SOCIAL RESILIENCE FOR SUSTAINABLE DEVELOPMENT: A CASE STUDY OF BATAM, INDONESIA

Sylvia Prisca Delima¹, Paulus Wirutomo², Abimanyu T. Alamsyah³, Setyo Sarwanto Moersidik⁴

¹School of Environmental Science, University of Indonesia, Jakarta, Indonesia
²Department of Sociology, Faculty of Social and Political Science, University of Indonesia, Depok, Indonesia
³Department of Architecture, Faculty of Engineering, University of Indonesia, Depok, Indonesia
⁴Department of Civil, Faculty of Engineering, University of Indonesia, Depok, Indonesia

Abstract

Sustainable economic development has to be guaranteed by good governance for its strive towards prosperity. However, economic development is not a guarantee for prosperity, since limits of physical environment do affect carrying capacity and supporting capacity. Even though technological advancement has been instrumental to reinforce sustainability, social resilience should be taken into account in development planning. Promotion of social inclusion is the shift of development paradigm to ensure social resilience. This condition leads to the ability of social environment managing environmental constraints both natural and man-made conditions. Positive peace can only be achieved by ensuring holistic development to maintain social stability and society welfare within the framework of transformative development in which sustainable development planning has to be stressed more on building up cohesive local culture, balanced eco-politic, and spread of social resilience.

Keywords: social resilience, sustainable development

INTRODUCTION

This paper was based on research that tries to portray relationship between social resilience and sustainable development that might be best represent Indonesian environment both as a developing country and an archipelagic region. Issues on environment and development themselves usually have their stresses on sustainability. Nevertheless, environmental sustainability and sustainable development often perceived as two sides of a coin – as two separate entities with different interests. In a developing country such as Indonesia, the efforts to connect those two entities for the sake of welfare and sustainable development face a lot of hindrance in the recent years. With many development interests, those combined efforts lead to a need of strong political will to make an interconnection between those two entities. The studies have shown that the likability of interconnection between environmental sustainability and sustainable development lays on its human ecology. Hence, eco-politics in the form of development of human ecology study started to make its root (Soerjani, 1987).

Bousquet, et al. (2016) has stated that resilience is built on dynamic perspective: Development resilience started with a static view looking at resilience through attributes (endowment, capital, capacity) but is moving toward a dynamic approach. In this paper, social resilience is a concept built upon dynamic social condition. In an open society, resilience is a condition of how society can face and strive during dynamic environmental changes – both natural environment and social environment. Hence, referring to that, social resilience is a condition in which society is able to maintain its stable conditions strategically against local, regional, global dynamics that full of volatility, uncertainty, complexity, and ambiguity. On the other hand, sustainable development commonly based on the classic definition from Our Common Future (Brundtland Commission, 1987) - in which sustainable development is perceived as development that meets
the needs of the presents without compromising the ability of future generations to meet their own needs. This definition has been developed into 17 Sustainable Development Goals (SDGs) of United Nations (2015) to make the world as a better living place, with people, planet peace, partnership, and prosperity action plans.

Therefore, on those arguments, an area can be assumed in sustainable state, when and only if it can provide means of livelihood, welfare and wellbeing for the population within it. This paper tries to argue how social resilience is a very important aspect that affecting the level of development, as well as sustainable development.

**Background of Research**

This paper is based on findings of social resilience for sustainable development research in Batam – an area that has been chosen in order to represent Indonesia in a miniature way. This choice has been made based on similarity and degree of scale that makes Batam can represent Indonesian condition as an entity. It refers to geographical condition as archipelago with various unique physical environment as well as its socio-graphical conditions that shows diversity and multiculturalism in its society. Since, this paper is rooted on environmental study point of view, in which the study is focus holistically on the living things - including humans – in both their biological and physical environment, hence any environment research should give coverage on physical and social environment conditions.

Prior to understand Batam, one should have some background knowledge of Indonesia. Physical environment of Indonesia generally speaking relates to its unique geographical aspect. This geographical condition covers 13,466 islands (Pushidrosal, 2016), in which only about 6,000 islands are habited islands, within which the population is centred on only 5 islands. Those islands make up to total land covers of less than 1.9 million km² lands from 3,273,810km² total area of Indonesia (Pushidrosal, 2016). This condition relates to limits of land to be cultivated yet opportunities to move towards off shore development. Nevertheless, this physical condition affects carrying capacity and supporting capacity of the environment, hence the social environment side that covers socio-graphical aspects of Indonesia specifically in facing the 12% increasing of population annually (BPS, 2013). Furthermore, with a population of 255 million people, population management in Indonesia becomes crucial, especially in increasing sufficient skills and education to overcome environmental problems and to create better supporting capacity for the environment to increase welfare.

In short, limits on physical and social environmental have been acknowledged as seeds to create potential problems, both security problems as well as development problem in general. Many argues that those potential problems can be arisen mainly due to previous development that are not paying attention to characteristics of archipelagic condition and the existence of climate changes, and at the same time did not pay attention on dynamics change of society excluding efforts to cater the needs of increasing population. Based on this condition, clean water, as well as waste and sanitation management is continuously in demand along with other basic needs such as food. On the other hand, there is also problem in social environment. Population management is in constant need in order to give Indonesian population necessary skills and education to overcome environmental problems and creating better supporting capacity of the environment. In Indonesia, its huge population is still not enough supported by high skills and education, since only 27% of the population has tertiary education and nearly 6% unemployment rate, even though literacy rate has reached 97% (BPS, 2013).

The huge population with generally low level of skills and education has increased limits of physical and social environment. Especially, like many other Asian countries (Dressel and Wesley, 2014), Indonesia has also attempted to reconcile state strength and internal diversity by constructing a triangular balance between identity construction, hegemonic governance, and economic development. Sustainable development targeted to People, Planet, Prosperity, Peace, and Partnership as in accordance to Sustainable Development Goals (UN, 2015) recently triggered the needs of National Development Plan System (Bappenas, 2016) in order to overcome the limits of
physical and social environment, then transforming those limitations to sustainability with proper adaptation and mitigation steps, with technology advancement and economic development (Ghorai and Sen, 2015) as well as social development (Carvalho, Alves, Azeiteiro and Meira-Cartea, 2012). Strategically, as environment is broadly defined as a unity of all things, space, power, state, and living creatures, including human beings and their behaviours, that affecting continuity of lives and welfare of human beings and other living creatures (Indonesia’s Environmental Law 2014); as well as environment has its scope of coverage upon all room and place of Indonesia (due to Wawasan Nusantara-Archipelago insight as a result of United Nations Convention on the Law of the Sea) of which the state can implements its sovereignty, sovereign rights and jurisdiction, any study of eco-politics in Indonesia cannot be separated from its Archipelago insight. In this ideal, all elements of Indonesian’s natural and social environment have come into a whole complete unit, and have continuously interplayed to create and maintain balance, stability, and productivity of the environment.

**Background of Batam as Locus of Research**

Specifically the physical Environment of Batam, based on its geographical aspects, limits of land that affect carrying capacity have been definite. As a part of Riau Islands Province, Batam area (Batam Municipality) consists of 308 small islands and islets. The total land covers less than 715 km² lands out of from 1,595km² total area. Bridges to give easy access connect the three biggest islands –Batam, Rempang and Galang islands. In reference to these geographical aspects, the ideal development should pay attention to characteristics of its archipelagic condition, as well as the existence of climate changes, besides catering the needs of increasing population. The basic needs such as food, clean water, sanitation, as well as waste management have become the biggest problem yet to tackle.

Social Environment of Batam currently should deal with population of 1.5 million people or 1,441 people/km². When it first developed in 1970s, Batam was intended for 750,000 people who will manage and operate industrial infrastructures. Nowadays, the population can be seen as 82.8% urban population and 65% internal migration. The local population increases by 35% birth rate as well as incoming tourist of 121,176 person/month with 8.81% increasing rate (BPS Kota Batam, 2014).

Batam area that has known as industrial area (including Free Trade Zone and Special Economic Zone) attracted a lot of internal migration. In this case social development should be targeted into education and skills needed in population to overcome limits of physical and social environment as well as to transform those limitations to sustainability. Even though Batam’s economic development of 5.8% - a high rate in the current Indonesian economic condition, it is not enough to ensure sustainability, especially with heavy cost in border management - specifically as show case of Indonesia – referring to Batam’s location in the border of Singapore and Indonesia.

**Originality and Value**

Social resilience acts as important determinant in sustainable development. There is still a gap in development planning that not paying more attention towards social aspects that might give way for transformation in development planning to ensure sustainability.

**Design, Methodology and Approach**

This paper is generated from multi-stage researches that gather quantitative data in the form of social environment variables in socio-cultural and political area, as well as qualitative data is the paradigm of sustainable development for small islands region in the border area. The stratified sampling is used to get socio-demographic pictures, beside focus group discussion and depth-interviews with various stakeholders to get development paradigm pictures. The limitation of this research is the limited comparison available to other border area. This limitation invites the need of further research on other area with similar subject matter to test the model of social resilience for sustainable development.
Social Resilience for Sustainable Development

All countries have their own strategic development goals as well as strategic development area in term of location or specific field. These specific strategic developments should be reviewed to comply with existing environmental dynamics. In developing countries in which population and urban development have become crucial issues, eco-politics insight has been introduced to provide new insights into urban problems as well as giving up new solutions to refocus urban with all its problems as centre-based eco-politics activities (Swyngedow, 2009). However, having new insights and solutions might still not overcome unsustainable matters and limits of the environment (Blühdorn and Welsh, 2007) and it gives the call to mapping the reality in both physical and social environments. The needs of national development plan system then arise in order to overcome the limits of physical and social environment, to transform those limitations into sustainability, and to ensure social justice, public welfare, and public well being. Integrated social system to overcome complexity faced in capital and social relationship in certain area or region can help to make the development become a successful one (Wirutomo, 2012).

Social Resilience

Social resilience as a part of social system becomes a very important component in the development. Communities in border area play important part in development as well as in strategic and security issues. On the other hand, people’s resilience in the border is crucial both in economic development and national security development. In the case of Batam, since the island is located next to Singapore - a more developed country – then in certain degree, it has to be adapted to the development of the neighbouring area. The research findings show that sustainable economic development has to be guaranteed by good governance for its strive towards prosperity. Yet, economic development is not a guarantee for prosperity, since limits of physical environment affect carrying capacity and supporting capacity. Even though technological advancement has been instrumental to reinforce sustainability, social resilience should be taken into account in development planning.

Sustainable Development

Sustainable development is generally focused on economic environment supported by natural environment and social environment. In this case, eco-efficiency in sustainable development of the relationship between economic output (products, services and activities) as well as impact of environmental production, consumption, and disposal becomes important (Van de Wewterlo, 2011). The failure of economic development often becomes the main root causes of conflict (Collier, Elliott, Hegre, Hoeffler, Reynal-Querol, and Sambanis, 2003). On the other hand, inability to manage change in the environment, both because of natural environmental factors such as global warming or social environmental factors such as poor governance is often the starting point of the conflict (Fröhlich and Gioli, 2015). Therefore, although Indonesia has economic advantages thanks to the diversity of natural resources and a large number of young population, but the limitations and vulnerabilities existing environment makes national security cannot be limited to mere economic development.

Many environment limitations in Batam have been overcome by advanced in technology. Development in economic and infrastructure sectors has made up exploitation of natural resources towards people’s welfare and wellbeing. Social environment limits have been overcome using population management of immigration as well as internal migration in order to get the skills needed in Batam islands. However, the waves of migration do need geographical sensitivity and geographical wisdom. This sensitivity and wisdom that usually being passed between generation in the population now have to be transferred within the waves of internal migration, in which cross-cultural experiences do the magic in strengthening social resilience. In this case, the geographical sensitivity and geographical wisdom also being forced within panarchy or adaptive cycle in social ecology of Batam to maintain people’s inclusiveness in area development.
Only by inclusiveness, economic development can perform in sustainable development as it is also guaranteed by good governance for its strive towards prosperity. Public inclusiveness then becomes an important determinant in social environment in order to guarantee environmental security. In this case, environmental security is the condition of which the environment – including social environment- is resilient as discussed in Brauch, et al. (2008).

Even though, building environmental sustainability is the intention of sustainable development efforts, the existence of political dynamics that typical to developing countries is undeniable – it is full of contestation between environmental sustainability and sustainable development. Development is still generally perceived as the ways to change environment in order to build economic factors within the scope of social welfare improvement. Thus, not surprisingly, environmental issues have underlined many conflicts - between men and nature or between society groups, especially in competing for economic advantages.

**Social Resilience for Sustainable Development**

Social environment in Indonesia is still dominated by “demographic bonus” issue (it is due to increase birth rate in end of 1990s that will create demographic bonus in 2020-2030). In that case, Salim (2015) stressed the importance of human resources – especially the youths – development. Otherwise, bonus demography will get backwards and jeopardize development efforts so far. In addition to that, increasing total productivity factor is also considered as pivot point to avoid middle-income trap in 2040. Batam is not only facing the demographic bonus as mentioned but also the condition resulted from internal migration and tourism industry. In this case, control over population management becomes crucial.

It has been argued that increasing demographic competitiveness will boost social resilience. It will compliment the infrastructure development as well. Hence, technological advancements should been able to reinforce sustainability and overcome environmental limitations, but social resilience should be taken into account in development planning to give a stronger boost.

As an archipelagic area, border management tends to be different from the land border management, and there is a need of technological advancements in managing border. In this case, communities in border area play important part in development as well as in strategic and security issues. People’s resilience in the border is crucial both in economic development and national security development. However, public inclusion in development is still very low. It is not far different from Social Progress Index (Social Progress Imperative, 2016) that showed that the rate of community safety net, tolerance for immigrants, and religious tolerance are very low in Indonesia, beside other issues such as mortality rate, school enrolments (including women’s access to higher education), access to information, water and sanitation (piped clean water and household waste management), environmental quality (air pollution and waste management). The main problems are due to current development planning that disregarding archipelagic conditions, as well as variety geographical and demographical condition. In addition to that, border location should also be taken into consideration. In this case, different localities create the significant local needs of social resilience. The condition is somehow different for most frontline small islands where distance from health and education infrastructure are still a problem in addition to limited availability of sea transport facilities, even though various facilities and infrastructure development.

**Model Social Resilience for Sustainable Development**

In the context of environment, disturbance towards the environment in Indonesia - with its highly diverse geo-ecological and social environment - can be broadly described. Critics on Indonesian development policy are mainly due to intensification of uniformity of the situation. Specificities in natural environment and social environment are often being ignored, and have caused problems that spread everywhere. The debate on this issue is going to continue based on dynamics of Indonesian selection in shaping its future as country and nation. In this case, modernization in all fields as well as industrialization of many aspects
of development, as well as managing a very large number of people are dynamics that have to be faced and cannot be ignored – as those issues can be threats as well as chances if they can be well-managed. In this case, promotion of social inclusion is the shift of development paradigm to ensure social resilience. This condition leads to the ability of social environment managing environmental constraints both natural and man-made conditions.

Limitations and vulnerabilities either as a result of natural conditions due to the influence of climate change, urbanization in coastal areas, pollutions or other issues in environmental management, social conditions related to uneven development, and dynamic strategic environment both locally and globally is a necessity that must be faced and require any form of separate resilience (Pelling and Blackburn, 2012). In addition to that, in Batam, the vulnerability of the social environment as a result of a large number of young people who are less skilled and/or education or inadequate training can have an impact on the development of related global competition. This sort of thing will increasingly feel the impact especially since the entry into force of the ASEAN Economic Community by the end of 2015 (The ASEAN Secretariat and the United Nations Conference on Trade and Development, 2015). The dynamics of this kind triggers the need for the availability of a sustainable development model that combines aspects of environmental, social, and economic into a development strategy to ensure the environmental integrity and safety, capability, welfare, and quality of life of the present generation and future generations.

A number of previous studies been done related to sustainability in urban zones in coastal areas, but little research has been done regarding the urban zone of the islands. From the limited amount of research that, in general, the existing research revolves around the increasing urbanization associated with efforts to increase public welfare with indicators of the Human Development Index (HDI) or better known as the Human Development Index (HDI). Human Development Index (United Nations Development Programme, 2015) is a comparative measure of life expectancy at birth; the level of literacy and education in adults in combination with primary education, secondary education and higher education; as well as a decent standard of living as measured by the natural logarithm of gross domestic product per capita in purchasing power parity. So far, the index is also used to classify the level of progress of a country as well as measure the impact of economic policies on quality of life.

In the model of social resilience for sustainable development, sustainable development is strategic result of physical or natural environment, social environment and constructed environment based on economic development. By ensuring sustainable development then carrying capacity and supporting capacity can be maintained well. In constructed environment, technological advancement plays instrumental role in reinforcing sustainability. However, technological advancements and economic development in constructed environment should be manageable by social environment and its elements. It is where social resilience plays its important part, to boost and ensure sustainable development. However, in order to get to this ideal, transformation in development is needed toward more into social aspects. The most important thing to note by this model is the interdependencies of social, economic and environment aspects in sustainable development. One part cannot stand alone, and any transformation can affect the others delicately.
The current debate on sustainable development planning is on national development strategy planning, and then the local strategy planning. The increasing development challenges need evaluation on achieved results and deviations. The politics of sustainable development planning in Indonesia is based on the Preamble of 1945 Constitution and Pancasila as state ideology. Salim (2015) argued on the needs of democracy and critical local minimum threshold that stressed on good governance and local representatives in nation-building development. In this case, job-creating development policy, increasing productivity to raise household income, increasing value added development to raise standard of living, as well as human resource development can be measured on target. This kind of sustainable development planning should be focused on priority development in rural area and area with poor infrastructure especially in border area, while it is also targeted to informal sector as well as women. Sustainable development planning is also believed as the key of sustainable peace since it consistently tries to minimize negative peace condition.

Transformative development within social development paradigm is effort to seek harmony within the scope of environmental sustainability, economic development by including carrying and supporting capacities of the environment. Particularly in Indonesia, or in any other places, in which decentralization plays important role in development, local autonomy policies should be used in coordinated way in development system to avoid crisis, whether in the form of conflict with nature – disasters that resulted by damage in environment, or social conflicts that have occurred because of struggle for influence and power in social environment. It is the way to say no towards uniformity in development and the only way various specific local conditions can be included in the development, either physical condition or social condition, or any particular climate, topography, land characteristics, even languages and culture conditions that might be occurred.

Transformative development has in a way led to movements towards environmental sustainability.
development that covers natural environment and social environment. The environmental movements also nurture close ties not only between human beings in societies, but also between human beings and their environment – the place where they live. In this case, sustainable development should follow interlinked environment principles such as harmony, sustainability, diversity, interaction, and interdependence. It furthermore requires proper development management, in which environmental management becomes more important. If environmental principles are marred, conflicts due to environmental imbalance cannot be avoided. The notion of transformative development is more towards diversity, creativity and freedom in managing environment in accordance with existing local contents, either it is local wisdoms or local experiences.

Development that was usually only focused on economic aspect has begun to spread its wings towards social areas. Instead of merely put its stress on economic, infrastructure, and exploitation of natural resources for welfare, the shift of development to cover social side has become prominent. Within the scope of development, issues such as defence and security, sustainable development, welfare, and wellbeing have become the cores of discussion.

Transformative development paradigm led to social ecological resilience should also cover internal migration. Based on high rate of internal migration within the country, especially along border area, there transformation in education and knowledge in order to increase social resilience can be expected. Simandar (2016) stressed on the needs of geographical sensitivity and geographical wisdom. In this case, geographical dislocations will transform the knowledge of cross-cultural experiences and strengthening social resilience. In addition to that, adaptive cycle of social resilience seems to increase potential and connectedness of social ecological resilience (Gunderson and Holling, 2002). In many cases, exploitation has been led to conservation, while conserved environment than released and reorganization to provide sustainability of environmental services (Bousquet, et al., 2016). The research findings show that transformative development shows a journey towards “positive peace” condition. This kind of development offers holistic development to maintain social stability and society welfare, and positive peace can only be achieved by ensuring holistic development. Particularly in Batam, transformative development can be used to maintain social stability and society welfare within the framework of development. In this case, transformative development blend in the planning that is being stressed more on cohesive local culture to create balanced economic-social development, and being guarded by goodwill of the government.

Soerjani (1987) mentioned that while economic power is considered important to boost sustainable development, and has become the main indicator of development, sometime at the cost of environment degradation due to unwise anthropocentric behaviours, the social environment development should counter this notion. As this ecology behaviour has been spread up, it will at the end building up social resilience. This is when strategic transformative development should use strategies that can be configured within vision, understanding, clarity, and agility framework. This framework will give ways to measurement and evaluation in the development plan. In transformative development, the interdependencies between physical environment, social environment and constructed environment are the key to make sustainable development, in order to provide adaptable and panarchy condition. This condition cannot be separated from environmental impacts both directly and indirectly. According to Salim (2015), it is to give a human face in policy making and to development. Hence, development needs to comprise economic, social, and environment all together in simultaneous and collaborative manners. This is related to the fact that there is no real peace without good association with ecology, in which the core is respect towards nature and human being.

In the context of state, sustainable peace is the aim of environmental security. Without peace, development that leads to improvement in welfare cannot be achieved. In this case, environmental security is the condition of which the environment – including
social environment is resilient, i.e. free of environmental damage, degradation or conflicts. Since human being is the core of discussion, environment security is not only limited to traditional notions of security that related to political or related activities that involved military defence, but also to economic, social, and environment issues. If we link this discussion with issue of sovereignty, then problems of identity, ability to survive, and sustainability will become important as a result of dynamics resulted by globalization, global environmental change, international financial crisis, climate change or man-made disasters that can be connected to various activities undertaken in the context of local, regional, or global.

In practice, activities in knitting sustainable peace for sustainable future have problems in synergy to build culture of peace – in which human beings can overcome social discrimination and social justice. In Indonesia, crucial issues in building culture of peace is the lack of peace education in educational institutions or in local communities as a part of national, regional and global context. Hence, we can say that there is still no positive peace yet in Indonesia specifically in border area, with the existences of uneven social, economic and political justice as well as insufficient respect for culture and norms prevailing in society, including lacking citizen participation as the core of development itself.

The importance of sustainable development for sustainable peace has been acknowledged in Indonesia in general, and Batam in particular. There is increasing consideration towards environmental security discourse and association of peace condition and living environment in general that mainly to maintain harmonious relationship. With high cultural diversity yet interlinked cultures of ethnic groups, the relationship between men and nature, and between men and society become more important as the way of living as well as the roots of ecological peace.

CONCLUSION

Good governance in development has to be guaranteed for efforts to prosperity. Economic development should go hand-in-hand with social development to ensure that technology applied can overcome nature’s limits of physical environment that affect environment’s carrying capacity and supporting capacity. It can be assumed that social resilience should be taken into account in development planning. It is to ensure that social environment should be able to manage environmental constraints both natural and man-made conditions by inducing social inclusion and transformative development paradigm to ensure social resilience. It can be concluded that social resilience is a very important aspect that affecting the level of development, as well as sustainable development.

Positive peace can only be achieved by ensuring holistic development to maintain social stability and society welfare. In this case, cohesive local culture, stable eco-politic, and build-up spread of social resilience are the components of transformative development goals.

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