



PROCEEDINGS

Regional Geoheritage Conference 2016

THE 9TH INDONESIA-MALAYSIA CONFERENCE

ISBN : 978-602-19765-4-8

" Exotic Past For Our Future "

HYATT REGENCY HOTEL - YOGYAKARTA

24-25 NOVEMBER 2016



UNIVERSITAS PADJADJARAN
YOGYAKARTA



UNIVERSITI KEBANGSAAN MALAYSIA



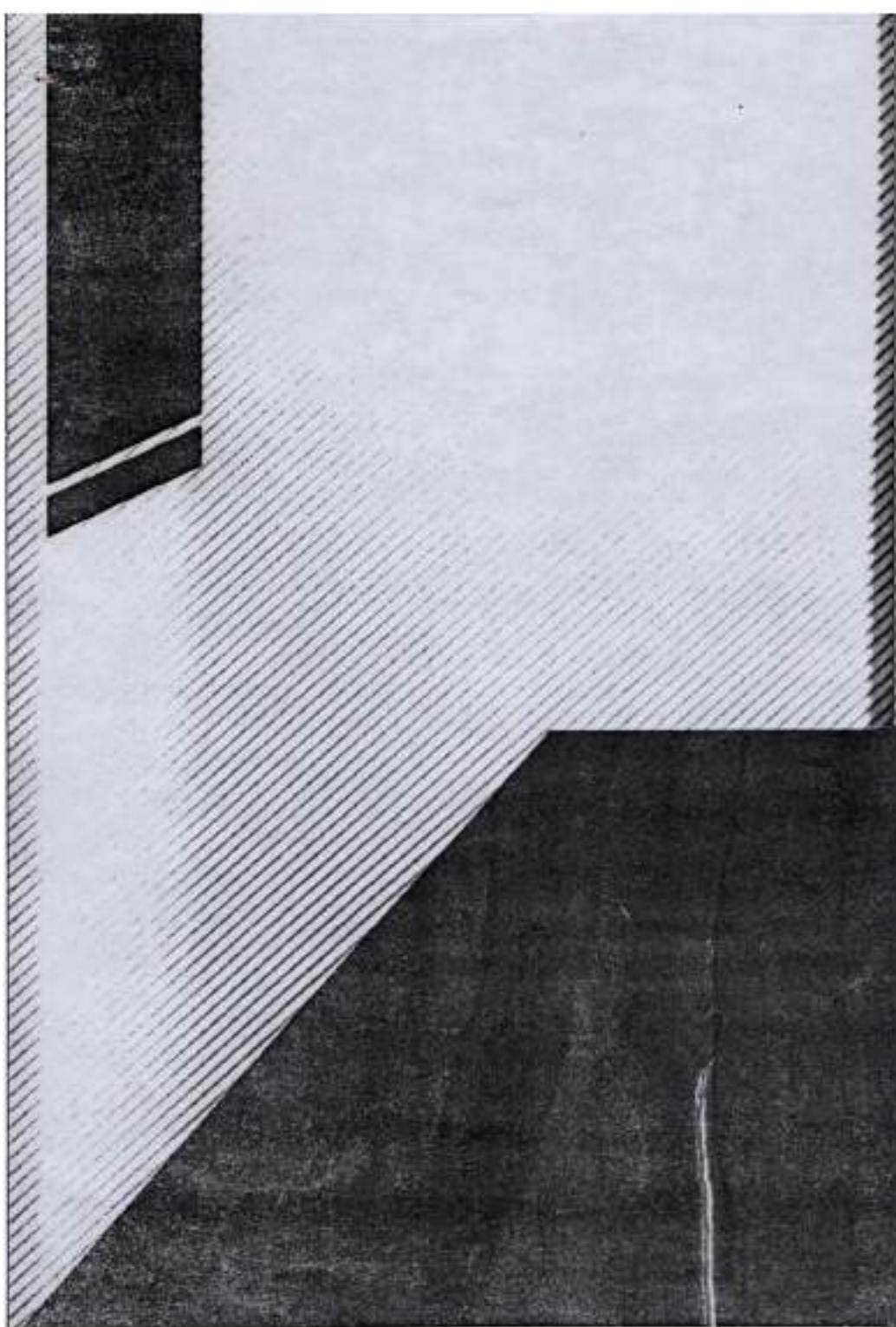
Indonesian
Educational, Science and
Cultural Organization



Indonesian Ministry of
Environment, Forestry and
Fisheries



Indonesian Ministry of
Tourism and Creative Economy



Proceedings

Regional Geoheritage Conference 2016

The 9th Indonesia-Malaysia Conference

“Exotic Past for our Future”



Seminar Held on 24 November 2016
In Hotel Hyatt Regency Yogyakarta, Indonesia

Field Trip Held on 25 November 2016

Proceedings

Regional Geoheritage Conference 2016

The 9th Indonesia-Malaysia Conference

Scientific editors

Sari Bahagiarti K
Ibrahim Komoo
Yunus Kusumahbrata
Suharsono
Mohd. Syafeca Leman
Che Aziz Ali
Hanang Samodra
C. Danisworo
Bambang Prastishe
Suyapak Insamut

Technical Editors

Muhammad Yusuf Muslim
Gneis Desika Zoenir

RGC 2016

Chairman

Bambang Prastishe

FACULTY OF MINERAL TECHNOLOGY
UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN"
YOGYAKARTA
2016

COMMITTEE OF REGIONAL GEOHERITAGE CONFERENCE 2016

Steering & Scientific Committee

- Prof. Ir. Dr. Sari Bahagiarti K. – Rector of Universitas Pembangunan Nasional
"Veteran" Yogyakarta
Prof. Emeritus Ibrahim Komoo – Vice President of Global Geopark Network
Environmental and Natural Resources Cluster in
Malaysia
Dr. Yunus Kusumahbrata – Expert Staff of Ministry Energy and Mineral
Resources
Dr. Suharsono – Deen of Faculty of Technology Mineral

- Prof. Dr. Mohd. Syafea Leman
Prof. Dr. Che Aziz Ali
Ir. Hanang Samodra, M.Sc.
Prof. Dr. Ir. C. Danisworo, M.Sc.
Prof. Dr. Ir. Bambang Prastitho, M.Sc.
Dr. Suvapak Imsamut

Organizing Committee

- Prof. Dr. Ir. Bambang Prastitho, M.Sc.
Dr. Ir. Jumnika Setiawan, M.T.
Ir. Peter Eka Rosadi, M.T.
Dr. Ir. Basuki Rahmad, M.T.
Dr. Ir. C. Prasetyadi, M.Sc.
Ir. Siti Umiyastun Choiriah, M.T.
Herry Riswandi, S.T, M.T.
Dewi Fitri Anggraini
Niko Anugrah Wyanti
Muhammad Yusuf Muslim
Faiz Akbar
Faiz Zain Adli
Nova Deka Valentina
Dimas Ihsan
Arif Muhamad Editor
Gneis Desika Zoenir
Sandi Putrazony
Budiamala Prawoto
R. Aburizal Valdi
Akmal Musyadit

Preface

Bismillahirrahmanirrahim, Assalamu'alaikum wa rahmatulahi wa barokatuh.

Dear distinguished participants and committee.

In this nice opportunity, I appreciate to all of you for your considerable effort that made the Regional Geoheritage Conference 2016 or the 9th Joint Conference Indonesia – Malaysia Geoheritage Conference happened.

I really thankful to your participations for joining and attending the Conference in Yogyakarta. Special Region of Yogyakarta is well known as education and cultural city. Yogyakarta also become a considerable touristic region especially in cultural heritage. Right now geoheritage in Yogyakarta become more attractive.

In this occasion, the conference is very simple. Conference will be held over two days. First day we will held conference and geotrack in the second day.

There is two main speakers for RGC 2016. The first speaker is Mr. Ibrahim Kurnoo as Vice President Global Geoparks Network (GGN) and Mr. Yuntas Kusumahbrata as Expert Staf Ministry of Energy and Mineral Resources of Indonesia Republic. For the next season, we also have speakers from Thailand and two speakers from Gunungsewu UGG and Batur UGG Indonesia. Moreover, we have 30 outstanding papers that will be presented in this conference. The papers are consist in 12 oral papers and 23 posters presentation with the same value.

In geotrack we will discover several geoheritage sites in Gunungsewu UGG, such as Miocene pillow lava of Berbah; ancient volcanic product of Nglanggeran; exciting bioturbation within shallow marine Sambipita Formation; and Karst Museum of Indonesia at Wonogiri.

I wish this conference will give us inspirations and enhance the cooperation in Southeast Asia countries, especially in the field of geoheritage. Happy sharing for the progress of our region.

Finally, I would like to express my gratitude to Geological Agency – Ministry of Mineral Resources, especially Center of Geological Survey perform a booth concerning the wonderful of geoheritage and geopark of Indonesia.

Wasalamu'alaikum wa rahmatulahi wa barokatuh.

Prof. Dr. Ir. Bambang Prastitho, M.Sc.
Chairman
Regional Geoheritage Conference 2016

Table of Contents

1	Rodhi A, Leman M. S and Lim C. S. Strike Slip Deformation of the Post Cretaceous Period at the Genting-Klang Quartz Ridge, Selangor, Peninsular Malaysia	6
2	Danisworo C, Subandrio A, Ngaderman T and Randa A. M. Paleoclimatic Change Analysis Based on Stratigraphic Data, Jayapura and its Surrounding Area, Jayapura District, Papua Province	18
3	Goh T. L, Wong J. M, Simon N, Rafek A. G and Serasa A. S. Quantitative Assessment of Cave Stability Analysis at Gua Damai, Batu Caves, Selangor	26
4	Paripurno E. T, Wahyuni P and Murwanto H. Kajian Potensi Geopark Gunung Penanggungan Kabupaten Mojokerto dan Pasuruan, Provinsi Jawa Timur	36
5	Wulan T. R, Pitra A. S, Maulana E, Wahyuningsih D.W, Putra M. D and Ibrahim F. Optimum Carrying Capacity Assessment Using Remote Sensing Approach in Candi Ijo Geoheritage of Yogyakarta	43
6	Purwanto H. S, Risandi H and Fatchurohman D. Conserving Local Mining as Geoheritage in the Region for Geosciences	52
7	Paripurno E. T, Laksana T. B, Falah A. B. R and Susanto H. Kajian Potensi Geopark Kawasan Karst Biduk-biduk Kabupaten Berau, Kalimantan Timur	60
8	Setiawan J and Kristanto D. The Traditional Petroleum Well in Wonocolo Area as A Beautiful Education Tourism Object	68
9	Hariyadi, Kristanto D and Setiawan J. The Structure of Kawengan Anticline as A Lowest Petroleum System in Indonesia	72
10	Yudiantoro D. F, Choiriyah S. U, Hady L. P, Sayudi D and Nuky A. M. I. Development of Pundong Area as Geoheritage and Education Tourism Pundong Parangtritis Yogyakarta	84
11	Hardoyo D and Nugroho A. D. Pengelolaan Sumber Daya Geologi Secara Kerkelanjutan Di Pulau Lombok NTB	91
12	Purnomo H and Suhascaryo KRT. N. Renewable Energy on Ngentak-Kuwaru, Srandakan, Bantul as Interesting Tourism Object	107
13	Sugeng. Geodiversity of Landscape Papuma Beach, Jember, East java	106
14	Rahmad B, Jaya D, Raharjo S and Suprpto. Geology and Geoheritage of Munra Wahau Coal Field, East Kalimantan, Indonesia	119
15	Prayoga O. A, Aditya R, Setiawan E, Izudin N, Gunawan B, Lavanto A. T and Luga C. F. Geoheritage Gunungapi Purba Batur, Yogyakarta : Sebuah Kajian Terintegrasi Untuk Konservasi Warisan Geologi dan Pengembangan Wisata Edukasi Kebumihan	129
16	Riyantiyo N. D and Hilyah A. Konservasi Geoheritage di Jawa Timur dan Analisa Area Kerentanan Tanah Berdasarkan Pengukuran Mikrotremor: Kompleks Caldera Tengger	142
17	Rodhi A, Indrajaya E, Prasetyadi C, Setiawan J and Pratikayo P. Fractures Control of Groundwater Aquifer Configuration at Baturagung Volcanic Range, A Potential New Geosite of Gunung Sewu Geopark	150
18	Ediyanto, Kristianto R. A and Riswandi H. Proposed Repacking – Boyolali Geoheritage	160

33	Dinding Sembahun (Gawir Sesar View Point Jalan menuju Punak)	Kaldera	116.5396	-8.4005	Struktur Geologi bermakna ilmu pengetahuan dan estetika
34	Dinding Sembahun	Kaldera	116.5345	-8.3807	Geomorfologi bermakna ilmu pengetahuan, estetika dan pendukung pariwisata
35	Lava dengan Struktur Aliran		116.5339	-8.3618	Batuan bermakna ilmu pengetahuan dan estetika
36	Lava Lentib		116.5123	-8.3583	Batuan bermakna ilmu pengetahuan
37	Alternasi (tubuan Andesit) (Geoevidence)		116.5457	-8.3569	Batuan bermakna ilmu pengetahuan
38	Mata air panas/Aik Kalak Sembahun (Geoevidence)		116.5841	-8.3785	Struktur Geologi bermakna ilmu pengetahuan
39	Mata Air Narmada		116.2053	-8.5955	Struktur Geologi bermakna budaya, sejarah dan pendukung pariwisata
40	Air Terjun Prabe		116.2123	-8.5239	Struktur Geologi bermakna estetika dan pendukung pariwisata
41	Air Terjun Segenter		116.2926	-8.4993	Struktur Geologi bermakna estetika dan pendukung pariwisata
42	Lembah Cerorong		116.2723	-8.5688	Geomorfologi dan struktur geologi bermakna ilmu pengetahuan
43	Charcoal Batu Kiang		116.3001	-8.5894	Fosil Kayu bermakna Ilmu Pengetahuan
44	Air Terjun Benang Stokel		116.3381	-8.5344	Struktur Geologi bermakna estetika dan pendukung pariwisata
45	Air Terjun Benang Kelambu		116.3367	-8.5322	Struktur Geologi bermakna estetika dan pendukung pariwisata
46	Air terjun Otak Kokok Gading		116.3993	-8.5344	Struktur Geologi bermakna estetika, budaya dan pendukung pariwisata
47	Air terjun Jerukmani		116.4229	-8.5235	Struktur Geologi bermakna estetika dan pendukung pariwisata
48	Mata Air Lemor		116.5658	-8.5102	Struktur Geologi bermakna budaya dan pendukung pariwisata
49	Bekas Tambang Lembah Hijau		116.5994	-8.6363	Geomorfologi bermakna sejarah dan pendukung pariwisata
50	Ignimbrit Korleko		116.6223	-8.6159	Struktur Geologi bermakna ilmu pengetahuan dan estetika

RENEWABLE ENERGY ON NGENTAK-KUARU-SRANDAKAN-BANTUL AS INTERESTING TOURISM OBJECT

Hadi Purnomo¹
KRT. Nur Suhascaryo²

¹Program Studi Teknik Geologi, FTM, UPN "Veteran" Yogyakarta
²Program Studi Teknik Perminyakan, FTM, UPN "Veteran" Yogyakarta
Jln. SWK 104 (Lingkar Utara), Condongosari, Yogyakarta 55283
hadi.p.hoodoet@gmail.com suhascaryo@yahoo.com

ABSTRACT

This research are located at Ngentak, Kuwaru, Srandakan, Regency of Bantul. They have two kind of energy resources which is new energy like a wind energy and renewable energy like waste of cows. The new renewable energy in this area had transferred like as Liquid Natural Gas (LPG). Besides, this biogas is used at most of restaurant at Pantai Baru Kuwaru, Bantul. This purpose are to make Ngentak, Kuwaru as destination for energy tourism as geosite to support geology tourism at province D.I. Yogyakarta.

Key words : Ngentak-kuwaru, wind energy, Geosite, geology tourism,

INTRODUCTION

Pantai Baru, Dusun Ngentak, Srandakan, Bantul is one destination of several tourism place in Bantul. This area needs much improvements, especially electricity to support its tourism value.

Geographically, southern coast of Yogyakarta is open field, sun shines whole day, and wind speed is about 4 m/s (LAPAN). It is located directly facing Indies Ocean make it suitable for site of PLTH (Hybrid Power Generator) which using wind turbines and solar panels. Besides wind turbines and solar panels, Pantai Baru also utilizes biogas to substitute LPG gas usage. Main source of biogas are cow wastes from from "rancher group" Kelompok Ternak Sapi PandanMulyo which have more than 150 cows.



Figure 1 : Location Map of Pantai Baru, Dusun Ngentak, Srandakan.



Figure 2 : Panoramic View of Pantai Baru, Dusun Ngentak, Srandakan,

METHOD

Methodology used in this research are observations and interview. Research was held at PLTH Pantai Baru Pandansimo, Ngentak, Srandakan, Bantul, DIY on September-Oktober 2016 by UPN research team.

RESULTS

Wind turbines and solar panels support each other on producing electricity. If sun shines brightly and wind blows with low speed, solar panel will be the ones which produces electricity and electricity will be stored in batteries/accu. So is wind turbines, if it is cloudy but it is windy, wind turbines will take charge to supply electricity.

1. Electricity produced by PLTH Pantai Baru has been used to support tourism activities such as;
2. providing electricity for nearby restaurants and household.
3. road lighting
4. fresh water pump system for household, fishery, and sand based farming
5. ice cube makers, for food and beverages.

Biogas is mainly used as fuel in the nearby restaurant. Biogas is used to cook, to boil water, etc. Biogas is connected to network providing fuel for more than 50 restaurants and household.



Figure 3 : Diagram of Wind Turbine used at PLTH Pantai Baru Pandansimo, Ngentak, Srandakan, Bantul, DIY



Figure 4 : Wind Farm at Pantai Baru, Dusun Ngentak, Srandakan,

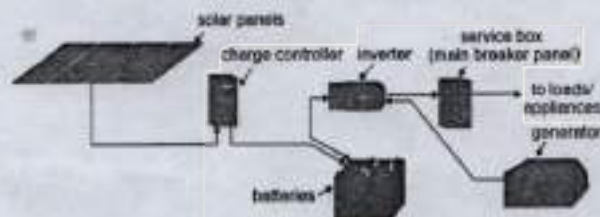


Figure 5 : Diagram of Solar Panel used at PLTH Pantai Baru Pandansimo, Ngentak, Srandakan, Bantul, DIY



Figure 6 : Solar Panel used at Pantai Baru, Dusun Ngentak, Srandakan

Table 1 : Technical Data of PLTH (Hybrid Power Generator) Pantai Baru, Dusun Ngentak, Srandakan, Bantul

Generator Type		Number	Capacity	
Eastern Group	48 V System	Wind Turbine 1 KW (Triangle)	4	4 KW
		Wind Turbine 1 KW (Lattice)	2	2 KW
	240 V System	Wind Turbine 2,5 KW (Lattice)	2	5 KW
		Wind Turbine 10 KW (Lattice)	1	10 KW
		Wind Turbine 10 KW (Triangle)	1	10 KW
		Wind Turbine 5 KW (Lattice)	1	5 KW
		Solar Panel 4 KW /140 V	40 @100W	4 KW
120 V System	Wind Turbine 2 KW (Lattice)	2	4 KW	
Western Group	240 V System	Wind Turbine 1 KW (Lattice)	21	21 KW
	120V System	Solar Panel 15 KW (Lattice)	150 Unit @100 W/12 V	15 KW
KKP Group	48 V System	Panel Surya 10 KW	48 Unit @220W/24 V	10 KW
Total Electricity Generated				90 KW

CONCLUSION

Biogas produced from cow wastes and electricity produced by wind turbines and solar panels in PLTH Pantai Bara expected to support development of tourism sector and its supporting factor such as farming, fishery, and culinary enterprise.

REFERENCES

- Direktorat Jendral Listrik dan Pemanfaatan Energi. *Rencana Induk Pengembangan Energi Baru dan Terbarukan 2010-2025*. 2010. Kementerian ESDM: Jakarta.
- International Energy Agency. *Energy Technology Perspectives 2012*. 2012. International Energy Agency
- Pengkujian Energi Universitas Indonesia. *Indonesia Energy Outlook and Statistics*. 2004. UT:Depok.
- Sudarto, Aris. Saragih, Budiman. *Resume Pemanfaatan Energi Angin: Kebijakan Pengembangan Energi*. 2010. Kementerian ESDM-Dirjen EBTKE-Jakarta.
- Suhascaryo, N., Hongky B., P., Anang, A. P., Sugeng, P., dan Hadi, P. 2015. *Pengaruh Penambahan Diethylene Glycol Terhadap Gas Hasil Fermentasi Limbah Peternakan Sapi Dusun Ngentak, Desa Poncosari, Kecamatan Srandakan, Kabupaten Bantul, DIY*. Jurnal Seminal Nasional Kejuangan Teknik Kimia. ISSN : 1693-4393