestrian arcades, open backyard with utility functions, fire escape, etc.

The harbors were enlarged or rebuilt, industrial estates were developed, and the central business districts in the city centers were rejuvenated. Trade fairs were organized to accommodate the rapid growth in local and international commerce and trade. The port cities in Southeast Asia had grown up to the level similar to other modern port cities in the world of that period. Some cities across Southeast Asia such as Penang, Singapore, Medan, Batavia, Semarang, Surabaya, Makassar, and Manila were linked to the modern international maritime trade networks and developed into the major regional growth and distribution centers.

With the opening of new architecture and planning schools in Southeast Asia by the colonial governments, new tropical-regionalism discourses were actively debated and practiced by young architects and urban planners in the region. Fresh ideas from modern urban planners and architects were manifested into city plans, urban designs, and architectural styles – blended with the elements from the local, natural and cultural contexts. A large dose of idealism and hopes were put into the transformation and the future of the coastal cities in Southeast Asia in early twentieth century. However the global economic recession and the two World Wars which raged on the first half of twentieth century had terminated these dreams. Political movements for national independence, urban riots against the colonial rulers, and social unrest against inequalities and oppressions, were proliferated all over the region. The economic recession and social-political instability had terminated some urban development projects and had left many parts of the city dilapidated and deteriorated.

Post-War Layer – Internationalization & Fragmentation

The Second World War and the invasion of Japanese Imperial army to East Asia and Southeast Asia gave the final blow to end the colonialism history in Southeast Asia, and changed the course of urban history and morphology of this region. Almost 300 years of European colonization history had to come to an end. A new chapter of the Southeast Asian urban history began to emerge, riding the waves of decolonization and the spirit of national independence.

Soon after the War newly independent countries were appearing in a very fast rate across Southeast Asia. For around two to three decades since 1945, the countries in Southeast Asia were struggling to overcome the past legacies of colonialism – such as divisions and poverty
- and at the same time trying very hard to re-build the nation politically, socially, economically, and physically.

The International Style and the ideas of Modernism were used to express the breakaway from the colonial past and the emergence of the new spirit of Nationalism by the leader of the newly independent countries of Southeast Asia, such as Soekarno’s Indonesia, Sihanouk’s Cambodia, Tunku Abdul Rahman’s Malaysia, and Ho Chi Minh’s Vietnam. Modernist urban plans and locally developed modern architectural styles were produced and implemented in the cities across the region.

![Image of Hanoi with labels](image)

*Figure 8 - The tangible and intangible layers of social-cultural-political history are clearly visible in the urban-morphological tissue and the building typologies of Hanoi. (Source: Google Earth, with annotations by author)*

Very often the implementation of this modernist city plans was partial and haphazard due to limited economic capacity and technical capability of these newly born nations, causing fragmentation and disintegration of the city. The layers of urban history and heritages which kept the shared memory of the whole community for many generations have been forgotten and even erased systematically, to be replaced with a totally new forms alien to the existing contexts, following a certain political agenda or economic market forces, ignoring the past and speculating for the future.

**Postscript**

Coastal cities with its long history of networks and cosmopolitan entrepreneurial spirit have been always playing vital roles in the economic growth and cultural sustainability of Southeast Asian nations. Fifty years after War, the wave of globalization and free trade agreement sweep across Asia and the rest of the world. Many of the national and regional capital cities in Southeast Asia have risen into metropolis, megalopolis, and world city, which
play indispensable roles in the interconnected global market and economy\textsuperscript{10}. Unfortunately this rapid growth has accelerated the cultural and physical transformation process, which often speeding up the fragmentation and destruction of old urban fabrics and creating serious problems of cultural identity of its citizens.

We have learned that cosmopolitan Southeast Asia is a dynamic source of identities, a place where great civilizations met, collided, and blended. Since the very beginning, our cosmopolitan city is always been a collage of different cultures and styles, physically manifested in the patterns of neighborhoods, streets and waterways, marketplaces, buildings, communal spaces, and hybrid architectural typologies. Multiculturalism is not considered as threat or liability, but as asset and opportunity. Southeast Asian sustainable settlements and cosmopolitan urban communities are similar to webs of different elements and colors, and yet integrated as a continuous fabric.

Adaptation, formalization, hybridization, rationalization, and contextual-modernization, are some of the processes that we can learn from cosmopolitan Southeast Asia context. It may provide the keys to common understanding of the sustainable nature of architecture, urbanism, and environment, which may serve as the starting point to change our paradigms towards a more sensible, sensitive, and contextual actions.

For more than two millennia of its urban history, many cities in Southeast Asia have been demonstrating their ability in preserving its primary elements and basic morphological patterns, tangible fragments and intangible traces, linkages, and connections, while continuing to be transformed and reborn. All of these can be learned, understood, adapted and appropriated, decoded and reconstructed, to enrich our inventory and vocabulary to educate future generation of scholars and professionals.

References


\textsuperscript{10} One of the most impressive success story is Singapore – the smallest city-state in Southeast Asia - is one of the fastest growing economy in Asia, which moved from the status of third world into first world country within a very short period of time. The island’s economy entirely depends on the international trade network and services, but yet it is managed to be one of the indispensable nodes in the network of global economy. Singapore success in cleaning and maintaining its waterfront and riverfront areas is an apparent example of economic success which is translated into good urban planning and implementation.