

**LEMBAR  
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW  
KARYA ILMIAH : PROSIDING**

Judul karya ilmiah (paper) : Basic Framework of Regional Model for Disaster Waste Estimation and Distribution by Using Spatial Approach in Central Java-Indonesia

Jumlah Penulis : 5 orang

Status Pengusul : Penulis Pertama (**Maryono Maryono**, K Seruningtyas, A D Roynaldi, Sudarno and Hadiyanto)

Identitas prosiding : a. Judul Prosiding : 2<sup>nd</sup> International Conference on SMART CITY Innovation  
 b. ISBN/ISSN : e-ISSN: 1755-1315; p-ISSN: 1755-1307  
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 NIP.196608221997022001  
 Departemen PWK, FT. UNDIP

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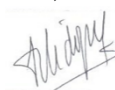
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Wido Prananing Tyas, ST., MDP., Ph.D  
 NIP.197312011998032001  
 Departemen PWK, FT. UNDIP

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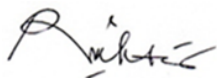
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NIP. 196608221997022001  
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# Basic Framework of Regional Model for Disaster Waste Estimation and Distribution by Using Spatial Approach in Central Java-Indonesia

Maryono M.<sup>a,b</sup>; Seruningtyas K.<sup>b</sup> ; Roynaldi A.D.<sup>b</sup>; Sudarno<sup>c</sup>; Hadiyanto<sup>b,d</sup>

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<sup>b</sup> Center for Green Infrastructure Resilience and Development (C-Greinde), Master Program of Environmental Science, School of Postgraduate, Diponegoro University, Indonesia

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## Abstract

Disaster are becoming more frequent around the world and more intense in urban areas. Central Java is the province with the largest number of disasters in Indonesia. Disaster create amount of disaster waste and sometime very huge, many times comparing to daily municipal waste generation. Government and local citizen sometimes are unable to handling disaster waste. Since effective

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Al Tawil, L. , Massoud, M.A. , Bardus, M. (2023) *Waste Management and Research*

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## Preface

We are pleased to present the proceedings of the 2nd International Conference on Smart City and Innovation that was held in Semarang, Indonesia, October 9, 2019 organized by Diponegoro University. This event is funded by the United States Agency for International Development (USAID) and the result of cooperation among six universities in Indonesia, namely the University of Indonesia, Diponegoro University, Padjajaran University, Sriwijaya University, Udayana University, and Sumbawa University of Technology that are involved in the project of Sustainable Higher Education Research Alliances (SHERA).

The SHERA-SMART CITY (Scientific Modeling, Application, Research, and Training for City-centered Innovation and Technology) aims to enhance the quality and quantity of science and technology research in Indonesia's higher institutions. Hence, this conference is organized to encourage the researchers to share their scientific works in response to urban challenges, including the adoption of sustainable energy for urban built environment and urban systems, as well as the provision of reliable urban mobility and sustainable water management.

The proceeding presents the work of the academics around the world who research various topics of smart city discourse particularly related to the topics of energy-environment and infrastructure. This conference had received considerable attention from academics. A total of 132 abstracts and 83 full papers were submitted and followed a blind peer review process. There are 41 papers selected to be published in this proceeding. We like to take this opportunity to thank the reviewers who donated their time to ensure the quality of the papers.

The Editor and the 2nd International Conference on Smart City and Innovation Committee expect that readers of this proceeding will find the research presented in this proceeding are interesting and encouraging future collaboration among the researchers.

Best wishes,

Maya Damayanti, Editor



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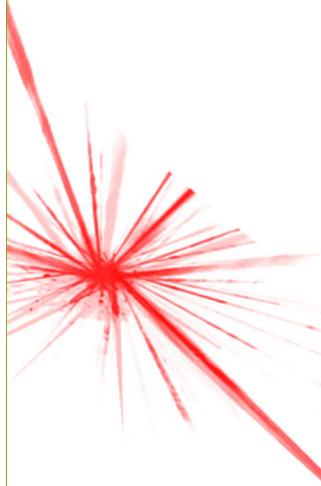
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# Purification of Used Cooking Oil Using Activated Carbon Adsorbent from Durian Peel

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**Abstract.** Repeatedly use of cooking oil can cause increasing free fatty acids and peroxide value contained. Therefore, continuous exposure to used cooking oil has known resulting hazardous impacts on the environment and also to human health. Hence, it is necessary to purify used cooking oil before it is discharged to the environment. Durian peel contains high cellulose ranging from 50% - 60%, which is eligible to be used as carbon adsorbent's raw material for used cooking oil purification. This study produced a kind of carbon adsorbent from durian peel through a carbonization process that lasted for 2 hours at 500°C combustion temperature with a chemical activation using H<sub>2</sub>SO<sub>4</sub> 1 N. This study was carried out with the adsorbent weight of 6 grams and various contact times of 30, 60, 90, 120, and 150 minutes. The most favorable results obtained after contact time was 0.0637% of free fatty acid, 0.41 meq O<sub>2</sub>/kg of peroxide value, and 0.9022 gr/ml of density, respectively, at 150 minutes contact time.

Keywords: Durian Peel, Activated Carbon Adsorbent, Cooking Oil Purification

## 1. Introduction

In Indonesia, durian (*Durio zibhetinus murr*) is a kind of seasonal fruit that is very well known as “the king of fruits” has a very distinctive aroma, thorny peel, abundant availability and is highly demanded by the public during its season. With its enormous amount, the environmental problem arises, that is the accumulation of durian peels. Proportionally, durian peel contains lignocellulose consisting of cellulose of 50%, 60%, lignin of 5%, and starch of 5% [1], Lignocellulose found in any raw materials can be used to make activated carbon. The utilization of activated carbon as an effective and affordable adsorbent has been investigated for many years. The previous study shows that activated carbon as a ceramic adsorbent is highly useful to remove heavy metals pollutant contained in acid mine drainage [2]. Besides, ceramic composite adsorbent of zeolite-activated carbon can be an alternative to treat wastewater containing heavy metals derived from the pulp and paper industry [3].

On the other hand, waste cooking oil handling is still considered insufficient. The use of cooking oil more than surely will darken its color and releases a kind of odor. Besides, the number of peroxides and free fatty acids also become higher. The changes in the chemical properties of cooking oil are due to hydrolysis, polymerization, and oxidation, these are caused by heating cooking oil at a high





# Effect of Weather for Demand of Online Transportation in Tembalang, Semarang

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**Abstract.** Estimates of online transportation users in an area need to be known because it can be used to analyze how much the dependence of the traveler on online transportation. So that it can be seen how the travel patterns of online transportation users. However, research on the impact of weather variables on the selection of modes of online transportation has not been widely implemented. This study aims to evaluate the influence of the weather by entering dry season and rainy season variabel related to daily travel behaviour on online transportation. This research was conducted at Tembalang Semarang, and the target of respondents was students. The analytical results show that, in general the existence of rainfall is associated with a certain degree of online transportation user of go car/grab car increase. So we can conclude that weather-related variables were found to routine/daily trips.

**Keywords:** weather, demand of online transportation, education area, daily trip

## 1. Introduction

Online transportation is part of smart mobility. Users are spoiled by services that can be controlled by smartphones. So that users can more easily make movements according to the start mobility and its frequency. Transportation is usually also influenced by the weather. Research on weather and transportation modes has been carried out in several countries, but the numbers are still minimal. It should be one of the important topics in a study, because weather is a factor that has a significant influence on a person's decision in transportation mode choice.

Factors that influence a person to choose transportation modes such as online transportation are among others influenced by the number and quality of services provided, economic factors, social factors, spatial factors such as service coverage areas of a transportation mode, and others [1]. One other factor that can affect demand of online transportation, but not yet widely discussed is the weather factor. Most studies that focus less on the weather on daily conditions in travel behaviour such as the choice of modes and destination of travel. According to research conducted previously by A. Singhal, C. Kamga, and A. Yazici [2], the weather had a negative impact on the demand for city transportation in New York for example the Metropolitan Transit-New York Transit (MTA-NYCT) subway in particular on passengers.



# Sustainable Communities as a Response to Climate Change: Analysis of Geroldsäcker Eco-Housing Project and Recommendations for its Replication Considering Current Urban Challenges

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**Abstract.** Geroldsäcker eco-housing is a unique project located in the northeast of Karlsruhe, in a 1.24-hectare plot with constructed area of 5.600m<sup>2</sup>. The planning of the project started in year 1989 and its completion happened in 1992. It is composed of 40 residence units: apartments and 3 store row-houses with private garden. The initial concept was an ecological settlement with common infrastructure and spaces for human interaction, using constructive ecological materials and devices for the residences and common areas. The community living sense is one of this project's highlights. The 120 residents not only share common spaces, such as a community house destined to events and practice of activities, but also developed task groups to cover all necessary workspaces in the settlement. What can be observed nowadays is that Geroldsäcker, even being implemented 3 decades ago, presents several important sustainability aspects in the ecological, social and economic dimensions. What started as a pilot project at a time when the definition of sustainability was still under discussion, can be considered a model not only of sustainable housing, but also as a broader model for sustainable communities. This paper explores the aspects identified in Geroldsäcker eco-housing project leading towards a sustainable community concept. Potentialities and improvement points are analysed, considering current urban challenges, such as high demand and costs for land, lack of public land for experimental projects, efforts to stimulate bottom up processes, the behaviour of current generations, the need for new and environmental friendly constructive patterns, and how to aggregate stakeholders to boost new models of sustainable communities projects.

**Keywords:** Sustainable communities, Geroldsäcker housing project, sustainable housing.





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
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