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International Symposium on Advanced Mechanical and Power Engineering (ISAMPE)
August 24-26, 2017
Bali, Indonesia

Proceedings editor(s):

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Bali, Indonesia, August 24-26, 2017

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Herru Santoso Budiono, Eko Surojo, Nurul Muhayat and Wijang Wisnu Raharjo

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DOI: <https://doi.org/10.1051/matecconf/201815902008>

- [PDF \(702 KB\)](#)
- [References](#)



Open Access

[The influence of welding speed conditions of GMAW on mechanical properties of 316L austenitic stainless steel 02009](#)

I.M.W. Ekaputra, Sudi Mungkasi, Gunawan Dwi Haryadi, Rando Tungga Dewa and Seon-Jin Kim

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902009>

- [PDF \(506 KB\)](#)
- [References](#)



Open Access

[Measurement of injury rate on fish skin and performance comparison based on L*A*B* and HSV color spaces 02010](#)

Minh Thien Tran, Jotje Rantung, Trong Hai Nguyen, Hak Kyeong Kim and Sang Bong Kim
Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902010>

- [PDF \(433 KB\)](#)
- [References](#)



Open Access

[Flame stability and behavior inside meso-scale combustor with different flame holder 02011](#)

Lilis Yuliati

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902011>

- [PDF \(286 KB\)](#)
- [References](#)



Open Access

[Numerical simulation of heat transfer augmentation in fin-and-tube heat exchanger with various number of rows of concave rectangular winglet vortex generator 02012](#)

Syaiful, Imam Syarifudin, Maria F. Soetanto and Myung-whan Bae

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902012>

- [PDF \(482 KB\)](#)
- [References](#)



Open Access

[Performance Analysis of Sea Water Solar Still To Produce Fresh Water and Salt Using Flat Plate Collectors 02013](#)

Mulyanef, Duskiardi and Rahmad Hidayat

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902013>

- [PDF \(313 KB\)](#)

- [References](#)



Open Access

[The Influence of Guide Vane to the Performance of Cross-Flow Wind Turbine on Waste Energy Harvesting System](#) 02014

Budi Santoso and Dominicus Danardono Dwi Prija Tjahjana

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902014>

- [PDF \(447 KB\)](#)
- [References](#)



Open Access

[Development of Tension-Torsion Multiaxial Creep Testing Apparatus for Heat Resisting Steel](#) 02015

Noritake Hiyoshi and Yoshihisa Iriyama

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902015>

- [PDF \(918 KB\)](#)
- [References](#)



Open Access

[Performance prediction of magnetorheological valves under various type of fluid and flux path](#) 02016

Muhammad Hafiz Idris, Saiful Amri Mazlan, Ubaidillah Ubaidillah and Fitriani Imaduddin

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902016>

- [PDF \(606.8 KB\)](#)
- [References](#)



Open Access

[Surface Texture Influences on the Running-in Behavior and Friction Reduction](#) 02017

Zhouyong Hou and Tomomi Honda

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902017>

- [PDF \(1.05 MB\)](#)
- [References](#)



Open Access

[Analysis of chip geometry and surface roughness at low speed turning in various commercial steels](#) 02018

Mudjijanto, Sulistyono and Rusnaldy

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902018>

- [PDF \(382 KB\)](#)
- [References](#)



Open Access

[Comparison of ratio loaded and unloaded foot area of flat foot and healthy foot in younger adults](#) 02019

Gunawan Dwi Haryadi, Dwi Basuki Wibowo, Achmad Widodo and Agus Suprihanto

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902019>

- [PDF \(249 KB\)](#)
- [References](#)



Open Access

[Optimization of Ridge Waveguide Structure for Temperature Sensor Application Using Finite Difference Method](#) 02020

Ian Yulianti, Ngurah Made D. P, Yuni Lestiyanti and Ojo Kurdi

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902020>

- [PDF \(354 KB\)](#)
- [References](#)



Open Access

[Experimental Study Performance R-22 AC Split Retrofitted With Propane](#) 02021

Imam Ridwan Tanaka, Berkah Fajar, Tony Suryo Utomo, Eflita Yohana and Mustaqim

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902021>

- [PDF \(369.4 KB\)](#)
- [References](#)



Open Access

[The Modeling Of A Conceptual Engineering Design System Using The Decision-Matrix Logic](#) 02022

Safarudin Ramdhani and J Jamari

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DOI: <https://doi.org/10.1051/matecconf/201815902022>

- [PDF \(847 KB\)](#)
- [References](#)



Open Access

[Characterization chip formation of commercial steel materials at low speed cylindrical grinding processes](#) 02023

Wahyu Isti Nugroho, Sri Nugroho and Rusnaldy

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902023>

- [PDF \(537 KB\)](#)
- [References](#)



Open Access

[The Performance of Pump as Turbine with Machined Impellers](#) 02024

D.L Zariatn, Shanti Kumbarasari and Dwi Rahmalina

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902024>

- [PDF \(747.3 KB\)](#)
- [References](#)



Open Access

[A study of tea leaves drying using dehumidification process and regeneration of liquid desiccant in a closed-cycle *dehumidification-humidification*](#) 02025

Eflita Yohana, Mohammad Endy Yulianto, Shofwan Bahar, Azza Alifa Muhammad and Novi Laura Indrayani

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902025>

- [PDF \(702 KB\)](#)
- [References](#)



Open Access

[Modeling, Identification, and Simulation of Positional Displacement Control for Ribbon Bridges](#) 02026

Van Trong Nguyen, Yong-Woon Choi, Jung-In Yoon, Kwang-Hwan Choi, Chang-Hyo Son and Young-Bok Kim

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902026>

- [PDF \(399 KB\)](#)
- [References](#)



Open Access

[Failure Analysis of Shaft Circulating Water Pump \(CWP\) used in Power Plant](#) 02027

Abdul Hamid, Sri Nugroho, Gunawan Dwi Haryadi and Khaeroman

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902027>

- [PDF \(754 KB\)](#)
- [References](#)



Open Access

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R. Lullus Lambang G Hidayat and Budi Santoso

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DOI: <https://doi.org/10.1051/matecconf/201815902028>

- [PDF \(447.0 KB\)](#)
- [References](#)



Open Access

[Path planning for automatic guided vehicle with multiple target points in dynamic environment 02029](#)

Chang Kyu Kim, Huy Hung Nguyen, Dae Hwan Kim, Hak Kyeong Kim and Sang Bong Kim

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DOI: <https://doi.org/10.1051/matecconf/201815902029>

- [PDF \(583 KB\)](#)
- [References](#)



Open Access

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Ojo Kurdi, Mohd Shukri Yob, Awisqarni Haji

Ishamuddin, Agus Suprihanto, Susilo Adi Widyanto, Dwi Basuki Wibowo and Ian Yulianti

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902030>

- [PDF \(725 KB\)](#)
- [References](#)



Open Access

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- [PDF \(497.2 KB\)](#)
- [References](#)



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[Digital integrated instrument for measuring BMI and comparing to the ideal BMI for age as a guidance for Indonesian military recruitment](#) 02032

Dwi Basuki Wibowo, Ismoyo, Agus Suprihanto, Wahyu Caesarendra and Mochammad Ariyanto

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DOI: <https://doi.org/10.1051/matecconf/201815902032>

- [PDF \(307 KB\)](#)
- [References](#)



Open Access

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Dwi Basuki Wibowo, Achmad Widodo, Gunawan Dwi Haryadi and Agus Suprihanto

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902033>

- [PDF \(333 KB\)](#)
- [References](#)



Open Access

[A Review on Sensors for Real-time Monitoring and Control Systems on Machining and Surface Finishing Processes](#) 02034

Tomi Wijaya, Wahyu Caesarendra, Tegoeh Tjahjowidodo, Bobby K Pappachan, Arthur Wee and Muhammad Izzat Roslan

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902034>

- [PDF \(330 KB\)](#)
- [References](#)



Open Access

[Modal Analysis of Replica Boss Hole During the Deburring Process in Aerospace Manufacturing Industry](#) 02035

Claudy Andriani, Wahyu Caesarendra, Tegoeh Tjahjowidodo, Tomi Wijaya and Bobby K Pappa chan

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DOI: <https://doi.org/10.1051/mateconf/201815902035>

- [PDF \(1.16 MB\)](#)
- [References](#)



Open Access

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Sulardjaka, Sri Nugroho, Suyanto and Deni Fajar Fitriana

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902036>

- [PDF \(373 KB\)](#)
- [References](#)



Open Access

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Kasir and Sulardjaka

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902037>

- [PDF \(458 KB\)](#)
- [References](#)



Open Access

[CFD analysis on the aerodynamics characteristics of Jakarta-Bandung high speed train](#) 02038

Tony Utomo, Berkah Fajar and Hendry Arpriyanto

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DOI: <https://doi.org/10.1051/mateconf/201815902038>

- [PDF \(736 KB\)](#)
- [References](#)



Open Access

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Munadi, Erwin F. Ramadhan, Mochammad Ariyanto, Norman Iskandar, M.A. Amirullah, Hari P. Julianti and Rudy Setiawan

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902039>

- [PDF \(421 KB\)](#)
- [References](#)



Open Access

[A Great Achievement of Calculated and Experimental Results of Char Kinetic Rate in Woody Mahogany Pyrolysis](#) 02040

Widya Wijayanti and Mega Nur Sasongko

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902040>

- [PDF \(296 KB\)](#)
- [References](#)



Open Access

[Remaining Life Assessment of Superheater Tube in Boiler of Coal Fired Power Plant](#) 02041

Habib Muhajir, Gunawan Dwi Haryadi and Achmad Widodo

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902041>

- [PDF \(366.4 KB\)](#)
- [References](#)



Open Access

[3D Numerical study on the effect of shaft eccentricity on the tribological performance of lubricated sliding contact](#) 02042

Mohammad Tauviqirrahman, Bayu Kurniawan and Jamari
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DOI: <https://doi.org/10.1051/matecconf/201815902042>

- [PDF \(376 KB\)](#)
- [References](#)



Open Access

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Masayuki Kawai, Takuya Yamagishi and Shouta Minami
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DOI: <https://doi.org/10.1051/matecconf/201815902043>

- [PDF \(402.4 KB\)](#)
- [References](#)



Open Access

[Development of 6 DOF Supernumerary Robotic Fingers Integrated with 3D Animation](#) 02044

Mochammad Ariyanto, Joga D. Setiawan, Munadi, Rifky Ismail and Zainal Arifin
Published online: 30 March 2018
DOI: <https://doi.org/10.1051/matecconf/201815902044>

- [PDF \(604 KB\)](#)
- [References](#)



Open Access

[Design of a Low-Cost Fixed Wing UAV](#) 02045

Mochammad Ariyanto, Joga D. Setiawan, Teguh Prabowo, Ismoyo Haryanto and Munadi
Published online: 30 March 2018
DOI: <https://doi.org/10.1051/matecconf/201815902045>

- [PDF \(492 KB\)](#)
- [References](#)



Open Access

[The effect of acid leaching time in modifying natural zeolite as catalyst for toluene steam reforming](#) 02046

Joko Waluyo, I.G.B.N. Makertihartha and Herri Susanto

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902046>

- [PDF \(321 KB\)](#)
- [References](#)



Open Access

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Hammar Ilham Akbar, Eko Surojo and Dody Ariawan

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902047>

- [PDF \(365 KB\)](#)
- [References](#)



Open Access

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Rahayu, G.T. Anuraga, H. Prasetia and Umar Khayam

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902048>

- [PDF \(359 KB\)](#)
- [References](#)



Open Access

[A review of low-cycle fatigue of Alloy 617 for use in VHTR components: Experimental outlook](#) 02049

Rando Tungga Dewa, Jeong-Hun Park, Seon-Jin Kim, Woo-Gon Kim, Eung-

Seon Kim, Gunawan D. Haryadi and I. M. W. Ekaputra

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902049>

- [PDF \(762 KB\)](#)
- [References](#)



Open Access

[Development of force feedback in steering systems for virtual driving simulator 02050](#)

Joga Dharma Setiawan, Masri B. Baharom and M. Ammar Bin Abdul Wali

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902050>

- [PDF \(1.098 MB\)](#)
- [References](#)



Open Access

[Enhancement Surface Coating Stainless Steel And Copper Using Ultrasonic Batch 02051](#)

Sendie Yulianto Margen, S Sulistyono, Sri Nugroho and Yoga Setiawan Adi Nugroho

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902051>

- [PDF \(571 KB\)](#)
- [References](#)



Open Access

[Fabrication Dye Sensitized Solar Cells \(DSSCs\) Using \$\beta\$ -Carotene Pigment Based Natural Dye. 02052](#)

Wa Ode Nirwana Sari Halidun, Eka Cahya Prima, Brian Yulianto and Suyatman

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902052>

- [PDF \(257 KB\)](#)
- [References](#)



Open Access

[Aluminum corner joint using friction stir welding 02053](#)

Djarot B. Darmadi, Widia Setiawan, Anindito Purnowidodo and Eko Siswanto

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902053>

- [PDF \(555 KB\)](#)
- [References](#)



Open Access

[The Structural Response Investigation of Modular Pontoon Collar Floating Cage due to Current Load to Support Fish Farming Activities](#)02054

Aulia Windyandari and Ahmad Fauzan Zakki

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902054>

- [PDF \(2.61 MB\)](#)
- [References](#)



Open Access

[Impact phenomena assessment: Part II – Buffer container as a measure to reduce cargo leakage in collision](#) 02055

Aditya Rio Prabowo, Seung Jun Baek, Seung Geon Lee, Dong Myung Bae, Jung Min Sohn, Aldi as Bahatmaka and Samuel Samuel

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902055>

- [PDF \(604 KB\)](#)
- [References](#)



Open Access

[Investigation on the performance of the traditional Indonesian fishing vessel](#) 02056

Aldias Bahatmaka, Dong-Joon Kim, Samuel, Aditya Rio Prabowo and May-Thu Zaw

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902056>

- [PDF \(474 KB\)](#)
- [References](#)



Open Access

[Bulbous bow applications on a catamaran fishing vessel for improving performance 02057](#)

Samuel, Dong-Joon Kim, Muhammad Iqbal, Aldias Bahatmaka and Aditya Rio Prabowo

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902057>

- [PDF \(1.48 MB\)](#)
- [References](#)



Open Access

[Analysis of Effect of Bulbous Bow Shape to Ship Resistance in Catamaran Boat 02058](#)

Deddy Chrismianto, Kiryanto and Berlian Arswendo Adietya

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902058>

- [PDF \(343 KB\)](#)
- [References](#)



Open Access

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Jung Hoon Byeon, Hyun Jin Cho, Seung Jun Baek, Aditya Rio Prabowo, Dong Myung Bae and Jung Min Sohn

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902059>

- [PDF \(376 KB\)](#)
- [References](#)



Open Access

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Hasanudin Hasanudin and Ardi Nugroho Yulianto

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902060>

- [PDF \(399 KB\)](#)
- [References](#)



Open Access

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Aditya Rio Prabowo, Jung Hoon Byeon, Hyun Jin Cho, Jung Min Sohn, Dong Myung Bae and Joung Hyung Cho

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902061>

- [PDF \(578 KB\)](#)
- [References](#)



Open Access

[Calcium soap from palm fatty acid distillate for ruminant feed: Ca\(OH\)₂ as calcium source 02062](#)

Lienda A. Handojo, Antonius Indarto, Dian Shofinita, Anggina Meitha, Rakhmawati Nabila, Harry Triharyogi, Maulana G.A. Hakim and Muhammad R. Saadi

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902062>

- [PDF \(296 KB\)](#)
- [References](#)



Open Access

[Effect of MgO to Fatty Acid Molar Ratio on the Production of Magnesium Salt of Fatty Acid from Palm Fatty Acid Distillates \(PFAD\) for Food Additives 02063](#)

Listianingrum, Reni Yuniarti, Rd.H.R.M.T. Al-

Aziz, Defri Rizaldy, Muhamad Insanu, Ardiyan Harimawan and Dianika Lestari

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/mateconf/201815902063>

- [PDF \(435 KB\)](#)
- [References](#)



Open Access

[An innovative method to produce drop-in fuel by alkaline earth-transition metals basic soap decarboxylation](#) 02064

Godlief Fredrik

Neonufa, Meiti Pratiwi, Astri Nur Istyami, Lidya Elizabeth, Sri Suminar Dewi, Ronny Purwadi, Tirta Prakoso and Tatang H. Soerawidjaja

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902064>

- [PDF \(407 KB\)](#)
- [References](#)



Open Access

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F. Sariman, A.P. Bayuseno and S. Muryanto

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902065>

- [PDF \(462 KB\)](#)
- [References](#)



Open Access

[Improvement of magnetorheological greases with superparamagnetic nanoparticles](#) 02066

Norzilawati Mohamad, Ubaidillah, Saiful Amri Mazlan, Seung-Bok Choi and Naim Abdul Halim

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902066>

- [PDF \(402 KB\)](#)
- [References](#)



Open Access

[A Quantitative Analysis of System Readiness Level Plus \(SRL⁺\): Development of Readiness Level Measurement](#) 02067

Novi Marlyana, Alva Edy Tontowi and Hari Agung Yuniarto

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902067>

- [PDF \(234 KB\)](#)
- [References](#)



Open Access

[Design of Key Performance Indicators \(KPI\) for Sustainable Supply Chain Management \(SSCM\) Palm Oil Industry in Indonesia](#) 02068

Elisa Kusrini and Rangga Primadasa

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902068>

- [PDF \(244 KB\)](#)
- [References](#)



Open Access

[Usability Evaluation of Anthropomorphic Prosthetic Hand Based on ISO 9241-11](#) 02069

Novie Susanto, Wiwik Budiawan, Rifky Ismail, Mochammad Ariyanto and Ahmad Sahal

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902069>

- [PDF \(279 KB\)](#)
- [References](#)



Open Access

[Integration between Green Quality Function Deployment, Modularity Concept and Life Cycle Assessment Toward Sustainable Product Design](#) 02070

Heru Prastawa, Sri Hartini, Mohamat Anshori, Siechara Hans and Christoper Wimba

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902070>

- [PDF \(372 KB\)](#)
- [References](#)



Open Access

[Improving performance measurement efficiency in public service using lean six sigma methodology](#) 02071

Purnawan Adi Wicaksono, Heru Prastawa, Ghabyanza Pitaloka and Nurana Putri

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902071>

- [PDF \(354 KB\)](#)
- [References](#)



Open Access

[Effect of blanching-brine-calcium pretreatment on red chili pepper drying](#) 02072

Uma Fadzilia Arifin, Mohamad Djaeni and Febiani Dwi Utari

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902072>

- [PDF \(365 KB\)](#)
- [References](#)



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[Optimization foam mat drying of roselle \(*Hibiscus sabdariffa* L.\) extract](#) 02073

Mohammad Djaeni, Febiani Dwi Utari and Uma Fadzilia Arifin

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902073>

- [PDF \(441.6 KB\)](#)
- [References](#)



Open Access

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Daud Rahmat Wiyono, Roi Milyardi and Cindrawaty Lesmana

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902074>

- [PDF \(1.51 MB\)](#)
- [References](#)



Open Access

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Indra Nisja

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902075>

- [PDF \(315 KB\)](#)
- [References](#)



Open Access

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Hartomo Soewardi and Perdana Suteja Putra

Published online: 30 March 2018

DOI: <https://doi.org/10.1051/matecconf/201815902076>

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- [References](#)

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An investigation of spatial arrangement, form, and structural system of traditional houses in Pedawa indigenous village - Bali

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Abstract. The Balinese traditional architecture has become valuable inheritance from the ancestor which still exists and is preserved until now, it is a symbol of local culture and reflects its characteristics. However, overpopulation has become one of the major challenges for Bali to cope with, and the impact of this phenomena significantly transform the traditional houses both its use and its form. The uniqueness of the architecture of Pedawa village has not yet been investigated in previous research. This paper aims to explore the detail of spatial arrangement, form, and structural system of the traditional houses, and its conservational effort. The case study method is employed for this research. Both primary and secondary data from interview, site observation, and literature data are analysed with qualitative analysis. The results show that the locals make every effort to sustain their values. The unique spatial arrangement, form, and structural system of the houses are strongly influenced by local customs; lifestyles; beliefs, and the environment. Hence, challenges are due to lack of understanding about conservation by the locals of their values and lack of natural resources; lifestyles; beliefs sand the environment.

1 Introduction

The Balinese traditional architecture is one identity of Bali which has been preserved. There are many types of traditional architecture in Bali according to its area or region. The traditional houses from one region to the other have different shapes and forms, such as their sizes; functions; ornaments, and materials. Traditional indigenous architectures are also different from the common traditional architecture widely known as Balinese traditional architecture. However, they adopt similar concepts from the past. The important thing is the strong relationship between humans, the nature, and the gods known as the universal concepts of Tri Hita Karana. This concept maintains the harmonious relationships amongst them. It is the foundation of most indigenous village settlements, traditional houses, and villages across Bali.

The traditional house is a symbol of local culture and reflects its characteristics. A traditional house could reflect the characteristic of the local culture which includes norms, values, behavioural patterns, artefacts, and activities [2]. The expression of the local residents' sociocultural system is reflected on their architecture; therefore the architecture is based on their local norms, values, and behaviour [11, 15]. According to Samadhi [10]

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there are seven Balinese Hindu conceptions of space and their core periphery continuum order in the contemporary Balinese spatial formation: 1) psycho-cosmic concept; 2) Tri Hita Karana; 3) Tri Angga; 4) Kaja-Kelod; 5) Kangin-Kauh; 6) Sanga Mandala; 7) local knowledge systems (Tri Pramana and Tri Masa). These conceptions reflect their degree of importance within the spatial formation.

Pedawa village is one of the old indigenous villages in Bali which has an ancient heritage from megalithic era. The uniqueness of the architecture in Pedawa village has not yet been investigated in previous research about this village. This paper aims to explore the detail of spatial arrangements, forms, and structural systems of the traditional houses. At the same time, it shows that the characteristics of Pedawa house are different compared to the well-known Balinese traditional house typology. Further, this paper also reveals the effort of the locals to sustain their values and the challenges they cope during the conservational process.

2 Pedawa village overview

This village is located in Banjar District, Buleleng Regency, it is about 30 km to the west of Singaraja. Located on the highland about 450-800 above sea level, this village is considered to have colder temperature than the villages in the mainland. The name of Pedawa is derived from Pada Wang which means everyone is the same, Pedawa also means Panjak Dewa (God's helper). This village is one of the 62 indigenous villages in Bali. It has existed before Hindu and Buddha religions came to Bali during the Majapahit Kingdom [5].

This village has two ancient heritages in the form of sarcophagus in Jinjit and Ingsakan area as proof that this village has existed in the megalithic era. It has its own uniqueness based on its nature, architecture, and tradition which has not been explored in depth yet. In addition, the uniqueness of this village is that there are no castes in the community like other traditional villages in Bali generally. Furthermore, the characteristics of public temples in Pedawa are different from those in other traditional villages in terms of land division concept. The well-known concept for public temple land division in Bali is Tri Mandala (three divisions of the area of public/profane, semi public and private/ sacred area). Though, the temples in Pedawa only use the concept of Rwa Bhineda (two divisions of sacred and profane) and Eka Bhuana (no divisions of sacred and profane).

There are 62 indigenous villages identified based on the research of Carole Muller in 1980 and the inventory of the Government of Bali, Department of Public Works with the project entitled The Conservation of Villages and Environment Planning in 1988/1989 [5], but only few of them were explored in architectural point of view. Some research about Pedawa has been done by some scholars. The research was in the field of agriculture conducted by Udayana University (www.pps.unud.ac.id); research on the management of funding in adat village and dinas by Tera Padmani, *et.al* in 2015; research on health by Budiarta and Suka Aryana in 2012; research on education of primary school children by Komang Arini *et.al* in 2013; and some unpublished field surveys [8].

3 Method

The case study method is applied for this research. This method offers a descriptive analysis to analyse the relationship between the research object and the related determinant factors such as history and community and individual behaviour across the sites. This method helps the researcher to find a comprehensive way to explore the object of research deeply [13]. Therefore, this method is very suitable for research in social disciplines. The strength of this method is that all data could be gathered from different data collection

methods or a combination of several data collection methods both qualitatively and quantitatively. This research applies some interview with 12 selected respondents and observes 24 indigenous houses as the primary data. The secondary data were gathered from the report on the physical data of the village, village map, local regulation, custom regulation named awig-awig, and some relevant literature. The use of multiple source of data enhances the quality of analysis and optimizes the result [6]. Using two different methods of data collection would improve the objectivity of data before the analysis process [9].

4 Results and discussion

Traditional house in Pedawa village has two different types. The first one is called Bandung Rangki which has 18 wooden columns and the second one is called Sri Dandan which has 16 wooden columns. The former is the authentic Pedawa traditional house, while the latter is the influence from neighbouring village of Cempaga. Therefore, the majority of traditional houses in Pedawa are Bandung Rangki. Both Bandung Rangki and Sri Dandan have similar functions within the house which reflect, looked at from its spatial arrangement.

4.1 Spatial arrangement

Spatial arrangement of the traditional house both Bandung Rangki and Sri Dandan is based on the daily activities of the owner. Sulistyawati mentions that a traditional house in Bali has two functions which includes a place for living and an activity such as the area for sleeping, eating and resting; and the second function is for psychological needs such as doing ritual activities and local traditions [12, 15]. Further, Balinese traditional houses are classified into four attributes which include: sociology; symbolic; morphology; and function [7]. It is clear that Balinese traditional houses as a place for different kinds of activities for both physical and psychological activities of the owner.

The traditional houses in Pedawa, both Bandung Rangki and Sri Dandan, have a similar spatial arrangement based on the activities of the owner. There are six categories in daily and special activities of the villages.

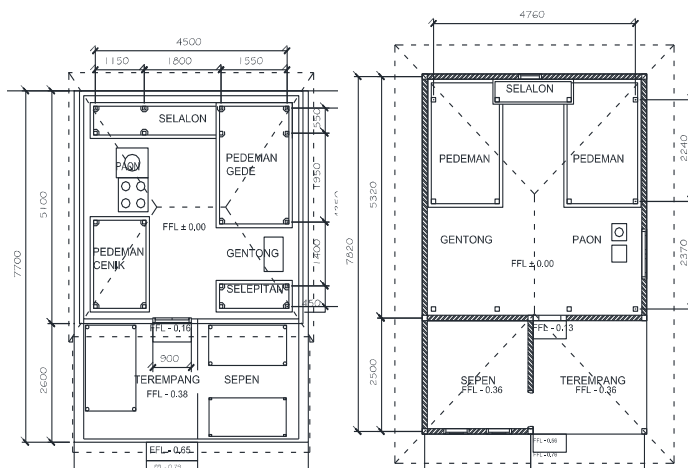


Fig. 1. Bandung Rangki (left), Sri Dandan (right)

The spatial arrangements (see figure 1) are divided into six categories: {1} Area for resting and sleeping consist of two different bed sizes called Pedeman Gede (for parents

and has bigger size) and Pedeman Cenik (for children with smaller size). These two beds are made of wood and these beds columns are the structure of the house. Other function for the Pedeman Gede is to place offering during ritual ceremonies; {2} The activity of cooking is accommodated with a kitchen called Paon. The kitchen has three different types of burner made of Tanah Polpolan (soil/clay), the three different burners are: (a) Paon Tuak (the biggest one, for making palm sugar), (b) Paon Jakan (medium one, for cooking rice and meat) and (c) Irun (the smallest one, for heating food); {3} The social activities in this house are performed in the inner part of the house as the empty space called Tengan Umah (for hosting relatives only) and the front part of the house serving as veranda called Terempang (for hosting guest); {4} To accommodate ritual activities, this house has Pelangkiran placed on the top of Pedeman Gede, where the owner puts the offerings for their ancestor on a daily basis. Other ritual activities are also done outside the house with a special shrine made of bamboo called Sanggah Kemulan Nganten (see Figure 1 right); {5} To store the equipment and other household stuff and also groceries, these houses have areas called Sepen located next to the veranda. Further, there is also a place called Gentong to store kitchen equipment, cooked food, and water. The unprocessed rice and food from the farms are stored outside the house in a special building as a rice barn called Jineng. It is placed just in front of each house and commonly right in front of the front door of the house; {6} During the funeral ceremony, the corpse will be put on the Pedeman Gede and some offering along with the corpse. The corpse is bathed and laid on the Pedeman Gede before bringing it to the graveyard for cremation ceremony. The point to be made here is that traditional houses in Pedawa are able to express its characteristics. As mentioned by Broadbent [2] that the characteristics of the traditional house express its local culture including norms, values, behavioural pattern, artefacts, and activities. Nowadays some changes of the spatial arrangement occur due to changes of lifestyle and growing number of family members. Even though it changes, the culture and especially ritual activity are very well maintained.

4.2 Form and structure

The form and structure of these two houses adopted are very simple. The form of the house is using simple basic shape of form to be harmonized with the nature. The shape of roof adopted from a triangle which means the shape of mountain as a place of gods. Further, the triangle is steeper than a typical traditional Balinese house. It is due to the climate in highland which has more rains compared to the mainland. The shape of the floorplan is also using basic shape of rectangle. This shape provides an easier way for the people to arrange the spatial arrangement of the house based on their daily and special activities. Simple shape of these houses reflect simple ways of thinking and doing activities.

Further, the material for these two houses and the rice barns in the past were from local materials easily found within the surrounding areas. The local woods, bamboo and grass roof (called Alang-Alang) were commonly used for Bandung Rangki and Sri Dandan houses. The wooden columns that support the houses are integrated with the bed both for Pedeman Gede and Pedeman Cenik. All structural materials are made from local wood and bamboo. The roof and wall structures are made of bamboo. There are simple structure adopted for these houses. The wood and bamboo joining all the constructions were using simple cuts and wooden pegs called *lait* and also using bamboo ropes. Therefore the renovation to some part of the materials would not damage other parts or the whole structure. The structure of these houses are shown in detail in Figure 2. These types of construction system are simple and long lasting. Even though there were changes in the materials used, these simple construction principles are still applied to modern materials, and are well sustained for the future generation.

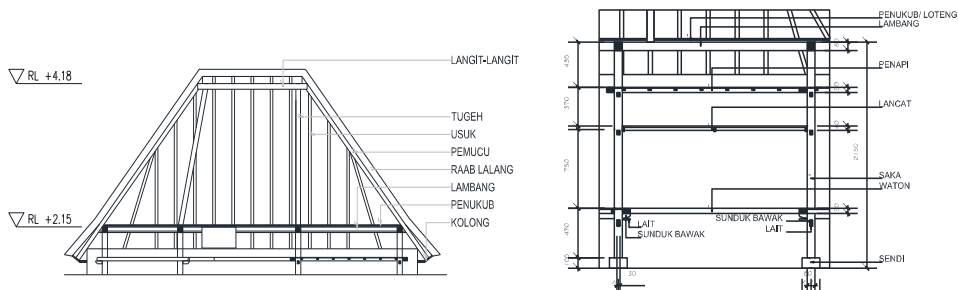


Fig.2. Structural system of roof (left), Pedeman Gede (right)

These two houses use human scale based on the concept of harmonious relationship between the human and the nature. This scale is grounded on the spatial design which has to consider the relationship between microcosm (human) and macrocosm (universe) which is the core conception of all the structures [10]. Therefore all the traditional indigenous houses in this village are based on this concept. By using human scales, the buildings nicely fit in with the nature without any attempt to dominate the nature.

4.3 House transformation, sustainability, and its challenges

The lesson learned from Pedawa traditional houses is that significant changes of the traditional houses today happen. People tend to have modern houses rather than old traditional indigenous houses. Further, natural resources are also one main reason such as the lack of good quality of bamboo and wood for house structures. Some houses are totally demolished and new modern houses are built, but some make transformation of the old houses. The changes of the houses such as (1) Replacing materials of the roof and wall structure for more modern, stronger and more affordable houses; (2) Replacing the floor material of local clay (Tanah Polpolan) to tile and bricks. The changes have brought some significant impacts to the thermal comfort in the house as new materials could not help to protect the people from cold weather. Further, the funeral activates for bathing the corpse could not be done due to the change of floor materials. However, two important functions that are sustained by the community and do not face any changes in the two traditional houses are the Pelangkiran and Sanggah Kemulan Nganten. These two ritual functions are the most important unchangeable functions. Rituals are the most important cultural attributes both in private or public uses and have created a specific spatial structure and it became the centre of orientation and identification for the community [4, 11]. The sustainability of this indigenous houses are strongly based on belief and religion of the community. Even though the community struggles to sustain their houses as a physical part, but they maintain their belief and religion.

As mentioned in the National Regulation No 11 of 2011, traditional houses are part of traditional villages that need to be protected. Therefore, the need to sustain traditional houses is very important as part of traditional villages themselves. It is important to widespread the knowledge to all society about the protection of traditional houses as cultural resources. Some efforts have been made to sustain the traditional houses in Pedawa by some group in the community. The efforts are: they work together to fix some traditional damaged houses; making family shrines; and making one original house for informational purposes. These efforts have brought awareness for the preservation of the cultural values in the community. To face the challenges for the future, it is suggested that the need to sustain the cultural resources is not only on the physical aspects but also more to the aspect of value and reinterpretation of the value and spirit into new built form based on the current context and situation. As mentioned by Olgyay in Altomonte [1], to promote sustainable

design in a built environment, architecture must therefore assume a further dimension, conscientiously responding to the context where it is built and to the environment as a whole. Cuthbert [3] points out that architectural forms in Bali are not fundamentally architectural typologies, but are based on social typologies such as caste, class, and capital. However, since Pedawa does not recognize any caste and that everyone is socio-religiously the same, then there are no typologies for the houses, and it would be easier to sustain the existing cultural values.

5 Conclusion

The results show that the space arrangement of the traditional houses is closely linked to the local tradition and the lifestyle of the population in the past, while the transformation of the spatial arrangement is also the result of the change of life style and demographic in this village. However, the transformation of the spatial arrangement of the two houses still preserve the space for rituals as a proof that the villagers still have the same belief as their ancestors. The spatial arrangement, and the choice of form, material and structural system of Bandung Rangki and Sri Dandan refer to the local climate; the ability of local craftsmanship; affordability; local belief; local custom; and local natural and materials in the past. The building detail and technique have some similarity to the general Balinese traditional architecture typology. Thus, the spatial arrangement, form, material, and structural system of the traditional houses in Pedawa are used to accommodate the local's daily activities, protecting them from the local climate which serves as a form of the local identity. Lastly, the main important factor of the sustainability of this house is based on the belief and religion of the local community.

References

1. S. Altomonte, *Environmental Education for Sustainable Architecture*, R.E.S. 1.2 (2009)
2. G. Broadbent, R. Bunt, C. Jencks, *Signs, Symbols and Architecture*, John Wiley & Sons. Chichester (1980)
3. A. Cuthbert, *Paradise Lost, Sanity Gained*, J.K.B. **1**. 2 (2012)
4. R. Knowles, *Rhythm and Ritual, Maintaining the Identity of a Place*, J.T.D.S, **94**, (1996)
5. C. Muller, *Bali Aga Villages; field work in the 1980s*, Walsh Bay Press (2011)
6. M. McCutcheon, J.R. Meredith, 1993, *Conducting case study research in operation management*, J. O. M **11**, 239-256 (1993)
7. A. P. Parimin, *Fundamental Study on Spatial Formation of Island Village: Environmental Hierarchy of Sacred Profane Concept in Bali* (PhD Thesis) Universitas Osaka, Japan (1986)
8. T.A Prajnawrdhi, *Tantangan konservasi pada Rumah Bandung Rangki dan Sri Dandan di Desa Bali Aga Pedawa, Buleleng-Bali, Semnas Heritage*, Cirebon (2016)
9. D. Silverman, *Doing Qualitative Research*, 4th.SAGE London, (2013)
10. T. N. Samadhi, *Conservations of Principles or Objects?* J. D.T .A **28**, 2 (2000)
11. C. N. Schulz, *Intentions in Architecture*. The M.LT Press, Cambridge Massachusetts. *Genius Loci*, Electa/Rizzoly, New York (1977)
12. D. M.McCutcheon, J.R Meredith, *Conducting case study research in operation management*, J. O. **11**, 239-256 (1993)
13. Sulistyawati, *Preservasi Lingkungan Perumahan Pedesaan dan Rumah Tradisional Bali di Desa Bantas, Kabupaten Tabanan*, Udayana, P3M, Universitas Denpasar (1985)
14. R.K. Yin, *Case Study Research: Design and Methods*, 5th, SAGE, Los Angeles (2009)
15. Y. Ahmad, 'The Scope and Definitions of Heritage: From Tangible to Intangible', *International Journal of Heritage Studies*, vol. 13, no. 3, pp. 292-300 (2006)