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AN EXPLORATORY STUDY ON SOLAR AID RELIEF FACILITIES DURING FLOOD DISASTERS IN FELDA AREAS IN MALAYSIA

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Abstract

Under the Malaysian National Security Council (MKN) Directive Plan No. 20, flood disaster has been recognised as one of the top natural disasters in Malaysia. It is identified in the State Policy and Mechanisms Management report that during flood disasters, electricity supply may be disrupted and people have to face power outage. It leaves them vulnerable, especially if the blackout has occurred for several days. This paper will investigatethe potential of solar technologies as the energy supporter for the flood victims during flood disaster. The energy generated from the photovoltaic (PV) will be operated as the temporary power supply for the focus disaster area. This research has selected FELDA settlements as the focus study. An exploratory study will be obtained to identify the feasibility and the workability of solar technology applications for the flood disaster area

Keywords: *FELDA, solar aid relief, flood disaster*

1.0 INTRODUCTION

In Malaysia, disaster management and response lie under the responsibility of the National Security Council, managed by the Prime Minister's Department (Malaysia National Security Council, 2020). It is to coordinate and manage disaster relief's facilities in more organized and effective traffic management. This includes floods disaster, which is administered by the National Disaster Management Agency under the National Security Council and the National Security Council Directive No. 20 (revisions 2012). With this disaster management coordination, all aid relief matters can be effectively coordinated to prevent any resource wastage, confusion of instructions, conflicts of responsibility and contradictions or duplication of roles during a disaster event, including floods.

Flood is defined as a large amount of water from the rainwater that fills rivers, tributaries, drainage and the water overflow to the dry land (Jabatan Pengairan dan Saliran Malaysia, 2016). The flood problem in this country is closely related to the monsoon floods and flash floods Lubis (2012). But in East of Peninsular Malaysia such as Kelantan, Terengganu and Pahang, the flood phenomena is usually related to river flood and flash flood (Alias, 2015).

Since 1965, Ibrahim, (2016) highlighted that many locations in Malaysia were exposed to the danger of flood due to many factors, for instance, due to the local development factors and the arising issues of global climate change. Besides that, among the factors that because major floods are i) abundant rainfall, ii) tide, iii) river basin, iv) drainage infrastructure is insufficient and v) uncontrollable rapid development (Tahir, 2015). It can also be linked that the flood may occur due to weather, landscape, environmental management and human behaviour (Asiah Sarji, Fahmi Mahamood, Hirwan Jasbir, Norrafidah, 2014).

During flood disasters, the victims are usually vulnerable to disaster situations, especially during a power blackout. They usually have to wait for several hours to receive the aid relief facility, including the power supply. The aid relief team and NGOs usually have to bring an electricity generator using a boat, which is heavy and bulky. Therefore, this paper tries to

investigate the potential of solar energy as the energy supporter for the flood victims during flood disasters. It will try to explore the potential of using solar technology that can aid the victims upon flood disaster. Then, the last part of this paper will identify the feasibility and the workability of solar technology applications for the flood disaster area.

2.0 THE SIGNIFICANT OF SOLAR PANEL TECHNOLOGIES

Solar energy is one of the renewable energy that can be used to generate clean electricity. Through photovoltaic (PV) panels, the electricity from solar is environmentally friendly (Rashid, 2015) and can offer flexible usage to the user (Lee, Laurent, & Becker-Birck, 2013). The other benefits of the solar panel are the maintenance is low but high with reliability and the expectation of life span is between 20 to 30 years with a favourable source of energy to be used in the future (Solangi, Badarudin, Kazi, & Aman, 2013).

Nevertheless, it is significant energy and can help the victims during critical time especially when power is crucially needed during an emergency. A range of solar panel systems can be applied for various uses in emergency operations, such as backup power for shelters, communications, emergency lighting, transportation, or multi-use function on a smaller scale (Lee et al., 2013). It can be applied anywhere, especially for rural electrification and telecommunication systems that are located far from the access road (Mekhilef et al., 2012). It is high durability, which can be installed as a small and portable system. Therefore, solar energy is significant to be applied as an alternative energy during an emergency or the occurrence of a natural disaster.

3.0 FLOOD DISASTER: THE POTENTIAL OF SOLAR TECHNOLOGY

Flood can occur without notice. There are various problems and potential harms when flood occurs. When this situation takes place, an electrical power supply as a crucial service will be shut down (Mynewshub, 2017). Without the electrical power, many important activities or needs cannot be met such as the operation of lighting, electric appliances, furnaces or refrigerator and electric pump (U. S. Department of Energy, 1999). Besides, critical infrastructure systems such as sub-stations, traffic control, hospital and water purification (Lee et al., 2013) will be failed. On the other hand, the victims may have to face the problem of portable water, medical services, communications and electrical service for long periods (Young, 2003).

Furthermore, the sinking of Tenaga Malaysia Berhad (TNB) sub-stations due to flood can also affect the communication sub-station and electricity distribution system for the nearby areas (Musa, 2013). At the same time, the electric poles and the power plant will usually be shut down to avoid the consequences of electric shock (Yusof, 2016).

TNB's power station and substation distribute the electricity for each district through the national grid (Suruhanjaya Tenaga, 2015). There are public concerns on the sustainability of TNB power station workability during flood disasters since most sub-stations are located in areas that are vulnerable to the flood risk. This causes the sub-stations to be exposed to the risk of power failure. Due to the situation, the alternative energy is critically needed so it can be used during flood events.

Floods contribute a huge impact on the community movement (Qazi & Qazi, 2014). The matter is aggravating especially during night time, when the electricity is critically needed. The matter becomes worse if the authorities fail to assist the flood victims due to the shutdown physical communication caused by floods (Ismail, 2015). It also gives impact on national affairs, loss of lives, property damages, economic losses and environmental degradation occur. For this reason, the government needs the back-up solution of sustainable resources to assist the floods victims (Majlis Keselamatan Negara, 2012).

For this reason, the solar PV system has the ability to meet critical power needs during an emergency such as a flood disaster. No fuel is needed to generate the solar PV and the cost is less expensive than gas or diesel generators (Young, 2003). As in (Young, 2003) added that the PV system acts as the crucial aid facility in the relief efforts. This statement is supported by the Minister of Energy, Green Technology and Water of Malaysia which mentioned that the

solar can be used as ~~an~~ alternative energy during flood disasters (Hassan, 2015), especially when victims have to face power blackout consequences during night time. Besides that, solar PV systems can offer a source of clean, flexible, reliable, and pollution-free energy to the people (Chua & Oh, 2012). Reference (Bujang, Bern, & Brumm, 2016) solar power in Malaysia through the PV system is four times higher than the world fossil fuel resources.

The solar PV system has the ability to meet critical power needs during the flood disaster. By using solar PV, the electrification problems during critical situations can be resolved (Hossain, Hasanuzzaman, Rahim, & Ping, 2015). Reference (Hassan, 2015) mentioned that Malaysia's Ministry of Energy, Green Technology and Water is anticipated to install solar energy systems at flood relief centers as one of the alternatives to supply electricity during the disaster. "When electricity is interrupted during a disaster like flood, at least we have a system that can help provide electricity". He also said that the solar system can still provide electricity even when the weather is overcast with a rate of 50 percent as compared to the hot weather (Hassan, 2015).

Irradiance is very important and it shows the capability of solar-energy (Yusof, 2016). In Malaysia, the average solar irradiance received is between 1400 and 1900 kWh/m2 annually with an average of 12 hours of sunshine daily (S. Ahmad, Kadir, & Shafie, 2011). Every year, Malaysia's solar climate conditions have received abundant solar power. By using the PV system, the distribution of electricity can be used during sunny days. During the night and rainy days/season, the solar output may be largely suppressed or even vanished (Zheng et al., 2014). However, the PV battery can store the power and this stored energy can be used for any situation especially during floods (Lee et al., 2013). The PV systems and PV batteries can be located at any flood relief centers that are far or higher from the flood-prone areas. Victims can use this technology to light up the centre whilst waiting for the authorities or NGOs to help them during the disaster.

Usually, the usage of solar energy will support the full set of solar PV power systems. During flood disasters, most of the settlements in rural Malaysia are affected and people are vulnerable and left without electricity. Therefore, it is wise to explore the workability of solar electricity as a relief mechanism facility in facing flood disaster.

3.1 The Case Study

The emergence of the Federal Land Development Authority, known as a FELDA is to provide smallholder farms for growing crops, which are basically palm oil trees and rubber trees and to establish the resettlement of rural poor into newly developed areas (FELDA, 2014). In Malaysia, FELDA province is located in 8 states; Sabah from East of Malaysia and 7 states from Peninsular Malaysia (Johor, Kedah, Pahang, Perak, Negeri Sembilan, Terengganu and Kelantan). FELDA has almost 10,000 houses throughout 317 settlements in Malaysia (FELDA, 2014). There are various types of the earth surface in FELDA settlements, for example, low lands, hilly lands, corrugated areas and valleys in highlands. This type of earth surface also contributes to the occurrence of floods in FELDA settlements. There are two types of floods namely flash flood (Berita Harian, 2015) or monsoon flood (Latib, 2018) occurs in FELDA areas.

Flood not only occurs in settlement areas. It even happens on the main road of FELDA. Among the roads involved are FELDA Calok Barat, FELDA Mengkawang, FELDA Aring 8, FELDA Cerul and FELDA Renong, which are located in Peninsular Malaysia. When floods occur at the main road of FELDA, the process of transportation and communication systems will fail and the FELDA communities are usually trapped in their communities for days (Ahmad, 2015). These situations give more problems to the settlers.

Table 1 shows the list of FELDA flood areas in Malaysia. When the flood disaster strikes, the affected FELDA communities will be moved to a safe flood relief center, for instance, public halls, schools or mosques (Mohamad, 2015). The flood relief center is usually located at the FELDA public hall and is managed under the Regional Office of FELDA (Ismi, 2015; Berita Harian, 2015 & Bernama, 2017). This building applies pitch roof type with a large roof area. Within these criteria, the solar irradiance on the roof surfaces will be able to generate more solar energy if the PVs system is installed. The flood victims can use electrical appliances, for instance, lighting systems during their stay in the flood relief center (Ahmad, 2014).

Table 1: FELDA flood areas in Malaysia

No	State	FELDA Settlement
1	Pahang	FELDA Tersang 1, 2 & 3
		FELDA Bukit Kuantan
		FELDA Jengka 8, 11, 15 & 16
		FELDA Kota Gelanggi 1, 2 & 4
		FELDA Lurah Bilut
		FELDA Sungai Retang
		FELDA Padang Piol
2	Kelantan	FELDA Aring
		FELDA Chiku 7
		FELDA Kemahang
		FELDA Mengkawang
		FELDA Aring
3	Terengganu	FELDA Seberang Tayor
		FELDA Tenang
		FELDA Neram 1 & 2
		FELDA Calok Barat
		FELDA Cerul
4	Negeri Sembilan	FELDA Gugusan Raja Alias 2
		FELDA Jelai 4
5	Perlis	FELDA Chuping
6	Johor	FELDA Pemanis
7	Kedah	FELDA Lubuk Merbau
8	Perak	FELDA Lasah

Source: Construct by author

In general, the flood victims will be placed at the flood relief center (Ismail, 2015). There is a potential scenario to encourage flood victims to use smart electricity from PV panels at the flood relief center (Pusat Kajian Kelestarian Global, 2015) by integrating the systems with the present electricity generators that are already in the flood relief center (Sarabatin, 2014).

The fluorescent lamp, wall speaker and wall fan are the basic electrical appliances in the FELDA public hall. However, lamps and fans are electrical appliances that the victims use more during flood disasters. On top of that, the victims also need to charge their mobile phones to communicate with their family.

Based on Table 2, the total amount of electricity used at each flood relief center is 6,500W (6.5 kW). Hence, the flood relief centers need a total power of 6 PV panels with the power 400 (Watt), 3 nos (12 V) battery banks and a solar inverter. The PV technologies should be ready to be set-up in the centre before the occurrence of flood events.

Table 2: Electrical appliances in FELDA flood relief center

No	Electrical Apliances	Power (Watt)	No of Electrical Appliances	Total of Power (Watt)	Hrs / Day	Days / Wk	Average Daily (Watt)
1	Floresent lamp	30	12	360	4	1	1,440
2	Wall Fan	40	16	640	4	1	2,560
4	Televisyen	100	1	100	4	1	400
5	Handphone	35	15	525	4	1	2,100
	Total			1625			6,500

Source: Construct by author

3.2 Workability Study

The off-grid PV systems are the suitable system to apply in flood relief centres. Whereby, the PV system can provide the electricity as a backup system in any situation, especially where the grid power system is not available. Since the energy load will only be used for essential appliances; for instance, lighting and fans, the sizing matters are not too crucial for

this application. Simple components, for example, PV panels (more than 2.0kWp), charge controller, fuses, battery banks (12 to 48 volt) and inverter (12V to 24V) can be installed in small scale power systems. During the off-flood season, the load from the PVs can be used for any communities' activities, and the excess energy can be stored in the battery banks. During flood season, the victims can readily use the system for lighting and fan appliances, without the hassle to wait for the aid from the authorities.

4.0 CONCLUSION

With the early preparation, solar energy can generate, transmit and distribute the electricity for the usage at the flood relief centre located at the disaster area. Based on the same situation, communication systems and electrical power supply can be operated by using solar-powered generators or mobile solar emergency kits. Therefore, solar technologies should be introduced and applied in the flood relief centre.

REFERENCES

Ahmad, H. F. (2015, November). Tanda-tanda Banjir Mula Kelihatan di Pahang. Utusan Malaysia. Retrieved from http://m.utusan.com.my/berita/nahas-bencana/tanda-tanda-banjir-mula-kelihatan-di-pahang-1.162466

Ahmad, S., Kadir, M. Z. A. A., & Shafie, S. (2011). Current perspective of the renewable energy development in Malaysia. Renewable and Sustainable Energy Reviews, 15(2), 897–904. https://doi.org/10.1016/j.rser.2010.11.009

Alias, N. A. (2015). Dua Faktor Punca Banjir Besar. Retrieved August 24, 2017, from https://www.bharian.com.my/node/44980

Asiah Sarji, Fahmi Mahamood, Hirwan Jasbir, Norrafidah, E. A. A. R. (2014). Musibah Banjir. Menghadapinya Gaya Perlis. In Prosiding Seminar Institusi Raja (Siraj ll) Seminar Raja Dan Kerajaan Perlis (pp. 1–11).

Berita Harian. (2015). 12 Tanah Rancangan FELDA Terbabit Banjir Di Seluruh Negara. Berita Harian Online, pp. 10–11.

Bernama. (2017). Raub Dan Jerantut Daerah Terbaharu Dilanda Banjir Di Pahang. https://doi.org/http://www.bernama.com/bernama/v8/bm/ge/newsgeneral.php?id=1323191

Bujang, A. S., Bern, C. J., & Brumm, T. J. (2016). Summary of energy demand and renewable energy policies in Malaysia. Renewable and Sustainable Energy Reviews, 53. https://doi.org/10.1016/j.rser.2015.09.047

Chua, S. C., & Oh, T. H. (2012). Solar energy outlook in Malaysia. Renewable and Sustainable Energy Reviews, 16(1), 564–574. https://doi.org/10.1016/j.rser.2011.08.022

Hassan, H. (2015). Kaji bina sistem tenaga solar di pusat pemindahan banjir. Utusan Malaysia.

Hossain, F. M., Hasanuzzaman, M., Rahim, N. A., & Ping, H. W. (2015). Impact of renewable energy on rural electrification in Malaysia: a review. Clean Technologies and Environmental Policy, 17(4), 859–871. https://doi.org/10.1007/s10098-014-0861-1

Ibrahim, F. B. (2016). Strategi Penambaikan Pengurusan Bencana Banjir Besar Di Kelantan.

Ismail, R. (2015). Kajian Forensik Banjir: Pilisi dan Pengurusan Mangsa Banjir Luar Biasa di Lembangan Sungai Kelantan. Universiti Malaysia Terengganu, (September), 28–33. Retrieved from https://www.umt.edu.my/infokus/infokus_sept2015.pdf

Ismi, I. (2015). 286 mangsa banjir di Kemaman. Harian Metro. Retrieved from http://www.hmetro.com.my/node/103871

Jabatan Pengairan dan Saliran Malaysia. (2016). Pengurusan Banjir - Program dan Aktiviti.

Latib, S. (2018). Raub Dilanda Banjir Kilat.

Lee, J. J., Laurent, C., & Becker-Birck, C. (2013). Solar PV Emergency & Resilience Planning.

Lubis, R. A. (2012). Peranan Pejabat Daerah Padang Terap Dalam Tindakan Awal/Kesiapsiagaan Menghadapi Banjir (Satu Kajian Kes Padang Terap). Retrieved from http://etd.uum.edu.my/3534/

Mekhilef, S., Safari, A., Mustaffa, W. E. S., Saidur, R., Omar, R., & Younis, M. A. A. (2012). Solar energy in Malaysia: Current state and prospects. Renewable and Sustainable

Energy Reviews, 16(1), 386–396. https://doi.org/10.1016/j.rser.2011.08.003
Mohamad, R. (2015). Pengurusan Banjir. https://doi.org/10.1017/CBO9781107415324.004
Musa, N. (2013). Banjir : TNB Terpaksa Henti Tugas Pencawang. Retrieved January 6, 2018, from http://www.sinarharian.com.my/nasional/banjir-tnb-terpaksa-henti-tugas-pencawang-1.230432
Mynewshub. (2017). Banjir : TNB Henti Bekalan Elektrik 50 Pencawang. Retrieved August 21, 2017, from http://www.mynewshub.cc/terkini/banjir-tnb-henti-bekalan-elektrik-50-pencawang/
Pusat Kajian Kelestarian Global. (2015). Resolusi Persidangan Pengurusan Bencana Banjir Kelantan 2015.
Qazi, S., & Qazi, F. (2014). Green Technology for Disaster Relief and Remote Areas. 121st ASEE Anual Conference & Exposition, (10192), 1–12. Retrieved from https://www.asee.org/public/conferences/32/papers/10192
Rashid, R. (2015). Towards Sustainable Energy Development in Bangladesh- The Perspective of Renewable Energy Technology Rashid, 3(1), 31–39.
Sarabatin, M. A. (2014). Banjir : TNB diminta pulihkan segera bekalan elektrik di kawasan terjejas - TPM. Retrieved September 21, 2017, from https://www.bharian.com.my/node/26420
Solangi, K. H., Badarudin, A., Kazi, S. N., & Aman, M. M. (2013). Public acceptance of solar energy : The case of Peninsular Malaysia, 540–543.
Suruhanjaya Tenaga. (2015). Garis Panduan Kaedah-Kaedah Keselamatan Pengguna Elektrik Di Musim Banjir. Putrajaya: Suruhanjaya Tenaga (Energy Commision).
Tahir, W. (2015). Banjir Kuning Bagai Tsunami Ancam Kelantan. Retrieved August 24, 2017, from https://www.bharian.com.my/node/29743%0A
U. S. Department of Energy. (1999, April). Counting on Solar Power for Disaster Relief. National Renewable Energy Laboratory. Retrieved from www.energy.gov/sites/prod/files/2013/10/f3/26042.pdf
Young, W. (2003). Disasters and Energy Security Management Author.
Yusof, S. A. M. (2016). Bateri Dicas Penuh Sepantas Sejam. Retrieved August 20, 2017, from http://www.kosmo.com.my/kosmo/content.asp?y=2016&dt=1102&pub=Kosmo&sec=Infiniti&pg=in_01.htm#ixzz4qJ5NoDas
Zheng, L., Lin, Z. H., Cheng, G., Wu, W., Wen, X., Lee, S., & Wang, Z. L. (2014). Silicon-based hybrid cell for harvesting solar energy and raindrop electrostatic energy. Nano Energy, 9, 291–300. https://doi.org/10.1016/j.nanoen.2014.07.024

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