Taman Monas Resilience on vegetation due to response to the festival or “Pesta Rakyat”

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Abstract. Merdeka Square, where National Monument stand, is the pride of Indonesia citizen. Many festivals or “Pesta Rakyat,” such as nation ceremonies, religious events, and New Year’s Eve have been held there as determined by government regulations. There are 249 events, including festivals, that were held in year 2018 (source: Utilization of National Monument Area data). Unfortunately, they often cause environmental damage particularly on Taman Monas, the park where vegetation dominates the area. Thus, it charged initial atmosphere and function of the square and restricts people flexibility to spend their leisure time or recreation in there. In the meantime, vegetation refinement takes time. Their recovery depends on the level of damages of the plaza. With the data shown descriptively collected from the results of observations and interviews, this study focuses on Taman Monas resilience, mainly based on the vegetation, which happened due to the festivals. The purpose of this study is to know Taman Monas, as recreation space, resilience on vegetation in the way to response festival or Pesta Rakyat.

1. Introduction

1.1. Taman Monas
Taman Monas is a park which part of Merdeka Square. Merdeka Square is an iconic plaza that describes the spirit of Indonesian during the independence period. With a long history, this square has been existed as early as colonial era. It was called Koningsplein at that time [1]. Even though it changed name and function multiple times, basically that open space is a gathering place for city residents. And then at 1959, National Monument was built at the center of the site which is surrounded by park. Jakarta residents often use that place for picnic, jogging, playing basketball or football. Tourist from other regions even from overseas come to visit it. They go to the National Monument top to get the bird eye’s view over Jakarta, take a photo on the street, and then take a rest on the park. They will sit on the grass and under the tree. They spend most of their time in the park.

In 2017, Governor of Jakarta wanted to turn Merdeka Plaza into a place that can be used for national-scale events [3]. Governor regulation was then amended. Before the change, activities that could be held at Monas were more for formal state events, like ceremony [2]. Now there are more types of festivals or pesta rakyat that can be held in Merdeka Square. It can be culture parade, social service, entertainment, and many more. These kinds of festival gather a lot of people. More than 1 million people gather in 500,000 m² area. Even though the regulations determined that festivals can only be held in the pavement area as shown in figure 1, damage to the park is sometimes unavoidable.
and it will disturb recreation and tourism activity. Moreover, damage to vegetation as living things of the environment, is most likely to happen.

![Figure 1. Merdeka Plaza Site Plan](image)

The purpose of this study is to observe Taman Monas Vegetation Resilience to festivals or *pesta rakyat*. As living objects, when vegetations are damaged, they have ability to recover by themselves. That ability called resilience. Resilience is a system capability to overcoming difficulties and maintaining the system by itself [5]. However, as a place for recreation and tourism, visitor will come daily. It will be harmful for Merdeka Square’s reputation if there are some damages for too long. Visitor will uncomfortable and Taman Monas cannot facilitate recreation and tourism activities anymore. To overcome this issue, public space managers, in this case Taman Monas managers, also have a responsibility to respect and protect user rights, treating all users fairly, maintaining the security of public spaces, maintaining and caring for public spaces, and making open spaces available for free at any time, unless there are conditions that require closure [4]. So, Taman Merdeka resilience, especially vegetation on its park, cannot rely on its own ability to recover and requires Monas manager’s assistance.

2. Literature Review
2.1. Sustainability and Resiliency
Sustainability is usually explained using three interrelated pillars of sustainability, namely the environment, social and economy [6]. These three categories are goals that are very eager to be
achieved even though there are many other types [7]. During the process of achieving it, some aspects are sometimes ignored. These three pillars are a balance that must be maintained in order to achieve sustainability.

Environment should be understood by means of ecology. Ecology is the study of the process of influencing the distribution of organisms, their interactions with and among themselves [17]. Many subdisciplines interpreted knowledge that discussed the physical form of the biotic environment. The concept of ecology in the form of a natural balance [17] makes the ecosystem formed within it has a cycle that will keep it always stable when facing damage or interference from outside or inside.

In the discussion of sustainability, social is related to equity that can also be called justice even though the discussion of its meaning can be more complex [6]. Several meanings of equity, such as the equal opportunity to achieve a potential or can be called justice for some parties to gain profits or losses. Parties here can be between humans, between generations, to between countries [6].

Economics is a science that discusses the principles of production, the use of goods, and wealth such as finance, industry, and trade [15]. The economic system itself is a small-scale interaction that includes consumers and producers, into a larger economy at particular region [16]. Economics emphasizes material benefits so that the whole processes must be as efficient as possible or getting maximum results with minimal capital.

Nature has a life cycle and will work to maintain that cycle. This process is called natural balance [17]. If there is a disturbance that causes an imbalance, nature will try to improve itself. This is related to resilience. Resilience is the ability of the system to eliminate interference and maintain its original structure and function [5]. The higher resilience of an object, the easier for an object to survive from damage.

2.2. Recreation

Recreation is an activity to spend free time and is freely chosen for pleasure [11]. Activities can be in the form of sports, arts, reading, and others. Other than giving pleasure, recreation also provides experiences to fulfil physical, social, and emotional activities [11]. The result of all of these activities depend on age [11].

The design of public space used as a place of recreation, can provide an opportunity to trigger physical activity. Children can use trees to climb, swimming pools and swings to play. Teenagers and adults can use the climbing area to climb, while the elderly can use grass for yoga. In addition to age, the determination of recreational activities depends on the financial ability of each individual. For instance, lower class people might use the park while upper class people can relax into the equestrian arena [11].

2.3. Festival

The word festival comes from Latin, namely festum, which means public happiness and feria which means work holiday for religious affairs [10]. The festival provides social identity and historical sustainability so that it can become the face of a region that owns the festival [10]. Festivals are part of the development of human culture that involves communication and expression of emotions [14]. The festival as an urban scale event [12] strengthens the social identity of its citizens, continues its cultural and historical heritage, and reminds them of their ideology [10].

In the festival, people do things that are usually not done and reverse the patterns of everyday social life [10]. An anthropologist from Belgium [14] also explained that the festival was to strengthen the community by destroying the people's routines to rearrange them. Festivals make people run away from routines, become hedonists and being out of control. Nowadays the festival indeed presents activities that are out of the ordinary [14], but the festival does not become something that destroys the social order to improve it again [14]. Festivals present a different atmosphere temporarily but with decorations that portray the permanent identity of the community [14].

2.4. Vegetation
Landscape elements are classified as softscape and hardscape. Softscape is a natural element such as plants, trees, horticultural elements, and others. While the hardscape is artificial materials such as roads, sidewalks, and others. Softscape types for usage efficiency are used in Jakarta to design landscapes are ground cover plants (for example grass), shrubs, palms (trees from tropical climates that are usually high trunked, straight, and not branched so that they have a low canopy density), bamboo, and shade trees that have broad canopies [13]. The division of species is based on the type of local vegetation that is expected to be used so that it is in accordance with the climate of Jakarta. Softscape are divided into ground cover in the form of grass, hedge in the form of bushes, and trees. So that the palm, bamboo, and shade trees belong to the 'tree' category [8].

3. Method
This study will define vegetation damage level so explaining to park resilience will be easier. Vegetation damage divided into minor damage, moderate damage, and major damage. Minor damage is when daily visitors still can do the activities in Taman Monas like they usually do even though there is some damage. In moderate damage, it starts to make visitors uncomfortable. The density changed. At first, they can have a picnic wherever it is as long it has grass. But when this damage happens, they start to search where the place with fertile vegetation to sit on. The last is major damage. The density changed drastically. The vegetation is too damaged. They choose to do their activity on the pavement area.

4. Results and Discussions
Festival in Merdeka Square that damaged Taman Monas is a large festival with many visitors. Design of Merdeka Square that square with National Monument in the middle of it makes the centre of festival can only be held on one side. It impacts on the density of visitors that also on one side only, as shown in figure 1, from the centre, Merdeka Square has 4 zones of open space. There are Ruang Agung, pavement zone, grass zone, and tree zone. If the pavement zone, where the festival is held, is full, visitors will fill the grass zone followed by the tree zone. This is what makes Taman Monas damaged and makes recreational activities outside the festival day not going well.

4.1. Vegetation damage caused by Festival
This paper analyses the damage of 3 vegetation types that are clearly affecting the park as recreation space. The vegetations are in the form of ground cover, such as grass; hedge, represented by a bush; and tree [8]. Ground cover is where people stand or do activities on it. Bush in hedge serves as a space boundary. People is aware of it, but it does not cover the landscape view. And the definition of tree is a big plant. It has the canopy that shelters people from the sun. It changed space humidity, temperature, and reduce the light that touches earth surface.

The level of vegetation damage in the park is determined by the amounts of visitors who come to the festival. Even though the regulation governs that the festivals are only allowed to be held in a pavement area, it is still possible for visitors to explore Taman Monas. What's more, each festival has an event centre. The visitors will try to find a place to see and better engage in the festival. This often directs the visitor to the Taman Monas. The following is a table of categorization of the damage level that occurs in Taman Monas.
Table 1. Categories of vegetation damage caused by festival

| Aspect         | Minor                                      | Moderate                                 | Major                                      | Source          |
|----------------|--------------------------------------------|------------------------------------------|--------------------------------------------|-----------------|
| Visual         | Soil in grass area can be seen             | Half of grass gone                       | Damaged grass with trashes in Forum Untukmu Indonesia Festival | Observation     |
| Visual         | (Source: own documentation)                | (Source: own documentation)              | (Source: aksi.id)                          |                 |
| Description    | Less than half of it is disappeared        | Half of it is disappeared                | More than half of it is disappeared        | Observation     |
| Grass          |                                            |                                          |                                            |                 |
| Bush           | Less than half of it is disappeared        | Half of it is disappeared                | More than half of it is disappeared        | Observation     |
| Tree           | Not damaged                                | Not damaged                              | Damaged                                   | Observation     |
| Damaged area   | 0%-25%                                     | 25%-50%                                  | >50%                                      |                 |

In minor damage, the vegetation still looks similar like before it was damaged. However, if you pay close attention, the grass grows more tenuous than before. Some parts of the bush also look damaged while the tree does not appear to be damaged at all. Next is moderate damage. In this damage level, the vegetation began to show that damage was taking place. Plots of soil look unplanted without grass in some places. Low bushes also start to break down. This all happened because it was trampled many times by many visitors. Trees suffered less damage. The last is major damage. This damage makes Taman Monas looked poorly maintained. More and more damaged grasses and shrubs are seen compared to the thick ones. Even though the damage insignificantly affected those large trees, it began to affect the smaller ones.

4.2. Park Resilience by Management

After learning the description of minor, moderate, and major vegetation damage, the observation on the recovery process implementation will be categorized as well in the recovery from minor, moderate and major damage. Categorization aspects are determined through observation using the theory of 3 pillars of sustainability, included environment, social, and economy. This theory explains that in order to achieve good sustainability, environmental, social, and economic aspects must be balanced to be used in daily application [6].

With Taman Monas as a pillar of the environment and recreational activities and the festival as social pillar, only economic pillar remains to keep that balance. In order to enforce the social pillars, environmental pillars are sacrificed but Taman Monas must survive and stay organized so that it continues to facilitate recreational activities and festivals. Then does the economic pillar play a role to help boosting the resilience of Taman Monas?

As shown in table 2, minor damage still looks similar to the original condition before the festival. Damaged grasses and shrubs are allowed to recover naturally and do not require help from the manager specifically. The manager only works with a regular park maintenance routine. Visitors can immediately do some activities around the vegetation the next day after the festival.
Visible damages are coming from moderate damage. Based on the interviews with Taman Monas maintenance managers, basically they are trying to avoid as much as possible any effort or additional costs in the recovery. By utilizing the ability of plants that continue to grow, managers take seeds from other fertile plants that are still good to be planted to replace the damaged plants. For example, in moderate column of table 2, it can be seen that some surfaces of the ground are covered with grass and the other part is unplanted. To immediately repair the damage, the manager takes seeds from the still thick grass and plants the unplanted area with them. The patchy vegetation system is carried out. The way the system works is to take some plants from other zones that are still good to be planted in zones that are still damaged. In planting grass, this technique is similar with dibbling techniques, namely by planting patches of grass with distance of 10 cm between plots which takes 3 months to cover the inter plot distance [9]. After planting, the manager is just waiting for the natural recovery process until the grass grows and covers the entire surface of the soil.

In major damage, damaged vegetations are dominating compared to those intact ones. To apply recovery techniques such as in moderate damage will be quite difficult and takes a long time. In the process of improvement, Monas management decided to take natural resources and outsourced the job so that the park can recover as soon as possible to its original condition. New plant seeds are purchased and for the process, the Monas management invites other government departments, such as the Environmental Department of Jakarta, to help.

Table 2. Taman Monas recovery process from vegetation damage

| Aspect                  | Minor          | Moderate        | Major                        | Source                          |
|-------------------------|----------------|-----------------|------------------------------|---------------------------------|
| By Humans [6]           |                |                 |                              |                                 |
| Time                    | 1 day          | 1 week          | 1 week                       | Observation and interview       |
| Additional Plant        | None           | Additional seeds from another fertile plant | Seeds or new additional plants from outside | Interview and megapolitan. kompas.com |
| Additional worker       | Normal time worker | Overtime worker | Overtime worker and additional worker from another division | Interview |
| Additional cost:        |                |                 |                              |                                 |
| - Water                 | V              | V               | V                            | Observation and interview       |
| - Transportation        | V              | V               | V                            |                                 |
| - Consumption           | V              | V               | V                            |                                 |
| - Fertilizer            | V              | V               | V                            |                                 |
| - New plants            | V              | V               | V                            |                                 |
Recovery Description

| By Natures | Recovery time | Observation and Interview |
|------------|---------------|--------------------------|
|            | 1 week        |                          |
|            | 3 weeks after |                          |
|            | replant by    |                          |
|            | human         |                          |
|            | 3 weeks after |                          |
|            | replant by    |                          |
|            | human [9]     |                          |

| Recovery Description | Until vegetation original condition is achieved |

4.3 Park Resilience by Zone

Based on figure 1, festivals are held in pavement zone but in case that the festivals get too many visitors, festival zone will expand to the park. They will be sitting on the grass, jumping and dancing to the music, not aware that they are damaging plants under them. Recreation visitor will be disturbed, especially when there is damage during the post-festival. They centralize their recreation activities outside the vegetation zone. They sit on the sidewalk, on the edge of a low fence, or spread the mat over the road. This condition will continue until the vegetation is recovered and suitable for recreation.

This issue somehow produces space shifting process. This process can be seen in table 2. Festivals disturb vegetation area make recreation space shifts into pavement area while vegetation do the recovery process. But the effect to festival and recreation is different. Festival visitors who moved into vegetation zone feel excited. They can sit in the grass and still can see the festival. That feeling is different with people who do the recreation. Recreation visitors feel comfortable when they do activities in vegetation zone. So, when they forced to move to the pavement area, they will not feel excited like festival visitor excitement when they moved into vegetation zone.
5. Conclusions
This study found that there are two types of resilience in responding the festival or *pesta rakyat* in Taman Monas, especially vegetation’s resilience. Those are resilience conducted by the management and plaza zoning. Resilience by management means that the Merdeka Square management make Taman Monas resilience system regulated by the management itself through the utilizing of vegetation growth system as much as possible to reduce losses. Taman Monas resilience effort is attempted to take many parties into account. Taman Monas management tries to balance 2 of the 3 sustainability pillars included social and economic, while environmental pillar, especially vegetation, are given up to suffered damage. First, they prioritize its social pillar as a recreation and tourism space. Considering the reasons of festival organization, despite its impact to cause damage to the park vegetation, festival should be held to support Taman Monas image as national icon. They subsequently restore the park as quickly as possible with the available natural and human resources.

Besides resiliency effort by management, there is also resiliency by zoning. The zoning of the recreation space where the festival is currently organized caused space shifting cycle which also contributes to the vegetation’s damage. As explained in the diagram in figure 2, when festival visitors exceed the given capacity, visitors will enter the recreation zone. When the recreation zone’s vegetation is damaged, the visitors who want to do some recreation activity will focus their activities on zones that are usually used for festivals. This behavior increases vegetation resilience by giving it time to recover.

In term of planning, to reduce damage and to increase vegetation recovery ability, this study needs further research by observe festival and recreation zoning. Further studies can obtain information about which vegetation zone that damaged the most and which vegetation zone that damaged the least. With that, there will be a design concept for Merdeka Plaza with high vegetation resilience.
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References
[1] Rahardjo S and Kanumoyoso B 2013 Riwayat Monumen Nasional.
[2] Gov, of Indonesia, 2017, Governor Regulation No 160 Year 2017 on National Monument Area Management.
[3] Gov, of Indonesia, 2017, Governor Regulation No 186 Year 2017 on Regulatory Change of Governor Regulation of DKI Jakarta No 160 Year 2017.
[4] Carmona M 2018 Principle for Public Space Design, Planning to Do Better.
[5] Ahern J 2012 Landscape Ecology 28, 1203-1212.
[6] Lele S and Jayaraman T 2012 Equity in the Context of Sustainable Development.
[7] Purvis B, Mao Y and Robinson D 2018 Three Pillars of Sustainability: In Search of Conceptual Origin: Sustainability Science.
[8] Lynch K and Hack G 1984 Site Planning.
[9] Velmurugan M, Hemalatha P, Selvakumar T and Harisudan C 2012 Lawn Making: A Scientific Approach 7, 64-65.
[10] Falassi A 1987 Festival: Definition and Morphology. In Time Out of Time: Essays on the Festival, 1-10.
[11] Cay R 2015 Recreation and Urban Park Management.
[12] Steven Q and Shin H 2012 Urban Festivals and Local Social Social Space. Planning Practice and Research 29 (1), 1-20.
[13] Gov, of Indonesia, 2012, Governor Regulation No 38 Year 2012 on Pengolahan Laskap.
[14] Cudny W 2016 Festivalisation of Urban Spaces.
[15] Badan Pemgembangan dan Pembinaan Bahasa, 2016, KBBI V
[16] Deliamov, 2009. Perkembangan Pemikiran Ekonomi. Jakarta: Rajawali Pers.
[17] McDonnell, M. J. 2011. Urban Ecology: Patterns, Processes, and Applications. The History of Urban Ecology: An Ecologist’s Perspective, hal 5-13.