CASE 1

Striking a Perfect Socio-Environmental Balance in Teluk Nipah, Pangkor Island

Hee-Min Teh

On a wet and gloomy morning of Nov 15, 2018, Ir. Mohd Akmal, the officer in charge of the Coastal Protection Department (CPD) of Manjung District, together with representatives from the local authorities, met with the stakeholders to discuss the coastal erosion problems at Teluk Nipah Beach. Mohd Akmal was uneasy and hesitant to chair the meeting as he could not convince himself to accept the solutions proposed by Mr. Jamaluddin Hashim, Director of Engineering Department of Manjung City Council (MCC) and his team.

On the one hand, he was aware of the MCC's concerns of protecting the welfare of the coastal community, and as such the proposed solution should not interfere with the livelihood of the local community. On the other hand, due to exposure of the beach to the potential coastal hazards at Teluk Nipah Beach, he believed that relocation of the business operators along the beach to a safer place inland was inevitable. He had attempted to explain his rationale to the MCC team to his best ability based on scientific evidence and facts, but his explanation was not totally accepted by the MCC team in the previous meetings.

Background: Teluk Nipah Beach

Malaysia is gifted with over 33 different mineral types, comprising metallic, non-metallic and energy minerals, worth several billion dollars in economic potential. The types of metallic minerals currently being mined are tin, gold, bauxite, iron-ore, ilmenite, and other associated minerals as by-products of tin and gold mining such as zircon, monazite, rutile, struverite and silver. The non-metallic or industrial minerals produced include limestone, clays, kaolin, silica, sand and gravel, aggregates, feldspar, and mica. Coal is the only type of energy mineral being mined here. The value of non-metallic mineral produced in 2016 is estimated at RM5.05 billion, whilst the value of metallic and energy minerals produced is approximately RM1.07 billion and RM0.16 billion, respectively.

Bauxite is mined for the extraction and production of valuable aluminium metal, widely used among many others, in the manufacture of kitchen utensils, construction of aircraft, as well as in the chemical, steel and petroleum industries. This mineral is first converted to aluminium oxide and then extracted as aluminium through a smelting process. The lightweight and corrosion "free" features make aluminium desirable for use in the transportation and construction sectors. Since bauxite is the primary raw material for aluminium production, its demand has increased globally over the last few years.

Malaysia's total bauxite reserve is substantial. In 2017, total proven bauxite reserves in Malaysia were 110, 000 x 1,000 Mg but only 1000 x 1000 Mg had been mined (U.S. Geological Survey, Mineral Commodity Summaries, January 2018 (PDF). U.S. Geological Survey. 2018. pp. 30–31), leaving great opportunities for mining activities to flourish in order to reap economic benefits. In production line, approximately two to three tonnes of bauxite are required to produce a tonne of alumina as bauxite only contains 30-54% alumina. Four to six tonnes of bauxite are required to be purified to produce one tonne of aluminium metal. Compared to refining of bauxite and electrolytic reduction of alumina, bauxite mining consumes only a small amount of energy. Hence, it is economically feasible, cost effective and adds value to the production of aluminium.

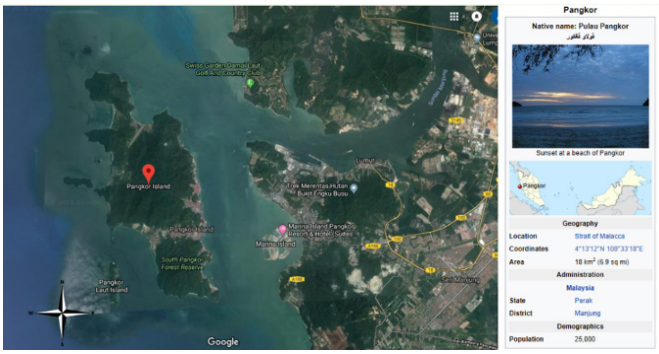

Figure 1 Pangkor Island and the vicinity
(Source: https://en.wikipedia.org/wiki/Pangkor_Island)



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LOCAL WORLD BUSINESS SPORT ENT & LIFESTYLE SPOTLIGHT OPINION

Local

Pangkor Island to get duty-free status on Jan 1, 2020

16 APR 2019 / 22:24 H.

Pangkor Island lies just off the west coast of Peninsular Malaysia. It's known for beaches like Teluk Nipah, Coral Bay and Pasir Gam, which connects to coral-ringed Giam Island at low tide. — Google Maps

IPOH: Pangkor Island will get its duty-free status on Jan 1, 2020. The island will also be exempted from the Sales and Services Tax (SST).

The state government had submitted an application to gazette the island as tax free, the Sultan of Perak, Sultan Nazrin Muizzuddin Shah, said today.

"Various efforts to realise the status is underway," he said.

"Efforts to assist locals in obtaining the spillover effort should also be one of the development agenda for Pangkor Island to ensure they are not left out."

The sultan was delivering the royal address when opening the first meeting of the second session of the 14th Perak Legislative Assembly at Bangunan Perak Darul Ridzuan. Also present was the Raja Permaisuri Perak, Tuanku Zara Salim.

The sultan reminded that efforts to help the locals benefit from the duty-free status should be one of the development agendas of Pangkor.

"This is to ensure that the residents on the island will not suffer the same fate as Lebai Malang who suffered disappointment while others reaped the benefits," he said.

The tax-free status for Pangkor was first announced by the federal government, then under Barisan Nasional, during the tabling of Budget 2018 in Parliament.

Figure 2 Newspaper article on Pangkor as a duty-free island



Figure 3 Teluk Nipah is located at the west coast of the midland of Pangkor Island



Figure 4 Teluk Nipah and the surrounding



Figure 5 Seaward view of Pantai Teluk Nipah
(Source: https://www.pangkor2u.com/pengena)



Figure 6 Pantai Teluk Nipah

Figure 7, in addition, many temporary buildings and wooden shelters have been built as extensions by the local business operators along the shore fronting the seaward side of the coastal road, without the approval of the MCC. The illegal constructions are being used as

unlicensed food and souvenir stalls. The seafront of Teluk Nipah is thus obstructed by a line of temporary buildings and shelters, which pose an eyesore to tourists and is a concern to the chalet and homestay operators whose lodging premises are located on the opposite side of the coastal road.

The natural beauty of Pantai Teluk Nipah has been threatened as the beach has been experiencing gradual erosion over the past decades. The shoreline has been retreating at an alarming rate ever since the occurrence of a series of storm events at end of 2017. Since then, the coastal erosion problems at Pantai Teluk Nipah have started to draw a lot of attention from both local authorities and the local community. Significant lowering of the beach level has been identified by the local council, and they are looking for a solution to address the problem.



Figure 7 Commercial activities along Jalan Pasir Bogak in Teluk Nipah

Site Investigation by the Coastal Protection Department (CPD)

CPD was engaged by MCC to assess the severity of the coastal erosion problems at Pantai Teluk Nipah through a site visit on the 1st of November 2017. The CPD team led by Ir. Mohd Akmal had recorded all their observations during the site investigation.

CPD presented an aerial photograph of the entire stretch of the shoreline of Pantai Teluk Nipah. The beach was divided into two parts - Coral Beach in the north and Teluk Nipah Beach in the south, as shown in Figure 8. For the northern cell (Coral Beach), the beach width from the shore to the coastal road ranges from 35 to 70 m. The beach is wider than that in Pantai Teluk Nipah where the minimum beach width is just over 10 m. The sandbar formation connecting the offshore island, Pulau Giam to the beaches fronting D'Senja Hotel is an attraction in Teluk Nipah during low tide. The sandbar is exposed during the occurrence of lowest astronomical tide in February every year. During low tides of this season, one can walk on the tombolo (Pasir Giam sand bar) to reach the coral fringed Giam island, which is a popular spot for snorkelling.



Figure 8 Study area – Northern (Coral Beach) and southern (Teluk Nipah Beach) beaches

Prior to the freak storm occurrences in 2017, Coral Beach was covered with soft fine sand and used to be an attraction of Teluk Nipah (Figures 9 and 10). Unfortunately, the beauty of the beach was greatly spoiled by the wave actions during the 2017 storm (see Figure 11). Temporary measures to protect the sea-facing chalets using gabions have failed and all the rocks from the broken steel cages are strewn on the beach. This has made the beach unsightly and unsafe to walk on barefoot. It is important to note that the setback distance from the shoreline to nearest

sea-facing chalet is barely more than 10 m, which fails to satisfy the minimum setback requirement for sandy beaches recommended by Department of Irrigation and Drainage (i.e., 60 m to the shoreline during the occurrence of Mean High Water Spring, the highest level that spring tides reach on the average over a period of time, often 19 years). Any development within the buffer zone is prone to the impact of waves and other seasonal influences within the dynamic zone of the beach. Apart from the broken gabions, temporary structures and shelters are also damaged by the invasive waves as a result of undermining and scouring at the base. Many tree roots have exposed due to lowering of the beach level. The fallen trees may potentially pose hazards to the adjacent structures and human lives.



Figure 9 Pasir Giam Sandbar connecting Pulam Giam and Coral Beach

The width of the beach in the south at Teluk Nipah is not consistent and varies from 10 to 70 m. The northern part of the beach is currently under enormous pressure due to rapid development and other indiscriminate business activities along the shore.



Figure 10 Beach condition at Coral Beach prior to the 2017 storm events

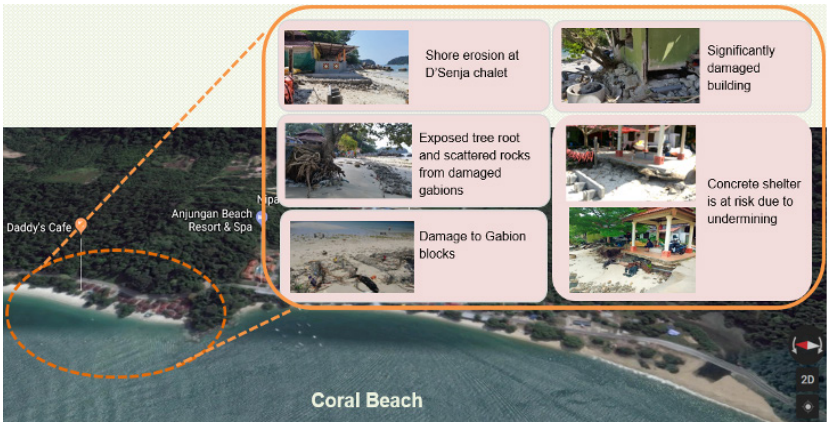

Figure 11 Beach condition at Coral Beach after the 2017 storm events

Figures 12 and 13 respectively show the conditions of the beach prior to and after the 2017 storm events. Signs of coastal erosion are particularly pronounced at this stretch of the beach. Many tree roots are exposed, and some coastal infrastructures are at risk due to undermining and scouring at their base as a result of the lowering of the beach. Some of the concrete structures facing the sea are seriously damaged as the reinforcement bars of the concrete slabs are exposed and corroded.

The collapse of one of the concrete access steps connecting the concrete buildings to the beach was also noticed during the site visit. The structural damages of the buildings and infrastructures identified from the site visit are deemed to be critical; hence requiring immediate measures, not only to prevent them from further deterioration, but also to ensure that they can withstand further onslaught of the subsequent storm waves and surges.

Apart from coastal erosion, the CPD team also found sea water pollution by the discharge from a stream located at the northernmost part of Teluk Nipah. During the site investigation, the stream was filled with domestic rubbish, e.g. plastic bottles, aluminum cans, plastic bags, nappies, dried leaves, etc. The water in the stream was filthy and smelly. The wastewater generated by the illegal buildings along the seafront was directly discharged into the stream without proper treatment. The stream was almost stagnant because the outlet was blocked by a pile of sand bank. The water was trapped for days until the sand bank at the outlet was forced through by surge of water during heavy downpour in Teluk Nipah. Once this happened, the seawater in Teluk Nipah became badly contaminated for hours.



Figure 12 Beach condition at Pantai Teluk Nipah before the 2017 storm events

Towards the south of Pantai Teluk Nipah (see Figure 13), significant sand deposition was found at the river outlet, interrupting the discharge flow from the river to the sea. Despite having a large amount of sedimentation at the river discharge outlet, the accumulated sand is occasionally flushed out by the rapid flow from upstream during a heavy storm. This accumulation and clearance seem to be a periodical occurrence; hence, it is not an issue of concern to the local community for the time being.

The CPD technical team concluded from the site visit that the coastal erosion problem at Pantai Teluk Nipah is serious and requires immediate attention by the stakeholders, i.e. the local authorities and the local community. At the first meeting held with MCC a year ago, Ir Mohd Akmal highlighted the potential risks posed to the beach infrastructure and users if the affected beach continued to be subjected to indiscriminate activities and the attack of excessive environmental forces without protection. He strongly recommended that the business operators along Pantai Teluk Nipah to be relocated as the illegal activities and constructions fall within the coastal buffer zone.

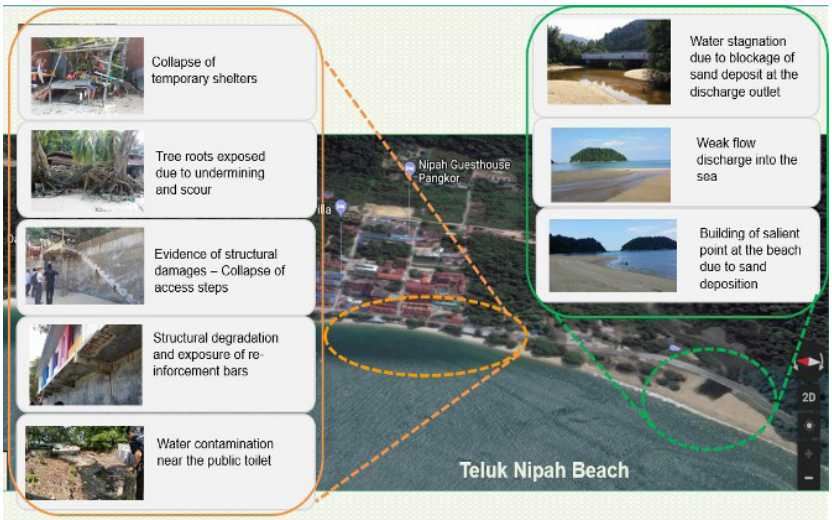

Figure 13 Beach condition at Pantai Teluk Nipah after the 2017 storm events



Figure 14 Relocation of business operators from Pantal Teluk Nipah to Coral Beach in June 2019

Since the declaration of Pangkor Island as a duty-free zone, the Manjung Council has been urged to preserve and upgrade all recreational beaches in the resort island. With the advent of Visit Malaysia Year 2020, Pangkor Island is expected to receive a large number of local and international tourists. To achieve the objective, the MCC pledges to take all possible measures to improve and transform Teluk Nipah as an attractive tourist destination. Hence, all the illegal business operators along the public beaches were ordered by MCC to relocate their businesses to designated business zones with the legal licenses issued by Ministry of Domestic Trade, Co-Operatives and Consumerism.

The invasion of the 2017 storm waves on the Pangkor coastline has caused beach lowering and steepening as well as structural damages to buildings and infrastructure built along the beaches in the Manjung district, including the most attractive public beach in Pangkor Island - Pantai Teluk Nipah. As a consequence, the unexpected storm had put significant pressure on MCC to seek effective solutions to the coastal

erosion problems and to protect the beaches prior to Visit Malaysia Year 2020. The strategies adopted should not only address the environmental issues associated with the beaches, but also to safeguard the socio-economic status of the coastal communities.

The coastal problems at Pantai Teluk Nipah has been given top priority to be tackled by MCC. To ease the congestion and over-utilisation of the beach front at Pantai Teluk Nipah, MCC have constructed several facilities at Coral Beach, as shown in Figure 14, for the relocation of the business operators along Pantai Teluk Nipah in June 2018. MCC imposed an affordable monthly rental charge on the tenants of the facilities at Coral Beach in the hope that all the existing illegal business operators would participate in this initiative with minimal financial commitment. An intense awareness program on beach conservation was conducted by MCC for the Pantai Teluk Nipah business operators. A total of 25 business operators gave full cooperation to the relocation order and moved to the facilities prepared by MCC at Coral Beach, which is a 10 to 15-minute walk from Pantai Teluk Nipah, in June 2018.

Two months after the relocation, the business operators unceremoniously moved back to the facilities in Teluk Nipah due to poor business volume. Unlike Pantai Teluk Nipah, the lodging amenities and services offered at Coral Beach were rather limited. The majority of the tourists chose to stay at Pantai Teluk Nipah simply because it is a hub of tourist activities where all amenities and conveniences were available within stone's throw. The tourists who stayed at Pantai Teluk Nipah found it a hassle walking to the stalls at Coral Beach segregated from Pantai Teluk Nipah by a small hill. They felt insecure walking on the coastal road that was without a proper pedestrian lane and street lighting. Owing to low volume of visitors visiting Coral Beach, the business operators at Coral Beach decided to move back to their premises at Pantai Teluk Nipah without informing MCC.

Despite being issued with numerous enforcement orders to vacate the unauthorised premises along Pantai Teluk Nipah by MCC, the affected business operators chose to stay on and continue their business at the beach. MCC gave a last notification to the affected business operators to move out from the premises within a week or they would be fined. The action plan undertaken by MCC had provoked the business operators and some local communities in Teluk Nipah. They raised their concerns to the higher authority at state level concerning the issues in Teluk Nipah

on the 16th of October 2018. A dialogue session was conducted by MCC to explain the critical conditions of the beach and to placate the business operators and local community of Teluk Nipah (See the minutes of the dialog session in Appendix 1). However, the anger against the local authorities persisted. Since then, major conflicts developed between the local authorities persisted. Since then, major conflicts developed between the local community and MCC. Hearing the outcries of the local community in Teluk Nipah, the State Government gave a one-month ultimatum to MCC to resolve the social problems of the residents in Teluk Nipah. The State Government also advised MCC to consult the technical team of CPD on the environmental issues encountered at Pantai Teluk Nipah. Since then, Mr Jamaluddin was under tremendous pressure from both the higher authorities and local community. After months of struggling with the local community, Mr Jamaluddin was inclined to give in. However, he needed to get the backing from the director of CPD, Ir Mohd Akmal, who is highly regarded nationwide and is an authority in the field of coastal protection. With the support from Ir Mohd Akmal, Mr Jamaluddin hoped to end the episodes of deadlock soonest possible.

Mr Jamaluddin Hashim first presented the case to Ir Mohd Akmal on the 20th October 2018 and sought technical advice from the latter. However, the meeting failed to reach a consensus from both sides. Ir Mohd Akmal insisted that no business operators should carry out businesses on the shore of Pantai Teluk Nipah, which is located within the 60-m buffer zone. The coastal facilities are vulnerable to direct wave impact during highest astronomical tides when the water level is exceptionally high. These structures and the occupants are exposed to danger in the event of a heavy storm. Ir Mohd Akmal stood his ground that all permanent and temporary structures built at the shore of Pantai Teluk Nipah would have to be removed for the sake of the safety of the coastal community. Mr Jamaluddin tried to challenge his standpoint by insisting that the probability of occurrences of these extreme events was low. Ir Mohd Akmal admitted that the chance of storm surge occurrences at Pantai Teluk Nipah was very low (less than 0.5%) based on the historical data. Mr Jamaluddin further queried Ir Mohd Akmal about the validity of his claim, i.e., whether it was the right decision to demolish all the shore-based permanent and temporary structures just to address the extreme events that might not happen in our lifetime, and generations to come. He was worried about the uncontrolled protests and demonstrations launched by the local community, if it ever happened. Both MCC and CPD tried to reach a consensus on the matter but failed in the meeting.

Two weeks later, Mr Jamaluddin held a second meeting with CPD to finalise this issue. He tried to request Ir Mohd Akmal to relax the coastal buffer zone requirement for Teluk Nipah. Nonetheless, Ir Mohd Akmal turned down the request without any hesitation. Their relationship became tense. Due to the urgency of finding asolution to the coastal and socio-economic problems at Teluk Nipah, Mr Jamaluddin approached the CPD for the third time a week after that. Nonetheless, he came back with disappointment and exasperation. Since then, rumours about the resignation of Mr Jamaluddin due to his failure to solve the problems surfaced and reached Ir Mohd Akmal. Ir Mohd Akmal was disturbed by the rumours and somehow felt bad for being responsible contributing to the resignation of Mr Jamaluddin who had served MCC for the past 35 years. He instantly picked up his phone and gave Mr Jamaluddin a call. Over the phone, he apologised for causing the hassles and promised to organise an ad-hoc meeting at his office the next day. He pledged to find a solution to the Teluk Nipah problem but on one condition that Mr Jamaluddin must keep his position. Mr Jamaluddin accepted his offer.

Discussion Question

As the technical advisor to Ir Mohd Akmal, you have been briefed about the problem at Pantai Teluk Nipah from the beginning. An hour before the fourth meeting with Mr Jamaluddin and his team on the 15th of November 2018, you were called to Ir Mohd Akmal's office.

You were instructed to come up with a viable solution to alleviate or overcome the social, economic and environmental problems in Teluk Nipah. What advice would you give Ir Mohd Akmal for his consideration? Justify your answers.

APPENDIX

DIALOG SESSION WITH THE LOCAL COMMUNITY IN TELUK NIPAH

Date: 18 October 2018
Time: 9:00 – 11:00 am
Ve nue: Dataran Teluk Nipah, Pangkor Island

Attendance:
1. Mr Jamaluddin Hashim, the Director of Manjung City Council (MCC)
2. Mr Luqman Hakim, Town Planner of MCC
3. Mrs Nurfarina Aini, Secretary of MCC
4. Mr Ahmad Khairi, Village head of Teluk Nipah
5. Mr Mohamad Razuar, President of Hotel & Lodging Association, Pangkor Island
6. Mrs Siti Khadijah, President of Hawkers & Small Trading Association, Pangkor Island
7. Mr Baharuddin Kamil, representative of the Teluk Nipah F&B operators

No	Item
1	Welcoming remarks by Mr Jamaluddin Hashim, the Director of MCC.
2	Mr Chan Yoon Fatt (representative of the Teluk Nipah homestays) noted the following: 2.1 The local and international tourists showed concerns on the cleanliness of the Teluk Nipah beach. The beach was filled with floating rubbish during high tides (flooding). 2.2 Both sides of the coastal road – Pangkor Lnn Drive are bordered by hawker stalls, temporary buildings, wooden shelter and tents, causing traffics and road hazards. 2.3 Relocation of the commercial activities along Pangkor Lnn Drive, particularly at the seaward side, is highly recommended. The sea frontage of Pantai Teluk Nipah should not be obscured by any buildings, structures and objects from the coastal road. The standpoints of Mr Chan was agreed by Mohamad Razuar, President of Hotel & Lodging Association.

3	Mr Baharuddin Kamil (representative of the Teluk Nipah F&B operators) expressed the following concerns on behalf of the hawkers in Teluk Nipah: 3.1 The Coral Beach hawkers who came back to the original premises in Teluk Nipah justified the reasons of the return. 3.2 Reason 1: Drastic drop of sale volume due to reduction of tourists - Tourists who resided in Pantai Teluk Nipah preferred to spend and dine in within Teluk Nipah area. 3.3 Reason 2: Poor access road between Pantai Teluk Nipah and Coral Beach – The narrow hilly road does not equipped with a proper pedestrian lane and lamp poles. The tourists felt insecure to visit Coral Beach. 3.4 Reason 3: Limited outlet space for business – The outlet space provided is two time smaller than that of Pantai Teluk Nipah's (original premises). 3.5 Reason 4: Unhealthy competition among the F&B operators – All the F&B cafes were grouped together and share the same space for business. 3.6 Reason 5: Regular and close monitoring of the MCC officers – The F&B operators were uncomfortable with the frequency (twice a week) of the MCC monitoring programs. 3.7 Reason 6: Waste management fee – Each F&B vendor was imposed with an additional waste management fee of RM100 per month on top of the rent. 3.8 The F&B vendor' concerns have been escalated to Hawkers & Small Trading Association(Pangkor Island); however, no action has been taken so far.
4.	Mr Vengatesan (representative of the Teluk Nipah souvenir merchants) shared the same opinions with Mr Baharuddin Kamil. Tourists will not walk for 15 minutes to the Coral Beach souvenir outlets for the items that they can easily get from Pantai Teluk Nipah. The souvenir business could not sustain in Coral Beach.
5.	Mr Md Kamaruddin (representative of the Teluk Nipah recreation dealers) highlighted that the beach recreational activities (i.e. boat renting, island hopping, snorkelling and other water sports) must be conducted at the shore and surf zone. He proposed the vendors with such business nature not to be subjected to the beach management policies established by the authorities.

6.	Mr Ahmad Khairi (Village head of Teluk Nipah) highlighted that there are mixed feelings and responses among the local community of Teluk Nipah. Some are happy with the MCC initiatives but the others are not and they get offended. They are ready to join the business operators for a protest through a street demonstration. Unfortunately, this has led to a dispute and a division due to misunderstanding among the local community. People have been fighting with others who do not share the same view. This has created a social distancing and clustering problems among the residents of Teluk Nipah.
7.	Mr Jamaluddin Hashim from MCC noted all the concerns and thanked all participants for providing the relevant inputs for their further actions.
8.	The meeting adjourned at 11 am.
Prepared by, Nurfarina Aini Secretary Manjung City Council	

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