Coastal reclamation projects in Indonesia: the weaknesses which lead to severe socio-environmental impacts

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ABSTRACT
Coastal reclamation projects are usually undertaken to obtain land due to the limitation of space and high value of terrestrial land. In many cases, coastal reclamation projects face public objections and protests from environmentalists. Coastal reclamation projects still continue; some have even been extended and intensified. In spite of being assessed and evaluated by schemes such as Environmental Impact Assessment (EIA), coastal reclamation project can still lead to severe socio-ecological problems. The major problems are caused by three major contributing factors. These are unnecessary projects, a lack of socio-economic impact assessment, and ineffective Environmental Impact Assessment. This paper examines the socio-ecological problems caused by coastal reclamation projects, and discusses the major factors contributing to these problems.

Keywords: Coastal, reclamation, impacts, socio-environment.

1. INTRODUCTION
The degradation of coastal environments has broadened in Southeast Asian countries since the 1980s. The main cause of the degradation is the excessive exploitation of marine life and coastal resources leading to damaged ecosystems, endangered species, and affected the natural biodiversity (Adeel and King, 2002). In Indonesia, one of the excessive coastal exploitation is coastal reclamation projects that have been widely undertaken to develop new centres of commerce, residential areas, and tourist attractions. In spite of public debates and critiques from environmentalists, coastal reclamation projects are still planned and constructed within a number of places of city.

By analysing a number of coastal reclamation projects in Indonesia, and reviewing several literatures, it is indicated that the coastal reclamation projects have strong possibility to result in severe socio-environmental impacts. The reason is that despite having schemes such as The Environmental Impact Assessment as a formal procedure, coastal reclamation projects appear not to minimise the potential negative impacts. It is suggested that coastal reclamation projects basically have three contributing factors to the degradation of coastal environments. The factors can be identified as the perceived economic importance placed on these projects, lack of socio-economic impact assessment, and ineffective environmental impact assessment as a formal procedure. This paper examines those contributing factors of coastal reclamation projects that can result in severe socio-environmental impacts.

2. MATERIALS AND METHODS
The Economic Importance Placed On Coastal Reclamation Projects
In general, the purpose of reclamation projects is to overcome the limitation of space and the growth of population for developments, as shown in Figure 1(a). This purpose can be seen in several reclamation projects such as reclamation of Osaka Bay for obtaining extensive paddy fields, reclamation of Singapore and Boston due to urban expansion, and reclamation of Kansai and Hong Kong International Airport for developing transportation infrastructure. However, the purpose of coastal reclamation projects in many cases in Indonesia does not relate to meeting essential needs, such as agricultural expansion, industrial development, transportation, and urban development (Ruesink and Wu 2004). The main purpose of coastal reclamation projects is to obtain cheaper and more accessible land for business uses, such as commercial centres and tourist areas, as shown in Figure 1(b). Compared to any ideal purposes for coastal reclamation projects which are responsive to limitations of space and the excessive growth of population, the reclamation projects in Indonesia seem to be significantly different.
Figure 1 The reason and purpose of coastal reclamation projects (a) in general (b) in a number of reclamation projects within Indonesia

The business orientation of coastal reclamation projects can be shown in the case of Pantai Kapuknaga Reclamation Project in Tangerang, in the northern area of Jakarta. The intention to filling Pantai Kapuknaga is motivated by the acquisition of low priced land for housing and other purposes (Firman, 1997). The purpose of the Kapuknaga reclamation project reveals the process of land conversion which tends to be economically motivated and speculative, and uncontrolled by land permits and legal enforcement.

The purpose of coastal reclamation projects does not compare favourably with the cost of environmental loss and the benefits gained by the business aspects of these projects. The purpose of coastal reclamation in Kapuknaga Reclamation Project, for instance, has seen the disappearance of 2500 ha of coastal lagoons, 1160 ha hectares of paddy fields, 220 ha of settlements, 120 ha of mixed gardens, and 4000 ha of sea including mangrove forests, and 75,000 inhabitants (Firman, 1997). These costs should be considered as environmental costs, which have important implications for the scale of the reclamation projects and optimal location (Montenegro et al., 2005).

As shown in Table 1, the purpose of coastal reclamation projects should be a balance between the cost of the social, economy, and environmental impacts and benefits obtained from the utilization of coastal reclamation area. Furthermore, the purpose of coastal reclamation projects should ensure that that newly reclaimed land is productive, is not for speculative uses, and is used for the expansion of urban space (Montenegro et al., 2005).

Table 1
List of benefit and cost obtained from coastal reclamation projects in Indonesia

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>• investment of malls, shopping centres, beach resorts, hotels, and offices</td>
<td>• destruction of marine life (Adeel and King, 2002)</td>
</tr>
<tr>
<td>• Incomes for local government</td>
<td>• potential liquefactions and settlements (Sengara, 1998).</td>
</tr>
<tr>
<td>• Create new employments</td>
<td>• cultural change of fisher community, forced evictions, closed public access to beaches (Woinarski, 2002)</td>
</tr>
<tr>
<td>• Boost economic growth</td>
<td>• unemployment among fisher communities (Ginting, 2001)</td>
</tr>
<tr>
<td>•</td>
<td>• potential Tsunami destructions (the Ecologist, 2006)</td>
</tr>
</tbody>
</table>
3. RESULTS AND DISCUSSION

Lack Of Socio-Economic Impact Assessment

Coastal reclamation projects in Indonesia usually just emphasise the assessment of environmental impact rather than more comprehensive measurement of the socio-economic impact. Therefore, coastal reclamation projects can only minimise the ecological impact and may fail to reduce the cost of the social economic impact. The cost of the socio-cultural impact is often uncounted and an abstract value and should be taken into account in assessing the impact of coastal reclamation projects.

An example of lack of social-economic impact assessment is revealed in the case of Bali Turtle Island Development (BTID) project. In the BTID case, the lack of social-economic impact assessment has led to severe social impacts such as Human Rights violations in terms of forced evictions, disturbance of Balinese temple, change of culture and land values, social conflict, and isolated communities (Woinarski, 2002). In addition, the BTID project has reduced the productivity of coconut farming, fishing, and transportation by small boats.

In another case, the Manado Malalayang reclamation project, the coastal reclamation project has resulted in social conflicts between local fishers and the developer, and between the developer and landlords in the coastal area (Ginting, 2002). The Manado Malalayang project has forced fishers to lose the achievable catchments areas, and the anchoring areas for their boats. The Manado Malalayang project has also closed access to the beach, and violated communal rights in terms of coastal scenery and services (ibid, 2002).

Ideally coastal reclamation projects in Indonesia could reduce the social-economic impact if such projects had schemes, not for assessing environmental impacts, but for analysing all parts involved directly and indirectly in the projects, and for estimating the conflicts which would arise. Such schemes have been applied in the case of Port Curtis in Central Queensland Australia. By undertaking a stakeholders’ analysis and social mapping of conflict management, the Port Curtis projects have achieved better decisions which cover all interests of stakeholders (Jennings and Lockie, 2002).

Ineffective Environmental Impact Assessment As A Formal Procedure

Coastal reclamation projects in Indonesia use Environmental Impact Assessment (EIA) to answer all questions in relation to potential impact of the project. However, EIA procedures have not been effective in protecting natural resources (Briffett et al., 2003).

In general, the EIA scheme is not comprehensive enough to cover all aspects which should be regarded in environmental assessments. In terms of scope, the EIA scheme does not take account small-scale projects even though their impacts may be significant over time (Abaza, et al. 2004). Otherwise, in terms of its application, the EIA scheme has poor integration of biophysical environmental impacts with social, economic, and health effects. Their reports are not easily understood by governments and the public due to their technical complexity and length, and inadequate technical and managerial capacities in implementation of EIA (ibid 2004).

Based on these ineffective EIA schemes in Indonesia, it is necessary that a Strategic Environmental Assessment (SEA) should be introduced. Even though the SEA is still debated in relation to its scope and methodology, it is the SEA which can overcome potential problems caused by the EIA. The SEA is more comprehensive and integrated, as shown in Table 2 below.

Table 2
A comparison of Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA)
(Adapted from UNEP, 2002)

<table>
<thead>
<tr>
<th>EIA</th>
<th>SEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes place near the end of decision-making cycle: aims to minimise impacts</td>
<td>Takes place at earlier stages of decision-making cycle: aims to prevent impacts.</td>
</tr>
<tr>
<td>Reactive approach to development proposal.</td>
<td>Pro-active approach to development proposals.</td>
</tr>
<tr>
<td>Considers limited number of feasible alternatives</td>
<td>Considers broad range of potential alternatives</td>
</tr>
<tr>
<td>Limited review of cumulative effects.</td>
<td>Cumulative effects assessment is key to SEA</td>
</tr>
<tr>
<td>Emphasis on mitigating and minimizing impacts</td>
<td>Emphasis on meeting environmental objectives, maintaining natural systems</td>
</tr>
<tr>
<td>Narrow perspective, high level of detail</td>
<td></td>
</tr>
<tr>
<td>Well-defined process, clear beginning and end</td>
<td>Broad perspective, lower level of detail to provide a vision and overall framework</td>
</tr>
<tr>
<td>Focuses on standard agenda, treats systems of environmental deterioration</td>
<td>Multi-stage process, overlapping components, policy level is continuing, iterative</td>
</tr>
<tr>
<td>Focuses on sustainability agenda, gets at sources of environmental deterioration</td>
<td></td>
</tr>
</tbody>
</table>
4. CONCLUSION

Based on severe social, economic, and environmental impacts which have occurred in many cases, the coastal reclamation projects pose economic problem, lack of socio-economic impacts, and the ineffective assessment scheme of the EIA. To overcome such problems, strategic Environmental Assessment can be regarded as a complement to projects where the scheme of EIA is undertaken to integrate environmental consideration and alternatives directly into policy, plan and program design (Abaza et al., 2004). Furthermore, the SEA can be an alternative instrument in coastal reclamation projects towards sustainability development.

5. REFERENCES

Woinarski, L. (2002). The Island of Serangan: The Impact of Economic Development on Environment and People, Australian consortium for in country Indonesian studies (Acicis), Murdoch University, Australia