MORPHOLOGY OF URBAN SETTLEMENT

Urban morphology can be considered as an approach that provides an understanding of the form, creation and transformation processes, spatial structure and character of human settlements through an analysis of historical development processes and the constituent parts that compose the settlements. In this essence, urban morphology is used as an important assessment tool or method in determining the change transformation processes of urban fabrics, making sense of the historical roots of spatial and functional structures and bringing them to the present day.

Another definition from Bentley and Butina states it as: “an approach to studying and designing urban form which considers both the physical and spatial components of the urban structure of plots, blocks, streets, buildings and open spaces, all of which are considered as part of the history/evolutionary process of development of the particular part of the city under consideration”.

Urban morphology can be considered as primarily concerned with the structure of urban form, an important part of urban design is the creation of urban form. It is reasonable that the discipline that has as its central purpose in the understanding of urban form should contribute to both the theory and practice of designing that form.

Early humans led a nomadic existence, relying on hunting and gathering for sustenance. Between 8,000 and 10,000 years ago, systematic cultivation of plants and the domestication of animals allowed for more permanent settlements. During the fourth millennium B.C., the requirements for the "urban revolution" were finally met: the production of a surplus of storable food, a system of writing, a more complex social organization, and technological advances such as the plough, potter's wheel, loom, and metallurgy. Cities serve as centers of government. In particular, the emergence of the great nation-states of Europe between 1400 and 1800 led to the creation of new capital cities or the investing of existing cities with expanded governmental functions.

Urban planning has undergone several changes over the years. The morphological variety of cities and towns reflects the periods in which they were formed and evolved. The cities or towns may have been developed through the ancient times, Middle Ages, early modern stage, industrial age to now the modernization time.
Major morphological factors

The major morphological factors of cities include natural determinants and human-made determinants. The natural determinants are studied from the geographical location of city. The human-made determinants for the form of a city are influenced by human intervention. The natural and human-made determinants were considered for the urban morphological study from the traditional way.

Natural urban form determinants

The nature of geographic location has several but three major determinants namely, climate, topography and available construction materials. These determinants have played noteworthy roles in the shape of urban forms for both historical and present settlements.

The climate of a region in the world is determined by its latitude, longitude and terrain. There was no doubt that different cities have their climate feature. Climate is a determinant for the form of settlements due to the shelter is the fundamental need of people. Some houses of a city were built according to the climate. The forming of urban settlements influenced the street network, and then determined the urban underlying pattern. The arrangement of houses for Islamic cities was particular due to its hot-humid climate. The urban forms depend on their local climatic circumstances. Due to the geographical locations of European cities, USA cities, Islamic cities, and East Asian cities, the urban underlying structures must have differences.

Topography of a region has underlying effect for the establishment or expansion of the urban settlements. The topography is a main part in the creation of urban dimension. There are outstanding European examples such as Athens, Rome and Edinburgh and they are affected by their topographical settings. The construction materials also shape different style of architectures.

Human-made urban form determinants

There is another kind of determinants which is termed as the human-made determinant. These determinants for the process of natural settlements have the human intervention and people have significant influence in the shape of urban forms. The human-made determinant had great effect
for the organic growth and planned town. Cities or towns built for fortification were greatly affected by the human-made factors. Compared to the natural determinants, the human-made determinants are numerous, and they involve economy, politics, religions, defence, the gridiron, aesthetic planning and functional regions.

For the market place of a city, it needs space for selling goods. The marketing areas affect the form of urban settlements. The European towns have their urban space for communal trading activities, but the circumstance is different in Islamic cities (Morris, 1994). The major markets in some European cities might are gradually consolidated. In different cities, the economic activities influence their underlying pattern.

The political factor are various with countries. The citadels, castles and palaces could be built for the cities as a military power. Due to the different politics, the urban forms have differences. Take an example, Xi’an which is an important ancient capital in ancient China has its special grid urban form. The religion is another determinant factor. The functional regions affect the groups of buildings and street layouts.

For the defence factor, most cities or towns have their special patterns. The moats, walls and defensive system could affect the urban street network and they could make the fortified cities and towns have geometric forms. For example, Naarden and Antwerp have their regular defensive system and these urban patterns are based on their military roles. The European fortification cities and towns developed in different periods were studied together to find their urban forms and regular outlines.

The original gridiron plan was used to divide the planned areas into building blocks by the orthogonal street networks. The gridiron were made for Greek planned cities, Roman imperial urban planning and some USA cities. The gridiron pattern is also different in European and USA cities. The orthogonal streets of urban street network are straight and long for some special USA cities. The gridiron pattern provides away to study the various urban forms. The aesthetic planning of different countries in different period make the shape of urban settlements diverse. The functional regions of a city could determine the layout of urban street networks. Considering the
several natural determinants and human-made determinants various urban forms were studied from the traditional perspective.