

## **IMAGINARY AXIS AS A BASIC MORPHOLOGY IN THE CITY OF YOGYAKARTA - INDONESIA**

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**ABSTRACT:** The life and characteristic of the cities in Indonesia cannot be separated by the influence of city's development in Java Island. The influenced of Javanese cultures not only in the cultural system, governmental mechanism or political behavior of the administration, but also on the dimensions of the established institutions; it starts from the beginning of the *Mataram Hindu* Empire, the *Majapahit* Empire as well as the *Mataram Islamic* influence of the recent time. In this paper the term "axis" as a basis of morphology for creating city's order in a traditional city of Indonesia especially in Java is analyzed. Here it is applied in the order of ancient city of *Trowulan Majapahit*. This axis was influenced by the growth of religions as a cosmology orientation. Certain imaginary axis which acts as a joint connects the various cosmic forces of the universe. Besides in the city development plan, this imaginary axis is applied as a "road system". An axis of the sun orbit is the easiest cosmic force we can feel in everyday life. Thus, the shapes of the traditional cities in Java and on the island of Bali tend to incline on the order East - West axis or North-South axis. Orientation of the buildings has been developed according to such orientation too. Meanwhile giving honor to the universal objects as the cosmic forces such as mountains, rivers, lakes and sea, have been applied in the city planning. This paper also delves into the concept of imaginary axis influenced by the shaping of elements of the traditional city in Indonesia, especially the placement of *alun-alun*, *keraton* and the mosque. Philosophically, Yogyakarta has been shaped by cosmology axis which cannot be inseparable from those elements such as *Merapi* Mountain, *Keraton* and Southern Sea (Indian Ocean). This order referred to *Trowulan Majapahit* space and order which is known as a concept of space according to Hinduism.

**Keywords:** imaginary axis, cosmology, basic element of the city, *keraton*, *alun-alun*, Yogyakarta.

### **1. INTRODUCTION**

The city's development through history in Indonesia cannot be separated by the growth of civilizations in South East Asia. The center point of these civilizations is located at the area which now has known as Indochina. The civilizations in South East Asia presume has started develop at about 4000 - 5000 years ago.

The growth of civilizations in Indonesia was influenced by migrations of some people from Indochina to the archipelago in Indonesia. Process of those migrations has occurred in two periods and it happened because of the civil war and hunger. The first migrations executed by the Proto-Malay people who brought several competencies such as: the expertise for doing earthenware vessels, built boat, taming animals, planted rice and also brought a basic Malay language. The second migrations executed by the Deutro-Malay people, they have a good skill to processed metal become agricultural tools. The unifications of both cultures have known as Dong-son civilization.

Cultural feature which developed after the migration known as a megalithic culture, this culture become a feature of Neolithic civilization. Hence, it clarified why in Indonesia discovered so many artifacts such as: a big statute, obelisk, stair graves

of ancestors (*punden berundak*) and tomb stone. Planting rice in wet land and taming the animals have developed during the Neolithic culture; both activities have been an early process of developing agricultural culture which influencing the growth of new socio-cultural process in the rural community.

The existences of traditional cities in Indonesia are influenced by proselytization of Hinduism and Buddhism in the early century. *Negara* which emerged from Hindu-Buddha in South India has known as a structure to establish an urban settlement. According to an ancient inscription from Kutai (Borneo), *negara* established as a center of political power in Indonesia since 5<sup>th</sup> century. In *negara*, the organizing of social, politic and economic settlement has been applied in the several villages as territories of *negara*.

Many of ancient inscriptions explained that some *negara* which exist before Kertanegara Kingdom (1268-1292) did not establish sovereignties of a kingdom. In other words, they scattered as small several *negara* who always competed, civil war to each other and never become dominant absolute like Majapahit Kingdom succeeded in 14<sup>th</sup> century. However, the first city in Nusantara that may have urban structure has been established during the Majapahit Kingdom, known as Trowulan city.

## 2. COSMOLOGY AND IMAGINARY AXIS

In the early of agricultural settlement, people have high dependence to the nature. Various natural phenomenons are believed as a blessing or a fury from tremendous forces in the universe. The tremendous forces are believed can be change according to the people behavior which always trying to be adapted and synchronized with nature. These comprehensions become a basic thinking for the growth of animism and dynamism religion. Various ceremonies are arranged periodically for tributes to the forces in the universe. Related to those ceremonies, it is begun forming a being bound between people to the cosmic in the universe, human being positioned as a part of the natural system such as micro-cosmos and macro-cosmos. The human well being and harmony of life are established from the effort of human being positioning himself in the universe as well, as a part of micro-cosmos and macro-cosmos.

Human understanding about his cosmic environment is interpreted to the sense of space. Space is regarded as a place for entire cosmic environment. Human being is regarded as a micro-cosmos meanwhile house is considered as a macro-cosmos. In the next level, house is considered as micro-cosmos meanwhile city is regarded as macro-cosmos. To maintain the harmony between micro and macro cosmos it is necessary to make several arrangements in space orders. Hence, the orientation in the space becomes necessary. Space orientation determine linkage pattern between entire cosmos power. Every road in the city is ordered by giving honor to the cosmic; so that the harmony and balance between entire cosmic forces can be appear as well. The positive cosmic-relationship had to be ordered in a direct pattern meanwhile the negative one is ordered in indirect pattern, this arrangement is believed can reduce negative forces from the nature.

It indicates some imaginary axis appeared as a connection between entire cosmic powers. In the city development plan, the imaginary axis is applied as a road system. An axis of the sun orbit is the easiest cosmic force we can feel in everyday life. Thus, the shapes of the traditional cities in Java and on the island of Bali tend to incline on the order East-West axis or North-South axis. Orientation of the buildings has been developed according to such orientation too. Meanwhile giving honor to

the universal objects as the cosmic forces such as mountains, rivers, lakes and sea, have been applied in the city planning.

The junction between two axis of cosmic forces is believed as a critical point which can give a spiritual power. But on the other hand, this point is believed can be a disaster source if the cosmic forces inside it is not maintain well. Only some people who have higher spiritual power can take benefit on that junction. As a consequence, the traditional people have a special attention on the road junctions. Road junction is considered as a sacred place which has a big cosmic force and it necessary to maintain the balance and stability. Road lane is arranged according to it hierarchy in the grid pattern. The wider road has higher cosmic forces than narrow ones. Another cosmic force is controlled by the presence of open spaces with certain trees inside them. This cosmic opinion is not changed although under domination different religions such as: Hindu, Buddha, even Islam.

The axis is a basic morphology on the shaping of urban pattern in the traditional city in Indonesia, especially in Java, which influenced by the proselytization of religions as a cosmology's orientation. The developments are begun at the glory of Majapahit and Ancient Mataram Kingdom, and then the influences were spread out to several regions in Java. Several cities in Java such as: Yogyakarta and Surakarta posses those urban pattern and structure and become precedents for another cities before the Europe influence entering to Indonesia. The axis concept influences on the development other cities in Java, especially on the placement of *alun-alun*, *keraton* and mosque as a basic element of the city. The orientation of axis incline on the order North-South, meanwhile the *alun-alun* is located in front of *keraton* and mosque is located at front-left of the *keraton*.

### 3. BASIC PHYSICAL ELEMENTS IN TRADITIONAL CITY

Discussion about traditional cities in Indonesia therefore can be look from the shape of some physical elements which give the image about the city development process and other influences factor. The process of city development can divisible into two big influences such as: Hindu-Buddha and Islam.

The physical elements are as follows:

- a. *Tugu*  
*Tugu* is a stone monument (commemorative post) and become an important element in Hindu civilization. According to some ancient inscriptions from 14<sup>th</sup> century have been known that the *Tugu* is almost always connected to the birth of family who hold the power. *Tugu* has been built to indicate the human settlement, where the power is established by ritual process according to the religion such as: animism, dinamism or Hindu. Meanwhile, *Tugu* is also indicate the believe of people that the cosmic forces presented into the earth to unifying the great cosmic and rules of the earth upon the human being.
- b. *Candi*  
*Candi* is ancient Hindu or Buddhist temple or shrine. Especially Hindu's *candi* indicate a transformation from *Tugu* to building design and construction, where the people were settle and stay in a concentrated place in urban context.
- c. *Keraton*  
*Keraton* is a center of power and the urban settlement had been developed. According to archeologist, the urban settlement in Java had been developed after the Trowulan city during the Majapahit Kingdom. *Keraton* is function as a center of power and has a landmark which established the orientation and shapping the city. This situation were supported by open space and market right in front of *keraton*.

- d. Mosque  
Mosque is an indication of entering Islam influences at the city in Indonesia. Islam influences is side by side with who hold the power, this can be proved on the placement of the mosque in the city is so close to the keraton.
- e. Graveyard or *Sarean*  
Graveyard for the family kingdom has a unique character in the city civilization in Indonesia. Graveyard is built side by side with the mosque, it showed in the Islamic Kingdom in Java such as: Demak, Jepara, Kudus, Yogyakarta and Surakarta.
- f. Market  
Market is people's place for daily activity in economic transaction. Market in traditional Javanese urban daily life is function as a place for people to change the agriculture commodity one to another and even the handicraft. Otherwise it also function as a social interaction place for people within the city. Market usually has taken place in the open space in front of keraton, named *alun-alun*.

According to the discussion above, concluded that the traditional settlement in Indonesia, especially in Java has been shaped by the repeatedly urban structures such as: *keraton* as the center of government, mosque as a center of worship, and market as a center of economic transaction.

### 3.1. Majapahit's Ancient City



Fig. 1:  
Reconstruction  
Majapahit City by  
Henry Maclaine  
Pont

Majapahit is a greatest kingdom in Java and has important influences as pioneer in the development of city system and order in Java. The Majapahit's ancient city was located in Trowulan, East Java. According to the book of *Negarakertagama*, Majapahit is a city without fortress and shaped from the combination of separated building compounds which linkage by the road. Open space is used for market and social interaction for the people within the city. The buildings are built around the compound and every compound is separated but has same orientation to on order North-South.

According to the typology we discussion above, so Majapahit is not a compact city like fortress city in Europe, otherwise it is stretched city. With the result that image of urban in the city is not appeared yet. The space perception appeared in multi-focal

and centri-focal. This concept is the symbol of centralistic politic in the kingdoms in Java. Henry Maclaine Pont, the Dutch architect who exists during colonial period in Indonesia, assumed that Majapahit is a big city, surrounding by multi layer brick wall, the ditch around the outer of the region and has rectangular pattern.

### 3.2. The Concepts of *Keraton* and *Alun-alun*

The concepts of *keraton* and *alun-alun* are developed from the centralistic concept which is characteristic of traditional city in Java. *Keraton* mean King's or Sultan's palace or the *bupati's* palace at the lower level on government system. *Alun-alun* is an open space which usually located right in front of *keraton*. Several cities like Yogyakarta and Surakarta have 2 (two) *alun-alun* in the front and back of *keraton*.

*Keraton* and *alun-alun* is basic form as an embryo for generating city form in Java trough the cosmology orientation as basic principles for structuring the city. *Keraton* and *alun-alun* are placed at one line to the North-South axis, hence this pattern introducing the axis concepts in the city development plan, then it trigger the rectangular concepts and finally develop as grid pattern. Otherwise, even the *keraton* and *alun-alun* concept based upon cosmology factor or not, the axis is still contribute as a main axis for shaping the city's structure and contributes as a basic form to shaping typology and morphology in the urban space. However, the neighborhood gate is other physical element which is function as a supplement to the axis. This supplement appears to establish the visual aesthetic and contribute to enhancing the axis.

### 3.3. The Basic Concept of City Form

The city form begun with the typology of single or group building which are uses orientation axis. In Hindu's period, the usage of orientation axis become the main factor in the shaping a building or other built environment. The orientation axis is a physical form which is appears from the people's religion. The concept of North-South axis and East-West axis become a basic pattern in their cities. These axis have 2 (two) phenomenon:

1. As an imaginary axis base upon the religion and cosmology, and also base upon a sacred things which they are believed on it.
2. As an aesthetic value trough the orientation to something.

The development of orientation axis is parallel with the natural reality in the *kampung* development system which is based upon the natural grid pattern. The natural grid pattern is emerged from rice field and garden pattern that have the North-South orientation. Islamic influence contributes positive things for the better axis concept within the city. The different philosophy did not trigger a contradiction. Islamic influences entering with gently and flexibly within the existing culture and religion. Islam at that time is side by side with the kingdom, hence Islam significantly contribute a positive thing in the shaping of urban space within the city.

The Europe styles from the Dutch influences more significant than Islam, especially in the local axis concept. Dutch made the different interruption, they did not accommodate the existing pattern otherwise they are applied style and pattern they brought from the West. Their concept also has an axis concept but base upon on the effort to get the visual and physical aesthetic to shaping the definite linear space and sequence, as well as the renaissance period. Orientation can enter to various directions without the grid pattern. Hence, in this period bloom new axis base upon the linkage between building compounds/cluster and finally shaping new axis especially in the road junctions. This condition is enriched with the physical element

such as building series which shape a gate and become a visual axis (visual space axis).

#### 4. CASE STUDY: YOGYAKARTA

The city of Yogyakarta is shaped before the Dutch came to Indonesia. Planning aspect such as: geographic and economic were not dominant, otherwise the spiritual aspect more dominant which politically assessed under Sultan direct order. This is because all the lands in Yogyakarta belong to Sultan and people only borrow it. Hence, Yogyakarta is planned base upon a strong imaginary axis between Merapi Mountain in the north and South Ocean in the south, however Yogyakarta located in the center of them.

##### 4.1. The Development of Yogyakarta

The birth of Yogyakarta related with the dissension between the family members in Mataram Kingdom because of Dutch political tactic named *de vide et empera* (opposing someone against the other), this was happen under the King/Sultan Sri Susuhunan Pakubuwono III. Finally Giyanti agreement at 13<sup>th</sup> February 1755 become the climax of the dissension, Mataram become divided into 2 (two) region. First region (known as Surakarta) is under Sri Susuhunan Pakubuwono III and the second region (known as Yogyakarta) is under Sri Sultan Hamengkubuwono I.

Philosophically, Yogyakarta shaped by cosmology axis which cannot be separated one to another such as: Merapi Mountain, Keraton and South Ocean. Mountain symbolizes heaven and ancestors; otherwise ocean symbolizes the world. This order refers to Majapahit space and orders which posses the concept of space in Hindu religion. One year after Giyanti agreement, the axis strengthened with the built of *Tugu Golong Gilig*, which symbolize *manunggaling kawula gusti*. This tugu called in Dutch as *witte paal* (white post) because it is shape like post and painted white. At 10<sup>th</sup> June 1867 the Tugu has been broken because of a big earthquake. At 1889 Dutch re-built the the Tugu and exist until recent time.

Yogyakarta as capital city of Sultanate *Ngayogyakartaadiningrat* is begins with the *Gamping* resthouse, function as center of government and the house for sultan and his family member. In 1755 the keraton is under construction and at 7<sup>th</sup> October 1756 the center of government has been moved to keraton. Hence, the government orientation moved out from resthouse in Gamping to *siti hinggil* and *pagelaran* in keraton.

*Siti hinggil*, *pagelaran* and *keraton* all at onces giving positive daily life for the people who live in *jeron beteng*. Basically *jeron beteng* is the restricted area and only *abdi dalem* (sultanate staff) live inside it. In 1765 people in *jeron beteng* has been divided into several kampong, which has a name according to the their duty, such as:

- *Siliran*, kampong for *abdi dalem silir*, who have duty to maintain the lamp.
- *Gamelan*, kampong for *abdi dalem gamel*, who have a duty to maintain kingdom's horses.
- *Langenastran*, kampong for *abdi dalem langenastran* as sultanate bodyguard.
- *Patehan*, kampong for *abdi dalem* who prepare tea for keraton.

Outside the *jeron beteng*, sultanate military camp was arranged in horseshoe formation. There are 8 companies (1 battalion), every company live in 1 kampong which has special name, such as:

- *Wirobrajan*, kampong for wirobrajan soldier as a company I.
- *Daengan*, kampong for daeng soldier as a company II.
- *Patangpuluhan*, kampong for patangpuluh soldier as company III.
- *Prawirotaman, Nyutran, Ketanggunan, Manti jeron* and so on.

*Kampong* settlement is located outside the jeron beteng which supports a daily life for the people who live inside the jeron beteng. Clothing are prepared by *kampong Karangajen*, foods are produced in the *kampong Utara Beteng*. Thereupon in kampong *Utara Beteng* built *Beringharjo* Market. Other goods are supplied by shop houses in *Malioboro* Street. Beringharjo market built as consequences of Hindu space and order named Catur Tunggal, such as: *keraton, alun-alun* and market. This market functioned as social-interaction space for all class of people in Yogyakarta.

In 1765, Dutch asked sultan to build a fort in the downtown to protect and secure Yogyakarta from the revolt. The fort named as *Fort Rustenburg* which mean fort for the vacation. Fort around keraton is built in 1784 base upon the wish of Sri Sultan Hamengkubuwono I after he looked at the *Fort Rustenburg*. However, after Diponegoro war in 1830, Dutch changed the name become *Fort Vredenburg* which mean fort for peace. People in Yogyakarta named the fort as Loji Besar, meanwhile the housing in front of fort named as Loji Kebon and Dutch military camp behind the fort named Loji Kecil.

Once again in 1813, Dutch turn on his *de vide et empera* to opposing keraton's family members against the other. Finally *Kadipaten Pakualaman* is separated from keraton and forming their own government. In 1870, Dutch make a land regulation named *Agrarische wet*, as a consequences the Dutch investors began build sugar factories and steel factory named Purosani. This situation is strengthened by the increasing of transportation development such as: the built of *Lempuyangan* train station in 1872 and *Tugu* train station in 1887. Thereafter, Yogyakarta became wider to the north with *Malioboro* area and *Mangkubumi* area as the main axis. In the beginning of 1900s, the north of Yogyakarta had been developed well with specific space order and Europe style buildings. The Dutch civil housing began built in Bintaran, Jetis and Kota Baru in 1918.

#### 4.2. The Philosophic of Space Order

The main axis which shaping Yogyakarta has a sense of philosophic for the human being. It means the journey of human life from beginning until the end of life. Along the main axis can found several elements which related one to another, such as: *Panggung Krapyak, Alun-alun Kidul* with 2 banyan trees, *Alun-alun Lor* with banyan tree and mosque, *Beringharjo* Market, *Kepatihan* complex and *Tugu*.

- *Panggung Krapyak*, explained the human condition in the world of spirit/soul. Kampong Mijen/wiji (mean: germ) is located in the north side of panggung krapyak which mean the human being must be pass trough the 'germ' process.
- *Alun-alun Kidul*, explained the marital process between 2 human being which is symbolize by 2 (two) side by side banyan trees. Trough to the north direction, a narrow road which is named as *Pamengkangan* is located, it explained the birth of a baby. Trough to the north direction, *Kampong Magangan* is located, this is a place for baby to learn about life until he/she grow up and mature.

- *Keraton*, is the world for human being to stay and life. Here is the place for the king and princess, this explained that the human must be can to be a king/princess, to make a decision, regulate, and enter to the life.
- *Alun-alun Lor*, explained the social intercourse place in the world. To the west direction, grand mosque is located which is symbolized as a reminder for human being about their responsibilities as khalifatullah (chalip).
- Before reach out the *Tugu*, there will be found many junctions. This is symbolized as the temptations which will be turned the human being from his/her destination.
- *Beringharjo Market* is symbolized as temptations to human being about goods.
- *Kepatihan* is symbolized as temptations to human being about duty and position.
- After pass all of them, all human will be arrive to the *Tugu*. *Tugu* explained *manunggaling Kawula Gusti*, the unity between human being and God.

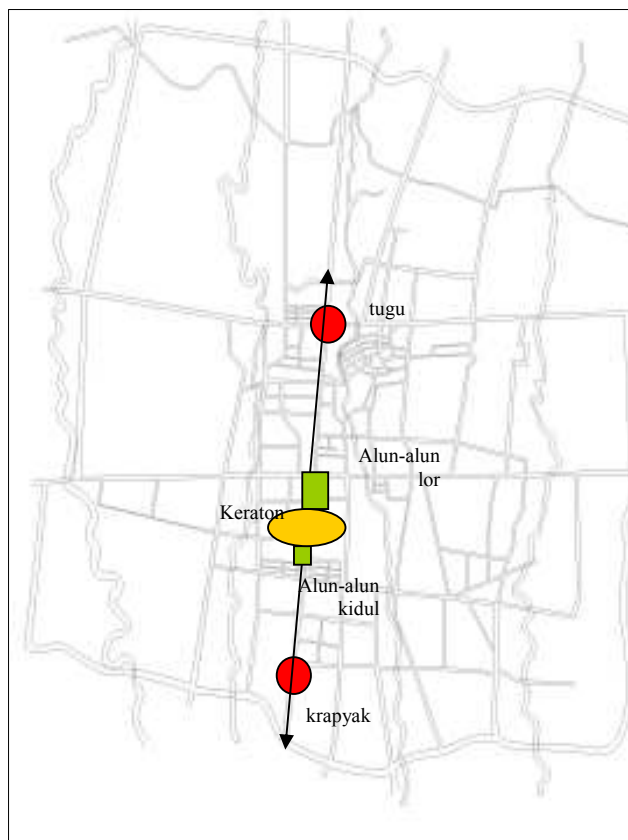


Fig.2: Structures and Order in Yogyakarta

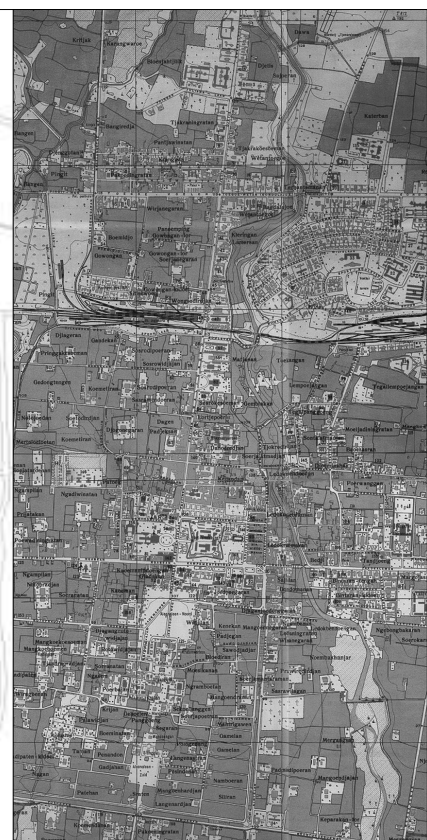


Fig.3: Yogyakarta in 1925

## 5. CONCLUSION

Generally Yogyakarta has a concentric pattern, all the activity centering to the keraton. This pattern separated by main axis which functions as main road; however keraton is located around the main axis. The concentric pattern began change to be multiple nuclei, since Yogyakarta became administrative region in 1947.

Yogyakarta is planned base upon a strong imaginary axis between Merapi Mountain and South Ocean; however Yogyakarta located in the center of them. Main axis



which had been shaped has a sense of philosophic about the journey of human life from beginning until the end of life. Along the main axis can found several elements which related one to another, such as: *Panggung Krapyak*, *Alun-alun Kidul* with 2 banyan trees, *Alun-alun Lor* with banyan tree and mosque, *Beringharjo Market*, *Kepatihan* complex and *Tugu*. *Alun-alun Kidul* has a smaller dimension than *Alun-alun Lor* and located inside the fort; however only half of the *Alun-alun Lor* located inside the fort.

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