Planning and design approach in Islamic green city towards sustainable city: the case of Martapura

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Abstract. Global climate is changing and the green dimension of sustainable development has becoming an imperious agenda for all countries to pursue. Indonesia as part of Asia (which is the most populous Muslim majority country in the world) faces serious environmental problem, and uses the green city concept in most of its Islamic cities. Martapura, as one of the capital city in Indonesia is famous as an Islamic city with great vision and mission for green city. This study analyses the context of urban planning and design approach in Islamic Green city to help improving the quality of environment towards sustainable city. This is a descriptive-analysis study, and data collection conducted by documents and field survey. It concludes lessons learned from the practice of planning and design in Martapura and presents recommendations in planning and design approach for urban planner and designer to make a city more sustainable from an Islamic green city context.

1. Introduction

Global climate is changing and the green dimension of sustainable development has becoming an imperious agenda for all countries to pursue. According to Asian Development Bank, cities in Asia consume nearly 75 percent of total resource use and are responsible for more than 75 percent of greenhouse gas (GHG) emissions. Environmental degradation and social challenges such as polluted air, contaminated river and many other problems have been linked to urbanization. Recognizing the problems are concentrated on urban regions as the key driver of economic growth, ADB’s Urban Operational Plan 2012-2020 emphasizes balanced urban development in an effort to promote liveable cities across Asia [1].

The ADB uses the green city approach and focusing on integrated and balanced growth. The green city approach is used to realize a city that is liveable for all its residents by promoting a paradigm shift where cities make a concerted effort to pursue integrated urban development and environmental planning in response to urbanization and other challenges [2]. With respect to environment, the focus is on managing land, water, and air in an efficient manner to maintain the long term sustainability.

Indonesia as part of Asia (which is the most populous Muslim majority country in the world) faces serious environmental problem, and uses the green city concept to overcome the ecological challenges
in most of its Islamic cities [2]. There are so many cities in Indonesia that can be categorized as Islamic cities and faces so many urban problems. The need of proper planning and design of green city is required to accommodate urban problems [3]. With respect to environment, the focus of green city is on managing land, water, and air in an efficient manner to maintain the long term sustainability [1] by following the Green City Action Plan as a step towards the vision of sustainable city. It includes some elements which are water management, energy efficiency and renewable energy, green transportation, zero waste, cultural heritage and tourism, and urban forestry and agriculture.

As observed by [1] and [4], integrative and comprehensive approaches that base on three Es (Environment, Economy, Equity) will lead to a greener city. The three Es and green cities concept called the GrEEEn cities operational framework forms the basis of a comprehensive Green City Action Plan which is a program linked to goals for environmental quality improvement [5]. According to [6] and [7], other than physical planning and design, the eco-communities approach also holds an important role in planning and design approach to improve the quality of city and environment. In context of Islamic city, there are some important elements that support the concept of green city such as ‘Eco Islamic Belief’ which is the expression ‘Greening Islam’ that may lead to an Islamic perception of sustainability based on some [8] principles and goals [9]. Eco-Islamic beliefs community often advocated by social movements for sustainability may increase chances of long term success in environmental policy making [7, 10, 11].

This paper explores and presents the planning and design approach that have been used in Islamic green city, Martapura. It is expected that this paper could provide the basic idea of how an Islamic green city might lead to sustainable city in Indonesia.

2. Study area
The planning and design approach of Islamic green city has been discussed as an effort to help improving the quality of environment towards sustainable city in the urban context of the study area: Martapura, the capital city of Banjar Regency. Martapura is located 40 km from Banjarmasin (the capital of South Kalimantan). As stated in [12], Martapura is identified as an Islamic city due to its history as the capital of Banjar Empire (1859-1863). Ulama (Muslim leader) and Muslim Scholars had the main point in politic. Muhammad Arshad al-Banjari is one of the famous Ulama in Banjar Empire. This historical background explains the identity of Martapura which has famously known as the “Veranda of Mecca”. The influence of Islam on the form and design of the city is literally seen in Martapura. In RAKH [13], the Mission of Banjar Regency is to increase the role of stakeholders in order to establish Martapura as a green city, based on Islamic Green City development guidelines by improving the quality of natural resources and environment.

3. Methodology
This paper focuses on the planning and design approach that has been implemented in urban planning and urban design in Martapura by combining the concept of green city and Islamic city principles. The following discussion has been carried out by stimulating various literatures using some contexts of Islamic city and green city to define an Islamic green city. Elements of Islamic city and green city are well-defined as a unity and were used as the combined variable to indicate planning and design in Martapura which have the vision of Islamic green city.

4. Planning and design approach in Martapura as an Islamic Green City
Islamic city has been discussed in only several literatures and few papers. Islamic city means a city formed base on the Quran and prophetic principles and teachings. Those principles are implemented through planning and design process for the city. Regulations and policies are based on Islamic principles, such as the differentiation of spaces by gender (Male and Female should be placed in separated zone) [14]. Some important design principles of Islamic city are: Natural laws; Religious and cultural beliefs; Design principles stemmed from Sharia law (Islamic law based on the teachings of Al-Qur’an and the prophet); and Social principles as mentioned in [15]. The first principle which is
natural laws expressed in the adaptation of the build form and plan of the city to the weather conditions and topography. The second principle, Religious and natural beliefs gives the mosque the central position in spatial and institutional hierarchies. The third principle reflected how the Islamic city linked with Sharia law by determining physical and social relations between public and private zone. The fourth principle is dealing with how the social urban society grouped into some organizations based on ethnic origin and cultural perspectives. The design principles of Islamic city have some specific elements, therefore, the personnel in planning and urban design should understand both traditional trends and current techniques suitable for shaping the city as mentioned in [16].

According to [15], [17] and [18], Islamic city has some typical physical features: the main mosque (Islamic city should have a congregational Friday mosque and a market/chief bazaar nearby); suqs (market); citadel/office park (Islamic city often lacked of Municipal government and institution. This lack of municipal government and institutions was recompense by some sheikhs (Muslim Leader in Middle East); residential quarters; street network; wall; exterior space. One of these Islamic city features, exterior space or open space is the heart of green city concepts. Open space includes green urban spaces, such as urban green park, gardens and green belt have the main point to help reducing CO$_2$ and make a healthier living environment.

The form of Martapura as an Islamic City started in the 1990s when most of the public spaces in Martapura were built based on Islamic guidelines. According to [12], There were a lot of Pengajian (Islamic study) which developed rapidly into the center of religion, politics, economy and social of Muslim in South Kalimantan. The influence of Islam on the form and design of the city is literally seen in Martapura. As the capital of Banjar Regency, its mission is to increase the role of stakeholders in order to establish Martapura as a green city, based on Islamic Green City development guidelines by improving the quality of natural resources and environment as seen in [13]. Martapura has implemented the integrated and comprehensive approaches in form of green city action plan which base on three main elements of sustainability, which are environment, society and economy -also known as three Es (Environment, Economy, Equity) [1].

Green city according to P2KH [8] is a city that able to adapt to climate changes, environmental friendly by using natural sources efficiently, reducing waste, green transportation system, balancing build and natural environment based on sustainable planning and design. Green city concept is a good step in achieving a long term vision of sustainable city, a rich quality of life and strong connections between humans and nature. Green city has 8 (eight) main elements, which are: green planning and design; green water; green open space; green waste; green transportation, green energy; green community; and green building as shown in [8]. As can be seen from analysis in figure 1, Martapura also incorporated Islamic guidelines into those eight elements of green city and forms a new approach for Islamic green cities. In Eco Islamic belief, humans and environment are connected each other [14]. Sustainable development elements are clearly stated in Al-Qur’an (central religious text of Islam), such as natural resources, water, material, construction, green land, sky healthy environment, etc.

**Figure 1.** Analysis of planning and design approach in Martapura as an Islamic Green City.
Martapura has tried to implement some approach in planning and design based on *Al-Qur’an* and prophetic principles and teachings through some specific regulation, policy and advisory. The analysis of application of Islamic green city approach in Martapura can be seen from table 1. Islamic atmosphere can be seen in any corner of Martapura especially around *Kubah Sekumpul*. Many Muslims from all over Indonesia come to *Kubah Sekumpul* for *ziarah* (a pilgrimage to holy grave), especially during special events such as *Haul Guru Sekumpul* (Death anniversary of *Guru Sekumpul*), *Maulid Nabi* (Celebration of Prophet Muhammad’s birthday), etc. Those celebrations take place at *Kubah Sekumpul* Mosque and the aftermath are some environmental problems such as serious traffic problem as mentioned in [19] and [20], lack of parking space, the damage of public facilities like grass and shrubs in the park, litter ends up everywhere and producing a huge amount of garbage.

Martapura implement so many Islamic values as part of green cities concept. Table 1 shows forbids any forms of living creature’s statues in the city as part of green open spaces. Besides being the “Veranda of Mecca”, Martapura also known as *Santri* City where a lot of *Santri* (students or followers of Islamic school) wears white clothes around the city to study Islam and often using bicycle as their main transportation which supports the concept of green transportation. Nonetheless, it needs to be detailed more as a specific guideline for an Islamic green city. Green city concept in Martapura is implemented towards Islamic atmosphere but mostly in forms of advisory, not guidelines. The awareness of environment and ecology conditions need to be improved with definite role from the Government, institutions, academic, and *Ulama* or other religious leader.

**Table 1. Analysis: Application of Islamic green city approach in Martapura.**

| Elements                  | Application in Planning (Martapura)                                                                 | Application in Design (Martapura)                                                                 |
|---------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Regulations and Policy    | Government’s goal of the improvement of *Al-Qur’an* literacy rate; Government’s goal of the improvement of Arab—Melayu literacy rate; Special policies during *Ramadhan*—Restaurant can’t open before 3 p.m.; Middle schools have special subjects regarding Islam and Environment. | Any form of living creatures statues are forbidden in the city (advisories); Cinema and Clubs are forbidden to be built in the city (advisories); *Dzikr* (Praise to Allah) signage’s; No specific policy and guidelines for green design. |
| The Main Mosque           | Mosque only functioned for praying and *Pengajian* regarding the hereafter. There’s no *Pengajian* in the mosque which is related to the socialization of green city (*Ulama* has not been involved in planning process). | *Main Mosque “Al Karamah”* is located in the heart of the City. *‘Kubah Sekumpul’* has become the point of interest in the heart of Martapura, and could be the focus in arranging the Central Business District. |
| Suqs (Market)             | Special policy is applied during *Ramadhan* time, restaurants are not allowed to open their business before 3 pm. | *Suqs* or the market is located around the main mosque (*Pertokoan Cahaya Bumi Selamat* near *Al Karamah* mosque and *Street Market* near *Kubah Guru Sekumpul*). |
| Citadel                   | There is an advisory for government employee to dress in Muslim clothes,                                                                 | *Kantor Bupati* (Governmental office) is located near the market. |
| Residential Quarters      | Residential quarters should consider cleanliness, etc.                                                                 | Residential is located around the city and are not grouped by their ethnicity, so people can reach other facilities by foot. |
| Street Network            | Accessibility and street networks are based on function in each zone.                                                                 | Narrow streets and connecting each zoning. |
| Wall                      | There are no regulations regarding neighborhood’s wall.                                                                 | There are limited number of gates, mostly people live peacefully. Limited private garden, limited green open spaces. |
| Exterior                  | Improvement in quality and quantity of green open spaces, urban parks, garden, etc. by arranging proper sites and location. |                                                                                                      |
| Green Planning and design | Urban Design Documents of Banjar Regency Areas based on green city guidelines; Public policy and regulation for green spaces, green buildings, and green office park; No specific and detailed guidelines for green planning and design. | Green Urban Design, Encouraging Middle Schools for *Adiwiyata* (Go green); program to build green house and plant trees/providing green area. |
| Green Open                | The development of urban park, green belt, green                                                                 | Urban park with Islamic themes and names.                                                                 |
| Elements          | Application in Planning (Martapura)                                                                 |
|-------------------|-----------------------------------------------------------------------------------------------|
| Space             | open space, etc. around the city.                                                               |
| Green Waste       | Waste management programme; Waste water management programme, sanitation and cleanliness program. |
| Green Transportation | Cycling path in some of the main roads; No regulation in promoting cycle for people; Methane collection systems, Solar Cell installations. |
| Green Energy      | Installations of Clean water network, Management of clean water supply.                         |
| Green Water       | Green house modelling; Green building policy.                                                   |
| Green Building    | Improvement of Kampung Hijau (Green Neighbourhood) program in some areas.                       |
| Green Community   |                                                                                               |

5. Conclusion

Islamic green city has so many significant elements that should be integrated into planning and design process. Therefore, planning and design for Islamic green city need a particular approach. Urban planner and urban designer in Islamic green city should have the ability to understand Islamic principles and Green city concept for shaping the build environment and the city. Significant role of Ulama (Muslim leader) has the opportunity to be the main point to socialize the concept of green city to citizens.

Martapura still lacks of many important elements as an Islamic green city. However, Martapura has started to implement the integrated and comprehensive approaches in form of green city action plan which base on three main elements of sustainability, which are environment, society and economy - also known as three Es (Environment, Economy, Equity); eight elements of green city; and Eco-Islamic Belief. This three combination made a new approach to be combined and integrated in Islamic green cities.

References

[1] Asian Development Bank 2012 Green Cities – A Sustainable Urban Future in Southeast Asia
[2] Steinberg B V F and Lindfield M 2012 Green cities (Mandaluyong City, Philippines: Asian Development Bank)
[3] Pankaja M S, Student P D and Nagendra H N 2015 Green city concept – as new paradigm in urban planning Int. J. Eng. Sci. pp 55–60
[4] El Ghorab H K and Shalaby H A 2016 Eco and Green cities as new approaches for planning and developing cities in Egypt Alexandria Eng. J. vol 55 pp 495–503
[5] Sandhu S C 2014 Enabling Green Cities: An operational framework for integrated urban development in southeast asia ADB Southeast Asia Work. Pap. Ser.
[6] Villumsen S 2012 Habermas in the garden: broadening the scope of social movements for sustainability Master Thesis Ser. Environ. Stud. Sustain. Sci.
[7] Johnston L F 2013 Religion and sustainability social movements and the politics of the environment J. Ecol. Anthropol. p 273
[8] Kementrian Pekerjaan Umum dan Perumahan Rakyat 2017 Panduan penyelenggaraan Program Pengembangan Kota Hijau, VI (Jakarta, Indonesia: Kementerian Pekerjaan Umum dan
Perumahan Rakyat, Direktorat Jenderal Cipta Karya, Direktorat Bina Penataan Bangunan)

[9] Abedi-sarvestani A and Shahvali M 2008 Environmental ethics: toward an islamic perspective Am. J. Agric. Environ. Sci. vol 3 pp 609–17

[10] Vincenti D 2016 Sustainability transitions in arab-islamic countries: egypt as a case study Agric. Agric. Sci. Procedia vol 8 pp 135–40

[11] Kunreuther H, Gupta S, Bosetti V, Cooke R, Dutt V, Ha-Duong M, Held H, Llanes-Regueiro J, Patt A, Shittu E and Weber E 2014 Chapter 2 - Integrated risk and uncertainty assessment of climate change response policies (Cambridge: Cambridge University Press) pp 151–206

[12] Van Klinken G and Berenschot W 2014 In Search of Middle Indonesia (Leiden, Boston: BRILL)

[13] BAPPEDA Kabupaten Banjar 2015 Rencana Aksi Kota Hijau (Banjar, Indonesia: Kabupaten Banjar)

[14] Jamalinezhad M, Talakesh S M and Soltani S H K 2012 Islamic principles and culture applied to improve life quality in Islamic cities Procedia - Soc. Behav. Sci. vol 35 pp 330–4

[15] Saoud R 2002 Introduction to the Islamic city found. Sci. Technol. Civilis. Pp 1–9

[16] Abu-Lughod J 1980 Contemporary relevance of Islamic urban principles (extract) Ekistics vol 47 pp 6–10

[17] Abu-Lughod J L 1987 The Islamic City—Historic myth, islamic essence, and contemporary relevance Int. J. Middle East Stud. vol 19 pp 155–76

[18] Eickelman D F 1974 Is there an islamic city? the making of a quarter in a moroccan town Int. J. Middle East Stud. vol 5 pp 274–94

[19] Banjarmasin Post 2017 Jemaah Haul Guru Sekumpul Diimbau Jalan Kaki (Banjarmasin, Indonesia: Banjarmasin Post) accessed on March 26th, 2017

[20] Banjarmasin Post 2017 Gundukan Sampah Masih Berserakan di Martapura (Banjarmasin, Indonesia: Banjarmasin Post) accessed on April 3rd, 2017