Dear distinguished guests,

Dear conference participants and colleagues

Welcome to the first International Conference on Smart City Innovation. This year, the conference is organized by Universitas Padjadjaran, at the initiative of Scientific Modeling, Application, Research, and Training for City-centered Innovation and Technology Center for Collaborative Research (SMART CITY CCR) that funded by United States Agency for International Development (USAID) through Sustainable Higher Education Research Alliances (SHERA) program for Universitas Indonesia.

Creating sustainable and smart living systems is crucial to improve the living standard of community. These smart city challenges should be faced together at all levels, and require a multi- and trans-disciplinary approach. Not only in the field of infrastructure, but also from other perspectives including energy, environment, ICT, healthcare, and policy.

Therefore, this conference is aimed to learn and share experiences from each other, in the hope that we can develop better and more effective approach to achieve smart living environment. Please enjoy the conference with all of its scientific and networking benefit. Also, please do not forget to enjoy Bandung, the city known for its limitless creativity, with variety of its local products and delicacies.

Prof. Dr. med. Tri Hanggono Achmad, dr.
Rector of Universitas Padjadjaran
Preface

Dear honorable speakers, participants, board of committees, guests, ladies, and gentlemen.

On behalf of Scientific Modeling, Application, Research, and Training for City-centered Innovation and Technology Center for Collaborative Research (SMART CITY CCR), I welcome you all to Bandung for the very first International Conference on Smart City Innovation (ICSCI 2018), organized by Universitas Indonesia and Universitas Padjadjaran. It is my pleasure and privilege, knowing that this event happened by the cooperation between five Indonesian universities, which is funded by United States Agency for International Development (USAID), through one of our projects, Sustainable Higher Education Research Alliances (SHERA).

This conference has a role to expose excellent and useful scientific writings to a wider scope, especially the works of researchers around technological innovations as a response to challenges in urban development and planning. As we know, issues on urban are issues collateral with people’s life. The research components from the data, information, experiments or interventions, and findings could be used by stakeholders such as influential societies, local leaders, governments, even ourselves as citizens to decide our way of living. The wonderful thing about ICSCI 2018 is it gives us an opportunity to listen to and get involved in the discussion with expert panelists (speakers) and presenters (participants), who are researchers focused in their respective fields. This conference also bridges the gap between scholars from various disciplines to bring and share their ideas about actual and relevant issues.

ICSCI 2018 results in a collection of 47 oral presentations of full papers and 67 poster presentations covering 10 topics around 4 big themes: (1) Energy and Environment, (2) Infrastructure, (3) Information and Communication Technologies and Mobility, and (4) Quality of Life. As the USAID concerns on addressing gender equality or female empowerment in science and technology research, we are glad that we have a dominant number of female researchers participating in this year conference (62 among 114 people).

We cherish each individual involved for making and contributing in this conference. I wish you a fruitful stay in Bandung, and above all a successful ICSCI 2018. Thank you.

Prof. Dr. Heri Hermansyah, S.T., M.Eng.
Director of SMART CITY CCR
The United States Government, through the United States Agency for International Development (USAID), commends the American and Indonesian universities collaborating through SMART CITY Center for Collaborative Research (CCR) for organizing the first International Conference on Smart City Innovation.

This conference is just one small part of the larger efforts of the SMART CITY CCR to explore sustainable, tailor-made solutions to Indonesia’s urban development problems. This CCR calls Universitas Indonesia (UI) home, and we commend UI for playing such a substantial role in enhancing Indonesian researchers’ skills and strengthening the quality of research approaches and outputs. At the highest level, these efforts increase Indonesia’s contributions to globally-recognized research. We thank the American university partners that collaborate with UI through this CCR: the University of Illinois Urbana-Champaign, Savannah State University and University of Florida (UF). We also thank Universitas Padjajaran (UNPAD) for their contribution and partnership in organizing this conference.

We also thank University of Florida scholar Dr. Ravi S. Srinivasan for attending this conference to share his insights and continue cultivating the UI-UF alliance. We hope that all of our Sustainable Higher Education Research Alliance partnerships can continue forging connections such as this.

USAID is proud to partner with Indonesian universities and the Government of Indonesia to advance world-class research and support Indonesian researchers whose work to discover, test and scale breakthrough solutions is bringing Indonesia closer to self-reliance in planning, financing and implementing solutions to its development challenges.

Thomas Crehan
Director, Office of Human Capacity and Partnership
United States Agency for International Development
# Program at a Glance

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Conference Information

Host
This conference organized by Directorate of Research, Community Engagement and Innovation Universitas Padjadjaran as one of member of Centers for Collaborative Research (CCR) in Scientific Modeling, Application, Research, and Training for City-Centered Innovation and Technology (SMART CITY) CCR.

Official Language
English is the official language in this conference.

Certificate of Attendance
E-certificate of attendance will be given to all registered participants and presenters by e-mail.

Internet Access Service
Free wireless internet access (WiFi) hotspot is available at conferences venues during conferences hours.

Mobile Phones
During all session, you are prohibited from using mobile phone. Please turn off or switch your mobiles phone to silent mode.

Smoking
Smoking is prohibited anywhere in the conference area.
This conference is funded by USAID through Sustainable Higher Education Research Alliances (SHERA) program.

In cooperation with:
Oral Presentation
ICSCI 2018
STUDENT PERCEPTION OF STUDENT CENTERED E-LEARNING ENVIRONMENT (SCELE) AS MEDIA TO SUPPORT TEACHING AND LEARNING ACTIVITIES AT THE UNIVERSITY OF INDONESIA

Arfah Habib Saragih\textsuperscript{1*}, Fikri Akbarsyah Anza\textsuperscript{2}, Achmad Lutfi\textsuperscript{2}

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ABSTRACT

Student Centered e-Learning Environment (SCELE) is a Learning Management System (LMS) owned and used by the University of Indonesia that functions as an extension or even substitute for a real class environment. This study aims to determine student perceptions of SCELE as a medium to support teaching and learning activities at the University of Indonesia. The method used in this research is quantitative research methods by distributing questionnaires to 125 respondents. The data processing technique used is a structural equation model that is processed with SmartPLS software against the UTAUT Model. The results of the analysis obtained findings that Performance Expectation, Effort Expectation, and Social Influence have a significant effect on Intention Behavior using SCELE, while Facilitating Condition has no effect on Intention Behavior; and Intention Behavior has a significant effect on Use Behavior from using SCELE. The implication of this finding is that the university should make improvements to SCELE, especially in terms of facility conditions that support its use. This is needed so that the use of SCELE can be used optimally to support teaching and learning activities for both students and teaching staff.

Keywords: UTAUT Model, Student Centered e-Learning Environment, e-Learning, Learning Management System
CLASSIFYING BOTNET ATTACK ON INTERNET OF THINGS DEVICE USING RANDOM FOREST

Irfan¹*, Irfan Muhammad Wildani¹, Intan Nurma Yulita¹, Zulidyana D. Rusnalasari²

¹Universitas Padjadjaran
²Universitas Narotama
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ABSTRACT

We live in Industry 4.0 where Internet of Things (IoT) is a new developing environment. A lot of researcher trying to develop this new technology. As this technology is starting to becoming big, people try to attack the system of this technology. Luckily, a dataset contains of unattacked environment and attacked environment exist. The purpose of this research is to classify the incoming data in the IoT, contain a harmful data or not. In this research, we have to use the sample from the dataset. the Volume of the dataset is so big that the non of our computer can classify. so we choose 17,936 random datas from each class in the dataset. after that, we classify the sample using Random Forest. we use Naive Bayes, K-Nearest Neighbour and Decision Tree too as a compartment. The dataset that has been used in this research are from UCI Machine Learning Depository’s Website. The dataset shows the data traffic from the IoT Device in a normal condition, attacked by Mirai and attacked by Bashlite. The biggest accuration comes from Random Forest with 99.99% accuration. it is followed by Decision Tree with 99.98% accuration, KNN with 99.94% accuration and Naive bayes with 99.00% accuration. Random Forest get 99.99% accuration with 0.01% error. Kappa Statistic 0.99, Mean Absolute Error 0.01, Root Mean Squared Error 0.01, Relative Absolute Error 0.04%, Root Relative Squared Error 1.33%. So we can conclude that Random Forest is the right method to classify the dataset.

Keywords: IoT, Botnet, Mirai, BASHLITE, Random Forest
WLAN BASED POSITION ESTIMATION SYSTEM USING CLASSIFICATION FUZZY K-NEAREST NEIGHBOR (FK-NN)

Reza Firsandaya Malik1*, Mardiah, Al Farissi1, Deris Stiawan1, Rido Zulfahmi1, Mohd Riduan Ahmad2, Ahmed Salih Khirbeet2

1Communication Network and Information Security Research Lab, Faculty of Computer Science, Universitas Sriwijaya
2Faculty of Electronics and Computer Engineering, Universiti Teknikal Malaysia Melaka
*Corresponding Author: rezafm@unsri.ac.id

ABSTRACT
Increasing the number of public hotspots using Wi-Fi technology is one of opportunity to gain advantage for proposing many new technologies. One of emerging technology is an estimation system to locate the object/person position using Wi-Fi. The object estimation position is the technology to estimate object position accuracy, using signal Received Signal Strength (RSS) from Wi-Fi Access Point. The RSS is an information about the strength of the signal indicates the distance between the access point device. Through the Indoor Positioning System (IPS), RSS value information from multiple access points are processed in order to provide position information. In this study, the IPS using Fuzzy K-Nearest Neighbour (FK-NN) classification method which is a combination of Fuzzy algorithm and K-NN to increase the accuracy of the object estimation position based on the learning data (reference point) where located closest to the object. Through hybridization from the algorithm is expected to calculate the position estimation more effectively and accurately and minimize errors in estimation. The results show that the algorithm FK-NN obtain the average location error of 2.4 meters with an accuracy percentage of 76%.

Keywords: Indoor Positioning System, Fuzzy K-Nearest Neighbour
IMPACT OF BACKOFF ALGORITHM ON SMALL DATA TRANSMISSION SCHEME IN A GENERALIZED MULTICHANNEL SLOTTED ALOHA SYSTEM

Chu-Chun*, Huang Ray-Guang, Cheng Ruki Harwahyu
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*Corresponding Author: m10102223@mail.ntust.edu.tw

ABSTRACT

The increasing trend of Internet of Things brings new challenges to efficiently manage the resource in the access network. As a prominent solution to serve IoT services, LTE incorporates a small data transmission scheme for this reason. In this scheme, the overall system performance is greatly influenced by its random access procedure. Hence, studying the behavior of random access procedure is important. This work presents an iterative contending-user estimation method to analyze the performance of the contention-based random access procedure supporting finite-population. For the sake of generality, the system is modeled as a multichannel slotted Aloha. This allows our proposed method to be used for both LTE and WiMAX system. The steady-state behavior of the system supporting multiple access-class traffic is studied under different network loads. The simulation result demonstrates the accuracy of our proposed method to predict the normalized throughput, the packet-dropping probability, and the average access delay of each access-class. Additionally, to better serve the IoT services with different requirements, we present a comparison study of different backoff algorithms to resolve the contention in the random access procedure.

Keywords: Internet of Things (IoT); LTE; WiMAX; Multi-channel slotted ALOHA; Random access; backoff algorithm.
ABSTRACT
Home industries or home-based enterprises (HBEs) in developing countries are identical with smallness, flexibility or even informality. When HBEs this type of economic activities in developed countries seems familiar with the internet of things (IoT), water hyacinth HBEs in Indonesia particularly in the area of Rawapening Swamp, start to use internet for their business. The development of HBE is supported by the use of the internet in terms of ease of communication, buying and selling transactions, and information dissemination to develop businesses. This study aims to find out how much the benefits of using the internet on the income of business actors of water hyacinth HBEs. By using descriptive statistical analysis, the subjects in this study were divided into two types, namely non digital and digital HBE entrepreneurs. The results shows that the average income of non-digital HBEs is less than the average income of digital HBEs entrepreneurs.

Keywords: Home Based Enterprise, internet, benefit
FEASIBILITY ANALYSIS OF RAINWATER HARVESTING SYSTEM IMPLEMENTATION FOR PUBLIC FACILITIES IN PALEMBANG

Imroatul C. Juliana*1, Taufik Ari Gunawan1, Fadel Muhammad Litanto2
1Civil Engineering Department, Sriwijaya University
2Undergraduate Student of Civil Engineering Department, Sriwijaya University
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ABSTRACT
Rainwater is one potential source of water that is often overlooked. Potential rainfall is often left discarded into runoff whereas with rainwater harvesting (RWH) system it could be harvested and used to meet the need for clean water and minimize the risk of flood by detaining the runoff. This study aims to analyze the feasibility of RWH systems implementation to meet the water need of public facilities in Palembang based on water balance concept. The behavioral model is used to simulate and mimic the RWH tank behavior. The analysis conducted on various scenarios based on RWH tank capacity and water demand. Two public facilities in the same area are analyzed, the office of Pengadilan Tinggi Agama (PTA) and SMAN 3 Palembang, along with 28 years of daily rainfall data. The financial analysis conducted using present worth analysis and payback period. For PTA, with 1550 L tank capacity, RWH is applicable and feasible. It can save the water up to 68.9% with an estimated payback period in 7 years 5 months. Nonetheless, although SMAN 3 has a bigger catchment area, because of the higher demand (21 times than PTA), RWH is not feasible to implement. The water saving efficiency is just 32.5% for a system with 4 tanks of 5100 L. These results are expected to be used as the initial analysis to find the typology of RWH systems implementation in Indonesia.

Keywords: Rainwater harvesting, behavioral model, tank, water saving efficiency, feasible
RETENTION PONDS POLLUTION LEVEL MONITORING IN PALEMBANG CITY FOR ACHIEVING THE SUSTAINABLE URBAN ENVIRONMENTAL HEALTH AND ECOSYSTEM SERVICE

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ABSTRACT
Liveable urban environment, the city environment where people enjoy a high quality of life, needs sustainable and good ecosystem service. Retention pond (RP) is part of green open space in the city. One of its functions is to provide ecosystem service to the urban lives that make its healthy should be protected. Measuring its pollution level is important step for designing action plans for its protection and restoration. Palmer Pollution Index (PPI), the index for the rating of organic pollution of a water body, used in this study to measure the organic pollution levels of thirteen retention ponds located in the city of Palembang. In the index, the top 8 genera namely Euglena, Oscillatoria, Chlamydomonas, Scenedesmus, Chlorella, Nitzshia, Navicula, and Stigeoclonium were used as the indicators organsims in scoring determination. This study showed both retention ponds located in PSCC and beside Siti Khodiajh hospital had potential high organic pollution levels (scores are 17 and 18) respectively, these are signals for a priority treatment and restoration actions. The other five RPs are at medium level (between 11 to 13), and the last three showed low organic level (score 3). A further observation in this study found that the PSSC retention pond was constantly dominated by Planktotrhix agardhii, a cyanobacter under concerned due to its potential to release cyanotoxin which can harmfull the environment, aquatic animals, and public health. A preliminary study was done in this study showed it had effect to Cyprinus carpio gill and pathologic effects in the gill’s lamella.

Keywords: Monitoring, Palmer Pollution Index; Pollution level; Planktotrhix agardhii; Retention Ponds.
OP8

ANAEROBIC CO-DIGESTION OF FRUIT AND VEGETABLE WASTE TO ENERGY FOR AN URBAN ENVIRONMENT: MODELING AND SIMULATION

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ABSTRACT

Anaerobic co-digestion applied as a solution to the waste problem in an urban environment, especially waste produced from traditional markets. This is the most promising method to reduce the amount of waste disposed to landfill and provide renewable energy. In this work, anaerobic co-digestion of fruit and vegetable waste is investigated. Ordinary Differential Equations (ODE’s) model of the anaerobic process introduced for methane prediction under mesophilic condition. Some unknown variables from the model determined by two methods: trial-error method and the Levenberg-Marquardt method. The first method, the inverse problem is solved numerically to estimate the value of the parameter. The second method, nonlinear least squares problems introduced for parameter estimation which implemented in Matlab. In addition, experimental anaerobic digestion is presented in the batch laboratory-scale digester with the use of inoculum from biogas power plant. Data obtained from the experiment, concentration of methane and accumulated biogas volume, are then compared with the numerical results for validation of the model. The simulation showed a good agreement between the experimental data and numerical data. Parameter estimation from both methods yield similar results, however the trial-error method mostly time-consuming.

Keywords: Anaerobic digestion, fruit and vegetable waste, modeling and simulation, waste to energy.
ABSTRACT
Urban developments have challenges to maintain environment sustainability as the main sustainable dimension supported by economy and social sustainability. Human cannot live without sufficient vital environment elements such as air, water, and land space. Urban city growth with high density population, industrialization, fossil fuel transportation-energy and limited green space have directly effect to increase greenhouse gases and environment contamination in air-water-land. Smart environment city is necessity in urban development by using information and communication technology as core of city governance to connected stakeholders in smart sensing sustainable enterprise system. The aim of this research is to design conceptual model of smart environment city based on smart enterprise architecture using systematic literature review methodology. The processes are including searching, categorizing, and relating each elements and indicator of smart environment city into one holistic enterprise architecture model. A number of major challenges associated with smart environment city were identified including policy (vision, objective, management), stakeholders (governance, service provider, citizen, community), business processes (utility water-waste-land-energy, natural resources, disaster prevention), application (smart application, interoperability, autonomous decision system), data (big data, cloud, data warehouse, security), infrastructure (internet-network, GIS, smart sensing, utility grid, waste grid, environment grid), IoT-sensor (air quality, water quality, GPS, visual, climate-weather, disaster, static-mobile-social sensors). The study provides valuable information to the city governance practitioners by illustrating the holistic process of smart environment city from high level city vision to operational level of smart sensor system. This study also provides further direction to the future researchers.

Keywords: Smart Environment; Conceptual Model; Enterprise Architecture; Systematic Literature Review.
COMMUNITY LEAD TOTAL SANITATION PROGRAMME ATTAIN TO INCREASE KNOWLEDGE, ATTITUDE AND INTENTION BUT FAIL TO CHANGE THE COMMUNITY’S BEHAVIOUR; CASE STUDY IN URBAN SLUM AREA IN BANDUNG MUNICIPALITY

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ABSTRACT

Environment-based diseases in developing countries mainly caused by poor sanitation and low hygienic behavior. Community Lead Total Sanitation (CLTS) as government effort to change behavior concerning campaign of open defecation free, handwashing, household water treatment and domestic waste disposal is implemented through triggering activities. This study intended to analyze implementation process and outcome of CLTS in urban-slum area in Bandung municipality. It was sequential explanatory mixed-methods study among 55 urban-slum dwellers in Tamansari subdistrict during Oct-Nov 2016. Quantitative data through self-administered questionnaires was collected to compare level of knowledge, attitudes, and intentions of community pre-post triggering activities and analyzed using Rasch modeling and paired t-test analysis. Qualitative data was collected by observations, in-depth interviews, and document studies to reveal, explain, and strengthen results. Follow-up observation was conducted after one year to gain CLTS outcome. Results showed knowledge, attitude and intention difference before and after triggering activities (p=0.006; p=0.021; p=0.001, respectively). Qualitative analysis explained that predisposing-factors were constructed by community knowledge, community attitudes, community intentions, and habits. Enabling-factors consisted of environmental conditions, officer expertise, resources, enabler agents, accessibility, appropriate technology, and sanitation facilities. Reinforcing-factors were affected by officer knowledge and attitudes, regulations, policies, and external support. However, follow-up one year after triggering activities proved that the change on knowledge, attitude, intention were not accomplished by community’s action without any supervision by strong local leadership and government’s support. Triggering activities on CLTS programme can increase knowledge, attitude and intention but intensive monitoring-evaluation and supervision should be carried out after implementation.

Keywords: Attitude, Behaviour, CLTS, Intention, Knowledge, Triggering
THE DIFFERENCE OF ROAD SAFETY BEHAVIORS BETWEEN MEN AND WOMEN FOUR-WHEELED RIDERS IN BANDUNG

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ABSTRACT
The high number of annual deaths from road traffic accidents is one of the main challenges caused by unsustainable transport. Road traffic deaths and injuries are particularly pressing issues faced not only by transport sector but also health and economy sector, making road safety a key priority. Although most of the holders of driver’s license in Bandung are men, but women’s licensing has growing over the past years. It is interesting to know if there is any difference between men and women in road safety behaviors so the best preventive measures appropriate to each group can be done. This study was a cross sectional, comparative study using Pearson Chi-Square and Kruskal-Wallis analysis. The data was gathered in 10 sites in Bandung, using an online questionnaire to four-wheeled riders which asked about the current roles, whether they have been stopped by the police for inspection, seatbelt-use and speeding knowledge, attitude and practice. From 327 four-wheeled riders who getting questioned, only 30% were women which most of them were passengers. The comparative study indicates a significant difference in all aspects (p<0.05), except for the current use of seat-belt and the attitude toward speeding. The highest differences are men rider got the most experiences of getting stopped by the police for inspection (80% to 40,8% in women, p<0.01) and that men thought that they knew the speed limit more than women did (90,4% to 65,3% respectively, p<0.01) These findings may provide new insights for the development of gender-based prevention programs.

Keywords: Driving Behavior; Vulnerable road users; Women
OP12

BRANDING THE SMART GREEN SPACES TO PROMOTE BANDUNG SMART CITY: AN APPLIED LINGUISTICS AND BRANDING STUDIES

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ABSTRACT
This research presents the linguistics perspective on the branding of the smart green spaces as the part of Bandung Smart City. Linguistics tools employed to analyze the data are morphology and metaphor. Formerly, the research was conducted by identifying the names of thematic parks in Bandung city, namely by analyzing based on the word formation studies and the meaning of their naming. The meanings or messages of the thematic parks are discussed with the Metaphors found in the names of the destinations. This research employs qualitative descriptive method by using data from some online media and observation to the thematic parks location. The analysis aims to describe the thematic parks as Smart Green Spaces and their branding function based on their names. The results of this research show that the names of thematic parks, morphologically, derived from proper names and coinage, while according to metaphors the names mean the physical characteristics of the parks, location of the parks, and activities in the parks. Therefore, branding function of the thematic park names are in line with the metaphorical meanings. The branding can be identified from their naming, logo, visual appearance and design, and mascot of the parks.

Keywords: Branding, Word Formation, Metaphors, Smart City, Thematic Parks, Smart Green Spaces
E-PARTICIPATORY PLANNING MODEL FOR URBAN DEVELOPMENT IN THE POST-SUHARTO INDONESIA: THE USE OF ICT IN IMPROVING THE QUALITY OF LOCAL DEVELOPMENT RESULTS?

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ABSTRACT

This article confers how ICT being used in participatory planning process and the extent to which the newly introduced E-Participatory Planning design enables to improve the quality of local planning documents. This research conducted in the Post-Suharto Indonesia where decentralized government encourages better deliberative planning process and open more opportunities for public participation in development. Furthermore, the research undermines contemporary public administration practice that allows the use of ICT as an effective tool in improving public service delivery and the quality of development results under the E-Government program. Compared to other municipal and district regions in Indonesia, Bandung considered as the most prominent “Smart City”. The area even contended as the Smart City Capital of Asia and Africa countries in 2015. The question is to what extent do the E-participatory planning enables public participation and creates more equal opportunities for vulnerable group in urban Bandung. The research utilises multiple methods in gathering primary data through online and offline surveys and interviews. Moreover, in order to deepen the understanding of E-Participatory Planning issues, series of interviews conducted with related government officials at kelurahan, municipal, and provincial levels. The research found that the E-participatory planning process could generate positive impacts on transparency and accountability issues. However, in terms of public participation, the E-Participatory Planning remains challenging and difficult to address the need of the urban vulnerable groups due to multiple biases engendered by involved development parties.

Keywords: e-Participatory Planning, Urban Issues, Post-Suharto Indonesia, Local Government
STORAGE AND RELEASE OF HYDROGEN AS A FUEL OF THE FUEL CELL WITH MEDIA OF NABO$_2$/$\text{NABH}_4$

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ABSTRACT
The reactions of storage and release of hydrogen as a fuel of the fuel cell with sodium metaborate (NaBO$_2$) / Sodium borohydride (NaBH$_4$) media at various pressures and temperatures have been carried out. Hydrogen production is produced from hydrolysis of NaBH$_4$ and hydrogen storage is carried out with NaBO$_2$ media which is a by-product of the hydrolysis process of NaBH$_4$. The process of hydrogen production by hydrolysis of NaBH$_4$ takes place exotherm so that the highest speed occurs at low temperatures. Furthermore, the resulting NaBO$_2$ is used as a hydrogen storage material at varying pressures and temperatures. The largest hydrogen storage capacity at 3 bar and 40°C is 35.23% by weight and increases after several repetitions of release and storage. An easy hydrogen storage and release system for fuel cells is needed to anticipate the use of fuel cells as an environmentally friendly energy source for housing and vehicles.

Keywords: Hydrolysis reaction; sodium borohydride; storage of hydrogen; sodium metaborate.
OP15

INDENTATION SIZE EFFECT OF THE VICKERS INDENTATION TO IMPROVE THE ACCURACY OF INVERSE MATERIALS PROPERTIES MODELLING BASED ON HARDNESS VALUE

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ABSTRACT
In this work the Indentation Size effect (ISE) in the Vickers hardness tests and the scale and consistency/reliability of ISE has been systematically investigated by fitting data following the power law and proportional resistance model. In both cases, the results show that the ISE can be linked to the hardness-to-modulus ratio. A new concept of using ISE data for estimating the n values of steel has been explored and shown reasonable results for narrowing the range of predicted material properties based on hardness values. A new concept to use the indentation size data of the Vickers indentation has been explored to improve the accuracy/robustness of inverse properties modelling based on hardness. Systematic experimental work has been performed on steel samples of different carbon contents and heat-treatments. The ISE data was analysed by fitting data following the power law and proportional resistance model. In both cases, the results show that the ISE can be linked to the hardness-to-modulus ratio (H/E). A new concept of using ISE data for estimating the work hardening coefficients (n) values of steel has been explored and shown reasonable results for narrowing the range of predicted material properties based on hardness values, thus improve the robustness of the inverse program.

Keywords: Vickers hardness, ISE, H/E, P-h curve, work hardening coefficients
INTEGRATION OF ALGAE BIOMASS AND BIOGAS PRODUCTIONS BY UTILIZATION OF PALM OIL MILL EFFLUENT

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ABSTRACT
Due to high content of chemical oxygen demand (COD), palm oil mill effluent emits CO₂ and CH₄ as result of COD degradation. The release of these greenhouse gases must be reduced for their impact to the environment. Besides high content of COD, the POME also contains of high nutrients which may be used as nutrient source of microalgae growth. This research was aimed to utilize palm oil mill effluent (POME) as source of biogas production and utilize the waste as source of microalgae nutrient. Palm oil mill effluent was digested in two types anaerobic biodigester such as UASB (Up-flow Anaerobic Sludge Blanket) reactor and tubular bioreactors. The POME was mixed with empty fruit branch (EFB) in order to increase the carbon/nitrogen (C/N) ratio. The results indicated that the biogas yield has positive correlation with EFB/POME ratio in the bioreactor with the yield range of 13-50%. The highest yield was achieved at 47 % at ratio of 7.5 of POME to 1 EFB. This research also shows significant increase in biomass production of Spirulina when biogas was fed into microalgae cultivation medium as carbon sources.

Keywords: biogas, microalgae, Spirulina sp, POME, UASB reactor
COMPARISON BETWEEN SUNHOUR SOFTWARE RESULTS AND AUTODESK FORMIT360 AS A SOLAR BASED APPLICATION ANALYSIS

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ABSTRACT
The complexity of design process and climate issues for architecture students often leaves behind design issues that are less responsive to the local environment. The design recommendations somehow lack of quantitative approaches, which are unable to achieve optimal building performance. Such as the solar analysis on buildings, especially in buildings with locations in tropical climates, can be both advantages and disadvantages. Therefore, the urgency to do simulations to solar analysis buildings becomes necessary. There are many software about solar analysis and many studies have examined it. In this study will be discussed further about the comparison between the results of the Sunhour (Sketchup Plugin) and Autodesk FormIt 360 solar analysis software, where both software are widely used by architectural students and can be obtained free of charge. The building that became the case study in this study is the right-wing facade building of the UPI FPTK located in Bandung City, analyzed with both software with the exact same location and time. The results from Sunhour and Autodesk FormIt360 compared were found to have correlated results.

Keywords: Sustainable Architecture; Autodesk FormIt360; Building Performance; Sunhour
SPECIFYING COLORS THAT SUPPORT SAFE BUILT ENVIRONMENT

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ABSTRACT
Safety is one of vital aspects of liveable built environment. Designing a safe built environment requires comprehension regarding people’s activities in that environment as well as their characteristics and abilities linked to those activities. People with various characteristics and abilities might use different methods and/or need different facilitations for performing activities, even when performed activities are similar. This paper presents how important comprehending characteristics and abilities of people in terms of visual sense is to color applications expected to support safe mobility in built environments. Colors in built environment have various functions. One of these functions is to provide visual information for identifying and navigating the environment. Color combinations enabling identification of built environment for fully-sighted people might be different from those of individuals with visual impairment. Conspicuous color combinations for fully-sighted people are not necessarily distinguishable for individuals with visual impairment having reduced functional vision. Building codes in Indonesia have included colour contrast as a requirement supporting safe mobility of people with visual impairment. Some public facilities in Indonesia have applied color combinations based on this requirement. However, this requirement is normative and vague; its applications are open to broad interpretation, which could lead to the occurrence of hazardous settings for mobility of people with visual impairment. The requirement needs more detailed descriptions established by utilising reliable measurement methods entailing comprehension of characteristics and abilities of people with visual impairment. Detailed descriptions will enable appropriate applications of colors supporting safe built environment for people with and without visual impairment.

Keyword: colors, navigation, safe built environment, visual impairment, visual information, visual sense
BANDUNG URBAN BUILT ENVIRONMENT: ITS CONTRIBUTION ON MICROCLIMATE AND LIVING QUALITY

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ABSTRACT

Urban village (kampong) becomes city morphology phenomenon, its growth is organic and has no land use planning adequate. The tendency of increasing local temperatures in various metropolitan cities with high density has led to urban heat island. This article is a comprehensive study aimed at describes micro-climate aspects on urban built environment. Detailed discussion on aspects morphology of the urban village which has implications for the formation of the microclimate that affects residential quality. Nine locations of kampong in Bandung with was then taken into samples, namely: Sukajadi, Tamansari, Sukapada, Cigondewah Kidul, Cigondewah Rahayu, Cicendo, Babakan Ciamis, and Cihaurgeulis. Detailed and specific discussion on aspects of mass and building shape, distance between buildings, height of buildings and availability green open space provides specific information of the influence of physical aspects of morphology on the microclimate, especially the most important to the average radiation temperature (Tmrt), others, such as air temperature (Ta), humidity (RH), and wind speed (v). The quality of the residential environment as indicated by the PET index (Physiological Equivalent Temperature). The final result shows Cigondewah Rahayu with 31.2°C; 50.6%; 0.33m/s obtained PET = 35.9°C with hot sensation. Based on the field measurement also find out that most of the nine kampongs are offering “warm” sensation living area, none of them have the “neutral”, “cool” or even “slightly cool” sensation.

Keyword: Separated by semicolons; kampong, microclimate, urban built environment, PET.
A SIMULATION MODEL FOR URBAN DEVELOPMENT IN BANDAR LAMPUNG CITY, LAMPUNG, INDONESIA

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Abstract
The unprecedented growth in population put pressure on urban land suitability. Besides that, the deterioration of infrastructure facilities, traffic jam, and disaster like flood and landslide could be happen more severe in a few years later. This study attempted to find out the projection of population growth and suitability of urban land in order to be carried out sustainably. Land use suitability assessment is a key determinant in any urban planning and decision-making process. The variables taken for the study are slope, altitude, and land cover. This study provided the information not only the existing urban land cover pattern but also the simulation of population growth and land suitability for the establishment in future.

Keywords: GIS, spatial dynamics, system dynamics, urban land suitability
SMART CITY AND SHIFTING SPATIAL MEANING OF PUBLIC SPACE

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ABSTRACT
A smart city is an IT-based city concept that carries the mission of good government and expected to bring city efficiency and create more orderly city due to reduced congestion, rapid information processing, and direct problem handling. But sometimes cities those interact quickly in cyberspace may not always be right in the real world. Hampton et al. (2014) worried about improving using of information technology in public space. It can change a social life, then turn the social sustainability here. Whereas, the principle of public space is an eye to eye and the presence of social communication (Whyte, 2009 [1988] as cited in Hampton et al., 2014 in Kurniawati, 2018). When community interaction is lost in public space, and people only focus on information technology held, then there is a spatial shifting meaning of public space. In order to know about the spatial shifting meaning in Indonesian public space, this research will do several steps as below: 1) Tracing the role of technology information in Indonesian public space; 2) Identifying the existence of social interaction here; 3) Analyzing the spatial meaning in public space has IT, and then 4) Figure out the spatial and its shifting meaning. This research attempts to conduct qualitative methods, to capture the phenomena in a distinct location. This research needs to understand the existing conditions in facing IT forces into real practice of Indonesian public space. The expected result is a particular spatial meaning in public space. Finally, based on the outcome, we could know about the bringing precise concept together between the government and the communities facing the IT forces.

Keywords: smart city, shifting meaning, spatial meaning, public space
OP22

ENVIRONMENT ASPECT IN INFRASTRUCTURE PLANNING THROUGH MODEL OF STARLET-PERDANA

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ABSTRACT

Starlet-Perdana models is acronym from Stabilisasi & Rancangbangun Terpadu dan Perkuatan Dayadukung Tanah, or stabilization & designation of integrated slope modeling, and soil bearing capacity strengthening. Research is carried out at the northern of Bandung Basin, or in Cilengkrang and Jatinangor Areas. Research area is around the foot of G. Manglayang and Jatinangor. The soil and rock material are from weathered volcanic rock. Areas that have been identified as landslide-prone areas is required some geotechnical engineering, as well as environmental management directives and environmental monitoring directives. This paper presents a modeling analysis of slope stability, slope reinforcement and soil bearing capacity in relationship to infrastructure planning. In this paper, presents the relationship of slope gradient with safety factor, application of Starlet model, soil bearing capacity, and soil improvement to soil expansive. The research activity began with a literature study, field surveys as well as data collection, field analysis and analysis of soil / rock mechanics laboratories, delineation of landslide-prone areas, analysis of the relationship between slope gradient and Factor of Safety, calculation of soil bearing capacity, data editing and map drawing. Infrastructure planning needs to have a strong and long-lived element, so the direction planning of the environmental management and environmental monitoring is required because as one of the efforts in environmental feasibility studies.

Keywords: slope stability, soil bearing capacity, environment
ONLINE TRANSPORTATION DEMAND MODEL IN RESIDENTIAL AREA AND CBD
CASE STUDY: PERUMNAS TLOGOSARI AND CBD SEMARANG CITY

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ABSTRACT
Semarang city movement has been served by public transport, but the service is less efficient in terms of cost and time. This condition makes people prefer to use private vehicle. On other hand, there is progress in technology era that present online transportation service. Online transportation is considered faster and flexible mobility for consumers. Although the cost of travel online transportation has more expensive than other vehicle but it gives alternative moda for transportation. This research purpose to examine the characteristics and model of online transportation demand in CBD. The method is quantitative using accidental sampling technique, which is addressed to responden in CBD of Semarang City who have used online transportation. The analysis tool used linear regression analysis. The result of this research can find demand variables for movement by transportastion online in CBD.

Keywords: Online Transportation, Demand Travel, Residential, CBD
ABSTRACT
The sustainability of transportation systems in Jakarta is under threat from climate change. Better integration and planning of public transportation is an alternative to support land transportation and to solve the congestion problem to Soekarno-Hatta International Airport, PT Railink, PT Angkasa Pura II, PT Kereta Api Indonesia with its BUMN synergy built rail-based transportation called SHIA Train and tries to make their service as attractive as possible, to as many persons as possible. Moreover, SHIA Train and skytrain connected in an integrated building as a transferring point. This study analyzes the time taken to travel using the airport railway from BNI City Station and its integration with the skytrain to reach the terminal of the passenger’s destination by observing the walking time factor at integrated building and waiting time of skytrain. And also skytrain–SHIA Train by identifying the walking time, ticket purchasing time, and its effect on SHIA Train waiting time. Study is necessary to know the average travel time and show whether these two modes of transport can be integrated in time and, individual journeys must in some way be scheduled, this paper will present an optimization model of how journeys should be scheduled in this kind of service.

Keywords: time integration; walking time ; waiting time ; travel time
LESSONS FROM A SMALL ISLAND – DENSITY, SPATIAL DEVELOPMENT, AND IDENTITY

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ABSTRACT
Below we explore the relationship between culture and urban design in order to situate why this important interaction remains a somewhat vexed issue, one somewhat unexplored in the urban design literature. Our chosen site is the tropical paradise of Bali, a world renowned island famous for its culture and environment. Being physically isolated both geographically and culturally from the rest of Indonesia, Bali provides a unique opportunity to advance our knowledge of relationships critical to an urban design awareness. On the surface, urban density, a defining quality of cities is a central focus, round which issues of cultural identity revolve. In contention is the fact that the density of built form across the island is controlled by a single regulation, with the justification that it protects Balinese traditional culture. The following paper reveals not only that this relationship is illusory, but also that ideology is critical to our understanding. Traditional ‘cultural’ explanations are insufficiently encompassing. An archaeology of other factors that affect local culture interact in complex ways – a violent recent history, economic exploitation, global tourism and identity. Standing well outside the vocabulary of mainstream urban design yet formative of urban culture, these forces must be paid homage. They also exist within the realm of ideological formations suggesting that the culture: urban design relationship must be contained within a general acceptance of ideology as formative in urban space, since they bridge the gap between culture and the material base of Balinese Society.

Keywords: design, density, culture, ideology, development, hegemony, tradition, global tourism.
ACCESSIBILITY IN KELAPA DUA DEPOK, INDONESIA

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ABSTRACT

There are many previous studies on accessibility, but few studies consider accessibility comprehensively in areas where it is difficult to access to the rail-based public transportation in suburban Indonesia. This paper tried to consider accessibility in three points: automobility, public transportation, walkability. The study reveals the inconvenience of public transportation reluctantly makes people choose other transportations such as private cars / motorcycles and informal transportation. Angkot, which is used as a road-based public transportation, has relatively less merit than private car / motorcycle and informal transport, so that more people choose private cars and informal transportation. This leads to increase traffic volume and decrease road width due to illegal occupation of roads, and cause traffic congestion and accidents. In order to cut off these vicious circles, it is most important to develop public transportation measures. It is necessary to think how people motive to choose public transportation than other transportation. It should be taken into consideration the freight, comfort, and total connectivity to the destination in order to gain a relative advantage over other transport. For this purpose, it is recommended to create Indonesian standardized indices and analysis for measuring accessibility by using data.

Keywords: Accessibility; Automobility; Public transportation; Walkability; Kelapa Dua; Indonesia
TRIP DISTRIBUTION OF URBAN WORKER AT SUDIRMAN STATION TRANSPORT HUB

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ABSTRACT
In determining the trip distribution pattern generally using questionnaire survey with a relatively large sample size in order to find out information on origin and destination. In Indonesia transportation survey is conducted by the Ministry of Transportation every five years. This fact shows the possibility out of dated data and nowadays is currently responded by utilizing the new data sources which is obtained through communication and information technologies such as geolocation feature on Twitter. This study tries to infer the trip distribution of urban worker at Sudirman Station using survey and geolocation feature on Twitter. The results of this study indicate that comparison of trip distribution which was obtained through the survey shows more varied results than new data sources such as social media Twitter. The variation of the trip distribution was assessed by the differences of precise locational information which was obtained by both approaches, meanwhile both approaches can be used to describe the trip distribution in based on structure of the city. This study also contributes to explore the usage of geolocation feature for estimating the trip distribution of urban worker at urban transit area by using additional phase during the generating twitter data process.

Keywords: trip distribution; urban; geolocation
USING K-MEANS CLUSTERING TO CLUSTER DAILY USE OF ELECTRIC POWER CONSUMPTION

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ABSTRACT
Smart City is a city that use technology to manage resource of the city efficiently. Electricity is a resource that has a big impact in the management of the city. Therefore, this research aims to find out how to use electricity efficiently by observe the daily use of electric power consumption. This research used Individual household electric power consumption Data Set from UCI Machine Learning Repository. It is the first step to find out if the daily usage of electricity is used efficiently by using clustering. One of the clustering methods is k-means clustering. K-means clustering use distance between points and centroid who represents the cluster to divide the instances into clusters. It is used to cluster daily use of electric power consumption. After several experiments from 2 number of clusters to 10 number of clusters, the 10 number of clusters has the best result (it has the least squared errors).

Keywords: Clustering; k-means; smart city; electric power consumption.
OP29

OPTIMIZATION OF ENERGY USE IN BUILDING THROUGH RENTAL OFFICE BUILDING ENVELOPE IN A TROPICAL CLIMATE

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ABSTRACT
This study aims to determine the use of a tropical architectural approach to the envelope of rental office buildings. To get a design solution, ASHRAE 90.1 - 2013 based parameters were used in the basic analysis of building performance applications, namely Sefaira. The building analysed will be simulated, using variables such as sunlight conduction with roofs, walls, building window ratios, gap ratios in buildings and use of electrical equipment per square meter. Based on the analysis carried out, the use of energy from the building before being given special treatment reaches 126 kWh / m² / yr than is supposed to be 79 kWh / m² / yr. Once analysed, given the application of concepts that can respond to the tropical climate. So that the energy that can be reduced reaches 57 kWh / m² / yr or the results obtained are 69 kWh / m² / yr.

Keywords: Tropical climate; Sefaira; Building Envelope; Energy Efficiency.
STUDY ON DIFFERENT CAPACITY OF TRANSESTERIFICATION PROCESS IN BIODIESEL PRODUCTION FROM KEMIRI SUNAN (*REUTALIS TRISPERMA*)

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ABSTRACT
Kemiri Sunan (Reutalis trisperma) is one of the plants that can be used as an alternative fuel because it contains triglyceride that can be converted into Fatty Acid Methyl Ester (FAME) or biodiesel by transesterification reaction. This study aimed to determine the effect of capacity increment of transesterification on yield and quality of biodiesel. The method used in this study was experimental method with descriptive analysis. The treatment performed in this study were five different capacity of transesterification i.e. 200, 400, 600, 800 and 1000 mL. Each treatment repeated three times. The parameters of biodiesel observed were yield, moisture content, density, acid number, color and FAME identification (GCMS). The results revealed that Kemiri Sunan biodiesel produced by transesterification process in 800 mL capacity fulfilled the SNI standard of Biodiesel SNI 7182:2015 with moisture content was 0,07%, acid number was 1,76 mg-KOH/g-oil and methyl palmitate, methyl linoleate, methyl oleate and methyl linolenate as the four major FAME in Kemiri Sunan biodiesel.

Keywords: biodiesel; Kemiri Sunan; transesterification; capacity increment
SUITABILITY ANALYSIS FOR SOLAR PHOTOVOLTAIC DEVELOPMENT IN EAST BELITUNG REGENCY

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ABSTRACT
The dependence on energy affects the development of a region. Small islands usually have energy dependence on the nearby big island. In order to meet the needs of electric energy, Belitung Island actually has operated steam power plant as a form of energy independence in Bangka Belitung, but to meet the energy needs of households and various industrial sectors, especially the tourism industry in East Belitung which continues to increase, the capacity of electrical energy power on the island needs to be increased. Solar energy is one of the potential energy sources contained in East Belitung which can be used as an alternative energy source that is environmentally friendly. Placement of location for the development of Solar Photovoltaic (PV) System can be done by utilizing Geographic Information System with Multi Criteria Analysis, determining location for PV placement requires region suitability analysis using GIS and Remote Sensing technology. Ground assessment is used for knowing the real condition of the ideal area, then the potential site for photovoltaic system development can be obtained.

Keywords: GIS and remote sensing, solar energy, photovoltaic systems, renewable energy, sustainable development on island
SYNTHESIS OF METHYL TERTIARY GLYCEROL ETHER (MTGE) FROM GLYCEROL AND TERTIARY BUTYL ALCOHOL (TBA)

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ABSTRACT

Glycerol is a byproduct of the biodiesel industry which can be further processed into a product that has economic value. One of them is becoming a fuel additive. Glycerol was reacted with TBA (Tertiary Butyl Alcohol) to produce MTGE (Methyl Tertiary Glycerol Ethers) by using HZSM-5 as catalyst. The experiment was conducted within 2 hours, a pressure of 1 atm, using batch reactor. This research was studied of effect temperature, catalyst concentration, and reactant molar ratio to conversion of glycerol. The product of reaction was analyzed with GC-MS (Gas Chromatography-Mass Spectrometry). The product was contained like as Butane, 1-(2-methoxyethoxy) -CAS or 1-Butoxy-2-methoxyethane or 2, 5-dioxanonane amounted to 29.98% and 19.74% and Propane, 1- (1,1-dimethylethoxy) -2-methyl (CAS) or 1-tert-Buthoxy-2-methylpropane by 6.66% and 1 , 86% for the ratio of 4: 1 and 1: 1. The results of the experiment have shown the effect of single variable effect on the conversion of glycerol as follows: temperature ($X_1$), reactant molar ratio ($X_3$), and catalyst concentration ($X_2$). The interaction variable affected in etherification reaction followed temperature-molar ratio ($X_1X_3$), temperature-catalyst concentration-molar ratio ($X_1X_2X_3$), catalyst concentration-molar ratio ($X_2X_3$), and temperature-catalyst concentration ($X_1X_2$).

Keywords: glycerol, TBA, etherification reaction, HZSM-5, fuel additives, factorial designs.
SPATIAL ANALYSIS OF EROSION OF THE UPSTREAM CITARUM WATERSHED IN KABUPATEN BANDUNG

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ABSTRACT
The occurrence of environmental degradation in Bandung Regency be prone to erosion. One activity that causes environmental degradation, among others, for waste in Bandung Regency is influenced by patterns of land use. Changes in land use patterns can have an impact on the function of the watershed. Citarum watershed is the main watershed in West Java, which has an area of 6,080 km2 and reaches 300 km in length, covering the city and regency of Bandung. At the upstream part there is the Saguling Reservoir, in the middle there is the Cirata Reservoir and in the lower reaches of the Jatiluhur Reservoir. The sustainability of its function is highly dependent on the condition of the Citarum watershed. The purpose of this study was to determine the level of erosion hazard that occurred in the Upper Citarum watershed, especially in Bandung Regency. The results of the study are expected to be able to map the level of erosion hazard so that it can be used as a reference in the control and land conservation efforts for the government and local watershed managers. The Universal Soil Loss Equation (USLE) method allows planners to predict erosion hazard levels. The influential parameters are rainfall erosivity (R), soil erodibility (K), slope length and slope (LS), cover crop (c), and land management (P). Geographical Information System (GIS), is used to calculate and analyze each USLE parameter, and perform overlay techniques. Erosion that occurs in a very high category is found in the southern and western regions that have an area with a slope of > 40%, with changes in land cover from forest to dry land agriculture. Land degradation can be prevented by prohibiting forest land conversion or by emphasizing the reforestation system.

Keywords: Degradation, Erosion, USLE, SIG
ABSTRACT
Increased development of urban areas and urbanization in the Bandung has more groundwater extraction from aquifers. The impact is land subsidence in several locations in the Bandung. Based on GPS (Global Positioning System) data and InSAR (Synthetic Aperture Radar Interferometry) data analysis, the value of land subsidence velocity is around 2 to 20 cm/year. The impact of land subsidence in the Bandung can expand the flood area. Floods often occur in areas with large land subsidence rates. Large floods can evoke negative impacts such as economic losses, agriculture, infrastructure failure, households and public facilities in affected areas. The spatial analysis combined with a land subsidence map can be used to estimate the total flood area reaches 6,420 ha. Covering an area of 1,388 ha or 21% of the total flood area due to land subsidence. It is estimated that the economic losses due to flooding reached 200 billion rupiahs.

Keywords: Land Subsidence, Urbanization, GPS, InSAR, Flooding
OP35

BLUE SPACE: BRIDGING URBAN SPATIAL PLANNING AS A DOCUMENT OF FLOOD DISASTER MITIGATION

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ABSTRACT

Contemporary research on resilient city has important role in directing the strategies and scenarios of planning to develop more adaptive cities against disaster. This concern has been manifested in the proposal of urban spatial planning concepts such as sponge city in China and the framework for resilience-oriented planning in Europe. This effort is one of the strategies to reduce the loss due to the increasing disaster especially one caused by hydro-meteorological disaster such as flood, typhoon, and sea-level rise. Indonesia responds this issue by synchronizing the Law No. 24 Year 2007 on the disaster mitigation and Law No. 26 Year 2007 on spatial planning. Both of the laws mandate spatial planning as an instrument of disaster management. Since the form of spatial planning as disaster mitigation instrument is still unclear, this research aimed to audit the policies and to critically analyse the spatial planning policies, disaster mitigation and strategic environment study. Through policy analysis, this research identified and discussed 2 main issues on spatial planning-based disaster management instrument that are (1) spatial planning that oriented to the provision of economical and production space rather than conservation space and (2) strategic environment study policy (KLHS) that oriented more to the developmentalism especially its sustainable development. Meanwhile, there was policy area to address that in our point of view, conservation area is as important to be planned. Planning alone is not enough. From this research, we concluded that there was ‘silent policy’ in conservation space that resulted more disaster loss. Blue space became one of conservation spaces, besides green space, that served as one concept that needed to be considered in the effort to plan conservation space. The new consideration for this new policy might need spatial planning or KLHS documents to reduce the silent policy. Partial, non-holistic and non-comprehensive anticipation becomes the main issue to be further discussed to realize the concept of resilient city in Indonesia.

Keyword: Blue space, spatial planning, mitigation
Drivers of Energy-Related CO2 Emission Change in Indonesia: Structural Decomposition Analysis

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ABSTRACT
This study aimed to decompose CO2 emission change between short run (1990-1995) and long run (1990-2010) in order to identify main drivers of emission change in sectoral level. Using energy input-output and input-output table, emission change decomposed into six factors: energy intensity, carbonization factor, technology, structural demand, consumption pattern effect and scale effect. This model will allow country to identify effect of energy consumption, energy mix and production efficiency as one of direct source of emission without ignoring link to economic structure and growth of final demand. This research is the first attempt in decomposing CO2 emission change in multi sectoral in Indonesia due to lack of literatures about energy related emission change in Indonesia. This study found that “electricity, water and gas”, “construction” and “mining” has become main drivers of increasing CO2 emission with growth in final demand as main driving factors. Meanwhile, increased energy intensity causes considerable impact on emissions in the long run and technology factor decreased potential emissions in the long run. This study also found that changes in demand structure to energy-intensive sectors especially in exports as well as increased demand for “construction” sector on capital expenditure contribute to long-term emissions.

INDONESIAN HOUSEHOLD ENERGY ACCESS AND COST BURDEN

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ABSTRACT
Despite remarkable success in bringing modern fuels, such as electricity and LPG, to its people, the affordability issue of modern energy is one aspect that challenging the Indonesia Government. The increase in access to modern fuels might bring up consequences especially when it boosted significantly by government programs instead of natural necessity. An improved access to LPG and electricity needs higher energy expenditures which might lead to energy poverty, a condition which households spend their income for energy above normal level. While most studies of household energy used in Indonesia have emphasized on consumption of modern energy, it is also crucial to examine affordability of modern energy. Using econometrics and SUSENAS data in 2004 and 2014, this study aimed to analyze household spending pattern on modern energy and the effect of higher energy prices on different income levels and different household location. An important finding of this study is that the increase in access to modern energy in Indonesia is predicted to increase household energy expenditure. This study, also found that there is no evidence of energy poverty in Indonesia under Broadman’s criteria. However, it needs to be interpreted with caution, given the highly price subsidy of electricity and LPG borne by the government in the past. The higher the level of income and the closer to the urban center, the smaller impact of increased energy expenditure caused by increased access to modern energy, and vice versa.

Keywords: Energy Accessibility; Modern Energy; Energy Poverty; Household Expenditure
SELF EFFICACY OF STREET CHILDREN IN JABODETABEK IN UTILIZING HEALTH SERVICES

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ABSTRACT
Discomfort that is often felt by street children in utilizing health services occurs because of negative perceptions of themselves which come from themselves and surrounding environment. This caused street children as marginal groups, as they do not have the confidence to access health services. This condition is complicated by the limited health services for adolescents. Street children need to develop self-efficacy that can build their confidence and courage in the process of seeking treatment. This study aims to describe self-efficacy which is an internal factor that can influence the behavior of street children in seeking health services. Cross sectional quantitative research with simple random sampling method used to retrieve 115 samples of the children-on-the-street aged 12-20 years in five urban areas in Indonesia, namely Jakarta, Bogor, Depok, Tangerang and Bekasi (JABODETABEK). The results showed that self-efficacy variables could influence the behavior of street children using health services (OR = 3.847). These results proved that street children with high self-efficacy had four-times potential of behavior in utilizing health services compared to street children with low self-efficacy. This also proved that increasing self-efficacy could help street children to have healthy behaviors and improve their ability to monitor their health independently. Increasing self-efficacy is one of the effective strategies to overcome health problems in street children.

Keywords: Utilizing Health Services; Self-Efficacy; Street Children; JABODETABEK
RADIAL SEATING PATTERN IN THIRD PLACES TO ENHANCE THE LIFE QUALITY OF ELDERLY

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ABSTRACT
Considered as people with both physical and/or mental disabilities, an elderly might find it hard to get into a social involvement. However, being bedridden and disconnected with their social circle is proven to be causing more damage to their health, hence declining their quality of life. They would feel lonely by staying at their ward or simply doing nothing while waiting for the lines-up in clinics. They need a place to connect and to enjoy both by themselves or by company of others. The place where they could feel at home, a \textit{home-like} place which is called a \textit{third place}. This paper seeks to find the \textit{home-like} factor in a third place as a site to help enhancing the quality of life of the elderly. The study was done through \textit{home} and \textit{at-homeness} theory in literature study as well as case study in Hema Resto, Kemang Pratama, Bekasi City, Indonesia with defamiliarization and interviews. The result indicates that the arrangement of radial seating pattern helps them to connect more with people around them, giving them chance to be involved. It is suggested that having a keen attention in designing the spaces and places for the elderly would encourage the enhancement of elderly’s life quality.

\textbf{Keywords:} Home-like; elderly’s quality of life; third place
HUMAN ACTIVITIES AND POSTURAL TRANSITIONS CLASSIFICATION USING SUPPORT VECTOR MACHINE AND K-NEAREST NEIGHBOR METHODS

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ABSTRACT
Nowadays, the gyroscope and accelerometer sensors are available on almost all smartphone devices. One of the uses of this sensor is to determine body’s position. Body’s position is related to human activity that could be related to someone’s fitness level, and monitoring it is one of the main focus smart city system. By using classification method, we can determine body’s position. The experiment was conducted using k-nearest neighbor (K-NN) with n-neighbors 3, 5, 7, and 9, and support vector machine (SVM) which kernels are polynomial, Radial Basis Function (RBF), and sigmoid methods. The results of the K-NN method for all n-neighbor variations, 85.3% - 85.7% for 10 folds of cross validation. While for SVM, only the RBF kernel has a good result with 86.0% for 10 folds of cross-validation. So it can be concluded that K-NN and SVM with kernel RBF have good result.

Keyword: Classification; Gyroscope and Accelerometer Sensor; HAP; K-Neighbors; SVM.
OP41

PRETREATMENT FOR HERBAL, TOFU AND FERTILIZER WASTE WITH UV/OZON METHODS AND THE UTILIZATION FOR SPIRULINA SP CULTIVATION

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ABSTRACT

The herbal, tofu and fertilizer industries contribute considerable waste. The waste contains COD and organic substances can be excluded by Advanced Oxidation Processes (AOPs) degradation method. The process of AOPs in this study used a combination of UV rays and ozone to produce hydroxyl radicals. This study was aimed to investigate the saving nutrients in *spirulina* *sp.* cultivation and calculate the growth rate of *spirulina* *sp.* cultivation. This research consists of two steps: (1) the initial COD analysis contained in each waste and waste recycle with UV-Ozon. (2) combine wastewater and *spirulina* *sp.* with 10 mg/L TSP, 10 mg/L Urea, 80mg/L NaHCO$_3$ and only *spirulina* *sp.* with 50 mg/L TSP, 50 mg/L Urea, 400mg/L NaHCO$_3$. Everyday *spirulina* *sp.* grows up until the Optical Density Maximum for control variable, tofu, herbal and fertilizer 10%, 25%,50% are 0.671; 0.436; 0.755; 0.912; 1.018; 0.850; 0.209; 0.843; 0.666; 0.698.

**Keywords**: degradation, COD, UV-Ozon, spirulina sp., cultivation
ACCESSIBILITY OF PRIMARY HEALTH CENTER (PHC) BUILDING IN BANDUNG FOR PEOPLE WITH DISABILITIES

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ABSTRACT
People with disabilities are those who have physical, mental, intellectual, or sensory limitations for a long time thus can hinder their full participation and effectiveness in society. In an effort to obtain adequate health services, people with disabilities need to get special services to accommodate their disabilities. Until now, there is no data which describes the accessibility of primary health center building in Indonesia, especially in Bandung. The purpose of this study was to find out the accessibility of Primary Health Center (PHC) in Bandung for people with disabilities. This study was a descriptive study with the subjects of PHC in Bandung which had been selected through cluster sampling. The data was obtained through direct observation in the period of August to September 2018. The accessibility of the building was assessed using the form adapted from the Minister of Public Works Regulation no.30/PRT/2006 and Minister of Health Regulation no.75 of 2014. A total of 15 PHC samples were assessed for accessibility. The average accessibility score of all PHC was 53.7%, with the lowest value being 30% (poor) to the highest 78.1% (good). As many as 87% of the PHC samples have poor accessibility. The accessibility of primary health center buildings for people with disabilities in Bandung in average still does not meet the standard. This is maybe due to the inadequate detail of accessibility criteria in national regulation of PHC and the fact that there are some PHC which have not been accredited yet.

Keywords: accessibility; primary health center; disability; Bandung
OP43

SHORT-TERM LOAD FORECASTING USING LEARNING VECTOR QUANTIZATION NEURAL NETWORK (LVQNN): A CASE STUDY ON ELECTRICAL SYSTEM IN BALI ISLAND

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ABSTRACT

Short-term load forecasting is an important activity in planning the operation of the electric power system to estimate the load conditions of the following days and the results may help in the decision making. The imbalance in electrical power between the supply side and the demand side may lead blackouts on the consumer side. Consequently, the generating unit must be operated to meet its load requirements. Various techniques and methods are used to short-term load forecasting. Learning vector quantization neural network (LVQNN) is a classification algorithm that is superior in classifying digital images. Based on these considerations this research aimed to develop LVQNN to forecast short-term electricity peak loads. The idea was used as a reference on the discovery of architectural data classification processes that resembled forecasting techniques. LVQNN development was carried out by adjusting the sample data architecture to the LVQNN architecture. First-distinct sample data were used to obtain the weight vector, then the remaining data from the distinct data process were divided into training data and test data. The computational results of LVQNN to predict large fluctuations in short-term electricity loads showed relatively small accuracy values. This indicated that the mean absolute percentage error (MAPE) of the predicted values of loads (in MW) were close to the actual loads.

Keywords: power system operation; LVQNN; MAPE; short term load forecasting
TROPICAL HOUSINGS WITH ECONOMICS ACTIVITIES CONSIDERATION IN WONOSOBO

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ABSTRACT

Kampung Sruni is an urban settlement located in the Dieng plateau region, Wonosobo Regency, Central Java. Like other residential areas close to government zones, the population in Sruni Village is constantly growing, both by inhabitants and migrants. Along with population growth, the new house buildings have been being constructed. Unfortunately, these new homes are being built with a lack of planning quality, such as green space, air circulation, natural lighting, and bad material. Improving the conditions of houses with urban acupuncture pattern then seems to be the most respectful way. The three site locations in Sruni Village are chosen—according to the different contexts of topography and surrounded neighborhood. On these three sites, houses are designed specifically to each site context. However, these three houses have the same design logic. The tropicality is emphasized by arrangement of space elements—wall, door, windows, openings—to obtain fresh air circulation and natural lighting penetration along the day. It aims to reduce the use of electricity during the day. For the spatial layout, the new buildings emphasize the availability of basic space: bedrooms, living room, bathroom and laundry, and kitchen. Another important idea is to put large enough space for economic activity. Attention to this kind of space inside each home is to generate family’s economy: to be used for shop, workshop, gallery, even guest house. The design logic of these three houses is expected to be duplicated and able to help inhabitants understand good house to improve their quality of life.

Keywords: housing, tropical, economy, green space, air flow, natural lighting
OP45

COULD STREET VENDORS BECOME A PARTNER IN SMART CITY PROJECT?

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ABSTRACT
Regions which become smart cities in Indonesia are big cities projected to be able to manage various resources effectively and efficiently to meet challenges of cities by using an innovative, integrated, and sustainable solution to provide infrastructures and city services which are able to improve life quality of their citizens. However, the implementation of smart city is facing challenges around informal economic activity especially street vendors. The presence of street vendors in public space often disturbs city planning and causes traffic jam, but on the other hand there are many people who depend on the informal sector and this sector promises high profit to the traders. It is generally believed that smart city is not all about technology but it needs the support of the citizens (smart citizens). Various policies on the arrangement of street vendors have been implemented to overcome it. Some of them are successful but many of them are unsuccessful. It has become a big task for some big cities in Indonesia to synergize street vendors in the city planning policy. This paper describes partnership strategies between street vendors and the local government in realizing the smart city project, so that a correct pattern can be found to build a comfortable and safe city and to strengthen economic competitiveness.

Keywords: Street Vendors, Smart City, Partnership.
CHARACTERIZATION OF TSP (SI, PB AND CA) FROM TROPICAL AMBIENT AIR DURING BUILDING CONSTRUCTION PROJECT

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ABSTRACT

Apartement development in urban areas is often proposed as solution to meet the housing needs. However, building construction could contribute air pollutants that have a negative impact on health. This activity could generate Total Suspended Particulate (TSP). This study aimed to quantify the composition of TSP (Si, Pb and Ca) arising from building construction activities and comparing the measurement results with the air quality standard in Indonesia. The sampling method was undertaken according to SNI 19-7119.3-2005. Based on this research, the TSP concentration in samples has exceeded the permissible limit (the highest concentration of TSP was 786.13 µg/m³). The result of characterization of TSP indicates that the highest Si concentration was found at the point of transportation path, while Pb and Ca were found in the stirring point of cement.

Keywords: Air Pollution, Ca, Pb, Si, Total Suspended Particulate
OP47

GEOMAGNETIC FIELD FINGERPRINT FROM WRISTBAND AND SMARTPHONE CLUSTERIZATION FOR INDOOR LOCALIZATION

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ABSTRACT
Nowadays, many wearables and smartphones have their built-in sensors that can be used to obtain the information about location to make an Indoor Localization Systems (ILS). It could be helpful on developing Smart City Systems, where ILS can handle the information collection about space and placement inside a room or building. In this research, we used the datasets of geomagnetic field fingerprint captured by both smartphone and smartwatch sensors from certain locations with timestamps provided, and then followed by clusterization processes to determine whether each device has good balance on signal receiving or not in the same environment. For the methods, we used K-Means (for k=2 to k=10) and Hierarchical Clustering. K-Means method shows that smartphone has lower Mean Squared Error (MSE) compared to smartwatch for each k values. As for both methods, data from smartphone is distributed fairly to each cluster. We can conclude that smartphone sensors is more balanced than smartwatch in terms of collecting data with geomagnetic sensors.

Keywords: Clusterization; Geomagnetic Sensors; Hierarchical Clustering; K-Means; Smart City; Smartphones; Wearables.
ABSTRACT
As the complexity of modern cities rising due to urbanization, urban planner and designer demand a new approach since the traditional one cannot accommodate the growing needs and requirements. The dynamization of urban areas have limited the urban planning and design that heavily relies on static, sectorial approaches and intuition. The traditional approach has resulted in a limitation of public participation and key urban stakeholders in critical process and decisions. In this age of information era, massive volumes of data about cities and their residents’ behaviour are scattered everywhere over time. Big data is viewed having great potentials for providing enhanced insights and improving decision-makings in urban planning and design to secure the success of smart cities effort. As big data provided for evidence-based high-quality decisions by analysing existing or past situations, it is assumed that it will improve the liveability, sustainability and resilience the urban planning and design output. This study aims to explore current applications of big data in urban planning and design to meet smart city aims including smart people, living, humane technology, environment and governance. This paper also shows the effort of NGO of INASCIF (Indonesia Smart City Forum) in driving smart city developments using the big data in Indonesia.
INVESTIGATING NURSES’ COPING STRATEGIES IN THEIR WORKPLACE AS AN INDICATOR OF QUALITY OF NURSES’ LIFE: A PRELIMINARY STUDY

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ABSTRACT
This study aims to investigate coping strategies used by nurses dealing with their workplace stressors as an indicator of quality of nurses’ life. Nursing is a profession which always exposed to stressful situations in the clinical area. Prolonged stress without effective coping strategies may negatively contribute to the nurses’ quality of life. This study is a descriptive, cross-sectional design. A random sample of 134 nurses working in both public and private hospitals was surveyed in this study using the Brief COPE Questionnaire. The findings indicate that the nurses used planning (33%), instrumental support (31%), positive reframing (29%), and denial (27%) as the highest frequent used coping strategies. The results of this study described the picture of the nurses’ most frequently used of coping strategies in their workplace. The next stage in this study will aim to examine the influence of such coping strategies toward nurses’ quality of life and well-being.

Keywords: nurse, coping strategy, quality of life
PP2

PRELIMINARY STUDY ON BANDUNG SUSTAINABLE URBAN MOBILITY POLICY: THE CONTRIBUTION OF PUBLIC TRANSPORTATION ON EMISSION

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ABSTRACT
Transportation policy in Bandung Municipality has going forward to fundamental environmentally oriented changes. Mobility is the key driver for development, while type of transportation links between areas and connecting each other to facilitate their economic and social needs. Development of Bus Rapid Transit (BRT) is one of the solutions to reduce the use of private vehicles with the provision of mass transportation. This study explained the existing service of Trans Metro Bandung (TMB) and its emission related with the environment. We analysed TMB’s emission factor by using Vehicle Kilometres Travelled (VKT) and fuel consumption in a year. The results showed that the emissions of TMB was quite significant influenced the air quality of Bandung. Thus, other alternatives energy is suggested in the development of public transportation (BRT) that supports eco-transport.

Keywords: urban mobility, public transportation, vehicle kilometer travel, emission, eco transport
ABSTRACT
The need for space within the city is increasing. The city itself has residual spaces that are considered nonfunctional. Supported by factors such as the need for space and an attachment to the space itself, residual space has the possibility to be appropriated (taken over) by the city dwellers. One of residual spaces within the city is an unused riverfront. The city of Jakarta is bypassed by the Ciliwung river. In the Dutch colonial era, there was an increase of immigrants consisting of laborers who needed shelter, resulting in slums or river-side settlements, as the river is the only source of clean water for villages that do not have adequate facilities. The Ciliwung River was then used as a sewer, which prompted the government to erect fences on the banks of the Ciliwung River, creating residual spaces on the banks of the Ciliwung River. Although the river is viewed as residual space for other city dwellers, a section of Ciliwung is appropriated by a number of villagers in the Cikini area. By observing the appropriation activity as an alteration resulting in the transformation of a residual space, it will show the potential of the residual space itself and the emergence of functionality in the residual space.

Keywords: Space appropriation, residual space, riverfront, Cikini
HUBUNGAN INDEKS PLASTISITAS DENGAN KECEPATAN PENURUNAN TANAH
(STUDI KASUS PEMBANGUNAN DI KAMPUS LIPI KARANGSAMBUNG,
KABUPATEN KEBUMEN, JAWA TENGAH)

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ABSTRACT
The building is stable if it’s able to withstand the load above and slightly decreasing soil. In
development planning it is necessary to the condition of the soil to avoid building construction
failure so it needs to be tested first. Plasticity soil can have high expansive or shrinking
properties depend on the amount of water content and the type of soil minerals contained.
The level of expanding and contracting the soil will have an impact on soil subsidence. The
velocity of the land subsidence is calculated using the consolidation coefficient results from
the consolidation test. Consolidation is a process of slowing down the volume slowly on
perfectly saturated soils with low permeability due to pore drainage. The study aims to
determine the bond of the plasticity index with the consolidation coefficients of the samples
obtained so that it is known the speed of land settlement due to the burden borne by the soil.
Soil samples were taken by maintaining the original properties (undisturbed sample), then
tested the physical properties and mechanical properties of the consolidation test. Based on
the results of the processing of index indexing plasticity obtained in the range of 28.58% -
30.23% and the consolidation coefficient ranges from 0.00568 cm2 / sec to 0.00783 cm2 /
sec. From these values it is found that the greater the plasticity index, the smaller the
coefficient of consolidation. So that the magnitude of the plasticity index has a proportional
bond to the speed of land subsidence.

Keywords: consolidation, plasticity index, velocity settlement soil.
EVALUATION OF ORGANIC MATTERS, HYDROCARBON POTENTIAL AND THERMAL MATURITY OF SOURCE ROCKS BASED ON GEOCHEMICAL AND STATISTICAL METHODS: CASE STUDY OF MIOCENE OF THE SEBLAT AND LEMAU FORMATION, BENGKULU BASIN

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ABSTRACT
32 rock samples have been studied by means of geochemical and statistical analyses for evaluating source rocks. The geochemical analysis includes pyrolysis data. The results show that the Miocene Source rock are fair to excellent hydrocarbon potential level, with kerogen contained is included into Type II that have the capability of generating oil and limited gas. The analyzed data were treated statistically to find some factors, clusters, and relations concerning the evaluation of source rocks. These factors analysis can be classified into two factors. (1) Variables S2, TOC%, S1, and HI which determine the organic richness, hydrocarbon potentiality and the type of organic matter. (2) Variables PI, HI, and Tmax which determine the thermal maturity. In addition, cluster analysis separated the source rocks in the study area into two major groups. (1) Source rocks characterized by HI <400 (mg/g), TOC from 0.22 to 11.53%, S1 from 0.00 to 1.05(mg/g) and S2 from 0.04 to 23.64 (mg/g) ) indicating fair to good source rocks with kerogen of type II and III capable of generating oil and gas. (2) Source rocks characterized by HI 350 - <703 (mg/g), TOC from 5.39 to 23.58%, S1 from 0.24 to 0.88 (mg/g) and S2 from 29.62 to 84.48 (mg/g) indicating good to excellent source rocks with kerogen of type II capable of generating oil and limited gas. Moreover, Pearson’s correlation coefficient shows a strong positive correlation between TOC and S1, S2 and positive correlation between TOC and HI, and negative correlation between TOC and Tmax.

Keywords: Organic matter, Hydrocarbon potentiality, Factors, Clusters, and Pearson’s correlation
PP6

A LITERATURE REVIEW: URBAN TEENAGERS’ READINESS TO IMPROVE THE QUALITY OF LIFE TOWARD THE MENARCHE

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ABSTRACT
Menarche is the first experience of menstruation which can cause anxiety, fear, discomfort, and affect the quality of life of teenage. This was due to the taboo assumption to discuss menstruation with family and their environment. Therefore, this study was conducted to identify urban teenagers’ readiness toward menarche. This study was conducted with the process of searching, collecting and analyzing articles. The search sources used were Cinahl, Scopus, Cochrane, Pubmed and Congage databases. The keywords used were menarche, readiness, urban teenagers. The inclusion criteria used were 2013 - 2018 research articles, full text, English articles. The exclusion criteria used was non-urban teenagers. 124 articles found according to the keyword. After being selected based on the inclusion and exclusion criteria, 7 articles were analyzed. The result showed urban teenagers’ readiness consisted of internal and external readiness. Internal readiness consists of age and knowledge. Internal readiness can affect self-acceptance, maturity of mind, and views on the stages of growth and development that are being faced. External readiness consists of social support. Social support for urban teenagers is useful to get information and attention when menarche. External readiness for urban teenagers was already good but lack of internal readiness. Therefore, counseling and health education related to menarche is needed starting from elementary school.

Keywords: menarche, readiness, urban teenagers
PP7

DESIGN EFFICIENCY FOR BADMINTON TRAINING FACILITY IN WEST JAVA REGIONAL

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ABSTRACT
Badminton is one of popular sport in Indonesia. It is proved with the achievements that reached by the athletes from a long ago until now. Therefore, construction of a special training place at the provincial is a good thing to do. That also worthwhile for keeping performances badminton in Indonesia. However, the place for training need to be designed as good as possible in order to the athletes can practice with comfort and can reach better achievements. Badminton is one of sports that very closely related with the speed of wind and sunlight. It becomes a challenge for designer to indicates the practice area as per the standards. The high energy is really needed. However, the energy consumption that also high isn’t good for the environment. In this papers will be discuss how to make the energy simulation that later can be used to efficiently use energy.

Keywords: Energy, athlete, wind, sun
COMPARATIVE STUDY OF ENERGY CONSUMPTION BETWEEN OTTV AND SEFAIRA AT A HOUSE

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ABSTRACT
The facade design of the building besides being an attraction, has now become one of the technologies to save energy. This is because the building facade becomes the first casing to receive heat through the conduction and radiation processes. The formula for calculating the heat transfer value produced is regulated by OTTV or Overall Thermal Transfer Value written in the Bandung Mayor Regulation Number 1023 of 2016 concerning Green Building. The OTTV calculation method is done manually so that the results of the calculation are based on the actual situation. Unlike Sefaira Software, even though this software has the same function, the calculation variables and methods are different. Therefore, this study will discuss, the extent of the difference between the two formulas in calculating the heat transfer value in the same object, namely a residence. OTTV value is calculated based on the value of solar radiation absorbance, Equivalent Temperature Difference, Solar Factor, Fenestration, Shade Coefficient, and building envelope surface area. While the calculation with Sefaira considers the insulation value of each part of the building, lighting, ventilation, solar heat, U-Factor Glazing, Infiltration, and Equipment. The study was conducted for 12 hours, calculated from 06.00 to 18.00 with the same orientation and treatment. Based on the results of the tests that have been carried out, the results of the OTTV and Sefaira manual calculations have made a difference, this is due to different calculation variables and benchmarks.

Keywords: OTTV, Facade, Sefaira, Energy, Heat
DEVELOPING WEB-BASED ACTIVE TUTORIAL MODEL TO ENHANCE STUDENTS’ CRITICAL THINKING AND LEARNING COMMUNITY

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ABSTRACT
This study aims to develop web-based active tutorial model in Basic Chemistry subject to enhance critical thinking and learning community of students as prospective chemistry teachers. This development research consists of define, design, develop, and disseminate steps and utilizes instruments namely questionnaires, validation sheets, interview guidelines, field records, observation sheets, and test. It produces Chemwebs instructional material which has been tested for its validity, practicality, and effectiveness. This product is categorized as valid based on expert reviews with an average score of 4.22. Product’s practicality in one-to-one evaluation is 4.01 while in small-group testing is 4.30. Field test results show that this product is effective to enhance students’ learning outcomes and improve their critical thinking skills noticed from gain-score of its indicators which is about 0.6. Students also tend to be active in learning community and discuss topics contained in this product inside and outside classroom.

Keywords: web-based active tutorial model; critical thinking; learning community
ABSTRACT
This study aims to determine the characteristics of activated carbon from rubber fruit shell and its potential to adsorb color waste produced by Songket craft home industry in Palembang city. This study applied varied carbonization temperature i.e. 500°C, 550°C, 600°C, and 650°C and different activators: KOH and H3PO4. Data obtained from this research were then compared to Indonesian National Standard and Indonesian Industry Standard. Findings show that the optimum content of moisture, ash, and volatile matter in this activated carbon are 4.40%, 3.86%, and 25.48%, respectively. Its abilities to adsorb iodine, methylene blue, benzene and chloroform are 658.34 mg/g, 19.23 mg/g, 4.62%, and 10.93%. This activated carbon can adsorb procion blue about 2.16 mg/g. This study results a new recommendation to combine this activated carbon with zeolite in a particular formulation to improve its ability to adsorb color waste of Palembang Songket crafts.

Keywords: activated carbon, characteristics, color waste adsorption
THE IMPACT OF THE DEVELOPMENT OF THE LARGEST FOUNTAIN OF SOUTHEAST ASIA ON THE ECONOMIC PATTERN OF THE COMMUNITY

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ABSTRACT
This article discusses how the biggest fountain development policies in Southeast Asia can have a welfare impact on society. This research was conducted in Purwakarta, West Java, Indonesia. This research is based on the assumption that the development of the city becomes more attractive and has a very close relationship with the social welfare and economic growth of a region. This study uses a case study of activities carried out in the program of District Purwakarta government of tourism in the city through the construction of fountains. To collect data, the writers do some interviews, observation and document analyses. Face-to-face interviews using a structured questionnaire have been developed for this study. Research findings indicate that the implementation of the fountain development policy has improved the welfare of the community, even though it was only a stimulus one.

Keywords: City Tourism; Modern City; Economic Change; Community Welfare
TOWARD THE SAFE LIVE-ABLE BUILT ENVIRONMENT AROUND CILETUH-PALABUHANRATU GEOPARK AREA IN SUKABUMI REGENCY, INDONESIA

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ABSTRACT
The newly appointed UNESCO Global Geopark of Ciletuh-Palabuhanratu is located around the Pelabuhan Ratu Bay in the southwestern part of Sukabumi Regency. There are several geosites in this geopark along the coastline included in 8 districts. This study area is marked by the presence of Cimandiri active fault in the form of river mouth to the bay. The active fault zone is home to several epicentres of shallow earthquakes in the study area. This paper is aimed to highlight the needs of creating disaster resilience community toward the safe live-able environment. Methodology in this study consists of analysing geological hazard potential maps and communities distribution in the built environment related to geotourism. Result of study shows that the geopark assignment has attract more tourists and visitors to this area than before. Some locations of geosites are found vulnerable of geological disaster such as earthquake and tsunami. It is relatively unsafe for the inhabitants and visitors when this geological event occurs. Several communities have attention to build disaster resilience through education stakeholders as well as disaster awareness for the public. It can be concluded that the ideas of disaster resilience for community are already started to be implemented eventhough there is still a lot work to do in supporting the safe live-able environment especially in facing the geotourism development in the study area.

Keywords: Geopark, safety, geological disaster, built environment, Ciletuh-Palabuhanratu
SEISMICITY OF HOLTEKAMP BRIDGE AT JAYAPURA REGION BASED ON EARTHQUAKE DATA MICROTREMOR MEASUREMENT

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ABSTRACT
Holtekamp bridge which is located in Jayapura region in the North part of Papua island. The region constitutes an active earthquake zone with the recurrence frequency and magnitude of the earthquake are relatively high. The region is located on and active fault zone. The seismotectonic setting in the region is directly implying to the calculations of the seismic design for engineering and design purposes on building and non-building structures including Holtekamp bridge in Jayapura city. To recognize characteristic of the earthquake at the site of interest, the historical earthquakes (background) data surrounding the study area and local microtremor measurements data are analyzed by means of a probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) using some ground-motion models in attenuation relationship equations in resulting of seismic hazard parameter as represented by peak ground acceleration (PGA) values in earthquake scenario at operating basis earthquake (OBE), maximum design earthquake (MDE), and maximum credible earthquake (MCE) conditions. These values are used as reference to evaluate compliance of the current technical aspects with the new required design facing the updated seismicity parameters.

Keywords: Seismicity, Seismic Hazard Analysis, Peak Ground Acceleration
VALIDITY AND RELIABILITY OF THE PATIENT ASSESSMENT OF CONSTIPATION: SYMPTOMS (PAC-SYM) IN THE INDONESIAN LANGUAGE

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ABSTRACT
Introduction: Constipation is a very subjective symptom experienced by patients. Although ROME-IV could be used for diagnosis of functional constipation, it could not assess treatment response. The Patient Assessment of Constipation – Symptoms (PAC-SYM) questionnaire was developed for this purpose. However, the PAC-SYM had not been translated and adapted into Indonesian language. The original PAC-SYM questionnaire was translated and adapted based on the available guidelines. The final version of the translation was then used to perform validity and reliability analysis. A total of 64 patients with chronic constipation from the local community in Jakarta, Indonesia was used for the psychometric evaluation. Principal component analysis and structural equation modeling were also attempted. Most of the study subjects were female. The Cronbach’s alpha for the overall average score was 0.869 which showed good internal consistency. The intraclass correlation coefficient for the overall score was 0.743 which showed good test-retest reliability. Content validity was considered to be sufficient by experts. Each domain correlated strongly with the total score. PAC-SYM had moderate correlation with PAC-QOL which showed concurrent validity. The multi-trait analysis showed scaling success. Question 7 showed a very high floor effect (84.4%), and therefore omitted from the factor analysis. The principal component analysis revealed a new ‘two-factors’ structure, with question from the original ‘rectal’ domain combined into the ‘stool’ domain. The structural equation modeling indicated good model fit. The Indonesian version of PAC-SYM was valid and reliable to be used in clinical settings.

Keywords: constipation severity, symptoms, Indonesia, validity, reliability
COMMUNITY PERSPECTIVES ABOUT REPRODUCTIVE HEALTH AND JAKPROS SMART MOBILE APPLICATION


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ABSTRACT

In this day, mobile application is being used as an information source. People is easily searches for any information, especially regarding reproductive health. Unfortunately, validation of information in internet still doubtful. We knew that knowledge plays an important role in improving the personal quality of reproductive health. Our study was to analyse and explain community perspective about reproductive health and their opinion after used Jakpros application for daily basis. The sample conducted of 16 subjects from two sub-district general hospital in Jakarta. The subject consisted of women in reproductive age. In this study, we used descriptive analytics and qualitative method. Data was collected by direct observation in small focus group discussion. Participants admitted after they used Jakpros application feature, they were more aware about their reproductive health. Jakpros provides convenience in accessing information and knowledge in valid way.

Keywords: Jakarta Reproduksi Sehat; Jakpros; Mobile Application; Reproductive Health; Social Media
ABSTRACT

Batu Mejan Beach as a tourist destination located in Badung Regency has erosion. The government has tried to protect the Batu Mejan beach with a revetment. The existence of the revetment has not been effective at this time because of scouring by waves. One alternative coastal protection that can optimize the protection of Batu Mejan beach from erosion is the low crested breakwater. The peak of the Low Crested breakwater is below the average water level so that the aesthetics of Batu Mejan beach are not disturbed. This breakwater works as a damper for wave energy before reaching the beach. With this breakwater further damage from the revetment can be prevented. The material used to build low crested breakwaters is a tube-shaped geotextile called a geotube. There are two models of low crested breakwater made from geotextile, which are simulated. Model selection based on transmission wave height and beach aesthetics. Model 1 is chosen because the results of the transmission wave are smaller than the incoming wave. While Model 2 does not produce wave runoff, so the condition does not support the Batu Mejan beach function as a tourist beach. The breakwater dimension requires 6 units of tubes with a width of 7.80 m, a length of 60 m, and a gap of 40 m.

Keywords: Erosion, geotube, Batu Mejan Beach, low crested breakwater
MULTILAYER PERCEPTRON FOR ACTIVITY RECOGNITION USING A BATTERYLESS WEARABLE SENSOR

Dwiki Nurkurniawan

ABSTRACT
Smart City is being one of the trend around the world today. In order to achieve a smart city environment, we need everything to be connected and can be managed as well. One of the aspect that have strong impact on people life are their own activities. A smart city should have been accompanied by smart people, and it could be achieved by using sensors to recognize their activities. In this research, we present and evaluate a method to recognize the gesture of someone leaving bed using RFID device. We used classification approaches in our system to conduct the experiment. The method that we are using is MLP (Multi-Layer Perceptron). By using this method, we got 91.56% of accuracy, which is slightly better than Naive Bayesian that got 84.77% of accuracy.

Keywords: Activity Recognition; Multi-Layer Perceptron; RFID Device; Smart City; Smart People
TAMAN BACAAN MASYARAKAT, A GLOBAL LITERACY POTENTIAL IN BANDUNG SMART CITY

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ABSTRACT
Taman Bacaan Masyarakat (TBM) have a long story as the movement center of information literacy. At the beginning of its emergence, in the 1990s, Taman Bacaan Masyarakat stretched slowly but surely became the driving force for information literacy. In its development, TBMs emerged as a learning center, until there were several of them who were also leading the role of empowerment centers for the community. Using the case study method from qualitative research, this article tries to explore the other side of the role of TBM in the midst of society in an effort to prepare an information society in Bandung Smart City to face global challenges. The study of several cases in previous studies with the topic of TBM studies shows that there is a role for TBM that has not been explored related to the challenges of globalization. This article seeks to reveal the unique side of TBM as a global literacy center in Bandung Smart City. Hopefully the writing in this article will provide a discourse space for researchers of information literacy to continue to inspire TBMs that are actively growing in the midst of society to be part of community empowerment efforts, as well as global literacy locomotives for the environment.

Keywords: Global literacy; information literacy; smart city; community development; community empowerment; Taman Bacaan Masyarakat
RESIDENTIAL LAND USE CHANGE AND TERRITORIAL CLASH

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ABSTRACT
This paper discusses the process of land use change for residential space to become commercial space in relation to territorial clash issues. This change often occurs in residential spaces that have a high land value, adequate public facilities, an access to the city center, and the landowner’s desire to open a business of his own, as well as the leeway in regulations that allows the land use change. This research focuses on the social impacts that occur such as the presence of comfort disturbances, territorial disturbances, and social disturbances. This research used observation and interview method on a street in the Bintaro Jaya residential complex. We observed the behavior, activities, and circulation that occurred and after that, we conducted in-depth interviews with the residents to understand the residents’ perception regarding their territory and with the developer to get a master plan and the regulations in that area. We found that there was a territorial clash between the residential and the commercial space such as parking area issues, visual and audio disturbances which had a negative impact on the residents. After we understood how the process of land use change occurs and also its impacts on the residents, we concluded that the main road is not effective to be used for a residential space due to the potential to be developed into commercial space in the future.

Keywords: land use change; residential space; commercial space; territorial clash
HOW TO IMPROVE QUALITY OF LIFE OF ADOLESCENTS WITH MENSTRUAL PROBLEMS?

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ABSTRACT

Menstruation is a normal cycle experienced among women however there were a number of menstrual problems that can occur in adolescent. The common of menstrual problems include menstrual disorders such as hyper-menorrhea/menorrhagia, hypo-menorrhea, poly-menorrhea, oligomenorrhea, amenorrhea, menometoragia, premenstrual tension, and dysmenorrhea. These menstrual problems can decrease of quality of life among adolescent. This systematic review aimed to describe the findings from studies about the interventions to enhance quality of life of adolescents with menstrual problems. The review process was conducted using electronic databases: PubMed, Proquest, Google scholar and EBSCO. The keywords used were Quality of life, Menstruation problems, Menstruation periods, Teenage, and Urban. The inclusion criteria of articles were taken from 2015 to 2018 while the exclusion criteria were articles that were non-English. The review identified a total of 12 articles. However, according to the inclusion and exclusion criteria, 6 articles were obtained. The method used was experimental and cross sectional study. In addition, the analysis was used content analysis process. Menstrual problems can be minimized by doing various physical exercises continuously and intensively, the factors of age and counseling from the closest person greatly determines the quality of life in adolescents with menstrual problems. In addition, providing TENS therapy and drug therapy among adolescent can help to improve the quality of life in adolescents with menstrual problems. Menstrual problems can be reduced in various ways, include physical, pharmacological and non-pharmacological aspect so that the quality of life of adolescents can be maintained and can even be improved. The further research is needed to determine the prevalence of risk factors and techniques to overcome menstrual problems so it will improve the quality of life.

Keywords: menstruation problem, menstruation period, quality of life and adolescent
HUMAN RESOURCES IN THE URBAN ENVIRONMENT OF CITATAH MINING AREA, WEST BANDUNG REGENCY, INDONESIA

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ABSTRACT
Citatah area of West Bandung Regency has several locations of mining site in West Java Province. The mining sites consist of limestone, marble, andesite and sand quarries. The long period of mining industry had been started since colonial era. Despite the environmental damages due to mining operation, there are still many people living in this area. The objective of this paper is to examine the available human resources around the study area to support its mining industry. Methodology in this study consists of human resources mapping to analyse its support for sustainable urban environment. Results show that around several quarries in the study area people have no longer interests to support the mining industry. Some communities have more attention to build the more sustainable idea of geotourism by creating historical site of Guha Pawon Cave and the beautiful Stone Garden in the study area. It can be concluded that there is awareness of community for the conservation ideas to support the sustainable urban development rather than mining industry.

Keywords: Human resources; Mining, Urban development, Environment, Citatah
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SENSORLESS SYNCHRONOUS MOTORS CLASSIFICATION USING RANDOM FOREST AND LINEAR SUPPORT VECTOR CLASSIFIER

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ABSTRACT
Automation system become increasingly complex and it needed to be monitored actively. Due to wide variance tasks to be done not suprising that the complexity problem occurs. The failure of the system can impact to economic loss for a company. For this purpose, this paper compare the methods to classify sensorless synchronous motors task to investigate the accuracy and precision of random forest classification and linear Support Vector Classifier (SCV). With cross-validation, the result show that the average accuracy is 99% with random forest and 65% with linear SCV. As the conclusion, random forest classification is more precise than SCV method in this field.

Keywords: sensorless; random forest; scv; classification
COASTLINE CHANGES IN SERANG CITY, BANTEN PROVINCE

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ABSTRACT
The coastline is a dynamic land form because of the processes which come from the sea as well as from the land. Change in the coastline is the shifting position of the beach from its former place. There are many types of changes in the coastlines that are caused by many factors whether they are natural or human factors. The problem in this study is how coastline changes are caused by natural factors and human factors in Serang City. The research used Landsat 5, 7, and 8 images with 3 periods which were 1990 and 1998, 1998 and 2008, and the last period was 2008 and 2018. Abrasion and accretion is calculated based on the area, rate, distance changes, and long coastline experienced both. Land physical variables that are used in this research are topography, geology, land use and coastline, while the oceanic physical variables are ocean waves, currents, and tides. Human activities also become research variables such as sea sand mining. The result showed that coastline change happened along the coastal areas in Serang City. One of the evidence is an abrasion area that destroyed a mangrove forest in Karangantu Beach

Keywords: Abrasion, Accretion, Natural Factors, Human Factors
ABSTRACT
Transformation is something inevitable to city spaces’ sustainability. By the time, the alteration of various elements of life are developed to indefinite boundary. The unexpected direction of development somehow unexpectedly fabricates the attachment of informal movement. Addressing the issues, this writing discusses the relation of rapid urban transformation and informality, as well as its position between one another. The research conducted specifically in Kelapa Dua – Depok, in which site was performing major physical and functional transformation since the past decades. In addition to literature studies and field observation, this research completed by mapping and in-depth interview with various people living there. Hereinafer, the research found that informality emerges as substitution of formal sector, by a way of unanticipated and unaccommodated proceeds of transformation.

Keywords: Informality, Street Vendors, Sustainability, Transformation, Urban DMA
THE EFFECT OF SUPPORT GROUP IN QUALITY OF LIFE OF BREAST CANCER PATIENTS UNDERGOING TREATMENT IN BANDUNG CITY

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ABSTRACT
The results of basic health research (Risksdas) in 2013 showed that breast cancer is the second largest cancer suffered by women in Indonesia. The problem that was generally complained of breast cancer patients was the decline in the quality of life of patients. One of the interventions to improve the quality of life of breast cancer patients is support group. Support groups are one of the more formal ways that’s social support can be given and received. The type and approach of the support groups depending on the objectives to be achieved. The purpose of this study was to analyze the effect of group support in the quality of life of breast cancer patients. This study used quasi experiment method. Sampling technique was purposive sampling with number of samples were 40. The location this research was in cancer layer homes in Bandung City. Determination of patient’s quality of life based on Quality of Life Cancer Survivor Version (QOL-CSV). Measurement of quality of life score was pretest, posttest 1 and posttest 2. The result of Repeated Anova in intervention groups showed the p-value was 0.000 or <0.05. As for the control group, the p-value showed 0.214 or >0.05. The result of One Way Anova in posttest 1 was 0.124 and for posttest 2 was 0.000. Support group significantly influenced the quality of life of breast cancer patients. Support groups could be established in Cancer Layer Home as an effort to improve the quality of life of breast cancer patients

Keywords: Breast Cancer, Cancer Homecare, Support group, Quality of life
TRANSFORMATION OF THE BUILT FORMS AND ITS IMPLICATION TO THE QUALITY OF A UNIQUE DOMESTIC LIVING ENVIRONMENT

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ABSTRACT
In the implementation of the so called desa wisata program which is translated as a community-based tourism, many Bali Aga settlements have been targeted for this agenda for their distinctive social and physical arrangements. It is perpetuatively claimed that, the foremost rationale underlining this program is to empower local people to actively participate in the tourist industry, thus they have more of the opportunity to benefit from the industry, rather than being merely the object and reserved players in Bali’s tourist development, as it has been claimed happening for so long. In conformance to this program, many settlements have made assorted adjustments both to their behavior and the physical setting of their environments and built forms in order to accommodate tourism. Some communities may have done these under a strict and conscious control over the process, others however have not. Being inspired by O’Connor’s (1996) principle in saying that ‘capitalism destroys the sources of its own success,’ this article investigates as to how transformation of the built forms taking place in Penglipuran Village, a Bali Aga community of Bangli Regency, have weakened inherent values and practices contained within, which fundamentally the reasons the tourist come to visit the village at the first place. Without aiming to restrict the complexity of the discussion, this article focuses on adjustments that have taken place at the domestic level, the area in which transformation of physical and non physical vernacular elements are most observable.

Keywords: Bali Aga; transformation of the built forms; domestic architecture; quality of the living environment.
GEOGRAPHIC INFORMATION SYSTEM DEVELOPMENT FOR SUPPORT BUNGA MEKAR AS TOURISM VILLAGE

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ABSTRACT

Bunga Mekar Village has several tourism and cultural potentials that are able to be developed, but these resources have not been well mapped, let alone developed or packaged in such a way as to become a tourism commodity. Because of the tourism potential has not been developed in an organized and directed form, it has not led to promotion to introduce the tourism potential to the public. By mapping and compiling data on areas of tourism potential, natural resources and local culture in Bunga Mekar Village, developing geographic information system can be used to support Bunga Mekar Village as a tourism village. This geographic information system was built based on the web with the development of access through desktops and mobile devices based on Android. The data is taken through surveys and stored using the Open Data Kit application. The map used is processed using the MapInfo application.

Keywords: Tourism Village, Geographic Information System, Potential Mapping
DESIGN THE MANUFACTURING PROCESS OF A METAL GASKET

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ABSTRACT
Gaskets are very important in preventing leakage in the water piping system. Designing a gasket forming process is important to ensure that the products produced are as desired so that they can work optimally to prevent leakage. The use of software based finite element method is widely used in design to minimize the cost, time, and experimental material. In this study examined the effect of forming process parameters such as die speed and type of die on gasket products. The results of the computer simulation, it is expected to get the best parameters to produce gasket products when gasket produced later.

Keywords: gasket, forming, finite element, die, piping.
THE EFFECT OF ETHANOL EXTRACT MYMERCODIA PENDANS ON PARACETAMOL-INDUCED HEPATOTOXICITY IN WHITE RATS

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ABSTRACT
The present study was investigates the hepatoprotective effect of ethanol extract Mymercodia pendans in male white rats. Hepatotoxicity was induced in rats by oral administration of paracetamol 250 mg/kg/d for ten days. Effect of concurrent administration of ethanol extract Mymercodia pendans at a dose of 250 mg/kg/d given by oral route was determined using aspartate transaminase, alanine transaminase and histological parameter as indicators of hepatic damage. The results showed that ethanol extract of Myrmecodia pendans produced significant (p<0.05) decrease in paracetamol induced increased levels of liver enzymes. The conclusion is ethanolic extract of Myrmecodia pendans possess hepatoprotective activity.

Keywords: Myrmecodia pendans, hepatotoxicity, paracetamol, liver enzymes
FINANCIAL STUDIES OF RAILWAY DEVELOPMENT IN CANGGU-GILIMANUK CORRIDOR IN BALE PROVINCE

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ABSTRACT
Financial studies of railway development in Canggu-Gilimanuk corridor in Bali Province are motivated by demand of railway users in Canggu-Gilimanuk Corridor. The purpose of this study is to know whether or not it is feasible for the construction project of Canggu-Gilimanuk corridor train in Bali Province from financial aspect. Sources of data used in this study is most of the primary data that is the result of direct interviews of public transport users and secondary data in the form of AKAP passenger transport data of Ubung Terminal. Planned trace along 97.64 km consisting of 5 point stations. The selection of rail mode using the binomial formula difference, obtained by PKA : 1 / (1 + exp (0.571 + 0.0004 (Cjr-Cjb))). The estimation of passengers at the beginning of operation (2020) is 366,290 per track with the increase of individual average cost 1.24% per year and the financial feasibility analysis is calculated using the NPV, BCR and IRR methods, so it is not feasible with the sensitivity analysis then the analysis with the substitution analysis.

Keywords: Railway, Financial Studies, Canggu-Gilimanuk Corridor
THE ROBUST PID CONTROL SYSTEM OF TEMPERATURE STABILITY AND HUMIDITY ON INFANT INCUBATOR BASED ON ARDUINO MEGA 2560

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ABSTRACT
Premature babies have a high level of sensitivity that one of them is toward temperature and humidity of the surrounding environment. Therefore special treatment is required for premature babies. Related to it the babies required infant incubator to stabilize the temperature and humidity around the baby's body. To control temperature stability at 36 °C and humidity at 80% - 60% RH value in incubator space required Arduino Mega 2560, Arduino Uno, LM35 sensor, DHT22 sensor and added PID control (Proportional Integral Derivative) to reduce Mp (maximum overshoot) and e error signal average ≤ 5% and speed up the system to reach the setting point. From the results of research conducted for 36000 seconds and conducted with two sessions on the prototype of infants without load and the burden of 2 kg temperature stability obtained 36°C and humidity in the range 80% - 60% RH in the incubator room using Arduino Mega 2560 as the system center. With the PID control the maximum overshoot value of Mp = 0.833889%, the error signal average e = 0.011033% and the temperature reached steady level at the 218th seconds on testing the infant prototype without load. Meanwhile, in testing the infant incubator prototype with 2 kg loading obtained the maximum overshoot value Mp = 1.3611111%, the error signal average e = 0.030154 and the temperature reached steady state at 246 seconds.

Keywords: Infant Incubator, PID Control, Arduino Mega 2560; Arduino Uno; Sensor LM35; DHT22 Sensor
ABSTRACT
Most women with gynecological cancer have low of quality of life. This is due to the perception of the community that identifies cancer with death thus creates a feeling of being useless for life and introvert more. To overcome, a nursing intervention is needed that can improve the quality of life of patients with gynecological cancer. The literature search was conducted using EBSCO, PubMed, ProQuest and Cengage with the key words gynecological cancer, quality of life, nursing intervention. Furthermore, 188 articles (EBSCO 5, PubMed 13, ProQuest 169 and Cengage 1) were retrieved, of which 11 (EBSCO 2, PubMed 6, and ProQuest 3). The findings are made in table form and narrated. Findings showed that certain nursing interventions can be done to improve the quality of life on gynecologic cancer survivors through physical activity, palliative care, Anma therapy, homecare, Leadership and Coaching for Health (LEACH) programs, Non-sporting qigong (NSQG), qigong sports (SQG), and Our Fear of Recurrence Therapy (FORT). Providing comprehensive physical and psychological nursing interventions through both hospital and home care services can improve the quality of life on gynecologic cancer survivors.

Keywords: gynecological cancer, quality of life, nursing interventions
PRELIMINARY STUDY OF SMART URBAN WASTE RECYCLING IN SEMARANG, CENTRAL JAVA, INDONESIA

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ABSTRACT
The emergence of waste management technology innovation is able to inhibit the accumulation of waste in temporary landfills and landfill. Innovations that have been developed in developed countries and summarized in the concept of "Smart Waste Management" are still not able to be applied to cities in developing countries, such as Indonesia. This is because the technologies that already exist in Indonesia are still far behind by developed countries in the world. In addition to sophisticated technology, the understanding and behavior of the community has also been more advanced in the field of waste management, which starts from the process of sorting waste in each household to the recycling process of waste to minimize the amount of waste entering the landfill. This study took place in the city of Semarang, Central Java where the area is an urban area with waste problems that must be addressed immediately. The lack of technology, especially the city-scale recycling technology makes land in the final disposal site increasingly unable to accommodate the production of waste that enters every day. Therefore, the purpose of this study is to define the concept of smart waste recycling that is suitable for cities in developing countries, such as the city of Semarang, based on the characteristics of the community and their understanding.

Keywords: urban, smart waste recycling
THE CHILD SAFETY SEAT USAGE BELIEF IN BANDUNG

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ABSTRACT
With the emerging needs of urban city development, transportation is one of the vital components in achieving equity in the development that needs to be focused on. In the 2030 Development Agenda for Sustainable Development, by the year 2020 the number of deaths and injuries from road traffic accident should be cut in half. One of the ways to achieve this goal is through preventive measure, especially in vulnerable road users group. The usage of Child Safety Seat (CSS) is one of the preventions that could be done to reduce harmful impact of road accident in infants and children. This study aims to explore the parents’ belief on the use of CSS to know the cause of low CSS usage level. This study was done in qualitative study design using mini-group discussions to 12 parents in Bandung with private car ownership and children under the age of 10. The mini-group discussions were done using Thought and Feeling Theory and Self-Efficacy Framework. The parents who didn’t use CSS had already know that CSS is used in reducing road accident impacts, but they just didn’t see the urgency to use one. Most of them thought that by letting their infants/children sitting on their lap is safer and more practical than using CSS. From this study, we can conclude that the parents who do not use CSS belief that letting their children or infants sit on their lap are safer than using CSS hence, the low CSS usage level.

Keywords: Child Restraint; Child Safety Seat; Parents' belief; Self-efficacy theory; Thought and Feeling theory
ABSTRACT
Sumedang is one of the Regency in West Java Province with a high potential in natural resources. This regency has a potential for being the SMART CITY, which has some of the well-known Campus, such as Padjadjaran University (Unpad) that could help to grow up the eco-social aspect in this area. Nevertheless, a high potential for natural resources did not follow by the capability of human resources. Therefore, a new insight in innovation was needed to develop and optimize the potential. This research aims to analyse the model of Science and Technology Park (STP) in a new perspective that is appropriate with the eco-social condition in Sumedang. STP is a science park that is managed by the professional specialties with the goals to grow up the community welfare through the innovation culture, business competitiveness, and institution based on knowledge. Generally, this research was conducted by using 3 phases that are analysing the eco-social condition, comparing the STPM in the different area, and designing the concept of STPM. According to the regional condition, STPM using the Penta-Helix concept was needed to improve the capability of human resources. The Penta-Helix concept uses the 5 major components to run the STP that are Government, Research Institute, Company, Information Technology (IT) and Society. Through this concept, the open collaboration system could happen between the 5 majors in their each field. By building an STP, Sumedang could be a SMART CITY and the eco-social progress thrusters in West Java Province.

Keywords: Penta-Helix Concept, Science and Technology Park (STP), Smart City, Sumedang Regency
ABSTRACT

Based on its functional aspects, the area is divided into two, namely urban and rural areas. Problems related to solid waste are not spared from that areas. However, problem solving solutions cannot be generalized between the two areas because of the different characteristics of the community. This study took place in Boyolali District, Central Java, consisting of 192 rural areas and 75 urban areas. Judging from the characteristics of the population, most people in rural areas do not consider the waste management system that is already important. The main reason is the applicable waste retribution. Rural communities prefer to burn all their waste on their own land rather than having to pay for waste transportation or recycle their waste. Unlike the case with people in urban areas who have followed the pattern of solid waste management carried out by the government. In addition, there are several community groups in urban areas that have begun to actively recycle waste even though they still use conventional technology. Therefore, the application of smart waste management, especially smart waste recycling, still cannot be applied in Boyolali District both in terms of technology, systems and community behavior due to differences in technology and characteristics of the communities in each region in one region.

Keywords: regional, smart waste recycling
ABSTRACT
Studies exploring the mother’s knowledge on child health and nutrition are mainly in rural setting, but limited information in urban setting area who faces complex challenges in nutrition transition. This study is aimed to measure the classification of knowledge of the mother of under-five years old children who reside in East Jakarta. The cross sectional study was linked to nested cohort study of East Jakarta, involving 113 pairs of mothers and their children. We developed questionnaire contained 27 questions for gathering data on knowledge on health and nutrition, macro and micro nutrients, stunting and its related causes, food diversity, immunization, pregnancy and supplement taking. We scored the answer from the subject used Likert Scale, categorized score 113-192, 193-272, 273 – 351 as poor, adequate and good, respectively. Descriptive data were analyzed to elaborate the classification of knowledge. More than half of the subjects came from the low socioeconomic level, 57%. Almost all of the mothers accomplished the basic education level. From the Likert Scale, 4 questions indicated poor and adequate knowledge of the mothers, scored 113-192, 193-272, respectively. For the poor and adequate knowledge, more than 40% of them finished senior high school and aged under 40 years old. Above 80% of question asked on health and nutrition indicating that mother’s knowledge is good, and they went for 9 years of schooling although the malnutrition remain occurred. Improving knowledge of the mother could enrich their understanding of supporting factors that benefit for the health of the children.

Keywords:
THE ANALYSES OF MYRMECODIA PENDENS CONTRIBUTED IN BONE HEALING PROCESS

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ABSTRACT

Myrmecodia pendens is a medicinal plant that has a therapeutic effect, because its content is very useful. Several studies have been conducted to find out, its contribution to the healing process. Bones are a very important part of the body for activities, therefore, the healing process must be faster than other injuries, so that activity is not disturbed. The aim of this study is to analyze from the literature and research related about this plant and looking for the contributed of the healing process of the bones injury. Research methods consisting of literature review have been conducted. After a review and analysis, it was found that Myrmecodia was used to find ingredients such as flavonoids, tannins, triterpenoids, saponins, quinones, and glycosides, and anti-inflammatory substances, which could be done. The conclusion that can be drawn is that Myrmecodia has the advantage of wound healing, and is more optimal for now.

Keywords: Myrmecodia pendens, bone healing
ABSTRACT
Pangururan-Simanindo are two districts located in Samosir regency. Pangururan is the capital of Samosir Regency and Simanindo located at the main entrance to Samosir Island. Spatial modeling for settlement suitability can be done by looking at changes over the past 15 years by analyzing driving factors that influence the development of settlements such as distance to the road, distance to Lake Border, point of inters and slope. Processing of remote sensing data and tabular data for spatial modeling of settlements in Pangururan-Simanindo is done by utilizing geographic information system application using Cellular automata method. The purpose of this study is to analyze the development of settlements in Pangururan-Simanindo in 2007-2018 and see spatial patterns of settlements Pangururan-Simanindo City in 2007-2018.

Keywords: Samosir, Cellular automata, settlement
PP40

ANALYSIS OF LANDSLIDES BASED AREA UNDER CURVE (AUC) AT RINJANI MOUNTAIN, DESA SEMBALUN LAWANG, LOMBOK ISLAND, EAST NUSA TENGGARA

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ABSTRACT
On July 29th, 2018, The Lombok Island had a tectonic earthquake around 6.4 SR which causes landslide in Rinjani volcano. Fault plates has an impact on earthquakes that causes land movement rising 25 cm in the west of the island near the epicenter. Therefore, landslide on the slopes of the Rinjani volcano has not been analyzed using the Area Under Curve (AUC) method, in conclusion the purpose of this research is to analyze the causes of dominant landslide based on the AUC method. This research is processing satellite imagery landslide data location, lithology, fault spacing, land cover data, rainfall data, and seismic data that has occurred. The results show that the lithology developed in the Rinjani volcano was lava flows, breccia and tuff which originated from the Rinjani volcanic eruption. Rinjani Volcano has a slope between 17.69o - 65.26o, with a slope presentation of 31.9% - 217% which in the classification are very steep to extremely steep slope. Rainfall (CH) averages 100.77 and Rainy Day (HH) averages 8.58 in East Lombok in 2015. In 2018, the rainfall that occurred on the slopes of the Rinjani volcano in Sembalun has Rainfall presentation 116-150% classified as normal above. In Sembalum, the paddy-field area is 1,155 ha, the area that is not covered by paddy-fields is 16,620 ha and non-agricultural area is 3,933 ha in 2015. In conclusion, that the factors have been determined affect landslide. Analysis of land movement based on AUC values is expected to be used as a reference basis for controlling land uses in land movement-prone area.

Keywords: landslide, factors causing landslides, image interpretation, Area Under Curve (AUC)
QUALITY OF LIFE OF PREGNANT WOMEN IN URBAN: A LITERATURE REVIEW

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ABSTRACT
Pregnancy is an important period that risks not only the mother but also the unborn baby. The risk of complications and dangers can be prevented by utilizing available antenatal facilities and other resources designed to educate women about the importance of their health at this important point in their lives such as media, pamphlets or antenatal classes. Mothers who use antenatal health facilities have better knowledge of pregnancy nutrition. The availability of health services enables better monitoring of maternal and fetal well-being. This systematic review includes 8 articles published from 2003 to 2018 using PUBMED, MEDLINE, SCOPUS, Google Scholar. Articles were selected using keywords such as pregnant women, quality of life, pregnancy, urban, rural regardless of their time, language, and publication site. Studies conducted to measure the quality of life in pregnant women have used four tools, including the SF-36, the WHOQOL-BREF, the SF-12 and the Nausea and Vomiting of Pregnancy-Specific Health-Related Quality of Life Questionnaire. The most commonly instruments used were the WHOQOL-BREF and SF-12. The mean quality of life score obtained using these different tools varied from 58.2±14.89 to 66.48±15.57. Data showed that the most important components affecting pregnant women’s quality of life are mother’s depressive symptoms, gestational age, and place of receiving prenatal care.

Keywords: Quality of life, pregnancy, urban
THE NUMERICAL SIMULATION OF THE FRESHWATER-SEAWATER MIXING IN THE SINGLE PHASE COASTAL AQUIFER

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ABSTRACT
The interaction between freshwater and seawater usually occurs in the coastal aquifer. To simply explain this condition, describing the interface between them is conducted. This approach is a multiphase condition. Unfortunately, this condition is on immiscible condition, whereas the miscible condition should be obtained. The miscible condition of freshwater and seawater along coastal aquifer occurs on the single phase. This condition neglects the concept of the interface between them. The purpose of this research is to simulate the mixing of freshwater and seawater in the coastal aquifer by using the numerical method. Groundwater flow equation is governed involving the effect of contaminant concentration. On the other hand, the conservative groundwater contaminant transport equation is used. The discretization process uses the Finite-Difference Method. Coupling two equations will obtain the spreading of contaminant concentration along the model domain. The result shows that the freshwater-seawater interface does not appear and the change of concentration can be reviewed in every section and every point of the computational domain.

Keywords: Coastal Aquifer; Contaminant Transport; Groundwater; Numerical Model;
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MANAGEMENT OF LAUNDRY WASTE WATER

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ABSTRACT

Laundry services are emerging in every corner of Bali, particularly at suburban area, from cities to villages. These services help the community to ease their burden. However, the burden for the environment is increase. The wastewater of from the laundries should be controlled, which should be done naturally. One way of reducing the dangerous chemical from the laundry wastewater can be done by Vertical-Sub-surface Flow Constructed Wetland system, using volcanic rocks as substrate of plant grow and the plant as filters. This study aimed to investigate the effectiveness of volcanic rock and Canna plants as a filter for the laundry wastewater. The volcanic rock as substrate for the plant grows was place in layers in a drum and the laundry wastewater was flowed. The parameter of wastewater laundry, such as TDS, BOD, COD and total phosphate were measured before and after treatment. The treatment was run for 6 weeks. The result shows that this system is effective that overall can reduce the parameter measured for 53.86%.

Keywords: laundry, wastewater, volcanic rock, environment management
ABSTRACT
Sustainable water supply is one of smart city characteristics. Nevertheless, the availability of water resources decreases continuously in both quality and quantity, while the number of human population increases. Therefore efforts to obtain new water resources and to treat potential water resources are very important. Domestic wastewater is a potential water resource that can be treated resulting clean water. This paper presents an overview of domestic wastewater and the technologies used for treating domestic wastewater. Special attention is paid for membrane technologies including membrane bioreactor (MBR), Ultrafiltration (UF), Reverse Osmosis (RO), and combination of membrane technology with conventional technologies. Examples of real membrane technologies applications for domestic wastewater reuse are also presented.

Keywords: Water Reuse, Membrane Technology, Domestic wastewater, Wastewater treatment, Reverse Osmosis, Ultrafiltration.
FLOOD EXPOSURE OF SETTLEMENT AREAS IN BEKASI

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ABSTRACT
Flooding is one of the hydrometeorological disasters that often hit Bekasi during rainy seasons. Flood in Bekasi is caused by its topographical characteristics and poor drainage condition. As Jakarta’s buffer zone, the mobilization inhibition of Bekasi people will impact economic activities in Jakarta. Therefore, a mitigation measure is needed to reduce losses. This research aims to map the flood exposure of Bekasi’s settlement areas as a reference for mitigation action. The level of exposure in this research is analyzed by assessing rainfall, land use, slope, altitude, drainage conditions, and distance from rivers. This exposure mapping uses remote sensing data based on Geographic Information Systems (GIS). The results show that Bekasi’s settlement areas prone to flooding are in sloping areas, areas near the river, and areas with poor drainage conditions. These areas include the South Bekasi District, East Bekasi, North Bekasi, and Jatiasih.

Keywords: Exposure, Settlement, GIS, Flooding
PP46

DETERMINATION OF PARENTAL ROLE TOWARDS PRE-MARITAL SEXUAL BEHAVIOR: AN APPLICATIVE MODEL

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ABSTRACT
Premarital sex in Palembang becomes a serious problem, in which 12 of 30 high school students that are religious, well-educated, and come from good family have experienced sexual practices. The aim of this research is to explain the parenting model of the parents in order to prevent teenagers from experiencing sexual intercourses before marriage in Palembang. This is a quantitative research using cross sectional design. Questionnaires were distributed to 150 parents of 6 public and private high school students in Palembang. Respondents were selected by multi-stage and random sampling. The data is univariate analyzed, then the model is made by using Lisrel 8.8 student edition. Half of the respondents (50 percent) are well informed about the reproductive health and forms of attitude which may prevent them from premarital sex behavior. They (62,7 percent) also have good perceptions on prevention from premarital sex. The other respondents (41,3 percent), however, respond negatively on this issue. Providing children with facilities which are open to misuses to accessing pornography sites, such as wireless internet connection at home, car, handphone, notebook, etc, needs to be followed by strict control because it was found that (42 percent) of the parents’ parenting model have not implemented appropriate control to the use of those facilities. Half of respondents (58 percent) need to conduct intensive control on their children about how to use it from parents or family. Furthermore, the analysis model shows that knowledge, attitude, perception, and facilities have significantly affected as much as 39 percent on the occurrence of premarital sex in teenagers caused by irresponsible parenting model.

Keywords: parenting model, sexual behavior before marriage, teenager
RELATIONSHIPS OF EXCLUSIVE BREASTFEEDING IN SOCIOCULTURAL PERSPECTIVE IN PALEMBANG

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ABSTRACT
Nationally, exclusive breastfeeding in 2010 to 2012 only reached 33,6-35% that was caused by interactions of several social factors, demographic condition, biological issues, pre- and postnatal problems, and psychological issues. Despite that many studies have shown that exclusive breastfeeding will give a lot of health benefits to babies and moms, this has not always resulted the expected outcome. Advances in this modern era might also become one of the contributing factors to social, cultural and economic changes, thus causing the decline in supports to breastfeeding moms. The data taken from the Survey on Indonesian Health Demography in 2007 shows that exclusive breastfeeding in Indonesia had declined as much as 30,2% and increase in formula as much as 11% in 2013. The present study uses cross sectional analysis that aims to explain the relationships of exclusive breastfeeding seen from sociocultural perspectives in Palembang. The samples of this study are 220 respondents. The analysis found that the number of children (0,003 < 0,05), supports from mother or mother in law (0,001 < 0,05), and ignorance (0,020 < 0,05) are correlated to exclusive breastfeeding, while families that keep themselves informed since pregnancy and postnatal period do not show significant relationships (0, 253 > 0,05) with exclusive breastfeeding.

Keywords: Exclusive breastfeeding, sociocultural perspectives
ERODIBILITY FACTOR IN WEATHERED VOLCANIC ROCK IN JATINANGOR, WEST JAVA, INDONESIA

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ABSTRACT
A regional development will decrease the open green space that will affect the less water infiltration during rainy season and causing high intensity of the erosion rate. Jatinangor is a well-known new satellite city that located in undulating volcanic hills as the part of the Southeast Mt Manglayang. This area has been degraded from agricultural land into residential and educational area. This study aims to determine the erodibility factor potential as one of important factor to an erosion prediction. The data were obtained by collecting several undisturbed samples and tested the grain size and hydrometer analysis, atteberg limit test to know the grain size distribution. This result showed that Jatinangor Area has high potential value of erodibility that caused from the silt domination and Ilite clay mineral that potential to swelling. The high erodibility values are affected of volcanic material as the parent rock that consist of Tuff, Lapili Tuff, Grain supported and matrix supported Breccia with Plagioclase and K-Feldspar percentage 15-35%. Whereas the low erodibility value in the higher clay soil percentage is affected from the less percentage of plagioclase and K-fledspar, and the Tuffaceous sand matrix that difficult to erodible. The conservations are needed to decrase the erodibility effect and minimize the erosion rate annual.

Keywords: Erodibility, Erosion, Weathered Volcanic Rock, Jatinangor
SEKANAK RIVER RESTORATION AS TOURISM SUSTAINABLE DEVELOPMENT

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ABSTRACT
Sekanak river located in the center of Palembang, has a length of 7 Km from Ulu Bukit Baru district to Ilir Musi River. Sekanak river has historical value as transportation and trade corridor in the Sultanate period. The main problem of the Sekanak watershed is the low ground water elevation, water inundates the river banks through its secondary channels at high water fluctuation. Sekanak River is beneficial for flood control, drainage sewers, recreation areas and river transportation. Restoration is efforts to find a solution to restore the glory of the Sekanak River not only from the aspect of river quality but also preserving historical value. At the past, Sekanak river can be passed by boats and the water can be consumed by the community. Restoration concept understanding future expectation and fulfilling view of conserving cultural, natural environment and social referred as sustainable tourism development. The aim of this paper is to formulate sekanak river restoration concept as a sustainable tourism development. The method/statistical analysis: the research method used qualitatif method and deskriptive analysis of strength and weakness to gain understanding and propose restoration strategis to develop sekanak river as sustainable tourism development attraction. Result: this study found signification value of Sekanak historical river that can be highlight attraction in sekanak and conceptual design of restoration that can faced the problematic of Sekanak watershed due to complex interrelationship between tourism component and others components within a system and measures taken by government, organization and inhabitant to protect life line of living culture in sekanak river.

Keywords: Sekanak River, restoration, tourism, sustainable
FACTORS AFFECTING ACCEPTANCE OF MOBILE HEALTH SERVICE FOR DIABETES SELF MANAGEMENT

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ABSTRACT
Mobile health service (MHS) is an effective intervention in the management of blood sugar and reduces the progress(growth) of diabetes complications. In Indonesia, the application of MHS for diabetes management is still being refined, so that it can be increasingly recognized for its usefulness, there is some understanding of which factors should be considered when diabetic patients are willing to accept the MHS application. Thus, this study aims to examine the factors that influence the acceptance of the MHS application to increase the management of diabetes mellitus based on the Protection Motivation Theory (PMT) model and the Unified Theory of Acceptance and Use of Technologists (UTAUT). Data was collected from an offline/paperbase survey of 23 diabetic patients who were outpatients at four different diabetes care clinics, and online surveys from the Indonesian diabetes forum as many as 66. This study uses partial least square to determine the causal relationship between eight variables. Variable self-efficacy, response cost, perceived severity, perceived vulnerability, performance expectancy, effort expectancy, behavior intention and intention to use. The results showed that PMT and UTAUT were effective in predicting the use behavior of MHS; effort expectancy is the most determining factor affecting the use of MHS, followed by self-efficacy, perceived vulnerability and perceived severity; and behavioral intentions for MHS are significantly and positively correlated with usage behavior. Therefore, to increase service usage, the support of various MHS service providers is important.

Keywords technology adoption; mobile health services; PMT ; UTAUT; diabetes mellitus
ABSTRACT
Background, Breast cancer is the most women’s cancer worldwide especially in developing countries including in Indonesia. This cancer is affected to women's physic, and psychology. Those effects may influence women’s quality of life (QoL). An appropriate psychosocial intervention would be significant to survivors’ QoL. This study is aimed to identify interventions that effective in dealing with psychosocial problems, and in improving QoL. Methods, this review addresses the question: What interventions are effective in managing psychological problems in breast cancer survivors. We conducted a literature review, we searched Pubmed, Ebsco, Cengage, and Cochrane for articles focusing on any types of psychosocial interventions. Through a database search, 543 articles were identified and after manual review, 7 research studies were identified and appraised. Results, there were six randomized control trial and one quasi-experiment method involved in the analysis step. The interventions were 1) mindfulness therapy (4 articles)-2) behavioral therapy (2 articles), 3) acceptance and commitment therapy (1 article). The seven studies reported significant effects in reducing psychological problems such as anxiety, depression, and mood problems. The intervention have improved patients' QoL Conclusion and Recommendation psychosocial interventions are effective in helping breast cancer survivors as an individual. There is a need to develop a study that involves the family in the intervention, as the family is the main support for Indonesian.

Keywords: breast cancer, survivors, psychosocial, interventions
POSITIVE ESTIMATION SYSTEM USING FINGERPRINT METHOD BASED DEEP NEURAL NETWORK

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ABSTRACT
Highly dynamic indoor environments being one of the challenge in the Indoor Positioning System (IPS). Collecting the Received Signal Strength (RSS) value from every Wi-Fi access point known fingerprint method is presented by previous researchers. They proposed with different techniques in fingerprint methods to compete similar existing technology such as GPS in term of accuracy. The drawback using fingerprint is the IPS cannot maintain the high performance constant. In this research, we propose the Deep Neural Network (DNN) algorithm for improving the fingerprint method in the IPS. Basically, the fingerprint method consists of two phases, Online and Offline phases. In the off-line, RSS values will be collected from several coordinates as known reference points and stored in the database. The online phase has different step which the current position will be compared to RSS values stored in the database. The DNN method was used to calculate the closest position estimation probability. The IPS using DNN was successfully applied using 5 layers consisting of a 1 input layer, 3 hidden layers and 1 output layer. The input and hidden layer have 28 nodes for each layers and output layer has 2 nodes. The simulation results from RSS data set has achieved 2 meters accuracy. It concluded that DNN performance depends on the number of hidden layers and the number of nodes in each hidden layer.

Keywords: Indoor Positioning System, Fingerprint method, Deep Neural Network
PATTERNS OF CHILDCARE IN INDUSTRIAL FAMILIES

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ABSTRACT

This study explores the conditions of families in the suburbs of Bandung in caring for their children while they work in factories. This study uses a qualitative approach to get the natural state of society. This study also uses family integration theory, because the theory can direct researchers to industrial societies that can have a significant impact on family conditions and suburban communities. This study found that to carry out their economic functions mothers in the family worked in the factory. For this reason, their children are entrusted to their neighbors and schools that indirectly reduced their intimate with their families. Families in the suburbs do many conditions like this so that it conflicts with traditional patterns of childcare. For the sake of child development, some people suggest holding childcare institutions rather than just being entrusted individually to other families.

Keywords: Industrial Society; Suburban Community; Sociology of Family; Child Care
ABSTRACT
Transportation and mobility are central to sustainable development; they may enhance economic growth and improve accessibility. This importance caused the increase number of vehicles produced and used around the world, however, the number of traffic accidents also increased. Mortality and disability due to accidents can reduce person’s productivity, therefore, the World Health Organization suggest to reduce the number of global deaths and injuries from road traffic accidents through system improvements and access to road safety as mentioned in the third and eleventh Sustainable Development Goals target and the Global Plan. National Police Corps data, 2017, shows that motorcycle accidents always occupy the highest number, five times higher than other types of vehicle. This preliminary study aims to find out the correlation between driver’s helmet use obedience and types of road traversed. This research is quantitative descriptive, with Pearson correlation and post-hoc z-test analysis. The data analysed from direct observations by field surveyors for five rounds of data collection in the last three years. The results indicate a positive correlation with moderate effect size between driver’s use of helmets obedience and the type of road traversed (r= 0.28; V= .03; p <0.01). The highest disobedience occurred in local road types (19%), followed by collective and arterial (2.3% and 0.5% respectively). As many as 96.3% of local road conditions are not supported by law enforcement presence in the location of data collection. Thus, we need to increase control in the helmet use especially in local and collective roads.

Keywords: Driver; Motorcycle; Obedience; Road types; Two-wheeled motor vehicle; Helmet use
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A DESCRIPTION OF ADOLESCENTS GIRLS PERCEPTIONS AND NEEDS IN MAINTAINING REPRODUCTIVE HEALTH: A MIXED METHOD ANALYSIS

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ABSTRACT
Adolescent girls in their current age of 15-19 years in 2035 become the work force which is the nation's asset to get demographic bonuses with the conditions, that they have to be teenagers who are of good quality of health and education. In fact, 11.21% of girls have an early marriage, giving birth at the age of 15-19, and have become mothers or pregnant with their first child increased from 8.5% to 9.5%. These conditions shows that those are having relationship to maternal death. The purpose of this study was to learn and understand about reproductive health. Methods of using a mixed-methods approach: Quantitative studies were conducted on 321 adolescents to see an overview of the knowledge, attitudes and views of adolescent girls about application-based reproductive health. Characteristics of respondents are adolescent girls with a period of 15-19 years. Qualitative studies were deeply interviewed about understanding of reproductive sexual health in 28 people from 20 adolescent girls, 4 parents, 2 teachers, and 2 nurses. Results. Bivariate analysis shows that 3 out of 5 health topics are categorized as lacking, attitudes towards risky behavior, future, health literacy. Qualitative analysis is carried out with seven themes that explain how women conceptualize and understand reproductive health. Adolescent girls have a very important understanding, they want information that is accurate and easily accessible, and can help in problems solving experienced. It is necessary to develop an e-health based education model to improve the knowledge, attitudes and self-efficacy of adolescent in maintaining their reproductive health.

Keywords: adolescent girls, reproductive health
MODEL OF ENVIRONMENTAL COMMUNICATION OVER THE CITARUM RIVER

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ABSTRACT
The article purpose to elaborate: attitudes, behaviour and understanding of Citizen’s Citarum River, especially at Cieunteung and Linggar Villages Bandung Regency which are often exposed to floods, waste and rubbish through the perspective of "bottom up" environmental communications. The research method used is descriptive approach with qualitative data analysis technique. The results indicate that still low attitudes and understanding of citizens about the condition of a healthy river (air and water); Lack of awareness and communication activities between citizens, formal and informal community leaders in finding the right solution; The low participation of citizens and community leaders in seeking sustainable solution; Lack of supervision and law enforcement of the environment. Recommendation: The importance of advocacy movement, participation and assistance from and by citizens of the citarum river (Bottom up Communication); The importance of forming groups or communities of citizens at the Citarum river area; The importance of communication and coordination is done intensively and sustainably; Local government interventions need to involve formal and informal leaders ; The importance of supervision and law enforcement seriously and professional.

Keywords: Environmental Communication; Citarum River; lack of awareness; Advocacy
THE ESTIMATION OF TOTAL SEDIMENTS LOAD IN KELEKAR RIVER TRIBUTARY FOR SUSTAINABLE WATER RESOURCES MANAGEMENT

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ABSTRACT
Sedimentation is one of the problems that disrupt the river stability. One impact caused by excessive sedimentation is the increase in the riverbed elevation and may also cause a rise in water level so as to further increase the losses during floods. For the purpose of sustainable water resources management, especially for the Kelekar River ecosystem in South Sumatra, it is very important to be able to estimate the total amount of sediment load in accordance with the carrying capacity of the tributaries. In addition, it will facilitate the estimated dredging period required. This study aims to find the relationship between the total sediment load and the thickness of the sediment layer at the bottom of the Kelekar River tributary. Several methods of estimating total sediment load are analyzed and compared to find the most suitable method for Kelekar River segment data set. Further analysis conducted to estimate the falling velocity of the sediment particles. Water sampling was also performed to obtain a suspended sediment concentration, bedload sediment and sediment material samples. Moreover, the measurements of river hydraulic parameters were also carried out including flow velocity and river water temperature. The analysis showed that the most suitable method with existing data sets is based on the dimensional approach and regression analysis (Karim-Kennedy’s method) and the stream power approach (Engelund-Hansen’s method). Through the analysis, it is known that the factors that most influence the thickness of the sediment layer are the slope of the river and the flow velocity.

Keywords: sedimentation; sediment load; total load; tributary; sustainable water resources management
COMMUNITY PARTICIPATION IN PRESERVATION EFFORTS OF THE LAKES IN DEPOK CITY

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ABSTRACT
Depok is a city that has the most lakes in West Java. Those lakes have several functions as flood controller, recreation area and fishpond. Every year, lakes in Depok City are getting constricted and minimized, it would cause the lakes to be slowly disappeared. It could happen because of human where they should have taken the role in preserve lakes, so that community participation is very important to do. The research objective was to analyze the level of community participation in the form of thought, wealth, energy, skill, and social in lake preservation in Depok City. This research uses the descriptive method with the quantity of area samples are in 3 subdistricts and human samples are 100. Data tabulation uses coefficient correlation and contribution experimental. The result of analysis shows the level of community participation in thought, property, and skill has a low relation towards lakes preservation. While community participation in power and social has a medium relation towards lakes preservation. Government’s effort to increase the community role in lake preservation in Depok City such as urging people to join the community, join some planting community petition and empowering them to make a small quay and be responsible of water games’ treatment in the recreation area.

Keywords: Community Participation, Preservation, Lakes
CLUSTER ANALYSIS CONCEPTS FOR ASSESSMENT OF HYDROGEOCHEMISTRY OF GROUND WATER – A STUDY IN SEMARANG, CENTRAL JAVA, INDONESIA

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ABSTRACT
Water is primary necessity for life. One of the water resource used is groundwater. Industrial growth, increasing population followed by residential growth generate domestic waste to increase as well. This condition lead water quality decline. This study conducted by 10 sample collected in 2017 to find out the quality of water in Semarang. The results showed that water content land is still deserved used for drinking water. From an K-Means analysis obtained 3 clusters, 7 samples included in cluster 1.

Keywords: Groundwater quality, K-Means Cluster analysis, clustering
THE BENEFIT OF INTERNET USING TO AFFECT INCOME FOR WATER HYACINTH HOME-BASED ENTERPRENEURS IN RAWAPENING AREA – INDONESIA

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ABSTRACT
Home industries or home-based enterprises (HBEs) in developing countries are identical with smallness, flexibility or even informality. When HBEs this type of economic activities in developed countries seems familiar with the internet of things (IoT), water hyacinth HBEs in Indonesia particularly in the area of Rawapening Swamp, start to use internet for their business. The development of HBE is supported by the use of the internet in terms of ease of communication, buying and selling transactions, and information dissemination to develop businesses. This study aims to find out how much the benefits of using the internet on the income of business actors of water hyacinth HBEs. By using descriptive statistical analysis, the subjects in this study were divided into two types, namely non digital and digital HBEs entrepreneurs. The results shows that the average income of non-digital HBEs is less than the average income of digital HBEs entrepreneurs.

Keywords: Home Based Enterprise, internet, benefit
POTENCY OF SMART WATER FLOW MANAGEMENT AT LOWLAND RESIDENTIAL AREA

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ABSTRACT
Most of the residential areas in Palembang were located at lowland such as riverside. The problem of flood is inevitable at this area. Flood brings loss to the property. This paper aims to seek the potency of applying smart water flow management to cope the risk of loss caused by flood. To achieve the aims, the study (1) observed how residents manage their house to cope the flood; (2) mapped the function of the buildings at a riverside settlement in Palembang and (3) formulized the strategy for anticipating the risk. Data were collected by survey questionnaire complemented by interview and field survey. Qualitatively, data were overlapped with the topography map to understand the flow of the runoff water within the settlement. Findings reveal that the distance from the water body determine the strategy on cope the risk of flood.

Keywords: Smart water flow management; flood; riverside settlement
THE SUSTAINABILITY OF ENERGY MANAGEMENT SYSTEM IMPLEMENTATION IN PILOT COMPANY’S INDUSTRY OF INDONESIA

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ABSTRACT
The implementation of Energy Management System (EnMS) in Indonesia is one of the efforts in implementing energy conservation. Industry as one of the biggest energy users has an obligation to carry out energy management, namely for industries that use energy equal to or greater than 6,000 TOE per year. EnMS is a systematic way of managing energy so that efficient energy utilization is achieved. This system involves all parts of the organization and requires commitment from top management in its implementation. The benefits gained from the implementation of EnMS are energy savings obtained directly from energy efficiency use, reduce energy purchase costs, reduce emissions of Greenhouse Gases (GHG) from the production process so as to realize the green industry, improve positive image for the industry, increase productivity and company competitiveness. The training and pilot company programs for EnMS implementation in industry are carried out in order to socialize and accelerate the implementation of EnMS so that energy conservation targets can be achieved. The study was conducted to determine the sustainability of EnMS implementation in industries that have attended training and become pilot companies in the program.

Keywords: energy, industry, management, sustainability
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LIQUID WASTE PROCESSING OF TOFU INDUSTRY FOR BIOMASS PRODUCTION AS RAW MATERIAL BIODIESEL PRODUCTION

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ABSTRACT

Indonesia as a producer of tofu generated more liquid waste. Nutrients that contained in the tofu wastewater are very useful for the production of microalgae. Chlorella sp. is a microalgae that potential for food supplement, pharmaceuticals, animal feed, aqua culture and cosmetics. Chlorella sp. commonly grow in sea water. Glycerol in the cultivation medium as supplemental organic carbon sources for Microalgae. Cultivation carried out for 9 days at different percentages volume of tofu liquid waste and addition of glycerol. The result showed that increased concentration of tofu waste in microalgae cultivation media is proportional to the increase in lipid levels of Chlorella sp. Variable of 70%V has the highest concentration of lipid. The addition of glycerol in the cultivation medium enhancing lipid production. Variable of 5 g/l glycerol has the highest concentration of lipid. The higher ratio of carbon and nitrogen produces higher lipid content.

Keywords: Tofu wastewater; Glycerol; Chlorella sp; Cultivation; Lipid
TOURISM DEVELOPMENT AND LAND-USE SHIFTING IN LAKE TOBA, INDONESIA

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ABSTRACT
Lake Toba has become a priority destination since it was designated as a National Tourism Strategic Tourism (KSPN) one of which is the village of Tomok. This study aims to analyze the influence of Lake Toba as a National Tourism Strategic Area on changes in land use and the economy of the local community of Tomok Village. This research uses quantitative descriptive method with descriptive statistical analysis, before-after analysis and interpretation of satellite imagery. The results of this study are that the Lake Toba program as KSPN affects the economy of the local community of Tomok Village. Society experiences changes in income levels, shifts in basic work and the creation of basic and side jobs. Changes in the highest level of income occurred in hotel / lodging businesses, which previously amounted to Rp 4,000,000-Rp 6,500,000, which increased to Rp 10,000,000. Then, there was a shift in the main work in the agricultural business sector to become the hotel manager and souvenir trader, the souvenir trader became the owner of an inn and the grocery store owner became a souvenir trader. In addition, there is the creation of basic jobs and side jobs. People who previously did not have a basic job became hotel employees as many as 5 people and food stall owners as many as 3 people. In shifting side jobs, the dominant community that previously did not have side jobs. After 2014, the local community chose to work side by side to increase income. Side jobs that arise are farmers, restaurant owners and souvenir traders. Then land use changes that occur are not significant but the change in the function of buildings from residential to commercial buildings is very large. The land that has changed is the transfer of Tomok Ferry Port to empty land which is now the center of trade and services.

Keywords: Lake Toba, Tomok Village, KSPN, Tourism, Land use shifting
GENDER AND TRANSPORTATION: THE URBAN POPULATION BEHAVIOR IN USING PRIVATE TRANSPORTATION AT CITY CENTER OF SEMARANG

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ABSTRACT
This paper aims to describe the identification of urban society behavior based on gender in using private transportation modes in the City Center of Semarang. The city center is the center of economic growth so that it has a high level of mobility and accessibility, especially in the use of private vehicles. This study uses a quantitative approach to find out the most influential factors. The instrument uses a questionnaire and uses quantitative descriptive analysis techniques. The sample distributed was 100 respondents with an analysis unit, namely land use in the City Center such as trade and service areas, office centers, and government centers. The results of this study indicate that out of 100 research respondents, 66% were female gender. In addition, of the 11 variables used, only 5 variables have relevance; there area age, income, mode of transportation, ownership of the driving certificate, and commuter costs. From these variables found one variable that most influences, that is the respondent’s age, so it can be concluded that the dominant gender using private vehicles is women with productive age.

Keywords: Private Transportation, Gender, City Center of Semarang
BEKASI SMART CITY ON PUBLIC PERCEPTION

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ABSTRACT
Smart City is a concept to managing existing resources effectively and efficiently as an effort to improve the quality of public life in urban areas. The success of a government program cannot be separated from the support, role and community participation, so that, public understanding toward Bekasi Smart City will have an impact on how the community responds to this program. The research objective 1) to find out how far the public perception of Bekasi Smart City program. 2) to analyze the Bekasi City government communication program through the Bekasi Smart City website. Interviewing was conducted to the Head of Communication and Information Service and the public (students, academics and professionals). Content analysis is also applied to the website bekasismartcity.com and diskominfo.bekasikota.go.id using WEBQUAL as a website quality measurement method developed by Stuart Barnes and Richard Vidgen (2000). Kotler (2005) identifies three stages for a person in adopting an idea (cognition, affection and conation) by fostering awareness, knowledge and judgment until behavior changes. Public already has an awareness of the importance of implementing smart city, but their knowledge is still very limited to all programs run by the city government, from the public assessment, this program is still considered ineffective and it is not at the stage of being able to change public awareness to be smart people as one of the targets to be achieved in this program. The communication program runs by the Bekasi City Government is still unable to answer the needs of information and public communication. This can be seen from the circulation of information that is not updated and the lack of creative attributes of the related websites.

Keywords: Smart City, Public Perception