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Visit to the 5th International Green Technology & Eco Products Exhibition Conference Malaysia (IGEM) 2014

MISI BANTUAN BANJIR DI MANIK URAI & GUA MUSANG, KELANTAN

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MISI BANTUAN BANJIR DI MANIK URAI & GUA MUSANG, KELANTAN

30 DISEMBER 2014

Mengapa banjir sering terjadi melanda umat manusia? Kita perlu melihat kejadian-kejadian yang dijadikan ALLAH sebagai pengajaran dan ada hikmah di sebaliknya.....

Rumah yang hampi rmusnah sepenuhnya akibat lempahan Sungai Lebir, di Manik Urai

Oleh: Prof Madya Dr. Khairul Nizar Ismail

Menutup tirai 2014, negara dikejutkan dengan kejadian banjir luar biasa di negeri-negeri Pantai Timur seperti Kelantan, Terengganu dan Pahang. Turut dilanda banjir ialah negeri lain termasuk Perak dan Perlis. Banjir kali ini membawa pelbagai makna samaada yang tersirat dan tersurat . Taburan hujan yang luarbiasa telah dikatakan sebagai punca utama banjir yang menyebabkan kemusnahan teruk di negeri Kelantan, Terengganu dan Pahang. Negeri–negeri ini mula dilanda banjir besar bermula 24 Disember 2014. Kemusnahan akibat banjir di Kelantan adalah sangat besar dan sukar dibayangkan. Kerugian harta awam di seluruh Kelantan akibat banjir besar dianggarkan berjumlah hampir 1 bilion (RM932.4 juta). Dalam masa yang sama rakyat Malaysia tanpa mengira kaum, agama dan fahaman politik terus menghulur sumbangan melalui badan-badan bukan kerajaan untuk disalurkan kepada mangsa banjir di Kelantan.

Mengapa banjir sering terjadi melanda umat manusia? Kita perlu melihat kejadian-kejadian yang dijadikan ALLAH sebagai pengajaran dan ada hikmah di sebaliknya. Semuanya adalah hukum alam kepada umat manusia agar kita menyedari dan ingat kepada ALLAH SWT. Sikap angkuh dan tamak manusia dalam pembangunan yang tidak terkawal tanpa mengambil kira ekosistem alam semulajadi, merupakan salah satu sebab musibah ini. Ini menyebabkan tanah runtuh, banjir dan sebagainya sedangkan alam sekitar kita mesti dikawal dan diurus dengan saksama dan baik.

Saya berkesempatan menyertai kumpulan dari Ibu pejabat Polis Daerah Kangar ke Gua Musang dan Manik Urai pada 30 Disember 2014 dalam usaha menyampaikan bantuan kepada penduduk yang terjejas dengan banjir. Laluan darat ke pantai timur ketika itu masih ditutup dan kami menggunakan laluan Simpang Pulai-Kampung Raja-Lojing-Gua Musang untuk sampai ke Kelantan dari Kangar. Laluan ini juga masih ditutup akibat runtuhan jalan. Keadaan di Gua Musang dan Manik Urai amat menyentuh hati. Rumah-rumah kayu di tebing sungai, musnah dihanyutkan banjir. Sukar dibayangkan keadaan yang dihadapi oleh mangsa banjir. Mungkin “tsunami darat” ini menjadi peringatan dan pengajaran supaya kita lebih menghargai Alam Sekitar.

Kenderaan yang musnah akibat banjir di Manik Urai

Laluan Lojing –Gua Musang yang runtuh akibat hujan lebat

Rumah yang hanya tinggal tiang

Kesan kemusnahan akibat banjir

Menyampaikan bantuan kepada mangsa banjir di SMK Manik Urai.

Visit to the 5th International GREEN TECHNOLOGY & ECO PRODUCTS EXHIBITION & CONFERENCE MALAYSIA (IGEM) 2014

By: Dr. Tengku Nuraiti Tengku Izhar

38 of third year students from School of Environmental Engineering accompanied by the Deputy Dean of Students Affair, Dr.TengkuNuraitiTengkuIzhar were given a chance to visit The 5th International Green Technology & Eco Products Exhibition &Conference Malaysia (IGEM) 2014 for two days beginning from 18th – 19th October 2014.The exhibition was held at Kuala Lumpur Conventional Centre and lasted about four days from 16th-19th October 2014. The exhibition was organized by The Ministry of Energy, Green Technology and Water, Malaysia (KeTTHA) and Malaysia Green Technology Corporation (Green Tech Malaysia). This IGEM acts as the prime mover for the Malaysian Government's initiatives in green growth. IGEM aims to help push the rapid adoption of green technology which is the emerging driver to deliver an impressive impact of sustainable economic growth as well as to address the environmental and energy security issues.This is the largest, full-scale green exhibition in the regionwhich brings in key industry players, including buyers, sellers and investors, from around the world to explore trade and collaboration opportunities. It was well organized and were attended by thousands of people from schools, college, IPTA, IPTS, workers and also public people.

On the first day of the trip, students were welcomed by the officer in charge and had a fascinating talk about IGEM including its objectives and details. They got to explore over more than 300 booths displayed along the exhibition halls and been treated to a various unique and value-added offerings throughout the exhibition period. The inventiveness of technology, services, and even products was very mesmerizing as it captures the eyes of everyone. Students were also able to learn a lot and create a creative mind to plan on future and indeed this exhibition helps them to give a wide experience and knowledge in advancing the green growth.

FIRE RESISTANCE OF BIOMASS ASH PANELS USED FOR INTERNAL PARTITIONS IN BUILDINGS

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ABSTRACT

The fire-resistant panels with a high biomass ash ratio from the combustion of empty fruit bunch (EFB) from palm oil to be used in different fire-resistant internal partitions in buildings and industrial constructions, is presented. This new products made of by biomass ash from industry waste for the internal partitions panel. Modifying the internal partition panel of wall with addition of biomass ash (EFB) and clay soils in producing new products that can resist and retain durability and resilience of the panel products to the fire. ASTM C1396 Standard Specification for Gypsum Board defines Gypsum wallboard as designed wallboard use for on walls, ceilings, or partitions and that affords a surface suitable to receive decoration tested in accordance with ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials. In this paper, fire resistance, thermal and mechanical parameters are presented and discussed. The panels which are 100 mm ! 100 mm by 15 mm thick were designed following ASTM standard. The product here pesented in the form of low-density panels (800 kg/m3) has a great potential for an industrial use, showing similar properties to those found in commercial gypsum plasterboard, a material of generalized use for this type of application. Consequently, from the test, biomass ash (EFB) panel board can retain more than 2 hours fire resistance in standard conditions of room temperature by fire laboratory and panels showing a compressive strength of 3.535 MPa.

Keywords: Empty Fruit Bunch (EFB), fire resistance, gypsum board, biomass ash, panel

INTRODUCTION

Panels' partitions are commonly used in buildings to replace bricks, metal, glass and concrete walls. Besides of environmentally and variable used, it also are not costly enough to make of. Partitions can be defined as non-load bearing wall that being purpose to separate and divided room or spaces in a building [1]. Innovations for gypsum boards have being developed for several years now, and its includes some benefits properties for such as fire-resistance rated design, rounded edges, specialized nails, curved partitions, sound control systems, lightweight gypsum lath, plasters and many more to being used in both residential and commercial constructions industry.

Today, gypsum boards along with the variety of other gypsum panel products continues to provide a preferred building material either in residential and commercial constructions for interior walls and ceilings, exterior sheathing, fire-resistant partitions and membranes, and liner material for elevator shafts and stairwells. These properties gypsum board well suited for building and space types requires cost-effectiveness as well as fire resistances and maintainability [2]. Nowadays, gypsum board manufacturers increasingly rely on synthetic gypsum as an effective alternative to the natural gypsum which was produced by tons of papers. Synthetic gypsum is a by-product from the desulphurization of flue gas in fossil fueled power plants [3]. Thus, if it were not used to manufacture gypsum panel products, it will be disposed in the landfills. Synthetic gypsum that is suitable for use in wallboard includes flue-gas desulphurization (FGD) gypsum, fluorogypsum, citrogypsum and titanogypsum [3].

Empty Fruit Bunches (EFB) are one materials from the palm oil industry that been used in producing any product related to the strength, durability or environmental. The fiber from the EFB commonly used for industrial and farming products such as wood-based products (particle and fiberboards), composite panels, pulp and paper, soil stabilization and horticultural application [4]. EFB is the by-product from crude palm oil mill which having low economic value before more application being developed. Currently, the major application of EFB is the extract the fibre for others industry and also the ash as admixture to the present product. Converting EFB to compost is seems to be the only solution for most of the crude palm oil mill before latest application being developed. Those crude palm oil mills having their own estate will gather the EFB, expose to the air to let it turn black and start fermentation. The EFB will be transferred back to oil palm estate for compost fertilizer after the fermentation. Sometimes, the sludge of the palm oil is being mixed in the EFB in order to expedite the fermentation process [5].

MATERIALS AND METHODS

A. Materials

The type of ash that had not been treated previously were used which are fly ash from the combustion of the residual biomass present in the waste obtained in the oil palm extraction process from Pasir Gudang Edible Oil (Perak). The chemical composition of the ash is high proportion of silica and calcium components in the composition of the ash. Ash was fines materials that acquire by the combustion process in high fire flames. Thus, in related to the ash properties, sieve analysis is required. Table 1 shows the particle size distribution.

Gypsum was used as the binder for the pastes. Glass fibre 1–2 cm long and 20–50 "m in diameter was used to increase the mechanical resistance to bending and fissuring in the mortar. Clay used also as the binder for ash and gypsum. The type of clay used is soft silty clay. Vermiculite was used as an additive. Vermiculite is a hydrated silicate composed of magnesium, aluminium and iron and it has a flaky structure [6]. Vermiculite is usually added to mortars used for fire protection. The vermiculite used in the present study is vermiculite which has been add to gypsum as the binder.

Table 1:Particle Size Distribution

Sample ("m)	Percentage of Passing (%)
>300	7.13
212	7.58
150	14.51
75	22.46
<75	47.21

B. Raw Materials Preparation

As the study needs in biomass ash product, thus EFB needs to combust into ashes and the ashes used is fly ash from at an industrial scale combustion. Fly ash from the combustion of the residual biomass present in the waste obtained in the oil palm extraction process from Pasir Gudang Edible Oil (Perak). The solid components shown in Table 2 were placed in a concrete mixer and were mixed until a homogeneous mixture was achieved. Then water was added to the mixture and again was mixed until a homogeneous paste was obtained (ratio water/solid = 0.5).

The paste obtained was placed in moulds and pressed with hydraulic press machine to compact it. They were taken out of the moulds after 24 h and left to cure at ambient room temperature for more than 28 days. This paste was used to make test panels of different shapes and sizes which were used in the thermal, fire and mechanical tests.

Table 2 : Composition of Paste

Component	Proportion (%)
Ash	50
Clay	30

Gypsum + Vermiculite	30
Cement	10
Glass Fiber	0.5

C. X-Ray Fluorescent (XRF)

Samples are collected that are several times larger than the largest size grain or particle in the materials (EFB). This initial sample then suffers a series of crushing steps to reduce it to an average grain size of a few millimeters to a centimeter, when it can be reduced by splitting to a small representative sample of a few tens to hundreds of grams. This small sample split is then ground into a fine powder by any of a variety of techniques to create the XRF sample. For this study, EFB was combust in industrial with industrial scale Care must be taken particularly at this step to be aware of the composition of the crushing implements, which will inevitably contaminate the sample to some extent. As the XRF sample, MiniPal Analythical 4 machine was used to get the chemical composition.

D. Mechanical Properties

With the aim of characterizing the physical and mechanical properties of the product, the following tests were carried out:

• Water Absorption

The water content of fireproof products is very important because the latent heat of the water plays an important role in the resistance to the heat propagation. The water content (W) of the material was obtained from a mass balance between the initial water and water loss calculated by the differences between the initial weight (M0) and the weight along the curing process (M1). Water absorption of the ash as shows in Table 3.

Table 3 :Water Absorption

Component	Proportion (%)
EFB Ash	13.73
Gypsum	45.93
Clay	30.23

• Bending and compressive strength

The compressive and bending strengths of the samples were also evaluated using a compressing test machine (UTM machine). The compressive strength tests were performed on 50 mm high, 50 mm diameter cubes and bending strength tests were done on 5 cm high test probes with a 10!1.5 cm base. The test was carried out before and after the fire resistance test.

III. RESULTS AND DISCUSSION

A. Density

The panel density at ambient temperature has been 800 kg/m3, classifying the plate of a low density in accordance with EN 12859 [3].

B. X-Ray Fluorescent (XRF)

XRF was tested for chemical composition in the fly ash and gypsum characteristic. Calcium, Ca (28.7%) and silica, Si (30.1%) are the highest compound found in the ashes. Caicium used to gives strength as it one of the important parameters that needs in producing the product (Table 4). As silica, it contains silt silica that means with addition of cement, it will increase the strength of the products.

Table 4: Chemical Composition

COMPOUND	CONC UNIT (%)		COMPOUND	CONC UNIT (%)	
	EFB ASH	GYPSUM		EFB ASH	EFB ASH
Mg	1.7	-	Rb	0.19	-
Al	4.88	-	Sr	0.082	0.16
Si	30.1	1.0	Y	0.009	-
P	3.00	-	Zr	0.091	0.01
S	0.714	33.2	Eu	0.21	-
K	14.0	-	Re	0.02	-
Ca	28.7	64.6	Sm	-	0.16
Ti	1.7	0.12	Pb	-	0.061
V	0.07	-	Fe	14.0	0.627
Cr	0.025	-	Cu	0.14	0.059
Mn	0.25	-	Zn	0.074	-

C. Mechanical Properties

Figure 1 shows the average of compression strength with different of percentage proportion of EFB ash used in produce new panel of fire resistance which based of biomass ash (EFB ash). The compression resistance was 3.60 MPa, which is highly value in terms of the product application goals as a component of fire-resistant elements like fire doors and fire walls [6] and the resistance strength decreasing with more addition of percentage proportion of EFB ash. Moreover, the contribution of the glass fibre had a very positive effect on the resistance to bending values as the resistance is highly to the same composition without glass fibre. However, after exposing the panels to the standardized fire test, there was a significant decrease in the compressive strength (0.43 MPa) due to the mass loss produced during the test.

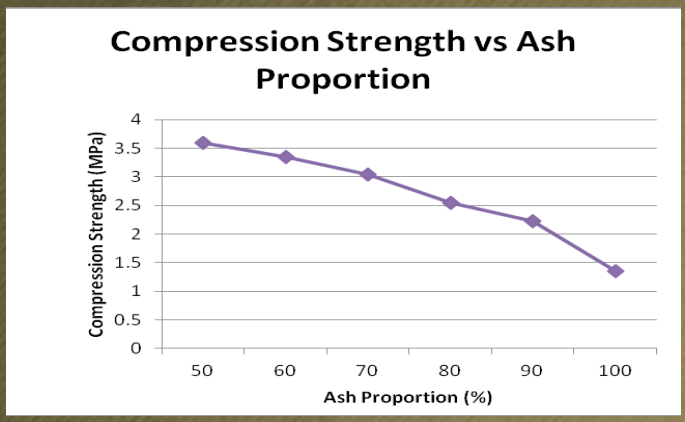

Figure 1: Average of Compression Strength with Different Percentage Proportion of Ash

D. Fire Resistance

Two thermocouples (TC0–TC1) were placed on the non-exposed surface in order to monitor its temperature distribution. Detailed locations of thermocouples are shown in Figure 2. While Figure 3 shown time-temperature relationship of commercialized board (gypsum board) used in the industry. The temperature increase rapidly and thus the crack becomes wider after 54.5 minutes. The boards can endure the heat of the fire flames in just for 1.1 hours before it burns completely in the middle. Principally, by put the panel in the high temperature for a long time, the panels will crack slowly and thus, burning out. The crack will slowly transfer and spreading the heat to the other part of the panels.

Figure 2: Distribution of Thermocouple on Non-Exposed Surface

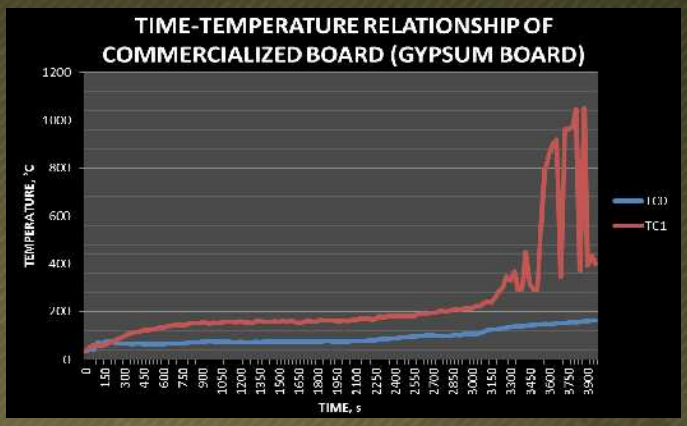

Figure 3: Time-Temperature Relationship of Commercialized Board

Figure 4 shows time-temperature relationship of biomass panel that made by used EFB ash, clay, and gypsum with addition of cement. For this biomass panels, the heat was transfer to one point at the middle of the panel. The spreads of heat was focus on one point which at the middle of the panels and that's why TC1 increased rapidly than TC0. Temperatures on TC1 increasing until it reach the peak value, 263.8°C after 78 minutes the boards burns out. The dropping result cause as TC0 were slowly pulled off caused of the high temperature but then increase as it put properly to the panels. High temperature can resist by TC0 was 188.6°C after 95.5 minutes the boards burns out.

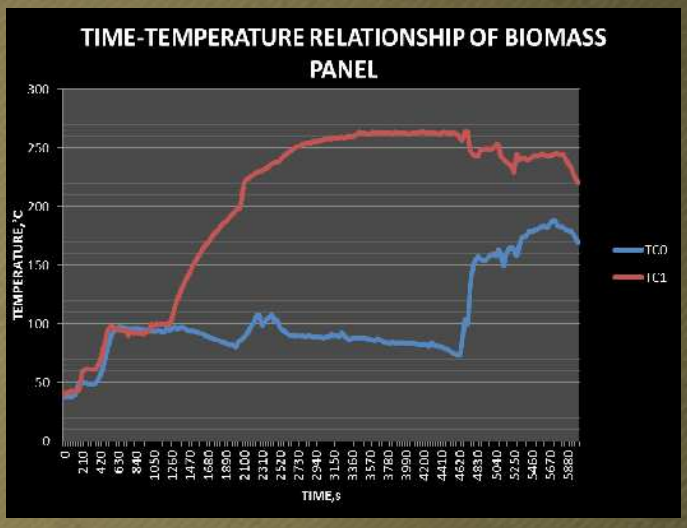

Figure 4: Time-Temperature Relationship of Biomass Pane

Time-temperature relationship of biomass panel that made by used EFB ash, clay, and gypsum with addition of cement and fiberglass shown in Figure 5. Cracks happens after 9 minutes the boards been burns out by fire at about 200 °C-300 °C. This type of biomass panel boards are not support the fire resistance properties and also just can endure the high temperature for about 52 minutes before it burns out by the fire flames and spreads the heat rapidly to the surrounding of the boards.

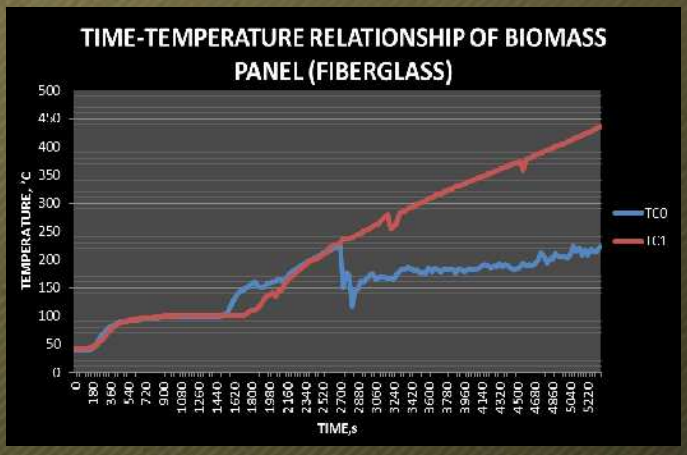

Figure 5: Time-Temperature Relationship of Biomass Panel (Fiberglass)

The temperature increase with longer duration of time but due to crack not only in the middle but also between the boards which contains the fiberglass, the temperature cooled down a bit for about 2 minutes before it increase again due to combustion of the fiberglass. The fiberglass also influence the increasing of the heat flow surrounds the biomass panel boards. In conclusion, by comparing to the original commercialized gypsum board, the biomass panel board with the addition of cement produced by endures much longer fire flames for more than 2 hours. The biomass panel crack after 20 minutes it burns out while the original gypsum boards cracks after 2 minutes the boards was burns out. As conclusion, this type biomass panel boards is suitable to use in industry in resisting the fire.

IV. CONCLUSIONS

The experimental results indicated that these biomass ash panels present a good fire resistance when they are subjected to fire tests, basically due to their high water retention capacity, showing very similar properties to those shown by gypsum wallboard [6]. From the fire resistance test of thermocouple, the durability and resilience between original product of gypsum boards and modifying gypsum products measured gives similar properties for each other.

As it used cement, clay and gypsum with the adding of vermiculite in the composition of the paste, the spread fire flame of the panel products can be neglectible. It is because vermiculite is the one of the materials used in mortars as fire protection in industry. The material tested on biomass panel board without the addition of fiberglass also has acceptable mechanical properties, never showing any noticeable deformation nor crumbling but with little cracking during the fire resistance test. In addition, although as it is this material cannot be used in load bearing compartment walls either in the form of wallboard reinforced plates or any other reinforced product, it's probably would be used with some limited load bearing properties.

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Investigation of **Noise Reduction Coefficient of Organic Material** as **Indoor Noise Reduction Panel**

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Keywords: indoor noise, indoor noise reduction panel, noise reduction coefficient

ABSTRACT

Noise can cause a few types of effect to human health especially in hearing like hearing loss. Indoor noise pollution comes from many sources and places. The research focuses on the sound reduction wall surface material rather than any techniques available and using organic material like coconut coir fiber, rice husk and sawdust. These sound reduction material is suitable to apply as interior lining for homes and offices. This research conducted to compare the efficiency of coconut coir fiber, rice husk and sawdust as indoor noise reduction, to evaluate the effectiveness indoor noise level by using wall surface sound reducer material and to determine the best material that will reduce noise level. In preparation of board panel, two binders were used which is polyester resin and hardening catalyst, cement and sand. For board panel using binder of polyester resin and hardening catalyst, the binders were stirred for two minutes. Then, the mixture of polyester resin, hardening catalyst with raw material was mix uniformly. The suppression done for 24 hours in order to obtain a composite outcome that is denser. Then, the ratio for coconut coir fiber, cement and sand is 1.5:0.5:0.5, the same ratio used for sawdust and rice husk and the Noise Reduction Coefficient (NRC) will be determined. The parameter use to determine the NRC and the sound transmission are the frequency, speaker intensity and the distance from the speaker. If not absorbed, the sound can be reflected and this will prevent sound dispersed to other space. The results show rice husk is better with cement binder and sand, while for polyester resin and hardening catalyst binder, sawdust is the best. Therefore, currently organic materials present good alternative to synthetic material providing good health with green environment as well as enhancing natural agricultural and growth.

INTRODUCTION

Noise has become a serious environmental problem according to the technology development [1]. It has become a common major problem to various developing nations [2]. Such uncontrolled pollution has always contributed to various levels of discomfort and uneasy feeling to many people. Indoor noise pollution come from many sources and places. For example, a smooth surface and a rigid wall can bounce more than 99% sound [3]. There are many methods to reduce noise especially indoor noise. Currently, commercial sound reduction materials available for acoustic or noise reduction treatment consisted of glass or mineral-fiber material. Traditionally, these natural fiber are disposed through open burning which creates another issue of environmental pollution. These issues explore an opportunity to look for every alternative material as organic fiber to be developed as noise reduction material.

Some researchers have successfully using agricultural wastes to produce particle composite board using rice straw wood [4][5]. It can preserve the temperature of the indoor living spaces and to be able to partially or completely substitute for wood particleboard and insulation board in wooden construction [6]. This research studied the sound reduction wall surface material rather than any techniques available. This research was conducted to compare the efficiency of coconut coir fiber, rice husk and sawdust as indoor noise reduction and to evaluate the effectiveness indoor noise level by using wall surface sound reducer material. Finally, the best material that can reduce noise level will be determined.

METHODS

Methodology includes getting coconut coir fiber, sawdust, rice husk, preparation on materials (the binder), preparation of the mould, preparation of the sample and setting a laboratory experimental setup to investigate Noise Reduction Coefficient of the panel. Fig. 1, Fig. 2 and Fig. 3 shows the raw materials which were coconut coir fiber, rice husk and sawdust respectively.

Fig.1: Coconut coir fiber
Fig. 2: Rice husk
Fig. 3: Sawdust

Six samples were made using two different binders; polyester resin and hardening catalyst, and, cement and sand. The parameter uses to determine the NRC is the frequency, speaker intensity and the distance from the speaker with five different distance, 50 cm, 100 cm, 120 cm, 170 cm and 220 cm.Table 1 shows the samples used in the research.

Table 1: Organic fiber for noise reduction panel

Samples	Materials	Measurement and ratio
A	Coconut Coir Fibre + Polyester Resin + Hardening Catalyst	600 g + 4500 ml + 4%
B	Coconut Coir Fibre + Cement + Sand	1.5:0.5:0.5
C	Sawdust + Polyester Resin + Hardening Catalyst	600 g + 4500 ml + 4 %
D	Sawdust + Cement + Sand	1.5:0.5:0.5
E	Rice Husk + Polyester Resin + Hardening Catalyst	600 g + 4500 ml + 4 %
F	Rice Husk + Cement + Sand	1.5:0.5:0.5

The mould size of 60 cm x 50 cm x 3 cm was prepared. Some water was put to bind it before it was mix together and to make sure the combination was complete; the sample was leave for one week at room temperature before removed from the mould as showed in Fig.4 and Fig.5.

Fig. 4: Panel board from binder cement + sand

Fig. 5: Panel board from binder polyester resin + hardening catalyst

The experiment was conducted in noise effect system chamber for the combination of frequency and intensity level; 1)Low Frequency, Low Intensity, 2) Low Frequency, High Intensity, 3)High Frequency, High Intensity, and 4) High Frequency, Low Intensity.

Results

In this study, the Noise Reduction Coefficient (NRC) as shown in equation (1), will determine the ratio of the noise reductions with and without noise reduction panel. The noise reduction was the difference between the noise level measurement without placing a panel (a in dB) and with a panel (b in dB).

Noise Reduction Coefficient (NRC) = (a-b) (1)
a

Binder: Polyester Resin and Hardening Catalyst.

Fig. 6 shows the NRC for low frequency, low speaker intensity of coconut coir fiber panel, rice huskpanel and sawdust panel. The highest NRC shows on sawdust for this binder. The lowest NRC showsat coconut coir fiber panel especially at 100 cm distance where's only 0.03 NRC was recorded.

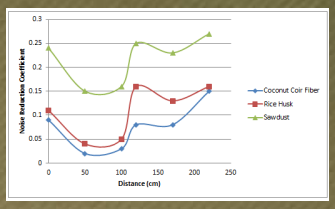

Fig. 6: Result for low frequency, low speaker intensity

Fig. 7 shows the NRC for low frequency, high speaker intensity. Rice husk panel shows the highest NRC at 250 cm distance which is 0.15 NRC were recorded. Sawdust panel shows the lowest NRC in all result recorded for low frequency and high speaker intensity especially at 150 cm distance, 0.03 NRC was recorded.

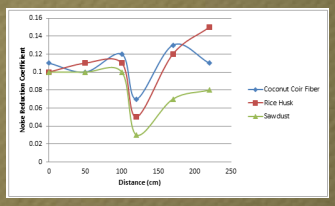

Fig. 7: Result for low frequency, high speaker intensity.

In addition, Fig.8 shows the NRC for high frequency, high speaker intensity of coconut coir fiber panel, rice husk panel and sawdust panel. The highest NRC shows on rice husk panel for this binder, 0.15 NRC at 250 cm distance. The lowest NRC shows at sawdust panel especially at 150 cm distance where's only 0.03 NRC recorded. But, at 0 cm, 100 cm, 150 cm and 200 cm distance, the highest value shows that coconut coir fiber panel which is 0.11, 0.12, 0.07 and 0.13 NRC was recorded.

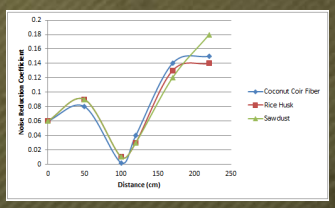

Fig. 8: Result for high frequency, high speaker intensity

Fig. 9 shows the NRC for high frequency, low speaker intensity. The highest values of NRC were recorded at sawdust panel compared than other panel. The highest value is at 0 cm distance, 0.32 NRC was recorded.

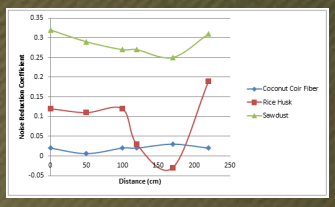

Fig. 9: Result for high frequency, low speaker intensity

Binder: Cement and Sand

Fig. 10 shows the NRC for low frequency, low speaker intensity of coconut coir fiber panel, rice husk panel and sawdust panel. The ratio for coconut coir fiber/ sawdust/ rice husk, cement and sand is 1.5:0.5:0.5 (cement: sand: coconut coir fiber/ sawdust/ rice husk) for all parameter. The graph shows the highest NRC is at rice husk panel at all distance except at 0 cm distance where coconut coir fiber panel showed the highest loss of NRC which is 0.17. Meanwhile, the NRC's show the lowest at saw dust panel, 100 cm distance which is only -0.11.

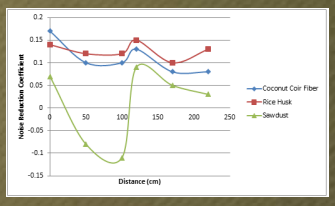

Fig. 10: Result for low frequency, low speaker intensity

Fig. 11 shows the NRC for low frequency, high speaker intensity. The highest NRC showed on rice husk panel especially at 100 and 250 cm distance which is 0.07 at both distance. The lowest NRC for low frequency, high speaker intensity showed on coconut coir fiber panel at all distance, 0 cm, 50 cm, 100 cm, 150 cm, 200 cm and 250 cm distance which is 0.02, 0.03, 0.04, 0.02, 0.04 and 0.02.

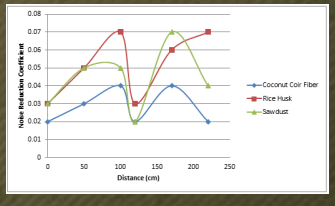

Fig. 11: Result for low frequency, high speaker intensity

Fig. 12 shows the NRC for high frequency, high speaker intensity. For this parameter, the highest NRC also rice husk panel.

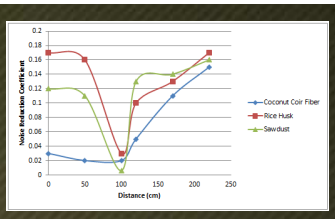

Fig. 12: Result for high frequency, high speaker intensity

In addition, Fig. 13 shows the NRC for high frequency, low speaker intensity of coconut coir fiber panel, rice husk panel and sawdust panel. For this parameter, the result shows that the highest values of NRC are coconut coir fiber panel but at 0 cm distance, the NRC of coconut coir fiber panel is the lowest which is 0.19. At distance 250 cm, the graph shows the same value of NRC for rice husk panel and sawdust panel, which is 0.18. Then, the lowest value of NRC is sawdust panel especially at distance 250 cm where only 0.08 NRC was record.

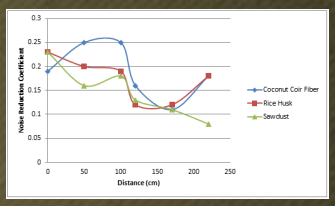

Fig. 13: Result for high frequency, low speaker intensity

Discussion

Based on the result obtained from conducted experiment, it is clearly shows three raw materials; coconut coir fiber, rice husk and sawdust, show their advantages according to their different frequency and sound intensity. Graph of binder polyester resin and hardening catalyst showed the highest NRC at low frequency and low speaker intensity, high frequency and high speaker intensity and high frequency and low speaker intensity of sawdust panel. NRC is the highest at 250 cm, for high frequency and low speaker intensity, which recorded at 0.31 NRC. Then, for this binder, coconut coir fiber panel shows the lower result compared to rice husk panel and sawdust panel. Results showed cement and sand binders for rice husk panel has the highest NRC, especially for high frequency and low intensity speakers.

When the wave sound from the outside hit the sound absorber panel, the particles inside the board panel will give response and started to vibrate. The transmission will occur when the air at other side of the panel start to vibrate creating a wave travelling through the panel. The energy of the sound wave lost during transmission stage. Then, the energy absorb by the panel. The transmission length will decrease resulting to higher energy loss and will increase the value of NRC.

Conclusion

In this research the NRC of the coconut coir fiber, rice husk and sawdust board panels were investigated. It was found that NRC increases with increasing of the sample distance from speaker, and, frequency and speaker intensity. It was also found that sawdust and coconut coir fibers, which are natural material, can be used to manufacture board panels with appreciable noise reduction properties. Usage of these environmental wastes will reduce environmental pollution. As these materials are often considered as waste, utilization of these materials is more economical and improves sustainability.

Acknowledgement

This work is supported by the Fundamental Research Grantt Scheme, Malaysia Higher Education Ministry(9003-00350).

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LIST OF PUBLICATIONS &

Prepared By : Dr. Fahmi Muhammad Ridwan

Journals				
No	Author(s)	Title	Journal	Impact Factor
1	Yee Shian Wong, Tjoon Tow Teng, Soon-An Ong, Norhashimah Morad, Mohd Rafatullaha	Suspended growth kinetic analysis on biogas generation from newly isolated anaerobic bacterial communities for palm oil mill effluent at mesophilic temperature	RSC Advances ; 4:64659–64667	3.71
2	Wan Fadhilah Khalik, Soon-An Ong, Li-NgeeHo, Yee-Shian Wong, Nik Athirah Yusoff, Fahmi Ridwan	Evaluation on the molecular structure of azo dye in photocatalytic mineralization under solar light irradiation	Desalination and water treatment 06	0.99
3	Yen-Yie Lau, Yee-Shian Wong, Tjoon-Tow Teng, Norhashimah Morad, Mohd Rafatullah, Soon-An Ong	Coagulation-flocculation of azo dye Acid Orange 7 with green refined laterite soil	Chemical Engineering Journal; 246:383–390	4.06
4	Nik Athirah Yusoff, Soon-An Ong, Li-Ngee Ho, Yee-Shian Wong, Wan Fadhilah Khalik	Degradation of phenol through solar-photocatalytic treatment by zinc oxide in aqueous solution	Desalination and water treatment 04	0.99
5	Soon-An Ong, Li-Ngee Ho, Yee-Shian Wong	Comparison on biodegradation of anionic dye orange II and cationic dye methylene blue by immobilized microorganisms on spent granular activated carbon	Desalination and water treatment 01	0.99
6	Taha, M.R., Ibrahim, A.H	Characterization of nano zero-valent iron (nZVI) and its application in sono-Fenton process to remove COD in palm oil mill effluent	Journal of Environmental Chemical Engineering; 2(1):1–8.	Scopus
7	Taha, M.R., Ibrahim, A.H., Amat, R.C., Azhari, A.W.	Applicability of nano zero valent iron (nZVI) in sono-Fenton process	Journal of Physics: Conference Series;(495), 1	Scopus
8	Taha, M.R., Ibrahim, A.H.	COD removal from anaerobically treated palm oil mill effluent (AT-POME) via aerated heterogeneous Fenton process: Optimization study	Journal of Water Process Engineering:(1), 8–16	Scopus
9	Kamarudzaman, A.N., Gana, A.D.A., Jalil, M.F.A., Aziz, R.A.	Landfill leachate treatment using SSF-FWS constructed wetland planted with limnocharisflava and eihhorniacrassipes under different hydraulic loading rate	Key Engineering Material: (594-595), 344-349	Scopus
10	Kamarudzaman, A.N., Feng, V.K., Ab Jalil, M.F., Aziz, R.A.	Water quality study of TimahTasoh Lake in Perlis, Malaysia	Advanced Materials Research: (925), 669-673	Scopus
11	Kamarudzaman, A.N., Feng, V.K., Ab Jalil, M.F., Aziz, R.A.	Optimization of milk-based medium for efficient cultivation of bifidobacteriumpseudocatenulatum g4 using face-centered central composite-response surface methodology	BioMed Research International: (2014)	Scopus
12	Dahalan, F.A., Yunus, I., Johari, W.L.W., Shukor, M.Y., Halmi, M.I.E., Shamaan, N.A., Syed, M.A.	Growth kinetics of a diesel-degrading bacterial strain from petroleum-contaminated soil	Journal of Environmental Biology: (35), 399-406	Scopus
13	Dahalan, F.A., Yunus, I., Johari, W.L.W., Shukor, M.Y., Halmi, M.I.E., Shamaan, N.A., Syed, M.A.	Effects of trans-polyoctylene rubber in polypropylene/recycled acrylonitrile butadiene/rice husk powder composites	Key Engineering Materials: (594-595), 613-617	Scopus
14	Rahim, M.A., Ghazaly, Z.M., Santiagoo, R., Shahidan, S.	The behaviours of steel fiber as main reinfocement in high performance slurry infiltrated fiber reinforced concrete	Key Engineering Materials: (594-595), 34-38	Scopus
15	Fazara, M.A.U., Jainoo, I., Ismail, K.N., Hussin, K., Fahmi, M.R.	Physicochemical properties of pyrolitic carbon black from waste tyres	Key Engineering Materials: (594-595), 178-182	Scopus
16	Fahmi, M.R., Hamidin, N., Abidin, C.Z.A., Fazara, M.A.U., Hatim, M.D.I.	Performance evaluation of okra (abelmoschusesculentus) as coagulant for turbidity removal in water treatment	Key Engineering Materials: (594-595), 226-230	Scopus
17	Irfan Hatim, M.D., Umi Fazara, M.A., Muhammad Syarhabil, A., Riduwan, F.	Catalytic dehydrogenation of methylcyclohexane (MCH) to toluene in a palladium/alumina hollow fibre membrane reactor	Procedia Engineering: (53), 71-80	Scopus
18	Zarina, Y., Al Bakri, A.M.M., Kamarudin, H., Khairul Nizar, I., Razak, A.R.	Effect of NaOH concentration on microstructure of boiler ash based geopolymer	Materials Science Forum: (803), 173-178	Scopus
19	Nizar, I.K., Al Bakri, A.M.M., Rafiza, A.R., Kamarudin, H., Alida, A., Zarina, Y.	Study on physical and chemical properties of fly ash from different area in Malaysia	Key Engineering Materials: (594-595), 985-989	Scopus
20	Abdulkareem, O.A., Al Bakri, A.M.M., Kamarudin, H., Nizar, I.K.	Fire resistance evaluation of lightweight geopolymer concrete system exposed to elevated temperatures of 100-800 °C	Key Engineering Materials: (594-595), 427-432	Scopus
21	Zarina, Y., Kamarudin, H., Al Bakri, A.M.M., Nizar, I.K., Rafiza, A.R.	Influence of dolomite on the mechanical properties of boiler ash geopolymer paste	Key Engineering Materials: (594-595, 8-12	Scopus
22	Rafiza, A.R., Al Bakri, A.M.M., Kamarudin, H., Nizar, I.K., Hardjito, D., Wan Badaruzzaman, W.H., Zarina, Y.	Microstructure study on volcano ash geopolymer aggregate at different sintering temperature	Key Engineering Materials: (594-595), 83-87	Scopus
23	Wan Mastura, Wan Ibrahim, Mohd Mustafa, Al Bakri Abdullah, Andrei Victor Sandu, KamarudinHussin, Ioan Gabriel Sandu, KhairulNizar Ismail, Aeslina Abdul Kadir, Mohammed Binhussain	Processing and Characterization of Fly Ash-Based Geopolymer Bricks	Revista de Chimie-Bucharest-Original Edition: 65(11):1340-1345	0.68
24	Rafiza Abdul Razak, Mohd Mustafa, Al Bakri Abdullah, Kamarudin Hussin, Khairul Nizar Ismail, Gabriel Ioan, Sandu, Djwantoro Hardjito, Zarina Yahya, Andrei Victor Sandu	Assessment on the Potential of Volcano Ash as Artificial Lightweight Aggregates using Geopolymerisation Method	Revista de Chimie -Bucharest-Original Edition: 65(7):828 - 834	0.68
25	Salmiati, MohdRazmanSalim, ZainiUjang, Farrah Aini Dahalan, Gustaf Olsson	Polyhydroxyalkanoates (PHAs) Production from Complex Polymer Organic Waste Using Anaerobic and Aerobic Sequence Batch Reactor	Journal of Industrial Microbiology and Biotechnology 11/2014; 2(2):22-27	2.51

& RESEARCH GRANT 2014

26	Kadir, A.A., Al Bakri Abdullah, M.M., Sandu, A.V., Noor, N.M., Latif, A.L.A., Hussin, K.	Usage of palm shell activated carbon to treat landfill leachate	International Journal of Conservation Science: (5), 117-126	Scopus
27	Noor, M.N., Yahaya, A.S., Ramli, N.A., Bakri, A.M.M.A.	Filling missing data using interpolation methods: Study on the effect of fitting distribution	Key Engineering Materials: ((594-595), 889-895	Scopus
28	Noor, M.N., Yahaya, A.S., Ramli, N.A., Bakri, A.M.M.A.	Mean imputation techniques for filling the missing observations in air pollution dataset	Key Engineering Materials: (594-595), 902-908	Scopus
29	Ibrahim, N.M., Amat, R.C., Salehuddin, S., Rahim, N.L., Razak, A.R.A., Ooi, W.H.	Properties of lightweight concrete composites with mixture of fly ash and concrete sludge aggregate	Key Engineering Materials: (594-595), 482-486	Scopus
30	Rahim, N.L., Ibrahim, N.M., Salehuddin, S., Amat, R.C., Mohammed, S.A., Hibadullah, C.R.	The utilization of aluminum waste as sand replacement in concrete	Key Engineering Materials: (594-595), 455-459	Scopus
31	Yahya, N.Z.N., Zulkepli, N.N., Ismail, H., Salleh, M.A.A.M., Santiagoo, R.	Natural rubber/styrene butadiene rubber/recycled nitrile glove (NR/SBR/rNBRg) ternary blend: Curing characteristics and swelling test	Key Engineering Materials: (594-595), 634-638	Scopus
32	Andrew, A.M., Kamarudin, K., Mamduh, S.M., Shakaff, A.Y.M., Zakaria, A., Adom, A.H., Ndzi, D.L., Ragunathan, S.	Classification of domestic burning smell using covariance k-nearest neighbour algorithm for early fire detection application	Chemical Engineering Transactions: (40), 271-276	
33	Sam, S.T., Nuradibah, M.A., Ismail, H., Noriman, N.Z., Ragunathan, S.	Recent Advances in Polyolefins/Natural Polymer Blends Used for Packaging Application	Polymer - Plastics Technology and Engineering: (53), 631-644	1.48
34	Ragunathan, S., Ismail, H., Hussin, K.	Comparison of processing and mechanical properties of polypropylene/recycled acrylonitrile butadiene rubber/rice husk powder composites modified with silane and acetic anhydride compound	Journal of Thermoplastic Composite Materials: (27), 1651-1666	Scopus
35	Omar, W.M.S.W., Doh, J.-H., Panuwatwanich, K., Miller, D.	Assessment of the embodied carbon in precast concrete wall panels using a hybrid life cycle assessment approach in Malaysia	Sustainable Cities and Society: (10), 101-111	Scopus
36	Wong, Y.-S., Teng, T.T., Ong, S.-A., Norhashimah, M., Rafatullah, M.	Start-up operation and hydraulic retention time selectivity for palm oil mill wastewater at mesophilic temperature in anaerobic suspended growth closed bioreactor	Advanced Materials Research: (955-959, 1330-1334	Scopus
37	Wong, Y.-S., Teng, T.-T., Ong, S.-A., Norhashimah, M., Rafatullah, M., Leong, J.-Y.	Methane gas production from palm oil wastewater-An anaerobic methanogenic degradation process in continuous stirrer suspended closed anaerobic reactor	Journal of the Taiwan Institute of Chemical Engineers: 45 (3), 896-900	2.64
38	Yee-Shian Wong; Tjoon-Tow Teng; Soon-An Ong; M. Norhashimah; M. Rafatullah	Identification of Anaerobic Microbial Communities for the Treatment of Palm Oil Mill Wastewater	WIT Transactions on the Built Environment ISSN: 1743-3509 (WIT Press Publication) Article In Press	
39	Yee-Shian Wong; Tjoon-Tow Teng; Soon-An Ong; M. Norhashimah; M. Rafatullah	Volatile Fatty Acid and Biogas Profile in the Anaerobic Degradation Process of Palm Oil Mill Wastewater	WIT Transactions on the Built Environment ISSN: 1743-3509 (WIT Press Publication) Article In Press	

LIST OF RESEARCH GRANT 2014

No	Grant Type	Research Title	Amount (RM)	Research Leader	Co-researchers	Date Start	Date End	Duration (Yr)
1	FRGS	The Study of Rock Buttress in Landslide Remediation Method in Tropical Area	57,000	Mohd Faiz Bin Mohammad Zaki				
2	FRGS	The Mechanism of CO2 Interaction with Deep Eutectic Solvent (DES) Functionalized Activated Carbon	124,900	Umi Fazara Bt Md Ali	Dr Naimah Ibrahim, Dr Fahmi Muhammad Ridwan, Ninie Suhana Abdul Manan	12-Nov-14	11-Nov-16	2
3	FRGS	The production of nano-lignin from anaerobically treated palm oil mill effluent (AT-POME) with ultrasonic cavitation assistance	91,000	Abdul Haqi Bin Ibrahim	Dr Fahmi Muhammad Ridwan, Dr Ong Soon An, Wong Yee Shian	12-Nov-14	11-Nov-16	2
4	FRGS	The Characterization of Indoor Environment Quality on Grey Osyter (Pleurotus Sajor-Caju) Mushroom Cultivation	115,000	Nasrul Hamidin	Dr Zarina Zakaria, PM Dr Azlan Mohd Ishak (UiTM)	12-Nov-14	11-Nov-16	2
5	FRGS	The Effect of the Lightning to the Integrity of Reinforced Concrete Structure Embedded with Lightning Protection Cable	120,000	Mustaqqim Abdul Rahim	PM Dr Khairul Nizar Ismail, Ir Dr Muhammad Arkam Che Munaim, Norlia Mohamad Ibrahim, Zuhayr Md Ghazaly, Muhammad Abu Bakar Sidik (UTM), Dr Shahiron Shahidan (UTHM), Ir. Dr Abdul Naser Abdul Ghani (USM)	12-Nov-14	11-Nov-16	2
6	RAGS	Fundamental Study on Polymeric Modified Coal Ash Mixtures for Geotechnical Application	60,000	Dr Afizah Bt Ayob	Dr Ragunathan Santiagoo, PM Dr Khairul Nizar Ismail, Mohd Faiz Mohammad Zaki, Mohd Zulham Affandi Mohd Zahid	17-Nov-14	16-Nov-16	2

SIFF

Seoul International Invention Fair 2014

Prepared By : Dr. RagunathanSantiagoo

Seoul International Invention Fair(SIIF) 2014 was heldfrom 27-30 November In COEX Hall A Republic of Korea. Despite its short history, SIIF, celebrating its 10th anniversary this year, hosted approximately 700 new-generation inventions from 34 different countries including Germany, Russia and Taiwan and attracted visitors from all over the world. School of Environmental Engineering was also honored by the Research Management and Innovation Center (RMIC) UniMAP to exhibit 3 product namely WEC-Breaker, a novel electric circuitbreaker system from e-waste which was awarded a silver KIPA award,Health Risk Assessment system invented by Dr. NasrulHamidin and Pn.Zuraini Bt. MohdIderis which was awarded with KIPA Bronze award and AGINIPRO: a novel Biodegradable plastic for plant seedling and agricultural purposes by Dr.Sam Sung Ting (School of Bio-Process Engineering). All products were presented by the senior lecturer Dr.RagunathanSantiagoo and received great deal of attraction from many countries and invention bodies all over the world.It was avery special occasion as it was held along with the Korea Invention Patent Exhibition 2014 and Trademark-Design Right Exhibition. It was a huge international exchange venue where various information about intellectual property such as invention, design and patent, were all shared at the same time and place to a greater extent which never occurred anywhere in the world. A special Thanks to Dato Prof. Dr. KamaruddinHussin,Prof Dr. Abdul Hamid Adomand Prof Dr. Syed AlweeAljunid Syed Junid, for giving the school such anhonor to participate in an auspicious event like these and obtain a 100% victory in this competition.

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ASIAN YOUNG INVENTORS EXHIBITIONS 2014
KUALA LUMPUR

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MINGGU SUAI KENAL PELAJAR BARU UNIMAP PPK ALAM SEKITAR

4 SEPTEMBER 2014

LAWATAN PROJEK KELESTARIAN UNIMAP KAMPUS PAUH PUTRA, UNIMAP

HARI KELUARGA PPKAS 2014

Oleh: Mohamad Zahir Hanafi

Pusat Pengajian Kejuruteraan Alam Sekitar telah menganjurkan Hari Keluarga Kelab PPKAS pada 9 Jun 2014 bertempat di Taman Tema Air 'The Carnival' Sungai Petani, Kedah. Lebih 70 orang kakitangan dan keluarga masing-masing hadir pada hari keluarga yang diadakan dalam suasana meriah. Sambutan Hari Keluarga di sini adalah kali ketiga diadakan sejak Kelab PPKAS ini ditubuhkan. Kali pertama diadakan adalah pada 19 Julai 2008.

En.Mustaqqim Abdul Rahim, selaku Pengerusi Kelab PPKAS telah merasmikan Hari Keluarga Kelab PPKAS, dalam ucapannya berkata 'Hari Keluarga Kelab PPKAS diadakan dengan tujuan merapatkan hubungan silatulrahim di antara kakitangan PPKAS dan keluarga masing-masing memandangkan kebanyakannya sibuk dengan tugas harian dan mempunyai kekangan masa untuk bertemu. Melalui Hari Keluarga yang diadakan, ianya mampu memupuk semangat permuafakatan, kerjasama dan kesukanan dalam diri semua peserta'.

Pelbagai aktiviti telah diadakan seperti senamrobik, telematch, dan juga pemberian hadiah-hadiah khas untuk kategori yang telah ditetapkan oleh pihak AJK Hari Keluarga PPKAS. Sebagai pelengkap kepada program ini, semua yang hadir dihidangkan dengan jamuan makan tengahari oleh pihak pengurusan Cinta Sayang Resort.

PERTANDINGAN NASYID ANTARA JABATAN SEMPENA SAMBUTAN IHYA RAMADHAN UniMAP 2014.

Oleh : Abdul Haqi Ibrahim

Pada 23 Julai 2014 Kumpulan Nasyid Al-Alami, Pusat Pengajian Kejuruteraan Alam Sekitar (PPKAS) telah menyertai Pertandingan Nasyid Antara Jabatan bersempena Bulan Ihya Ramadhan, UniMAP 2014. Pertandingan nasyid yang dianjurkan bersama oleh Pusat Islam UniMAP, Pusat Pengajian Inovasi Perniagaan & Teknousahawan dan Pusat Pengajian Pembangunan Insan dan Teknokomunikasi ini telah mendapat sambutan yang menggalakkan seperti tahun-tahun sebelumnya. Sebanyak 20 pasukan telah berentap bagi merebut kejuaraan kali ini.

Dengan bertemakan Retro 60an/70an, Kumpulan Nasyid Al-Alami yang diketuai oleh Saudara Ahmad Nazrin Hasim dan Mohamad Zahir Hanafi telah menyampaikan sebuah lagu yang telah dipopularkan oleh Kumpulan Hijjaz yang bertajuk "Rasulullah". Dengan lontaran suara dan penyampaian yang bertenaga daripada vokalis serta ahli kumpulan, persembahan pasukan kelihatan meyakinkan. Namun begitu, persembahan daripada peserta-peserta lain tidak kurang hebatnya serta turut memukau para penonton yang hadir.

Walaupun gagal menempatkan diri selaku pemenang dalam pertandingan kali ini, Kumpulan Al-Alami berazam untuk terus mencuba dan memperbaiki segala kelemahan yang ada. InsyaAllah dengan berkat kesabaran dan usaha yang gigih, Kumpulan Al-Alami akan kembali dengan lebih bertenaga dan padu pada pertandingan yang akan datang. Pertandingan kali ini menyaksikan Kumpulan Al-Andalus daripada Fakulti Teknologi Kejuruteraan telah dinobatkan sebagai johan Pertandingan Nasyid Antara Jabatan Sempena Sambutan Ihya Ramadhan UniMAP 2014

BUBUR LAMBUK

Oleh: Nazerry Rosmady Rahmat

Pada 10 September 2014 bersamaan dengan 20 Ramadhan 1435H, para kakitangan Pusat Pengajian Kejuruteraan Alam sekitar telah melakukan gotong-royong memasak bubur lambuk. Tradisi memasak bubur lambuk pada setiap tahun pada bulan Ramadhan ini telah dilakukan semenjak awal penubuhan Pusat Pengajian Kejuruteraan Alam Sekitar. Aktiviti ini dapat mengeratkan lagi ukhuwah dan silaturrahim yang terjalin di kalangan para staf PPK Alam Sekitar. Disamping itu juga, bubur lambuk yang dimasak bersama-sama staf akan menjadi juadah untuk berbuka puasa seisi keluarga.Malahan bubur lambuk ini juga akan disedekahkan kepada staf-staf pusat pengajian yang lain. Yang menariknya, semua kos perbelanjaan untuk memasak bubur lambuk ini disumbang sepenuhnya oleh staf PPK Alam Sekitar sendiri.Semoga tradisi memasak bubur lambuk ini akan berterusan sehingga ke tahun-tahun berikutnya.

Internal Audit MS 9001:2008

by Quality Unit PUSPEK

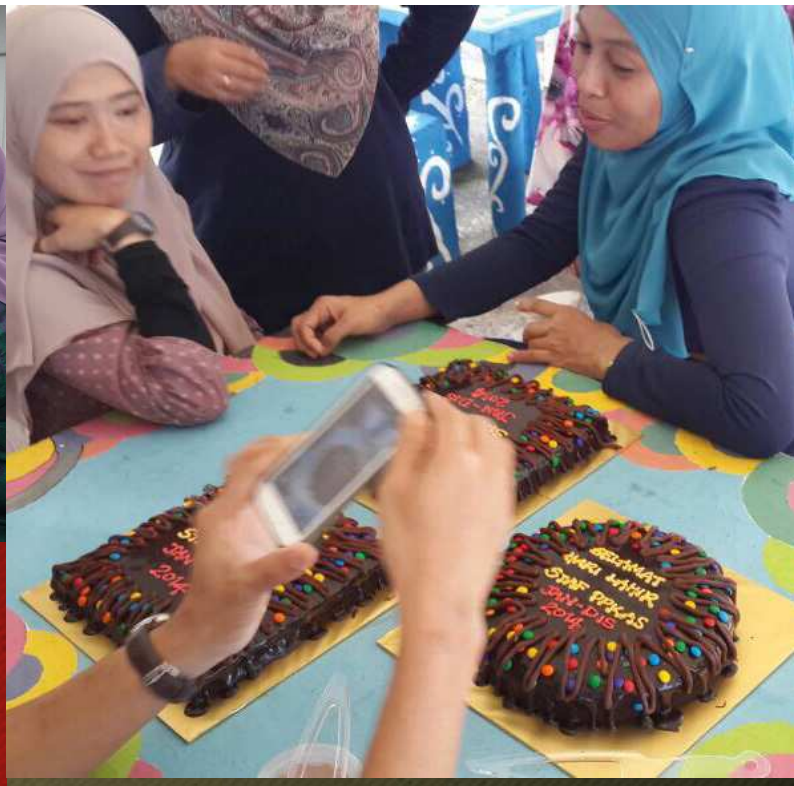
By: Dr.Irnis Azura Zakarya

November 2014 was selected as the Audit Month in UniMAP. 13rd November 2014, our school (PPKAS) have been visited by Quality Unit from PUSPEK, Chief Auditor by En. Abdul Ghani b. Fathil and his assistant.The auditing session was started by evaluating the Maintenance File, Staff Training File, Course File and Final Year Project. The audit process was running smoothly as scheduled and all PPKAS staff gave full cooperation in the auditing process. The Auditor are very impressed with our Final Year Project evaluation system, they suggested the system should be used by other School in UniMAP. From the auditing session, they found 1 Minor Non-confirmative report (NCR) in course subject EAT 232 Fundamental of Environmental Engineering in HEA 01. However this NCR have been answered and closed in early January 2015.

JAMUAN HARI RAYA
PPK Alam Sekitar

Oleh: Nazerry Rosmady Rahmat

Majlis jamuan hari raya PPK Alam Sekitar telah disambut secara sederhana tetapi meriah. Majlis ini bertempat di Kompleks Pusat Pengajian Jejawi 3 pada 14 Ogos 2014. Majlis dimulakan dengan ucapan aluan oleh Dekan pusat pengajian, Prof. Madya Dr Khairul Nizar Ismail, dan disusuli dengan jamuan makan. Walaupun majlis ini hanya dihadiri oleh warga PPK Alam Sekitar sahaja, namun ianya tetap berlangsung dengan meriah dan penuh ukhwah selain daripada pelbagai juadah makanan yang enak. Staf wanita juga tidak ketinggalan menyediakan juadah ala-ala potluck untuk dikongsi bersama-sama dengan staf yang lain. Majlis yang sebegini akan memberi peluang kepada semua warga PPK Alam Sekitar untuk merapatkan silaturrahim dan secara tidak langsung dapat mewujudkan semangat kekeluargaan dan mengukuhkan perpaduan sesama staf. Walaupun semangat kekeluargaan ditempat kerja tidak setebal pertalian keluarga sendiri, ianya amat penting dalam menentukan keharmonian organisasi PPK Alam Sekitar. Disamping itu juga,majlis yang seperti ini dapat memberikan kesempatan kepada staf untuk saling bermaaf-maafan.



MAJLIS JAMUAN HARI LAHIR
STAF PPK ALAM SEKITAR TAHUN 2014

Oleh: Nur Liza Rahim

Pada 5 Disember 2014 yang lepas telah diadakan satu majlis bagi meraikan hari lahir staf yang lahir sepanjang tahun 2014. Jamuan telah diadakan di perkarangan pejabat PPKAS. Majlis tersebut bermula pada jam 2.30 petang. Menu yang disediakan pada hari tersebut ditaja oleh kelab staf PPKAS dan ada juga staf yang membawa makanan secara 'potluck'. Antara menu yang disediakan ialah nasi goreng, koteaw goreng, ayam goreng, kek coklat, puding dan macam-macam lagi. Majlis disambut dengan meriah dan dihadiri oleh kebanyakan staf PPKAS. Hadiah kepada setiap staf juga disediakan pada hari tersebut. Seluruh warga PPKAS mengucapkan Selamat Hari Lahir kepada semua staf. Semoga panjang umur, dimurahkan rezeki dan diberkati oleh Allah dalam kehidupan seharian.

WORKSHOP ROUTE
TO PROFESSIONAL ENGINEER (PE)

By: Shamshinar Binti Salehuddin

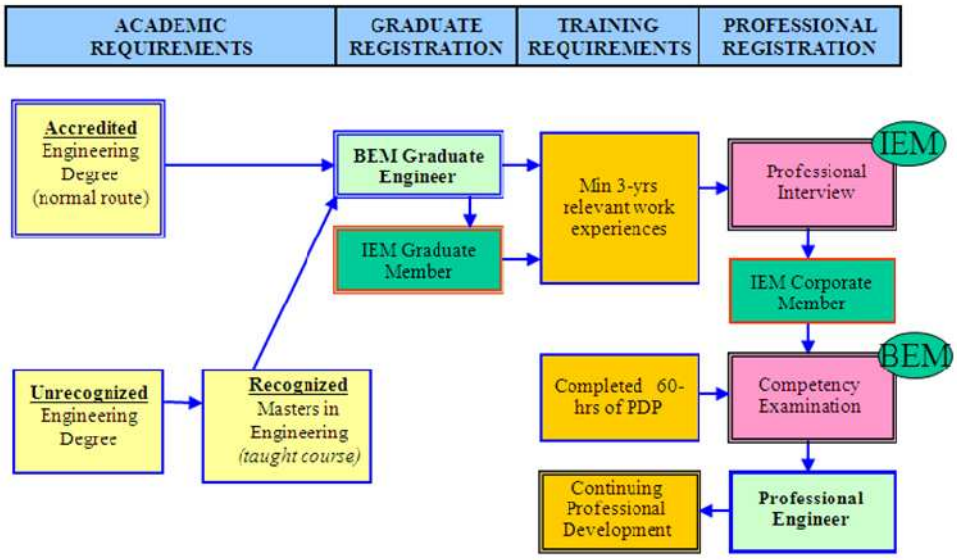
A workshop 'Route to PE' was held at Bilik Mesyuarat PPK Alam Sekitar on 19th November 2014. The talk was given by Ir. Chua from IEM Kedah / Perlis Branch. All PPK Alam Sekitar staffs were invited to attend this talk and they can grab as much knowledge about on how to become a Professional Engineer even not working in industry base.

The purpose of this talk is to ensure PPK Alam Sekitar can produce perhaps two Professional Engineers among staff every year to fulfill Engineering Accreditation Council (EAC) requirement. Figure 1 shows several steps to become a Professional Engineer.

We are able to choose more than one Technical Division to belong from the following division:

- Building Services
- Chemical Engineering
- Civil and Structural Engineering
- Electrical Engineering
- Environmental Engineering
- Geotechnical Engineering
- Highway and Transportation Engineering
- Mechanical Engineering
- Oil and Gas and Mining
- Production and Manufacturing Engineering
- Water Resources
- Agricultural and Food Engineering
- Tunnelling Engineering
- Information Technology Special Interest Group
- Project Management Technical Division

Figure 1 : Route to MIEM / Professional Engineer



KIIE TAIWAN

By: Norlia Mohamad Ibrahim

Two products from School of Environmental Engineering (SEE) have been selected to join an exhibition that has been held in Taiwan. The exhibition was organised by World Invention Intellectual Property Associations, WIIPA and Taiwan Invention Products Promotion Association, TIPPA. The exhibition was held from December 19 (Friday) to December 21 (Sunday), 2014 at International Convention Center Kaohsiung(ICCK). No.274, Zhongzheng 4th Rd., Yancheng District, Kaohsiung City. SEE has grabbed two gold medals and two Special Awards at the exhibition. Gold medal was won by Muhammad Aeizat Mohammad Kassim under the supervision of Puan Norlia Mohamad Ibrahim. The product entitled Bubbles Aggregate also won Special Leading InnovationAward from International Intellectual Property Network Forum IIPNF. Meanwhile another gold medal was from Dr.Norazian Mohamed Noor with her product APP: Statistical Software for Predicting Air Pollutant. The product also received Special Award for Green Technology Award. It is hoped that the success of the SEE staff will encourage more researcher to come forward with their innovative products.

Bengkel Pelan Strategik

Oleh: Norren Shariza Mohamed Mokhtar

Pada 5 November 2014 yang lalu, Pusat Pengajian Kejuruteraan Alam Sekitar telah menganjurkan Bengkel Perancangan Strategik PPKAS 2014 bertempat di Dewan Seroja 2, Hotel Seri Malaysia, Kangar, Perlis. Bengkel ini diwajibkan kepada semua staf PPKAS dan akan dikira sebagai hari berkursus. Bengkel bermula pada jam 8.30 pagi hingga 5.30 petang. Aturcara bengkel dimulai dengan pembukaan kata-kata aluan dari Dekan PPKAS Prof. Madya Dr.Khairul Nizar Ismail yang antara lain mengimbau semula sejarah penubuhan Pusat Pengajian Kejuruteraan Alam Sekitar yang memulakan sesi programnya pada tahun 2006. Antara lain, beliau memohon dan mengingatkan semua staf PPKAS akan peranan serta tanggungjawab masing-masing untuk terus memajukan PPKAS. Oleh yang demikian beliau mengharapkan semua staf dapat meningkatkan serta mengekalkan prestasi PPKAS.

Acara seterusnya ialah pembahagian kumpulan mengikut KPI yang telah digariskan. Staf PPKAS dibahagikan kepada 8 buah kumpulan, mengikut tanggungjawab masing-masing serta indikator yang perlu dicapai. Antara indicator yang perlu dicapai ialah Keterlihatan Antarabangsa yang Menyerlah, Ekosistem yang Kondusif, Penyelidikan Berimpak Tinggi, Keunggulan Akademik, Penciptaan Kekayaan yang Ketara, Urus Tadbir yang Gemilang, Siswazah Berbakat Istimewa dan Perkhidmatan Pelanggan Berkualiti. Semua ahli kumpulan membuat perbincangan bersama di dalam kumpulan masing-masing sebelum sesi pembentangan. Adalah diharapkan melalui perbincangan serta pembentangan ini setiap staf dapat menyumbangkan idea dan kaedah bagaimana untuk mencapai indikator yang dipertanggungjawabkan di bawah seliaan masing-masing, bukan sahaja demi kepentingan PPKAS secaraamnya tetapi juga kebaikan UniMAP secara umumnya.

Bengkel ditamatkan pada jam 5.10 petang dengan sesi bergambar beramai-ramai serta jamuan ringan. Dekan merakamkan ucapan penghargaan dan terima kasih kepada semua staf yang sama-sama dapat meluangkan masa demi menjayakan Bengkel Perancangan Strategik PPKAS 2014 sepertimana yang telah dirancangkan.

TEMPAT LETAK KENDERAAN BARU

Oleh: Mohamad Zahir Hanafi

Bagi menyelesaikan masalah berkaitan tempat meletak kenderaan yang terhad,Pusat Pengajian Kejuruteraan Alam Sekitar telah mengambil inisiatif dengan melaksanakan projek tempat meletak kenderaan yang baru sebagai penambahbaikan kepada tempat meletak kenderaan yang sedia ada sebelum ini.

Setiap ruang yang difikirkan sesuai untuk dijadikan tempat meletak kenderaan digunakan semaksima mungkin bertujuan untuk menyelesaikan masalah kekurangan tempat meletak kenderaan.

Projek ini dilaksanakan pada 1 November 2014 oleh sebuah syarikat kontraktor yang dilantik oleh pusat pengajian dan siap sepenuhnya dua minggu kemudian.

Dengan adanya tempat meletak kenderaan baru ini menjadikan ia lebih luas dan mencukupi bagi semua kenderaan.

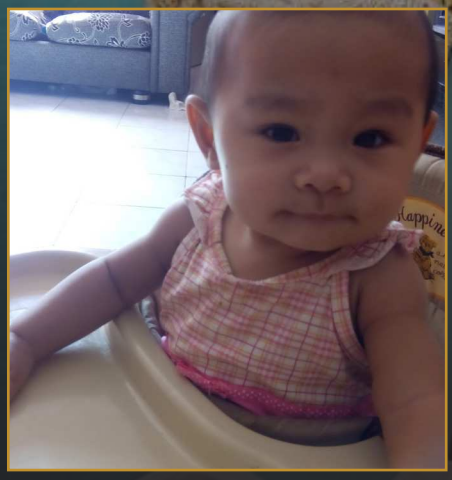
Buat yang terbaik dalam apa sahaja yang diusahakan, sentiasa bersyukur pada Allah dengan segala kurniaan dan ujian, sentiasa positif dan sentiasa menilai diri atas segala ujian/ kesusahan atau kegembiraan.....

PERSONALITI PILIHAN

NORAZIAN Mohamed Noor

Tarikh Lahir	:	21 Mac 1981
Tempat Lahir	:	Mentakab, Pahang
Tempat tinggal	:	Seremban, Negeri Sembilan (zaman kanak-kanak)
Adik-beradik	:	Anak tunggal
Pekerjaan Bapa	:	Berniaga
Pekerjaan Ibu	:	Surirumah
Pendidikan Awal	:	i. Sekolah Kebangsaan Convent, Rahang Kecil, Seremban ii. Sekolah Menengah Kebangsaan Agama Sheikh Hj. Mohd. Said, Seremban
Pendidikan Tinggi	:	i. Ijazah Sarjana Muda Kejuruteraan Kimia (Universiti Sains Malaysia (USM)) [2000-2004] ii. Ijazah Sarjana Kejuruteraan Alam Sekitar (Universiti Sains Malaysia (USM)) [2005-2006] iii. Ijazah Doktor Falsafah (Universiti Sains Malaysia (USM)) [2010-2014]
Pengalaman Kerja	:	i. Pegawai Latihan Vokasional di Unit Keselamatan dan Kesihatan Pekerjaan (UKKP), KUKUM dari Jun 2004 – Mei 2005. ii. Pensyarah di PPK Alam Sekitar, UniMAP (2006 – sekarang)
Bidang penyelidikan (Keywords)	:	Environmental modelling (statistical), missing values, single imputation, multiple imputation, performance measure.
Pencapaian	:	Pingat Perak di ITEX 2007 Pingat Perak dan Gangsa di ITEX 2008 Anugerah Perkhidmatan Cemerlang 2008 Pingat Gangsa di GENEVA 2009 Pingat emas di EUROINVENT 2014 Pingat emas dan The Green Technology Award di KIE 2014
Hobi	:	Melancong, memasak dan mengemas
Warna Kegemaran	:	Berubah-ubah mengikut mood (selalunya hitam)
Makanan Kegemaran	:	Semua makanan yang berwarna merah
Minuman Kegemaran	:	Kopi
Nama Suami	:	Mohd Mustafa Al Bakri B. Abdullah
Pekerjaan Suami	:	Pensyarah
Bilangan Anak	:	Setakat ini 3 orang (Semua lelaki)

KELAHIRAN



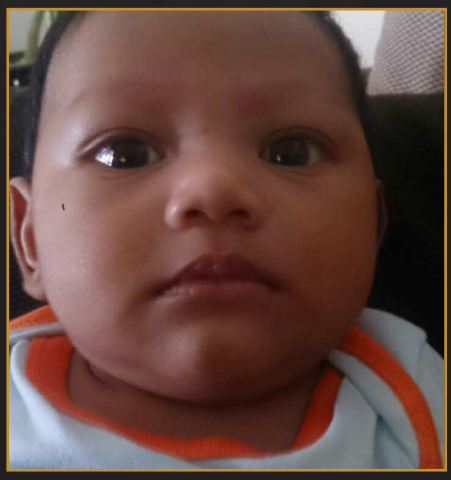
Nama Bayi : Sarah Delisha Binti Mohd Salahuddin
Nama Staf : Syakirah Afiza Mohammed
Pekerjaan : Pensyarah
Tarikh lahir : 22 Julai 2014
Coretan : Moga menjadi anak yang solehah. Bekalan ibu dan ayah dunia akhirat... aminnn..

Nama Bayi : Affrinatul Hawa Binti Mohd Affandi
Nama Staf : Mohd Affandi Derman
Pekerjaan : Pegawai Latihan Vokasional J41
Tarikh lahir : 20 Ogos 2014
Coretan : Semoga menjadi anak yang solehah

Nama Bayi : Zyiyad Nufail Bin Mustaqqim
Nama Staf : Mustaqqim Bin Abdul Rahim
Pekerjaan : Pensyarah
Tarikh lahir : 19 Oktober 2014
Coretan : Semoga berjaya dunia dan akhirat.. Amin

Nama Bayi : Muhammad Luqman Haziq Bin Khairel Rafezi
Nama Staf : Roshazita Binti Che Amat
Pekerjaan : Pensyarah
Tarikh lahir : 1 November 2014
Coretan : Semoga manjadi anak yang soleh. emmm sedapnyer tangan nih...hihi

Nama : Amni Binti Mohd Fauzi
Nama Staf : Mahyun Ab Wahab
Pekerjaan : Pensyarah
Tarikh lahir : 4 Disember 2014
Coretan : Alhamdulillah.. Amni..kurniaan terindah untuk ibu dan ayah..



Nama Bayi : Imran Faris Bin Mohd Faiz
Nama Staf : Mohd Faiz Bin Mohammad Zaki
Pekerjaan : Pensyarah
Tarikh lahir : 8 Disember 2014
Coretan: Semoga bahagia dan diberkati selalu..Amin

Mengapa banjir sering terjadi melanda umat manusia?

Kita perlu melihat kejadian-kejadian yang dijadikan ALLAH sebagai pengajaran dan ada hikmah di sebaliknya.....

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Universiti Malaysia Perlis

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