

## ISLAMIC CONCEPT OF SUSTAINABLE DEVELOPMENT IN THE RIVER ESTUARY

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### ABSTRACT

Islamic concept for planning and development should have universal values. The challenge of sustainable development is similar to resolving intractable conflict. Based on Islamic values derived from Al-Qur'an and reading the 'Signs' from the system and function of Nature, such conflict could be reconciled. Messages and warnings from Al-Qur'an provide valuable principles regarding the beauty and perfect Balance of Nature creation which inspire sustainable planning principles. Beginning with brief discussion on Islamic principles and values for planning and development and exploration of literature, this paper tries to address planning problem on a case area by practicing sustainable Islamic concept. This paper would offer solution on how a sensitive area like river estuary could be carefully planned and developed. The case refers to an application of the concept to waterfront city plan in Citarum River, West Java Province, Indonesia. The area has been designated as protected area. However, local government insists on developing the area. With the principle of Balance, the plan design proposes a scenario which maximizes nature protection and provides socio-economic benefit for community.

**Key Words:** Islamic concept, sustainable development, Balance

### INTRODUCTION: SUSTAINABLE DEVELOPMENT CHALLENGES

In theoretical perspective, sustainable development is one of great vision in urban and regional planning, but this vision is difficult to realized because it lead to conflict. Sustainable development sought to reconcile the conflicts between economic development issues, ecological preservation, and intergenerational justice. There is a lot of developing design concepts of ecological space (Mcharg, 1969; Lyle 1985; Calthorpe, 1993; Thompson & Steiner, 1997; Ravetz, 2001; Forman, 2008), which offers sustainable design. Concepts are spreading various forms of design full of creativity and adaptation in real space. However, Islamic concept for planning and development which have universal values could offer best concept. The challenge of sustainable development is similar to resolving intractable conflict. Based on Islamic values derived from Al-Qur'an and reading the 'Signs' from the system and function of Nature, such conflict could be reconciled. Messages and warnings from Al-Qur'an provide valuable principles regarding the beauty and perfect Balance of Nature creation which inspire sustainable planning principles. Spahic Omer (2009) mentioned that God created the cosmos in the image of His Infinite beauty. It can be posited that the notion of sustainability must be inherently beautiful mind.

Applying Islamic concept of the design in a planning process will provide learning that was never completed for planners in their work practices. This paper will begin with brief discussion on Islamic principles and values for planning and development and exploration of literature while recognizing the issues of sustainable development and its design concepts specifically for urban and regional area. Following by illustrative planning practice case of Spatial Detail Plan for North Coast Region in Kecamatan Muara Gembong- Bekasi Regency, especially those located in the Citarum River Estuary area. Then, this paper tries to address planning problem on that case area by practicing sustainable Islamic concept. Furthermore, there

are some aspects of learning and reflection from practicing Islamic concept into a real space especially for planner.

## **SUSTAINABLE DEVELOPMENT: PLANNING FOR THE BALANCE OF NATURE**

Heaven and earth with all it contains were created as signs of God's Greatness. In fact, the heaven and the earth were created in a perfect balance as revealed in the Qur'an:

“And the heaven: He has raised it high, and He has set up The Balance. In order that you may not transgress due balance. And establish weight with justice and fall not short in the balance” (Surah 55: Ar-Rahman 7 – 9).

The nature is the sacred creation of Allah. Man as one of the most perfect creatures became *KhalifatulArd* authorized to utilize HIS universe as directed. The balance principle in development should be the primary basis for manipulating the nature included in the plan design that will not upset the balance. However, we do not have build our environment and construct structures life-friendly. For momentary material gain, we have destroyed nature unconsciously. Allah, The Lord God has commanded “not to destroy”. For, by destroying anything, including nature, by extensions we are actually destroying ourselves as written in Al Qur'an:

“And spend of your substance in the cause of Allah, and make not your own hands contribute to destruction; but do good; for Allah loveth those who do good” (Surah 2: Al-Baqarah 195).

Furthermore, The Qur'an revealed strong warning for bad-doers:

“And do not do mischief on the earth, after it has been set in order, and invoke Him with fear and hope. Surely, Allah's Mercy is near unto the good-doers” (Surah 7: Al-A'raf 56, 85).

Therefore, the challenge of sustainable development is not mere resolving intractable conflict but also not making nature destroyed. Furthermore, application of the balance principle will ensure the continuity of life, or another word will support sustainability concept become reality. At first the idea “sustainable development” was expressed at the Brundt land report-1987, with the main principles of the well-known and often referenced as follows: “humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs”. The idea of sustainability is then developed as it is often associated only relates to the field of the environment, as well as to the areas of economic, social and cultural (Hall & Pfeiffer, 2000).

However, this vision includes difficult to achieve because it raises a conflict, because there are things that contradict (Campbell, 1996). There is a triangle with a goal a teach corner and conflict so cura long axes. These conflicts are property conflicts, resource conflicts and conflict development. Property conflict occurs between the issues of economic growth and fair share opportunities arising from competing demands for the use of property as a resource both private and public goods. Resource conflicts occur between economic utility and ecological demands arising from competing on terms of consumption and preserve natural resources for



reproductive ability. Development of conflict between social justice and the preservation of the environment arises from the competing needs to fix a lot of the poor through economic growth while protecting the environment through the management of growth. The third conflict reflects the value conflicts in sustainable development (Godschalk, 2004), or in the category of Moore entered the conflict incompatible interest's atau differing values (Hindersah, 2004).

In addition, since the Earth Summit in Rio de Janeiro in 1992 and the publication of Agenda 21, there is growing concern about the relationship of urban development and environmental protection. Greater attentions to the city-environment interface are discussed in the Habitat II-1996 in Istanbul, accompanied by the release of the publication of *The Urban Environment* by World Resources Institute. Both of these conferences have been doing nature conservation efforts in the cities (Müller, 1997 in Cilliers et.al, 2004). In the Rio conference emphasized the importance of promoting sustainable development in human settlements, with a focus on improving the conditions of ecological, economic, cultural and social. It is a real struggle for urban planners to balance two agenda growth vs. protection which is competing with each other. Furthermore, the practical policy implications of the relationship between urban development and environmental protection are related to operation like the concept of sustainability in real programs.

The challenge for planners today is to create a habitable city in harmony with the surrounding natural environment, and can grow in a sustainable balance between urban growth and environmental protection. The concept of land use plans that are loaded with environmental protection efforts are proposed by Duany and Plater-Zyberk (1991) and Calthorpe (1993). Similarly, from a planning concept that relates to the environment, such as the approach of landscape ecology has been conducted by Hersperger (1994). There is an important principle that must be held by the planners. The existing natural systems that have evolved have the capacity of each to support and serve the human settlements (McHarg, 1969). Urban ecosystems therefore be important to understand (Melosi, 2003) which will lead to the realization that the actual existence of the city, based on organic theory (Lynch, 1981), is as a natural system that if not managed properly will be lost.

Environmental protection or the protection of the landscape, especially those that have been implemented in rural areas in Western European countries have the potential to maintain local character and culture, to encourage the development of civil society in the protection area, and to complete the appropriate economic development, while achieving goals environmental protection more tangible (Hamin, 2002). However, the existence of protected areas is located in urban areas in particular are rarely aware of the function and its crucial role in supporting the urban ecosystem. The actual town is apart of nature. Botkin (1990 in Hersperger, 1994) states that if a civilization is to live longer, then we cannot believe that the management of natural means only management areas of wilderness preservation. Because urban areas are still growing in the landscape, it is imperative that we understand the cities must be managed as well to local environmental sustainability of the city itself, and because of its impact on the environment and global regions. Without this understanding, the natural environment around the city cannot survive, and our very survival on the planet would be a question.

Urban protected areas should be defined its urban character, potential for development, the role and function within an urban area. But for ecologists, an urban protected area is synonymous with the term urban nature conservation (Cilliers et.al, 2004). For example in the

UK, area which should be conserved described as natural green space, but urban areas are not included in the definition. For research purposes, urban nature can consist of all living organisms and their habitats within the city administration. In addition, it can be placed in the urban natural fragments of natura l areas, such as the hills, ridges, linear landscapes such as rivers and creeks following its wet soil.

Protected areas or areas of urban nature conservation are important as a place of refuge, and the expulsion center corridors for many species of flora and fauna. In addition, these areas are for environmental protection and ecological balance, among other things to keep the hydrologic cycle, water resources and health, climate, health, air, and noise protection. The importance of nature conservation areas in the urban areas is also to improve the aesthetic quality of the urban landscape, as an area for recreation opportunities, as an informal play area children, as an experiment and demonstration area for the purposes of education, as an indicator of environmental change lives and pollution, and for basic research on urban ecology (Starfinger & Sukopp, 1994 in Cilliers et.al, 2004).

In the literatures of urban planning and design, and environment or ecology planning, the term protected area can be associated with the concept of natural open space naturally found in or around the city (Fabos, 1985; Shirvani, 1985; Calthorpe, 1993; Kaiser et.al, 1995) or landscape with ecological elements (Lynch, 1981; Lyle, 1985; Hersperger, 1994). Kaiser et.al (1995) recognize this terminology of protected areas in their land classification system, namely in the conservation category perceived as natural resource protection. This conservation area is the location where development would endanger the existence of a significant nature, rare, or cannot be replaced; endangering the historical resources, scenic views, and endangers the forest lands and prime agricultural lands or natural disaster which would endanger the life and where ownership and long-term resource protection deemed necessary. These areas are land, wet land/swamp, or a body of water where development should be prohibited or worked with very carefully and under strict supervision.

The concept of urban protected area scan is explained if the city is seen as an ecosystem. For it must first understand urban ecosystem (Melosi, 2003; Nylon, et.al 2003). Cities are the system components of physical, biological and social. At first glance, nature and natural ecosystems may seem to have little place in the center of the cities. The original natural ecosystem has been destroyed centuries or thousands of years earlier, and green elements that are real, such as parks, street trees and gardens seem to be almost artificial, with little place for something very natural. Nevertheless, nature is proficient and skilful', to exploit tall available opportunities and in developing a new ecosystem in all kinds of places that are natural or unnatural (Bradshaw, 2003). Intercity, this is something remarkable thing when nature can rapidly colonize abandoned places that are empty. Natural ecosystem processes are fundamental and relevant to what is happening in the city. Many ecosystems in the city occurs naturally in the sense made by nature, but can be semi-artificial ecosystems in terms made or influenced by the factors of human origin.

From this it can be seen that the city as an eco system can be regarded as a protected area in terms of regional or urban landscape that should always be treated so that the natural processes that take place undisturbed. Thus delineation of urban protected areas does not need to be done. Never the less it is good to know the types of land based on basic ecological role. Described by Odum (1989), there are 3types of land distribution strategy that is protective strategies,

productive strategy and compromise strategy. Protection or natural land is where the succession carried or pushed for steps toward a mature ecosystem, and so stable even though it is not productive. Productive land is a place where the succession slowed continuously in human control to maintain its high productivity levels while compromise land is a combination of land protection at the same time production. Lyle (1985) refers to this last type of land as a 'human ecosystems'. To plan and manage this last land will be the most pressing issue of the landscape, the most challenging and perhaps the most important. Compromise land, however, almost became an inadequate term for a place where human beings and nature are united together again after being separated for a long period.

Waterfront city could be good example of manipulating nature while consider its nature carefully. Waterfront City is a concept that can be defined as the concept of regional development that utilizes elements of coastal and river basin as a design element to a better area, comfortable and can improve the welfare of the fishermen. Basically the water front city development area covers two categories of development namely:

- Development of the waterfront area with the aim of reviving the cultural values that exist on the waterfront in order to provide a comfortable space for human.
- Development of the waterfront area which aims to incorporate water into environmental regulation in the form of provision of amenities such as water sports.

So the development of the waterfront area is required in order distinctiveness or specific characteristics of aquatic ecosystems should be decanted into the existing space so as to display the image of waterfront city itself. In effect the waterfront city development will provide social and economic impact to people's lives.

## **THE CASE OF WATERFRONT CITY PLAN IN CITARUM RIVER: PROTECTING THE MANGROVE FORESTS**

Planning practice case in this regard in the case of Spatial Detail Plan for North Coast Region in Kecamatan Muara Gembong - Bekasi Regency, especially those located in the area of the Citarum River Estuary describe experience implementing sustainable Islamic concept as an effort to realize the balance principle in to plan design. In the process of preparation of Spatial Detail Plan for North Coastal Region in Kecamatan Muara Gembong - Bekasi Regency, there is disagreement to apply the concept which could maximize the economic value of the region. Employers want the area developed as much as possible give high economic value for investors. The desired as been manifested even with the issuance of planning permission on sites in the region to several potential investors. The region will be developed become high-rise urban area. On the other side, this area is ecologically sensitive areas.

Planning area is namely Desa Pantai Sederhana and Desa Pantai Bahagia is a coastal region that has richness and biodiversity. This can be seen in the presence of mangrove forests, great variety of fish and wildlife such as heron and monkeys to form specific coastal ecosystems. Mangrove is one of the plants that are in the planning area that can be found along the riverbanks, estuaries and beaches, can also be encountered in the settlement of fishermen and in the middle of the pond area where is managed by the local people.

Besides this planning area is an area of Citarum River downstream, the longest river in the province of West Java. In 2009-2025 Bekasi Spatial Plan documents, the planning area is in Development Region IV to function as housing / residential, port, industry and tourism so that look like waterfront city. On the other hand in the Spatial Plan of Jakarta Metropolitan, North Coastal Estuary Muara Gembong is in the category of use of a protected area zoning protected (N1): coastal border, and the protection of marine life. In other words, in the perspective of ecological role, the planning area is best function as protected areas or conservation of mangrove forests, where the condition is currently experiencing degradation.

## **ROLE AND FUNCTION OF FOREST ECOSYSTEMS**

Referring to the Republik Indonesia's Act no. 5 of 1990 on the conservation of natural resources, the notion of conservation is essentially an attempt to manage the natural resources so that the utilization is done wisely to ensure continuity of supply while maintaining and improving diversity quality and its value. Conservation measures include three activities, namely: (1) protection of life support systems, (2) the preservation of species diversity of flora and fauna including ecosystems, and (3) use of natural resources and ecosystems in an optimal and sustainable way. Conservation of biological diversity is an integral part of understanding natural resources, including the line of coastal buffer zones. This is because of three components that conservation must be addressed, i.e.: (1) degradation of the buffer zone, (2) the order of the social life of the community, and (3) community participation in terms of optimum utilization of sustainable resources.

In general there are three basic reasons why diverse biological conservation needs to be done:

- (1). Variety of biological, essentially is as an intrinsic part of the life principle. The notion suggests that each species of wildlife (flora and fauna) have the right to live. It is given that the UN Charter about natural resources confirmed that any form of life must be respected regardless of its value to humans.
- (2). Variety of biological, essentially is as part of the human life. The notion suggests that a variety of biological helping planet earth to stay alive, as it plays an important role in terms of life support systems, ranging from maintaining the chemical balance of the material through biogeochemical cycles, and maintain the climatic conditions, the river flow area and serves to renew the soil and its components.
- (3). Variety biological yield economic benefits. The notion suggests that the biological variety is the source of all the wealth of biological resources that have economic value. Of a variety of biological, humans obtain food, health because it provides the oxygen (O<sub>2</sub>) are free, and has a specific cultural values for the benefit of human life.

The three reasons description above, suggests that biodiversity is an integral part of the recovery concept of mangrove forests are considered to be degraded. In Decree 32 of 1990, on the Management of Protected Areas, explained that the buffer zone is basically a buffer which serves as a protection against the protected areas. In the context of coastal buffer zones, the area is intended as a region which serves as a protection to the integrity of beach or coastal. This



buffer can be a pathway of vegetation communities or beach formation or in this case is a mangrove forest.

Mangrove forests which are located around the Citarum River, has a very complex functions such as barrier and tidal waves of water as well as a place to breed animals in the surrounding areas. Mangrove forests have multifunction, among others:

1. Biological function, physical function and chemical functions. As a contributor to the fertility water can no longer be denied because of the mangrove forest is the trap nutrient and organic matter which carried by the flow of rivers and swamps. Organic materials undergo destruction by mangrove forest fauna and subsequent decomposition by microorganisms into various simpler compounds. With nutrients are brought by the river, the material is absorbed by the plants.
2. Ecological functions of mangrove ecosystems are very distinctive and are not replaced by the position of other ecosystem. For example, mangrove forest physically functions to maintain the stability of coastal land and prevent intrusion of sea water into land. Biologically, mangrove forest maintains ecosystem functions and peculiarities of the coast, including the living biota. For example: as a search feed, breeding, care of various species of fish, shrimp and other aquatic biota; nesting spot of a variety of birds, and habitat for many species of fauna. Economically, the mangrove forest is a provider of fuel and industrial raw materials.
3. Places to associate some kind of animal life cycle such as Crustacean, molluscs and fish. This shows the importance of mangroves for animal life.
4. Physically, mangrove forests have a role as a protector for the beach from attack of wind, currents and waves of the sea. Mangrove forest as are liable bulwark against the waves which can damage beaches and in land to the whole.

Existing mangrove forests in the planning area can be utilized by the majority community livelihood as fishermen and farm workers, as mangrove has a function as nursery ground or where fish spawn. However, it is often abused by people to do the conversion of forests into fish ponds. Ponds located in the planning area are fisheries that have excellent potential for improving the welfare of the community and to increase revenue of Muara Gembong.

Pond management system associated with mangrove forests were developed and known as Silvofishery. In terms Silvofishery derived from two words, namely silvo which means forest and fishery means fishing business. Silvofishery is a form of integration with the cultivation of mangrove brackish water ponds. The relationship is expected to establish an ecological balance, so the ponds which have ecologically lacked the producer elements, will be well supplied by the marine life as manufacturer in mangrove forest.

Balance of mangrove forest ecosystems cannot be separated from the environment that supports it. In brackish waters, it takes sunlight to be used by phytoplankton to photosynthesize and produce oxygen dissolved in the water that will be used by other system elements. In this regard, the management of ponds in a way Silvo fishery has countless benefits including mangrove ecosystem preservation and is maintained to provide benefits to fish or shrimp ponds that will have a good quality. With this Silvo fishery concept ponds and mangrove forests exist in the planning area will run concurrently. Protected forest that is in the planning area can remain sustainable.

## **DEVELOPMENT DIRECTION: PROTECTED AREAS, ECOTOURISM AND SETTLEMENT**

In Bekasi Spatial Plan, development policy directs this region into a tourist and fishing settlement also agrees that in some parts of the planning area will be developed as a protected area. Based on the analysis of the physical environment, the direction of development plan should consider the site sensitivity. Development of protected areas and the fishing settlement is an option to suit the conditions of the planning area. There is a lot of mangrove forest and most of the population in the planning area livelihood as a fisherman and have homes around the existing estuaries along the Citarum River and the Muara Gembong River.

The development of protected areas in the planning area is very important to maintain the existing ecosystem and still protect the environment. Mangrove forests in the planning area could support shrimp or fish ecosystem in ponds. One function of mangrove forest is the breeding grounds of various species of brackish water biota. Mangrove forests in the planning area can be put to good use by the farmers. This is due to tidal forces can be controlled by the presence of mangrove forest ecosystems. The farm land would be fertile and have good nutrition for biota in the pond so the pond will increase productivity.

Besides mangrove forests can be used as absorbers ocean waves and wind storms, coastal protection from abrasion and erosion processes, mudguard and trappers sedimentation. Mangrove forest is also as a habitat for many wildlife species, especially birds and mammals, so the sustainability of brackish mangrove forests will contribute to protecting the existence of wildlife. Mangrove forest on the coast within 100 meters will become local protected areas in accordance with existing law. So it is two sides of the river are in the planning area within 50 meters of a local protected area.

Aside from being a protected area, the planning area is also as a settlement area for residents in the planning area. Fishing settlement entirely leads to the river and building type is the home stage so that water flow does not collide with the walls of the houses and damaged buildings. Development of this fishing settlement meant that people who are on the coast in the District Muara Gembong get the facilities needed by the community such as clean water, sea transport and other infrastructure.

Desa Pantai Sederhana as part of planning area could be developing as a tourism zone. The environmental development based on tourism called as ecotourism is an ideal fit with the natural conditions of this planning area. In the development of environment-based tourism activities, tourist activities especially environmental education for school children can be done. Tourist activities could include environmental education activities and the introduction of plant mangrove ecosystem recognition. Furthermore, ecotourism activities can be done by planting the seeds of mangrove/coastal mangroves around Muara Gembong sea shore. In addition, marine tourism activities such as water sports like jet skis and seafood culinary tours can also be developed.

Other part of planning area, i.e. Desa Pantai Bahagia which is located in the Citarum River mouth is large enough to have the prospect to be developed as residential areas in large scale or as a waterfront city with its port as a point of growth. The land is still wide allowing for allocated activities or investments that are still in harmony with the new spatial planning policy. New investment is expected to grow its linkage economic activity which in turn will develop waterfront city in the North Coastal Zone as a strategic area for Bekasi economic development.



## CONCLUSIONS AND RECOMMENDATIONS

Based on the development potency and the problems encountered in the planning area, there is the idea that the concept of waterfront city not only makes an impact at the local level but also at the regional level that can even give a new identity for the region. New identity is emerging from its regional potency that is very strong, from its existing condition as estuary region, become Citarum Waterfront City, still hold the name of legendary and historic river in West Java in new image. Waterfront concept can allow for new civic expressions that can reinforce the character and quality of the historic core (Marshall, 2001). However, this identity brings new value of development which could hold and maintain its nature balance.

Waterfront city concept can be maximally applied in the planning area because it has considerable elements of sea and river. The concept of waterfront city in the planning area is not just a mere physical development but also creates the involvement of all stakeholders and is expected to grow a high sense of belonging toward the planning area. Waterfront city concept in the planning area is expected to improve the quality of environment, quality of human resources, not only from fisheries activities and fish markets, but can also be grown from other activities as a cultural tourism area and maritime education, fishing industry, and the fishing port. Moreover, from these varieties of activities, it will lead to an increase in economic dynamics more progressive so that the public welfare is expected to increase in the region particularly in Muara Gembong. With the launching of the waterfront city is expected to optimize the role and function as one of the new centers of economic growth in the Northern District of Muara Gembong.

An exposure of the practices experienced in the effort to realize the vision of sustainable development in the planning process is quite technical space is expected to be useful for planner's reflection of reality theory or concept in the real world. Urban and regional planners can demonstrate competence on employers skill fully use all sharp analysis but also offer an elegant concept that could change the face of the region, the city and the region so that it can play a more meaningful. Practicing Islamic concept need a little bit of political courage. Sandercock(2004) warns that there are 3 options that be felt that the planner was always apolitical creature. The first is about the choice for whom and for what work. The second way is when we decide to act strategically. The third is the appearance of the technical work itself, where there are no technical planning activities that do not have political implications and consequences. Thus there is no way to avoid' being political'. Jamilah bt Othman (2009) stated that as the *khalifah*, man is entrusted with the *amana* to protect his environment following the command of Allah (S.W.T.). For this case, planner has to hold firmly this responsibility as his or her sacred political obligation.

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