

# SUSTAINABLE ARCHITECTURE THROUGH ISLAMIC PERSPECTIVE

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## **ABSTRACT**

Sustainable architecture has become one solution towards environmental degradation. Minimizing damage to the surrounding, strengthening social bonding, and improving social condition are the main concept of it. The application of this concept will lead to the better quality of life of human as its target. Because of that reason, there is a need to see sustainable architecture concept through Islamic perspective. Rather than finding weaknesses of this concept, it is done to strengthen the implementation of sustainable architecture itself. So that, this concept can be implemented by the citizen include Muslim citizen without any doubt.

## **KEYWORDS**

sustainable architecture; Islamic perspective

## **INTRODUCTION**

The degradation of environment has caused the raise of sustainability issue. Started around 1962, not only environmentalist but society realized that environment has much suffered because of human activities. Pollution, water scarcity, natural disasters and global warming are some bad impacts which caused by irresponsible social undertakings.

Furthermore, the product of architecture is the creation of built environment. In its process, it often causes threat to the environment itself. Widjanarko (2009) in Ervianto (2012) said that construction as one of its process, consumes 50% of natural resources, 40% energy, and 26% water. Hendrickson and Horvart (2000) in Ervianto (2012) also added that the environment is significantly influenced by the construction process. The number above shows that architecture consumes a big part of environment and causes impact (either good or bad impact) to the environment. Moreover, the consuming will lead to further environment

degradation if this sector does not implement sustainable architecture concept. Some people argue that the establishment of sustainable architecture can reduce the global warming and the damage in the environment.

As it grows globally, there is a need to see sustainable architecture in Islamic perspective. Through Islamic perspective, it can be seen whether this concept is parallel with Islamic values which based on Al-Quran and Hadith related to the environment. This study is a literature review which analyzed the implementation of sustainable architecture and compares it with Islamic values.

### ***Sustainable Architecture***

According Williamson, et al (2003), sustainable architecture is the implementation of sustainability in architecture.

Literally, the term 'sustainable architecture' focuses on the sustainability of architecture, both as a discipline and a product of discipline (Williamson et al, 2003)

Sustainable architecture is both as discipline and product which reduce the bad impact to the environment without ignoring the need of society in the future. Sustainable architecture itself is inseparable from sustainable development. Thus, the concept of sustainable development become the ground for sustainable architecture's concept.

Below are the concepts of sustainable development which stated in the Report of World Commission on Environment and Development (1987).

1. Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy the aspirations for a better life;
2. Sustainable development requires the promotion of values that encourage consumption standards that are within the bounds of the ecological possible and to which all can reasonably aspire;
3. Sustainable development requires that societies meet human needs both by increasing productive potential and by ensuring equitable opportunities for all;
4. Sustainable development can only be pursued if demographic development is in harmony with the changing productive potential of the ecosystem;
5. Sustainable development must not endanger the natural system that support life on the earth: the atmosphere, the waters, the soils and the living beings;
6. Sustainable development requires that the world must ensure equitable access to the constrained resources and reorient technological efforts to relieve the presume;
7. Renewable resources like forest and fish stocks need not be depleted provided the rate of use is within the limits of regeneration and natural growth. Maximum yield must be defined after taking into account system-wide effects of exploitation;

8. As for non-renewable resources, sustainable development requires that the rate of depletion should foreclose as few future options as possible;
9. Development tends to simplify ecosystem and to reduce their diversity of species. Sustainable development requires the conservation of plant and animal species;
10. Sustainable development requires that the adverse impacts on the quality of air, water and other natural elements are minimized so as to sustain the ecosystem's overall integrity;
11. Sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.

(WCED, 1987 in Williamson et al, 2003)

Following World Commission on Environment and Development, The Earth Summit was held in Rio de Janeiro in June, 1992. Williamson, et al (2003), stated that the Earth Summit increased awareness around the globe which include numbers of nations, peoples and organizations. Moreover, Williamson, et al (2003), added that the Earth Summit itself had emerged many other important international agreements such as Agenda 21, the UN Framework Convention on Climate Change, the UN Convention on Biological Diversity and the UN Convention to Combat Desertification on Those Countries Experiencing Serious Drought and/or Desertification.

In term of architecture, based on *Brundtland* Report (also known as the World Commission on Environment and Development report *Our Common Future*), some sustainable architecture frameworks were established in Chicago in June, 1993 at the Union of International Architect's World Congress of Architects (Williamson et al, 2003). The frameworks are:

We commit ourselves, as members of the world's architectural and building design profession, individually and through our professional organizations, to:

1. Place environmental and social sustainability at the core of our practice and professional responsibilities;
2. Develop and continually improve practice, procedures, products, curricula, services and standards that will enable the implementation of sustainable design;
3. Educate our fellow professionals, the building industry, clients, students, and the general public about the critical importance and substantial opportunities of sustainable design;
4. Establish policies, regulations and practices in government and business that ensure sustainable design become normal practice;

5. Bring all existing and future element of the built environment -in their design, production, use and eventual re-use- up to sustainable design standards.

(UIA, 1993 in Williamson et all, 2003)

The explanation above has one in common that sustainable development focuses on three aspects which are environment, social and economy. At the end, all of it will lead to the improvement of human life's quality. The architecture including the agents, plays an important role in protecting the environment through the implementation of sustainable architecture. Sustainable architecture will produce sustainable building which aims to minimize impact to the environment, strengthening social cohesion and improving the economy of people.

In Indonesia, the implementation of sustainable building is stated in The Regulation of Environment State Minister Number 8, 2010. Some of the implementations according to that regulation are:

1. Using eco-friendly material which include: (a) eco-label certificated material; (b) local material.
2. The building has facility and infrastructure for water conservation in the building, such as: (a) countable utilization of water; (b) using water resources which consider water conservation; (c) has rainwater harvesting system.
3. The building has facility and infrastructure for wastewater treatment, such as; (a) completing the building with domestic wastewater treatment; (b) completing the building with wastewater reuse system.
4. Considering the health of the user, such as: (a) doing management of clean air circulation system; (b) maximizing the use of sunlight.
5. The building has facility and infrastructure of sustainability management, such as: (a) completing the building with green open space as garden and biological conservation, rainwater infiltration and parking space.

(ESM, 2010 in Ervianto, 2012)

Some of the regulation above are the guideline in implementing sustainable building in Indonesia.

### ***Islam and the Environment***

In Al-Quran has written that human has caused the damage in the nature. The translation of QS Ar-Ruum (30): 41 states explicitly that human devastates the land and the sea. Although the kind of devastation is not mentioned, but it can be concluded that any kind of corruption appears because of human activity.

Corruption has appeared in land and sea because of the doings of the people's hands, that He may make them taste something of what they have done, so that they may come back.

(QS. Ar-Ruum (30): 41)

Moreover, the prohibition for causing damage to the environment stated in several surah such as Al-A'raf (7): 56, 74, 85, Al-Syu'araa (26): 183, Hud (11): 85 and Al-Qashash (28): 77. In surah Al-A'raf itself, there are three verses which tell about that prohibition. Meanwhile in Al-Qashash (28): 77, God himself states that He does not like the people whom distresses the environment. That means Islam fully concerns about the environment conservation by ordering human to keep it save.

Remember when He made you successors after [the people of] 'Ād, and settled you in the land: you build palaces in its plains, and hew houses out of the mountains. So remember Allah's bounties, and do not act wickedly on the earth, causing corruption (QS. Al-A'raf (7): 74)

By the means of what Allah has given you, seek the abode of the Hereafter, while not forgetting your share of this world. Be good [to others] just as Allah has been good to you, and do not try to cause corruption in the land. Indeed, Allah does not like the agents of corruption (QS. Al-Qashash (28): 77)

Furthermore, Islam is well known as *rahmatan lil'alam* religion (Edress, 2010). According to Edress (2010), this word means that Islam spread the goodness to the nature.

One of them is the understanding that Islam is a *rahmatan lil'alam* religion which means giving grace, blessing, and benefit to the universe (Edress, 2010)

The statement above has shown that one concept in Islam is spreading the positive values not only for the physical environment but to the surrounding also. The word surrounding refers to everything exists around include culture, social condition, economy, and soon. In Islam, the universe is one sign of the God's greatness. Islam places the universe as something valuable yet fragile which can be consumed wisely and have to be kept. Through these activities, Muslim is expected to be grateful and increases the faith. Surah Al-Baqarah (2): 164 states that the creation of universe is a sign of God's greatness for the think people.

Indeed, in the creation of the heavens and the earth, and the alternation of night and day, and the ships that sail at sea with profit to men, and the water that Allah sends down from the sky —with which He revives the earth after its death, and scatters therein every kind of animal— and the changing of the winds, and the clouds disposed between the sky and the earth, are surely signs for a people who apply reason(QS. Al-Baqarah (2): 164)

There are many other verses in Al-Quran which state that the universe as the God goodness's sign such as QS. Al-Mukminun (23): 57, QS. Qaaf (50): 6-11, QS. Yaasin (36): 33-40, QS. Luqman (31): 10-11, Qs. Al-Mulk (67): 3-4, QS. Al-Qashash (28): 71-73, QS. Al-Ahqaf (46): 33, QS. Al-An'am (6) :95-97 and 99.

### ***Islam and Sustainable Architecture***

The explanation above shows that both Islam and sustainable architecture have the same concept. That concept is the effort to save the milieu or at least minimize the bad effect to the environment. Minimizing the bad impact to the other is also stated in Hadith Muslim which is:

If want to do something, consider the benefit and the bad impact of it, if that thing has benefit then do it, however if that thing has more bad impact then leave it (HR. Muslim in Edress, 2010)

Therefore, the action which lead to the damage in surrounding, is not in harmonic with the concept of Islam. Here, the sustainable architecture concept is similar with Islamic concept. Nature is source of everything thus it can be consumed by living thing. However, the consumption process has to be done with full consideration that the same nature will be used by the next generation. For that reason, the consumption activity must be done wisely.

Furthermore, sustainable architecture is achieved through several implementations. Some of the implementation are using local material; optimizing rainwater harvesting system; optimizing the sunlight; and having open space. All of the principles are basically the potencies in the environment. In architecture, optimizing the potencies is one step in implementing sustainability concept. Al-Quran states God creates the nature with potencies inside which support the human life. Although available in large quantities, that potency can be optimized by human in a good manner so that the future generation has the same opportunity to optimize that potency.

We did not create the sky and the earth and whatever is between them in vain. That is a conjecture of the faithless. So woe to the faithless for the Fire!(QS. Shad (38): 27)

Have they not then observed the sky above them, how We have built it and adorned it, and that there are no cracks in it? And We spread out the earth, and cast in it firm mountains, and caused every delightful kind to grow in it. [In this there is] an insight and admonition for every penitent servant. And We send down from the sky salubrious water, with which We grow garden sand the grain which is harvested, and tall date palms with regularly set spathes, as a provision for servants; and with it We revive a dead country. Likewise, will be the rising [from the dead].

(QS. Qaf (50): 6-11)

As has similar basic concept which are saving or decreasing the bad impact to the milieu, the implementation of sustainable architecture is not the opposite with Islamic concept. However, more explanation of sustainable architecture implementation through Islamic perspective will be explained below.

#### ***1. Using Local Material***

Material is one important aspect in architecture process. It encompasses wide range such as stone, brick, wood, steel, roofing, cement and soon. In sustainable

architecture, it is better to use local material or resource around the site. This would reduce the carbon footprint which is usually high if using other place material. According to BSI (2008) in Peters & Solli (2010), carbon footprint is the total of emission which is produced through human activities (production, distribution and consumption, recycled, and reusing). In term of using other place material, carbon footprint will be produced especially from transportation of the material.

In Islam, using local material will give the benefit for people surrounding. The business itself, will grow and recruit more labor. The inhabitant surrounding will have better quality of life because of better income. Using the material from the surrounding will increase the economy of community which effect the economy's growth in the place. The concept of spreading benefit is maximally applied in this case.

## ***2. Optimizing Rainwater Harvesting System***

The main idea of rainwater harvesting system is collecting the rainwater and reuse it in the building. The reuse of rainwater will save the use of tap water. The tap water is derived from natural water resource such as river, ocean, lake or groundwater. The water from the natural water resources is previously processed before it is distributed to the building and another infrastructure. This long process will increase the cost and possibly decrease the natural water resource in the environment. By reusing rainwater in domestic setting, that possibility can be reduced. Rainwater can be used for bathing, toilet flushing, vehicle washing, watering plants, kitchen purpose, and even more drinking water thus it will save the water supply in the nature.

Islam sees the rain as a grace. It is stated in QS. Al-A'raf (7): 57.

It is He who sends forth the winds as harbingers of His mercy. When they bear [rain-]laden clouds, We drive them toward a dead land and send down water on it, and with it We bring forth all kinds of crops. Thus shall We raise the dead; maybe you will take admonition.

(QS. Al-A'raf (7): 57)

That translation shows that the rain is considered as grace. Therefore, it will give benefit to surrounding, living thing and nature. Rainwater will enrich the dead land, grow the plants, and add the water resource in the nature. All those benefit should be optimized for supporting human life. It would be a big lose if rainwater is wasted meanwhile God gives it for the benefit of the universe. By reusing the rainwater, human has optimized one potency which is given by the God and avoided the act of inefficient.

Give the relatives their [due] right, and the needy and the traveler [as well], but do not squander wastefully. Indeed, the wasteful are brothers of satans, and Satan is ungrateful to his Lord.

(QS. Al-Isra' (17): 26-27)

In QS. Al-Isra' (17): 26-27 is stated that God orders human not to be wastefully and assumes them as the evil's brothers. That verse shows that being wastefully in Islam is prohibited. For that reason, human must optimize the potency efficiently and reusing rain water for household purpose is one way of maximizing the potency in the nature.

### ***3. Optimizing the Sunlight***

The sunlight is natural lighting resource and can be fully optimized in the daylight. The usage of sunlight as natural lighting in the daylight can reduce the use of artificial lighting such as lamps. It can lead to the saving of electricity cost and the use of fossil fuel in the generator machine located in electricity company. This saving is one step to keep the resource availability in the nature and avoid the inefficient act. Architecturally, optimizing the sunlight can be achieved through maximizing the opening, better room organizing, and creating inner courtyard.

Furthermore, the sunlight also can be used as alternate energy resource. Through the use of solar panel, the sunlight is collected and later is changed to be energy resources and used for building energy consumption. This will reduce conventional energy consumption in the building.

In Islam itself, the sun is one of God's greatness and source of light. This is stated in QS. Nuh (71): 16.

and has made therein the moon for a light, and the sun for a lamp?

(QS. Nuh (71): 16)

As the source of light, the sun should be optimized to brighten the nature include the built environment. This optimizing process is parallel with the concept of avoiding wastefully act. By doing this, human has implement both sustainable architecture concept and Islamic concept.

### ***4. Creating Green Open Space***

Creating green open space in this term related with the creating of garden. Bakri (2011) in her thesis has stated that the existence of garden is one way of implementing sustainable development thus sustainable architecture in some islands. Garden has four qualities which are for environment as artificial ecosystem, economy sector as productive space, society through its social space and benefit for health as the healing space, recreational and healthy space (Bakri, 2011).

As artificial ecosystem, garden is a new habitat for insects and another animal. The existence of garden also contributes for the quantity of oxygen in the air. Flowers and plants attract them to live in the garden which enrich the biodiversity. As productive space, garden should be planted by productive plants. Those products from the garden later can be used for domestic purpose or sold to increase the income.

Furthermore, garden as social space is achieved through the use of sharing garden. Sharing garden is managed by two or more people who have the same orientation.



By doing the management and activities together, the social bonding is strengthening. Last but not least, garden can improve the health of the user physically and psychologically. The activities in garden such as digging and planting are similar with the exercise. Moreover, being in the garden, seeing the colorful flowers, breathing the fresh air can relax and calm the user.

Islam also sees plants as resource, thus it should be optimized wisely. Plants produce fruits which can be consumed by living thing. In Al-Quran is stated that any kind of fruits such as olives, dates, grapes, bananas have benefit for the human. Moreover, the existence of garden produces habitat for some faunas. As it produces oxygen, plants are also worth for human because human needs the oxygen to breath. In the other word, garden with the plants inside it spreads the advantages for others and similar with Islamic concept.

## CONCLUSION

Taken everything into consideration, the concept of sustainable architecture and the implementation of it is similar with Islamic value. In fact, the implementation of sustainable architecture is strengthening the implementation of Islamic value in daily life. Thus, Muslim must apply this concept in their daily routine as a manifestation of obedience to do the God's order.

At the end, the translation of QS. Al-Baqarah (2): 30 should awaken the human that human has big responsibility to keep the prosperity of the world.

When your Lord said to the angels, 'Indeed I am going to set a viceroy on the earth,' they said, 'Will You set in it someone who will cause corruption in it, and shed blood, while we celebrate Your praise and proclaim Your sanctity?' 'He said, 'Indeed I know what you do not know.'

(QS. Al-Baqarah (2): 30)

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