Carrying capacity of Peucang Island for ecotourism management in Ujung Kulon National Park

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Abstract. Peucang Island is one of island in Ujung Kulon National Park (UKNP), appointed as priority area and welcome area for tourism. This research aimed to calculate the carrying capacity of Peucang Island for ecotourism development (Study sites of this research are Karang Copong jungle trail and 8 sites of Peucang's beach). This research used observation method (wildlife exploration, measure the length of jungle track, and measure 10 parameters of beach), literature study and interview method to collect data. The data of jungle track analyzed use Cifuentes’s formula. The result showed that Karang Copong jungle trekking had 20,000 visitors/day for Physical Carrying Capacity (PCC), 4,838 visitors/day for Real Carrying Capacity (RCC), and 6 visitors/day for Effective Carrying Capacity (ECC). Observation of biological aspect showed that there were some damages of vegetation along the track, and the changes in animal behavior. The data of beach carrying capacity analyzed use Yulianda’s formula that measured with the suitability map approach. Based on the suitability map, two beaches were classified in suitable category, while six beaches were classified in highly suitable category for tourism activities. All of the beaches had different number of carrying capacity, specifically there are 70 visitors/day in highly suitable beach and 27 visitors/day in suitable beach. The number of visitor nowadays still not exceed from carrying capacity number of PCC, RCC of jungle trails and carrying capacity of the beach area, but the number has exceeded from the ECC numbers.

1. Introduction
Peucang Island is the one of island in Ujung Kulon National Park (UKNP) that has a managed accessibility, and facilities, and as welcome area for tourism visitor. Accessibility to go to Peucang Island reachable via sea travel (boat fast / slow boat) and takes about 2-6 hours of Carita or 3.5 hours from Labuan by slow boat, and 3 hours from Tamanjaya [1]. Physical and biological objects of natural resources in Peucang Island become a tourist attraction that can be utilized for ecotourism development in UKNP. Objects tourist attraction in Peucang include white sand and blue sea water for coastal tourism activities, and the attractions of wildlife such as wild boar, deer, and the long-tailed monkeys are often found around Karang Copong jungle trekking trails. The number of visitors increased since 2011 until 2015. Tourist activities in the protected area have a direct and indirect impact on the natural environment, as it relates to the growth in the number of visitors that can affect ecological integrity [2]. The increasing of visitor number should be considered to keep the natural sustainability in UKNP, then controlling and management of natural resources should be done effectively. Carrying capacity concept is the one of basic for sustainable concept to protect and develop area. Peucang Island as the one of priority area for ecotourism development in UKNP should be managed to keep the sustainability of natural resources which as tourism object are Karang Copong Jungle track and Peucang Beach area. This research aimed to calculate the carrying capacity of Peucang Island for ecotourism development. This study calculated the carrying capacity on Peucang
Island in study side are Karang Copong jungle trails and beach by using the physical aspect, biological, social and management.

2. Methods

2.1 Study Sites
Peucang Island is located in the northwest of the island of Java, in Sumur and Cimanggu District, Pandeglang with an area of ± 450 Ha. It takes 2-6 hours by slow or fast boat from Carita, 3.5 hours from Labuan, and 3 hours by slow boat from Tamanjaya to Peucang Island. This research was carried out at 9 study site, which are Karang Copong jungle trails and 8 beaches point around the Peucang Island.

2.2 Materials and Tools
This research used tourism map of Peucang Island, tally sheet, measuring tape, camera, GPS (Global Positioning System), sechhi disk, interview guidance and used ArcGIS 10.3 software to make wildlife encounter map and suitability map for beach areas.

2.3 Data Collection

2.3.1 Karang Copong Jungle Trails
We collected the data of physical, biological, social, management aspect. We used field observation to collect the data of biological aspect. We explored the diversity of flora and fauna around the track and 10 meters in the right and left side from the track. Flora observation, we listed the dominant species and the damage of flora around the track by tourism activities. Fauna observation, we listed the species, the quantity, activities, and time. It used the assumption that we did observation when a track was empty and when tourism activities took a place in a track. We marked the point where we found all the animals with the GPS to make wildlife encounter map. Then physical aspect, the data that collected were the length and width of the track, land slope, dan type of soil by measured. The data used to count PCC and RCC. For social aspect, the data were amount of visitor number, group, visitors in a group. Management aspects, the data were amount of staff and management. The data of social and management aspect collected by interviewed to visitors and manager.

2.3.2 Peucang Beach.
We used biological and physical aspects as parameters to categorize the suitability of the beach areas for tourism development. Biological aspects, we used field observation to collect dangerous marine species which could be hazardous for beach tourism activities. Physical aspects, we also did field observation to determine the condition of some aspects such as the type of beach, wide beaches, water base material, the slope of the beach, the beach land cover, depth, current speed, wave height, water transparency and the availability of fresh water. All parameters has each score that according to matrix of land suitability for recreational beach tourism category [3]. The score used to count tourism suitability index (TSI), then we categorize the area by TSI score.

2.4 Data Analysis

2.4.1 Carrying capacity of Karang Copong Jungle track
It was analyzed by Cifuentes’s formula [4]. There are three kind of carrying capacity number which are physical carrying capacity (PCC), Real Carrying Capacity (RCC) and Effective Carrying Capacity (ECC).

2.4.1.1 Physical Carrying Capacity (PCC)
PCC is defined as the maximum number of users that can physically fit into, or onto, a specific area.

\[ PCC = A \times \frac{V}{a} \times Rf \]
A  : Available area for public use (trail distance)
\( U_a \) : Area required per user to walk comfortably (1 visitor per m²)
Rf  : Rotation factor (number of visits/day).

In order to measure PCC, the following assumptions were done:
- Horizontal space required to allow people to move freely on the trekking path that is 1 visitor / m²
- Size available (A) is determined by the particular circumstances at the sites. Limitation of space for trekking path indicated by the size of tour groups and the required distance between the groups.
- Rotational Factor (Rf) is the daily number of visits allowed to a location

\[ Rf = \frac{\text{Open Period}}{\text{Average time of visit}} \]

2.4.1.2 Real Carrying Capacity (RCC)
RCC is the maximum allowable number of users to the Karang Copong jungle trails, once the correction factors (Cf) derived from the particular characteristics of the site have been applied to the PCC. For the calculation of RCC, PCC was modified by a series of correction factors, such as precipitation (Cf 1), ground slope (Cf 2), the sensitivity of the soil (Cf 3) and social (Cf 4).

\[ \text{RCC} = \text{PCC} \times \frac{100-\text{Cf}_1}{100} \times \frac{100-\text{Cf}_2}{100} \times \frac{100-\text{Cf}_3}{100} \times \frac{100-\text{Cf}_4}{100} \]

To measure RCC, the following assumptions must be done:
- The correction factors are obtained by considering the environment, biophysical and social factors.
- These factors are closely linked to the specific conditions and characteristics of each site or activity.
- Cf is expressed as follows:

\[ \text{Cf}_n = \frac{M_n}{M_t} \times 100\% \]

Mn : limiting magnitude of variable
Mt : total magnitude of variable.

2.4.1.3 Effective Carrying Capacity (ECC)
ECC is the optimum number of tourists so that the area can hold based on consideration of the Manager. To find out the value of the effective support resource [4]. ECC calculations are as follows:

\[ \text{ECC} = \frac{\text{IC} \times \text{MC}}{\text{RCC}} \times 100\% \]

ECC : Effective Carrying Capacity
MC : Management capacity
RCC : Real Carrying Capacity
IC : Infrastructure Capacity.

2.4.2 Suitability index and carrying capacity of beach
It was analyzed with tourism suitability index approach and after know where the beach that categorized as highly suitable and suitable, the carrying capacity would be counted.

2.4.2.1 Suitability of tourism analysis
The formula that is used for recreational beach tourism suitability Yulianda’s formula [3] as follows:

\[ \text{IKW} = \sum \left( \frac{N_i}{N_{\text{max}}} \right) \times 100\% \]

where TSI: Tourism Suitability Index, Ni : Parameter score, Nmax: Maximum score of tourism category. Nmax score for recreational beach tourism is 84. The suitability category which are highly suitable (75-100%), suitable (50-<75%), conditional suitable (25-<50%), and not suitable (<25%) [3].
We mapped beach areas that included as highly suitable and suitable category. Those area will be recomended to UKNP as recreational beach tourism area.

2.4.2.2 Carrying capacity of beach
The formula that is used to analysis is Yulianda’s formula [3] as follows:

\[ DDK = K \times \frac{Lp}{Lt} \times \frac{Wt}{Wp} \]

where:
- \( CC \) : Carrying Capacity
- \( K \) : Ecological potential of visitor per area unit (person)
- \( Lp \) : Length of area for tourism activity (1 person/m\(^2\))
- \( Lt \) : Length of area for a person (meters)
- \( Wt \) : Time period in one day (hours)
- \( Wp \) : The time spent for each activities (hours).

Ecological potential visitors (K) is determined by the condition of ecological resources and the types of activities that will be developed. According to Yulianda [3], K score is 1, and Lt is 50 meters. It means that 1 person need 50 meters of length of beach.

3. Results and Discussion
Peucang island has a very unique ecosystem with a wide diversity of plants and satwalian so it was referred to as a miniature of tropical lowland rainforest in Ujung Kulon National Park. The object of attraction which are Peucang island that has a white sand beach, Karang Copong, kiara, wildlife diversity such as deer (Cervus timorensis), wild boar (Sus scrofa), long-tailed monkeys (Macaca fascicularis), and various types of bird, in addition there are coral reefs and marine life that became an object of attraction for snorkeling and diving activities in some spots [1]. Management based on carrying capacity is an effective management. According to Wearing and Neil [5], carrying capacity determine by depending on the season, time, some factors such as the visitors behaviours, facilities design and management, the dynamic characteristics of the environment, and changes the behavior of the local community. There are three important aspects of carrying capacity i.e. biophysical, social, and cultural facilities related to visitor experience.

3.1 Karang copong jungle trails
There are two types of carrying capacity. At first we count number of carrying capacity based on physical, social and management aspects, and we also describe carrying capacity based on biological aspects.

3.1.1 Carrying capacity based on physical, social, and management aspects

3.1.1.1 Physical Carrying Capacity (PCC)
The calculation of PCC or physical carrying capacity aims to calculating the maximum number of visitors who can physically meet a predetermined space, at a certain time [4]. PCC value calculation results in Table 1 indicates that the line can accommodate as many as 20 000 visitors in one day.

| The area of track (hectare) | Average time of visit (hours) | Open period (hours) | Area required per user (m\(^2\)) | Rf | PCC (Visitors/day) |
|---------------------------|-----------------------------|-------------------|---------------------------------|----|-------------------|
| 3                         | 1.5                         | 10                | 1                               | 6.67 | 2000              |
3.1.1.2 Real Carrying Capacity (RCC)

RCC used four correction factors in calculating the value consisting of the precipitation (CF1), land slope (CF2) and soil sensitivity to erosion (CF3), and social (CF4). Correction also used by Ortega et al [6] in his research in calculating the value of the real carrying capacity of tourist Marietas Island in the Gulf of California that has been designated as National Parks using a correction factor, namely erodibility environment, accessibility, rainfall, floods, biological and vegetation. And Lucyanti [7] in her research used biophysical aspects are considered as a limiting factor of environmental support resources include: precipitation (Cf₁), kelerengan (Cf₂), erosivitas (Cf₃), vegetation (Cf₄), and bird fauna (Cf₅). The results of analysis of the four correction factor was found that each correction factor has a value which is then used in the calculation of the value of RCC. Precipitation correction factor (CF1) is values obtained by calculating the correction factor index values of precipitation in Peucang Island. Based on data from Meteorology and Geophysics Agency (BMKG), Pondok Betung Climatology Station found that the monthly precipitation in Pandeglang district is dominated by the wet months of precipitation value was over 100 mm, whereas in humid (60-100 mm rainfall value) most rare occurred during the year 2012 to 2016. The results of the precipitation correction factor (Cf1) in the calculation of the value of the RCC is 0.84.

Peucang topography is generally flat with a slope of 0-8% and some small ramps with a slope of 8-15% and undulating with a height of 0-17 m above sea level. Based on field observation results obtained reef slope trekking path Copong (CF2) tend to be flat. Results of the analysis conducted using ground slope index by decree. Minister of Agriculture No. 837/KPTS/UM/11/1980 obtained a flat slope is a first class number of land slope that has score 20. Subsequent analysis results is the score of land slope correction factor (Cf2), whereby a flat trekking has a score of 20, so that the obtained score of 0.80 (Cf2).

Soil sensitivity correction factor we used the data of soil types. Based on the type of soil maps Banten province that Peucang composed of alluvial soil types. Alluvial soil formation process depends on the origin of soil parent material factors and topographic factors [8]. By decree of Minister of Agriculture No. 837/KPTS/UM/11/1980, alluvial soil type is one type of land belonging to class 1 soil classification based on the level of sensitivity. Class 1 level is a type of soil which is not sensitive to erosion. The types of soil found along the path of trekking in the form of alluvial soil types that included the grade 1 soil type has a score is 20, and then the score of the Cf3 is 0.80.

Social correction factor (CF4), the results obtained from observations that the average number of people in a group that is 15-30 people. The number of visitors to each of the groups has been managed, 10 people for each the groups, and the distance of time for each of the groups is 30 minutes. Queiroz et. al. [8] explained that considerations of distance used each troupe is 250 meters with a total of 15 people in each group. Based on the data of visitors number (2016), the highest number of people visitors occured at August (999 visitors), and the lowest number of visitors occur in March (214 visitor) (figure 1). All the aspect of social correction factor counted, then correction factors social (Cf4) has a score is 0.55.

![Figure 1. The number of reservation.](image-url)
The results of RCC calculation is 4,838 people/day which is about 24.19% of the value of the PCC as shown in table 8. RCC will be lower than PCC because of a RCC value derived from the results of PCC has been reduced by the correction factors that influence as limiting factor [7].

Table 2. Real carrying capacity.

| PCC (visitor/day) | Cf₁ | Cf₂ | Cf₃ | Cf₄ | RCC (visitor/day) |
|-------------------|-----|-----|-----|-----|------------------|
| 20 000            | 0.84| 0.80| 0.80| 0.55| 4 838            |

3.1.1.3 Effective Carrying Capacity (ECC)

ECC considered by availability of capacity management (Management Capacity/MC) and infrastructure capacity (IC/Infrastructure Capacity). Management capacity obtained by knowing the number of staff, and the number of staff needed for effective management. According to Lucyanti [7] increased capacity of the officer Manager in serving visitors need to be supported by capacity management based on variables such as the basic law, policies and regulations, equipment, personnel, financing, infrastructure and facilities. The number of human resources (HR) in Peucang Island resort are eight people assessed is still not adequate when the number of visits increased at certain times such as weekend time, and peak seasons. They need three more personnel assessed to improve the management of ecotourism, and it would be more effective. The results of the calculation of the MC (Management Capacity) that the value of 80%. The results of the calculation of the IC, namely by 20. The value of MC and IC who have obtained and then multiplied and divided by the value of the RCC 5,376, so it brings the power of effective support (ECC) for 6 as shown in table 3.

Table 3. Effective carrying capacity.

| Open period (minutes) | Time to through the track (minutes) | Number of trail | The main manager | Bussines lisence holder | IC | ECC (visitors/day) |
|-----------------------|-------------------------------------|-----------------|------------------|------------------------|----|-------------------|
| 600                   | 90                                  | 1               | 1                | 1                      | 20 | 6                 |

Sari [10] also researched about carrying capacity in mangrove forest in Sari Ringgung beach. Carrying capacity of mangrove trail in Saring Ringgung beach is 87 visitors/day, that is lower than PCC and RCC but more than ECC of Karang Copong jungle trail. Sari only use the biological aspect which are the species of bird and mangrove to count the carrying capacity because those were as the tourism attraction there. Total of Peucang Island visitor numbers at 2016 are 6 261 people. The average were 522 visitors per month or 17 visitors per day. That number visitor still lower than PCC and RCC, but has exceed ECC. The number of visitors in a protected area should be noted because of the growth in the number of visitors can affect to ecological integrity [2].

3.1.2 Carrying capacity based on biological aspects

3.1.2.1 Plant Conditions

The damage found in plants which are around line trails that were broken, plants saplings in addition plastic waste such as drinking bottles and glasses of mineral water as well as other items such as sandals were found on the trail. The damage caused by the behavior of visitors broke and trampling saplings that grow around the trail to avoid the slippery track and waterlogged. Wearing [5] describes the trampling of tourist activity on vegetation can cause bad impact for the vegetation such as damage and wounds on the network, the reduced power and vigor regeneration plants, loss of land as well as the cumulative impact of closure that can occur is a change in the composition of species where only species with high resistant power able to survive in areas that received pressure from tourist activities.

3.1.2.2 Wildlife condition

Wildlife observed on the time when the trails is assumed to be empty. There are ten species of wildlife found around the trail that mapped shown in figure 2. We marked the point where we found the animals with GPS, then mapped as wildlife encounter map used ArcGIS 10.3. The wildlife encounter
map will help manager to develop ecotourism program which is animal watching program. The ecotourism should consider where is the area that the wildlife use for their activity, then the manager can set the facilities which is like canopy trail that will not be disturb the wildlife activity, and visitor also can watch animal behaviour in the wild.

![Wildlife Encounter Map in Karang Copong Jungle Trails, Ujung Kulon National Park](image)

**Figure 2. Wildlife encounter map.**

Based on the results of observations made that reduction occurring type of wildlife that is found when an increase in the number of visitors on the track. A reduction in the number of types of wildlife can be caused by voice disturbance from the activities of visitors while on the trail. The observation result in table 4 can be explained that visitors will find species most numerous when the number of visitors as many as 1-10 people. So the number of visitors to this class is appropriate for visitors expected the diversity of species of wildlife around line trail as the main attraction.

**Table 4.** Species that are found on the class number of visitors.

| The number of visitors | The number of wildlife species | Species |
|------------------------|-------------------------------|---------|
| 1—10                   | 6                             | Deer, wild boar, peacock, lizard, hornbill, long-tailed monkey |
| 11—20                  | 3                             | Deer, wild boar, long-tailed monkey |
| 21—30                  | 2                             | Deer, long-tailed |
| 31—40                  | 1                             | Deer |

There are some bad impact to wildlife. Wildlife behavior change has occurred as feeding behavior on wild boar, deer and long-tailed monkeys. Based on the results of observations made that look a few monkeys feeding around visitors hostel, deer are also seen eating junk, and the wild boar which ate the amenities. Rabbany [11] explained that the activity of visitors can cause changes in patterns of feeding behavior and eating habits directly and indirectly. Wildlife’s diet can be changed directly due to the activity of feeding by visitors, and indirectly because of littering that effect wildlife to searching for food at dump. The long-tailed monkeys is now more aggressive. The long-tailed monkeys become more daring to take the food directly from visitors. According to Djuwantoko [12] that long-tail monkeys will be increasingly unattractive to become tourism attraction, if visitors are increasingly alarmed by the aggressive behavior of monkeys.

3.2 The suitability index and carrying capacity of beach

The beach carrying capacity on Peucang Island was analyzed by tourism suitability index (TSI). Calculation of the TSI can describes the category of the suitability of each location, and mapped into spatial map of suitability. It show the spatial locations of the beach on the island of Peucang that could
developed for tourism activities. Then we count the carrying capacity at eight study site shown in figure 3.

![Study Site of Peucang Beach for Tourism](image)

**Figure 3.** The study site for beach.

### 3.2.1 The suitability of resources for beach tourism

The results of tourism based on the suitability assessment index that used 10 parameters (biological and physical aspects) is 8 coastal location on the island of Peucang IKW has value for coastal recreational activities. It will be different if we count the TSI for marine tourism like Ketjulan [13] researched in Hari Island. He used 6 parameter, which are the brightness of the waters, cover of the reef community, types of life forms, types of reef fish, current speed, and depth of coral reefs [13]. Based on the classification of suitability with TSI that those are 2 locations that include suitable category and 6 categories include location highly suitable for beach recreation activities (table 5). Location 3 is the location that has the highest level of suitability than the seven other locations i.e. amounting to 94%. While the location 8 be the location that has the lowest value of the TSI. Parameters of became the dominant parameter of location 3 that lead location 3 as a location has a high TSI score are because it has the most extensive beach width, type of basic material in the form of white sand waters, as well as the location of the 3 is the beach closest to the source fresh water. While the dominant factor that affects location 8 has the lowest TSI, because it has the material basis of the waters in the form of sand and coral, the location of the most current speed 8 has great distance and a source of fresh water that is very far from the beach.

### 3.2.2 Carrying capacity of peucang beach.

The result of the assessment of Tourism Suitability Index that six location categorized as highly suitable and two beaches that are suitable shown at figure 4. Carrying Capacity of the eight location also should be assessed because according to Wunani [14] assessment of a carrying capacity is considered important because to know the maximum number of visitors that can fit in 1 day tour activities in order not to be cause interference both of visitor and the environment, so the utilization of sustainable coastal tourism. We mapped the beach area as highly suitable or suitable for beach recreational tourism depend on the TSI score that we count used 10 parameters.
Table 5. Tourism suitability of Peucang Beach.

| Location | Total Parameter Score | TSI   | Suitable Category  |
|----------|-----------------------|-------|--------------------|
| 1        | 61                    | 73%   | Suitable           |
| 2        | 74                    | 88%   | Highly Suitable    |
| 3        | 79                    | 94%   | Highly Suitable    |
| 4        | 74                    | 88%   | Highly Suitable    |
| 5        | 69                    | 82%   | Highly Suitable    |
| 6        | 71                    | 85%   | Highly Suitable    |
| 7        | 68                    | 81%   | Highly Suitable    |
| 8        | 57                    | 68%   | Suitable           |

Figure 4. Suitability Map of Peucang Beach.

Beach Carrying Capacity calculated using several parameters such as the ecological potential visitors per unit area (K), long beach that utilized (Lp), the unit area for a specific category (Lt), the time provided for in a single day (Wt), and the time spent for each visitor activity (Wp). The other parameters in the form of the ecological potential visitors per unit area (K) it is assumed that one person using a length of 50 m beach for beach recreation activities. Yulianda [3] states that the average use of time for recreational beach is 3 hours. The time available to perform the activities of shore excursions for 10 hours. Carrying capacity of eigth location shown in table 6.

Location 5 has a lowest number of carrying capacity i.e. by 1 person, while location 7 has the highest number of carrying capacity i.e. 23 people. Based on observations on the visitors that every visitor who comes to Peucang Island will do such beach recreation enjoy the beautiful beaches of Peucang, enjoy views of the Ujung Kulon Peninsula, swim, sunbath on the beach and photo session. Total numbers of beach carrying capacity in Peucang Island i.e. 97 people per day. That number is far from the average number of visitors per day by 17 people per day. So Beach Peucang is still capable of accommodating the larger number of visitors with extent carrying capacity which has been obtained. The number of visitor on the beach should be considered by rotation factor as corection factor to count carrying capacity of the beach, because although amount of tourist can fit in at the beach, reality shows a different situation, because as the number of beach tourist increases, visitor feel that the destination is losing quality [15]. Based on observations made against interview to visitors that there are some things that also need to be taken care of to ensure your comfort and safety related visitors with support for peak season. The existence of the ship which rests lined around the
dock rated reduce the comfort of visitors do swim around the beach. In addition the visitor from plastic waste found at the base of the waters is also a threat Peucang Beach sustainability.

Table 6. Carrying capacity of Peucang Beach.

| Location | K | Lp (m) | Lt (m) | Wt (Hours) | Wp (Hours) | DDK |
|----------|---|--------|--------|------------|------------|-----|
| 1        | 1 | 192    | 50     | 10         | 3          | 13  |
| 2        | 1 | 23     | 50     | 10         | 3          | 2   |
| 3        | 1 | 306    | 50     | 10         | 3          | 20  |
| 4        | 1 | 61.85  | 50     | 10         | 3          | 4   |
| 5        | 1 | 11.3   | 50     | 10         | 3          | 1   |
| 6        | 1 | 310    | 50     | 10         | 3          | 21  |
| 7        | 1 | 340    | 50     | 10         | 3          | 23  |
| 8        | 1 | 212    | 50     | 10         | 3          | 14  |
| Total    |   |        |        |            |            | 97  |

4. Conclusion
The result of carrying capacity based on the physical, social and management aspects consists of three values: PCC of 20 000 people/day, the value of RCC for 4838 people/day and ECC for 6 people/day. Carrying capacity of jungle trail obtained by the biological aspects has been damage to plants around the trail and change wildlife behavior because of visitor activities. Results of the determination of the suitability index of beach tourism that there are six beaches including highly suitable category and two beaches are categorized as suitable category. Peucang Beach carrying capacity of 97 people / day, with 70 people on the beach with a highly suitable category and 27 people on the beach with suitable category. The number of visitor nowadays still not exceed from carrying capacity number of PCC, RCC of jungle trails and carrying capacity of the beach area, but the number has exceeded from the ECC numbers. Management capacity should be developed which is the number of human resources for tourism management in Peucang Island should be more, because it was the one of limitation when visitor number increasing at peak season.

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