International coastal cleanup application at local marine area as an environmental solution

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Abstract

The International Coastal Cleanup (ICC) is an international campaign for international communities and marine environment. This annual action engages schools, government agencies, and business as volunteers to conduct local cleanup event. One of the ICC’s primary goal is to record and to trace marine pollution and its sources over the world. The method was divided into three main steps. First of all, preparation was needed in order to organize the action such as surveying the appropriate site and inviting volunteers or participants. Second, during the event, the participants were divided into several smaller groups including their Data Card for recording marine pollutants. All action materials such as plastic bags and gloves were also important to be given to the participants for collecting the debris. Last, after the action, each bag was weighted and recorded into the data card. Data analysis from each card was the final step of ICC. This application method shows its importance and solution the marine environment.

Keywords: marine debris, Sindangkerta beach, environment, plastic bags.

Introduction

Indonesia’s geographical location (situated at equatorial latitudes between the Southeast Asia and Australian land masses and at latitudes between the Pacific and Indian Oceans) places it in a position to be known as the Maritime Continent, which has coastline for about 81,000 km. Indonesia’s coastlines are recognized as the best coastline in the world which has familiar beaches and marine tourism such as Pangandaran Beach, Palabuhanratu Beach, Kuta Beach, Sanur Beach, etc. All that coastline sites attract many tourist not only local but also international tourists. The situation is potentially raising environmental issues such as marine and coastal pollution (Hutabarat & Evans, 1987; Dahuri, 1999).

The other local tourist sites which have environmental problem are Pameungpeuk and Sindangkerta Beaches, which are located at southern part of West Java Province (Handaka et al., 2007; Awaluddin, 2011). Based on Awaluddin (2011) survey, tourist and local people at Sindangkerta Beach have concern at marine litters, but they do not know the appropriate method to clean up the beach.

Many surveys have been conducted all over the world and have been recorded for about past 25 years (Ocean Conservancy, 2011). According to Hall (2000), previous surveys have been identified four main sources of litter; recreational tourists to the coast, shipping, fishing and sewage outfalls. As far as author aware, there are limited marine litter surveys in Indonesia, especially in local marine tourist area.

The cleanup campaign is needed in order to clean up hazardous marine debris, endangered pollution to the wildlife and human life, and dirty scenery beach at the beach. The International Coastal Cleanup is the familiar campaign to clean up the beaches in the world (Ocean Conservancy, 2011; Awaluddin, 2011). Application in local coastal site would be interesting to solve the environmental issues.

Materials and Methods

International Coastal Cleanup (ICC) method was used to assess marine litter in the Sindangkerta Beach as an example of local tourist site. Some materials are needed in order to support this method such as ICC’s data card, trash bag, cloves, weigh meter, and logistics.

Technically, all participant were divided into small groups consist of five persons. Each group was supplied by required materials above including ICC’s data card, which is the standard form for recording marine debris. Every volunteer were picking up marine litters they found and record it into the card. Collected trash bags were weighted and recorded into the card. Finally, the card was analyzed together with Ocean Conservancy organization.

Results and Discussions

There are three steps in this implemented ICC method. First of all, preparation is needed in order to obtain detail problem of the beach location.
including mapping of marine debris area. The area was decided along the coast of Sindangkerta Village tourism site for about 500 meter. This site has been identified as the center of local tourism and has a serious marine litter problem. This area was divided into ten main cleanup points for each volunteer group to pick the debris. Inviting volunteers also important part to gain more than 40 people consist of local peoples, tourists and local government, which known as ‘Dusun’ in local language.

Second, during the cleanup event, each group was spotting each cleanup point and was starting to pick the debris. All debris were collected into trash bag and recorded into the card based on the debris classification. The results show that the recreational sources was the main debris in that area for about more than 2800 items consist of straws, plastics, etc, as shown in Figure 1. This result gives strong indication that this tourist area is impacted by tourist activity such as plastic bags, straws, spoon and forks, etc. Smoking related activity sources also found for about 348 items such as cigarette butts, filter, and lighter. This indicates that tourist or local people’s smoking related activities show significant number. This is in agreement with the report of Ocean Conservancy (2011) that shows the smoking related activities are the most item found all over the world for about 25 years. The complete top ten of marine debris collected during ICC shown in Table 1. Meanwhile, dumping related activity and local debris that found in the area are fewer than the others.

![Figure 1](image-url) Marine debris classification at Sindangkerta Beach.

The last activity is post-event or campaign. This is including further analysis together with Ocean Conservancy organization. All the data will be included in their international annual report of Coastal Cleanup from all over the worlds.

Through this campaign, we can track some marine debris and their potential pollution to the local beach. Therefore, we can advise and give a notice to the government as a policy maker to pay attention to this local tourism beach.

Table 1 Top ten items over 25 years (Ocean Conservancy, 2011).

<table>
<thead>
<tr>
<th>No.</th>
<th>Marine Debris</th>
<th>Number of Items (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cigarettes</td>
<td>52.9</td>
</tr>
<tr>
<td>2.</td>
<td>Food wrapper</td>
<td>14.7</td>
</tr>
<tr>
<td>3.</td>
<td>Caps, lids</td>
<td>13.5</td>
</tr>
<tr>
<td>4.</td>
<td>Cups, spoon, fork</td>
<td>10.1</td>
</tr>
<tr>
<td>5.</td>
<td>Plastic beverage</td>
<td>9.5</td>
</tr>
<tr>
<td>6.</td>
<td>Plastic bags</td>
<td>7.8</td>
</tr>
<tr>
<td>7.</td>
<td>Glass bottle</td>
<td>7.0</td>
</tr>
<tr>
<td>8.</td>
<td>Beverage cans</td>
<td>6.7</td>
</tr>
<tr>
<td>9.</td>
<td>Straws</td>
<td>6.2</td>
</tr>
<tr>
<td>10.</td>
<td>Rope</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Conclusions

We can conclude that application of The ICC method is useful and important to solve environment problem such as marine litter or marine debris in local tourist sites. Three main steps implementing the ICC: preparation before the campaign or pre-campaign, during the campaign and post the campaign.

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References


