



Figure 6.44 Land use features within 1 km of the Project.

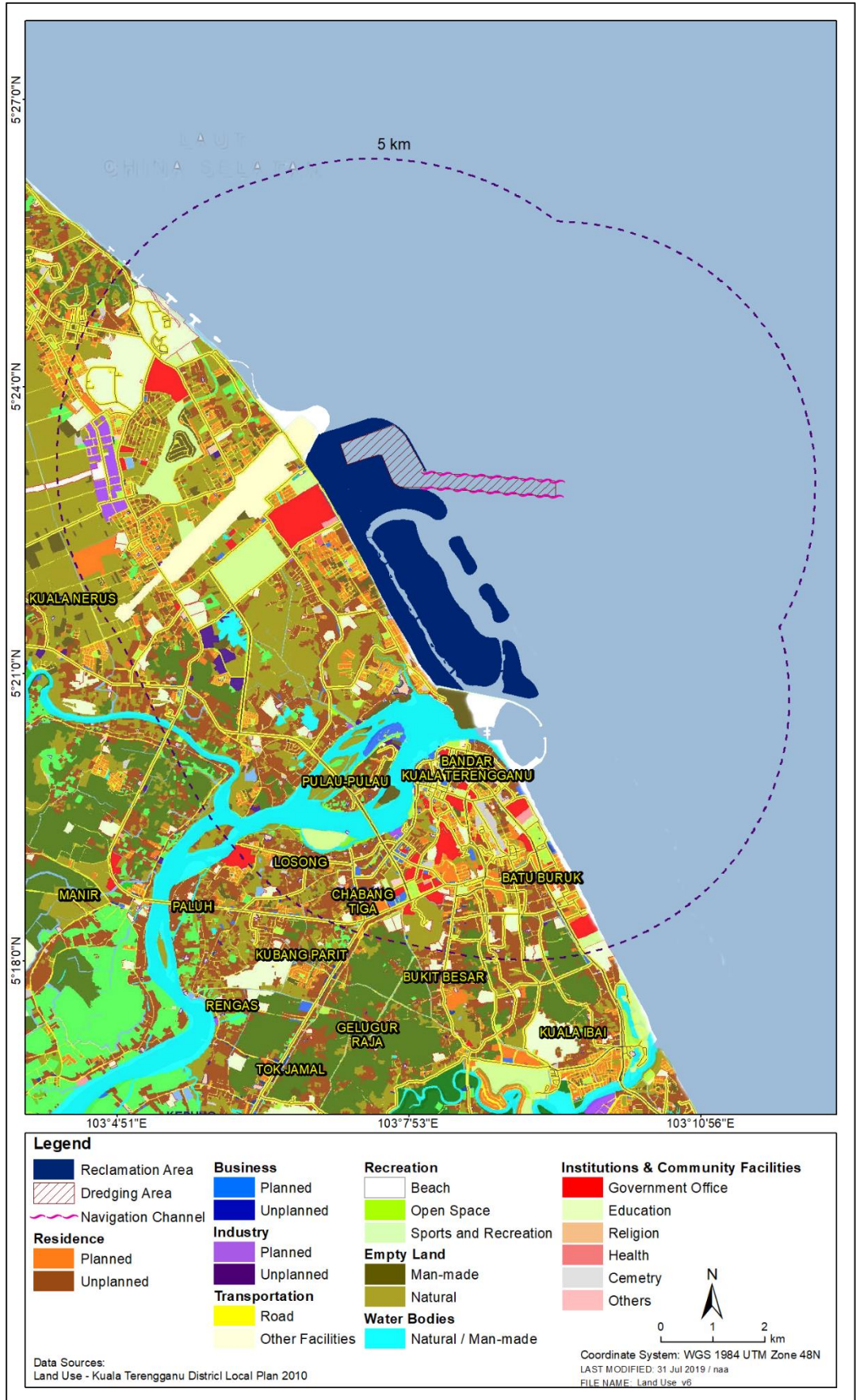


Figure 6.45 Existing land use around the Project as per Kuala Terengganu District Local Plan 2010.

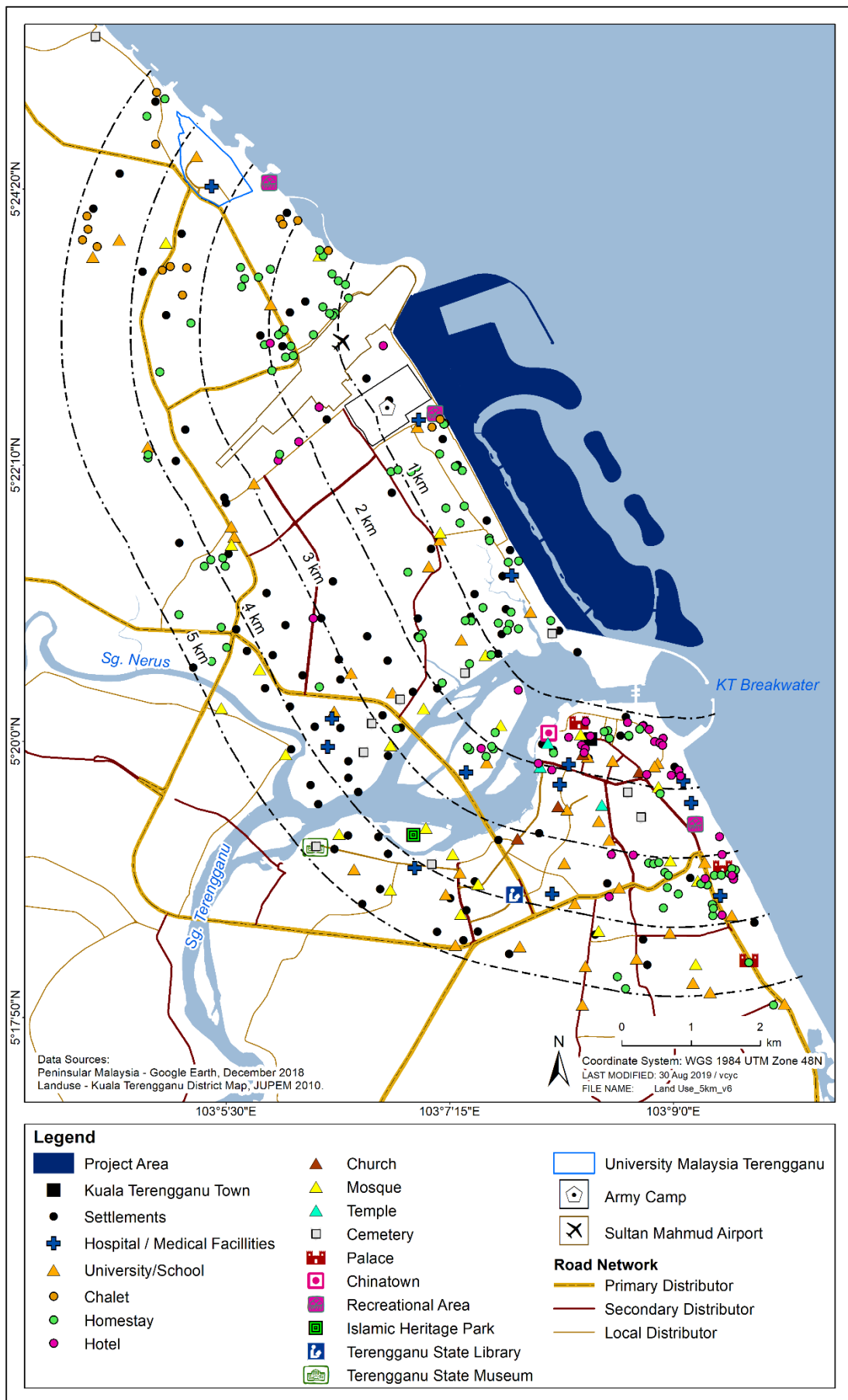


Figure 6.46 Land use features within 5 km of the Project.

## 6.4.2 Socioeconomics

### 6.4.2.1 General Population and Profile

Data from the Department of Statistics Malaysia indicates that in 2010, Malaysia has a total population of 28.33 million, with an average growth rate of 2% per annum, while Terengganu had a total of 1.035 million people. The ethnic composition of Terengganu is predominantly Malay (94.7%), followed by Chinese (3.5%), Indian and others.

The Kuala Nerus District, in which the Project is located, has an estimated total population of 200,000 in 2016 /72/. On the other hand, the total population of the mukims that fall within the study area (5 km radius from Project) in 2010, which includes several mukims from the Kuala Terengganu and Kuala Nerus Districts is 222,293 /73/. The population of the study area has a well-balanced gender ratio, with 50.5% females compared to 49.5% males across the eight mukims.

The respondents in the social survey come from 45 villages out of the 93 villages found within the study area of 5 km from the Project site. These 45 villages have an estimated population of 36,429. Six of these surveyed villages lie within 1 km of the Project (Figure 6.47). The largest village (in terms of population) is Kampung Baharu Seberang Takir with 3,220 followed by Taman Permint Perdana (comprising Fasa 1, Fasa 2 and Fasa 3) with 2,322.



Figure 6.47 Villages within 1 km of Project.

### 6.4.2.2 Respondents' Profile

A social survey was carried out on two occasions involving a total of 343 respondents from within the EIA study area (Figure 6.48). The number of respondents by distance from the Project area are as follows:

Table 6.12 Questionnaire survey sampling effort by zone and villages involved.

Zone / Distance from Project (km)	No. Respondents	Villages sampled
0-1	109	5
1-2	98	12
2-3	17	3
3-4	83	11
4-5	36	14
Total	343	45 villages

The survey used a specially designed questionnaire to collect social profile data and the perception of the affected community towards the Project (Appendix I).



Figure 6.48 Social survey carried out with residents within the 5 km radius from Project.

The socioeconomic profile of the respondents is tabulated in Table 6.13 and Table 6.14.

Table 6.13 Socio-cultural profile of the survey respondents in the study area (343 respondents).

Profile	Description
Ethnicity	83.4% of respondents (286) are of Malay ethnicity, followed by Chinese (9.9%) and Indian (6.7%).
Gender	<ul style="list-style-type: none"> <li>• 241 are male and the rest (102) are females.</li> <li>• This significant gap is due to the focus of the questionnaire on the fishermen community which is dominantly occupied by male gender.</li> </ul>
Age	<ul style="list-style-type: none"> <li>• The age distribution of all respondents was capped starting from 18 to below 60 years.</li> <li>• The dominant age group is between 41-50 years.</li> </ul>
Tertiary education	<ul style="list-style-type: none"> <li>• Highest educational attainment for respondents was SPM Level (39.8%), followed by Primary level (26%).</li> <li>• Five respondents (0.6%) had no formal education.</li> </ul>
Marital status	<ul style="list-style-type: none"> <li>• The respondents are predominantly married (257 people or 75%).</li> <li>• Up to 21.9% (75 respondents) are single.</li> <li>• Only 3.2% of total respondents are divorced.</li> </ul>

Table 6.14 Socioeconomic profile of the respondents.

Profile	Description
Occupation	<ul style="list-style-type: none"> <li>• A total of 73 respondents (21.3%) are employed under private sector.</li> <li>• 75 respondents are business owners such as food stall and selling tourism product such as keropok lekor Losong.</li> <li>• Fishing is the third highest type of occupation of the respondents, with a total of 64 respondents (18.7%).</li> <li>• Thirty-nine (11.4%) respondents are unemployed.</li> </ul>
Household income	<ul style="list-style-type: none"> <li>• The average monthly household income was recorded at RM1,501-RM2,000, lower than the national average (2012) of RM2,883.</li> <li>• The number of respondents earning around RM1,500-RM2,000 was the highest, at 107 respondents (31.5%), followed by category RM2,001-RM3,000, which was 80 respondents (23.5%).</li> <li>• The dominant occupation of the respondents in the area is in public and private sector.</li> </ul>
Residency period	<ul style="list-style-type: none"> <li>• Up to 269 (78.43%) respondents have stayed in the area for more than 20 years.</li> <li>• 88 of the 109 respondents (81%) living closest to the Project area (0-1 km from Project boundary), have stayed in the area for more than 20 years.</li> </ul>

Profile	Description
Property ownership	<ul style="list-style-type: none"> <li>Majority of respondents, that is 306 people (89.2%), own their house and land.</li> <li>37 respondents (10.8%) rent their home.</li> <li>92 (84%) of the respondents living within the 1 km radius of Project area own their house and land, while 17 respondents (16%) rent their home.</li> </ul>
Basic infrastructure	The residents in the study area have access to basic amenities such as electricity, piped water, waste collection, school, clinics, and places of worship.
Education facilities	98% of total respondents received their education qualification from the educational facilities in the surrounding area.
Religious facilities	89% of total respondents use the religious facilities in the surrounding area.
Other public facilities	Community hall, clinic and public library are available within the study area.

### 6.4.3 Community Perception

#### 6.4.3.1 Socioeconomic Survey

Based on the socioeconomic survey, only 47% of the respondents were aware of the Project. Within the immediate zone of potential impact (1 km from the Project), only 43% (47 respondents out of 109) were aware of the Project proposal (Table 6.15).

Around 82% of the total respondents have no objection to the Project, and this was similar for the immediately affected areas along the Project area (0-1 km from the Project) (Table 6.16).

Overall, the respondents are receptive to the Project as they believe the Project would add more land area and reduce the chance of flooding at the residential areas near the sea. Meanwhile, the respondents that disagreed with the Project mainly cited possible negative environmental impacts, loss of recreational area and decreasing income as fishermen.

Table 6.15 Awareness of respondents by distance from Project.

Awareness	0 – 1 km		1 – 2 km		2 – 3 km		3 – 4 km		4 – 5 km	
	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	47	43.1	47	48.0	9	52.9	43	51.8	15	41.7
No	56	51.4	46	46.9	8	47.1	32	38.6	21	58.3
Not Sure	6	5.5	5	5.1	0	0.0	8	9.6	0	0.0
Total	109	100	98	100	17	100	83	100	36	100



Table 6.16 Agreement to Project development by distance from Project.

Agreement	0 – 1 km		1 – 2 km		2 – 3 km		3 – 4 km		4 – 5 km	
	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	90	82.6	90	91.8	15	88.2	57	68.7	30	83.3
No	16	14.7	7	7.1	2	11.8	16	19.3	5	13.9
Not Sure	3	2.8	1	1.0	0	0.0	10	12.0	1	2.8
Total	109	100	98	100	17	100	83	100	36	100

### 6.4.3.2 Public Engagement

One townhall session and two focus group discussion (FGD) sessions were carried out in June and July 2019 (Table 6.17). The key aim of these sessions was to better understand the issues from the audience's perception – their needs, problems, beliefs, reasons and opinions. This section summarizes the main issues, concerns and needs highlighted during all sessions. Full documentation is given in Appendix J.

Table 6.17 Details of Townhall and FGD.

Session	Details
Focus group discussion (FGD)	Two FGD sessions were carried out on 12 June 2019 for: <ul style="list-style-type: none"> <li>• Majlis Pengurusan Komuniti Kampung (MPKK) attended by 38 representatives</li> <li>• Fishermen community attended by seven fishermen and the Deputy Director of LKIM</li> </ul>
Townhall	Townhall session was carried out on 28 June 2019 at TH Hotel & Convention Kuala Terengganu which was attended by 45 participants

### Focus Group Discussion (FGD)

Two FGD sessions were carried out covering two major stakeholder groups, namely affected population, represented by the MPKK, and fishermen. These sessions aimed to (a) introduce the Project to stakeholders, and (b) collect stakeholders' feedback, perceptions, concerns, problems and opinions in regard to the Project. Both sessions were carried out on 12 June 2019 at Dewan Sivik Seberang Takir, Kuala Nerus, whereby the session with MPKK was carried out in the morning (8.30 am to 11.00 am) and with fishermen carried out in the afternoon (2.30 pm to 5.00 pm) (Photo 6.21). Table 6.18 summarizes the lists of concerns and needs expressed during the community leader FGD session, while the fishermen's FGD is discussed in Section 6.4.4 on Fisheries.



Photo 6.21 FGD sessions with MPKK and fishermen.

Table 6.18 Concerns expressed by MPKK.

Concerns
Source of funding for the Project whether government or public funding
Status of reclaimed land whether opened for Bumiputera or non-Bumiputera
Impacts of Project to upstream and downstream ecosystems
Beach erosion
Needs
Detailed study of erosion

### Townhall

The townhall session was carried out on 28 June 2019 at TH Hotel & Convention Kuala Terengganu with the main objectives to (a) introduce the Project in detail to stakeholders and the public; (b) present the main findings of this EIA especially the impact assessment; and (c) to collect responses from stakeholders and the public on the findings. A total of 45 participants attended the townhall session comprising of a Member of Parliament (MP), State Exco (ADUN), representatives of the MPKK, academia (from Universiti Malaysia Terengganu) private sector, government servants, government agencies like LKIM and DOE Terengganu, and the public.



Photo 6.22 Townhall session on 28 June 2019.

Most of the issues were raised by representatives from the academia, with emphasis on the following major issues:

- The Project area as an important nursery ground for commercially important juvenile fish
- The Project compatibility with existing developmental policies and sustainability issues
- The need for a comprehensive monitoring programme during implementation due to the Project size
- Ecological impacts
- Flooding impacts
- Erosion issues
- Heritage and tourism values of Pantai Teluk Ketapang
- Aesthetic impacts

#### 6.4.4 Fisheries

##### 6.4.4.1 Background

The fisheries zone within Malaysian waters is divided into zones defined according to distance from the shoreline. Vessel size (GRT) and fishing equipment are restricted according to these zones as shown in Table 6.19. Based on this categorization, the study area is located within Zone A where only traditional fishing activities are permitted (Figure 6.54).

Table 6.19 Fishing zones in Malaysia showing the distance of each zone from the shoreline, vessel size and fishing activity allowed to operate in each zone /74/.

Zone	A	B	C	C2	C3
Distance from shoreline (nm)	0 – 5	5 – 12	12 – 30	30 until EEZ Boundary	High Seas
Vessel Gross Register Tonnage (GRT)	<40	<40	40 – 69.9	70 and greater	70 and greater
Fishing Activity	Traditional fishermen (owner operated) and traditional anchovy purse seiner	Trawlers and purse seiner (owner operated)	Trawler and purse seiner (owner operated, and non-owner operated)	Trawler and purse seiner	Tuna longliners and tuna purse seiner

According to data provided by the Department of Fisheries Terengganu, the most common fishing vessels in Kuala Nerus are outboard-powered vessels followed by Zone A vessels, and Zone B vessels (Table 6.20). Only up to four Zone C and Zone C2 vessels were registered per year over the five years. According to DOF Terengganu, nearshore vessels are free to fish further out which means that the fishermen using small outboard-powered boats can fish in Zone B and above at their own risk.

It is noted that these numbers represent registered fishing vessels only, whereas there are also unregistered fishing vessels in the area, in particular in the outboard-powered category. LKIM Terengganu estimated the number of unregistered fishing vessels in the district to be approximately 100 vessels (pers. Comm. August 2019).

Kuala Nerus was declared as its own district in 2014 /75/ where previously Kuala Nerus was a part of the Kuala Terengganu District. The numbers and types of registered fishing vessels within the Kuala Terengganu fishing district are listed in Table 6.21. A portion of these vessels utilise the various landing sites in Sg. Terengganu (approximately 16).

Table 6.20 Number of registered fishing vessels according to zones for the Kuala Nerus district.

Year	Outboard-Powered	Inboard-Powered				Total
		Zone A	Zone B	Zone C	Zone C2	
2014	320	113	22	1	2	458
2015	286	96	25	3	1	411
2016	205	65	14	3	1	288
2017	224	71	17	4	0	316

Year	Outboard-Powered	Inboard-Powered				Total
		Zone A	Zone B	Zone C	Zone C2	
2018	85	52	16	4	0	157

Table 6.21 Number of registered fishing vessels according to zones for the Kuala Terengganu district.

Year	Outboard-Powered	Inboard-Powered				Total
		Zone A	Zone B	Zone C	Zone C2	
2014	194	163	61	33	30	481
2015	172	143	80	25	21	441
2016	161	150	69	25	16	421
2017	163	142	79	28	19	431
2018	109	110	69	30	13	331

In terms of fishing zones, fish captured from Zone A contributed the highest retail value in the Kuala Nerus district, followed by Zone B throughout 2013 to 2017 with Zone A contributing between 52.8% and 100% of the total catch and Zone B contributing between 9.3% and 27.9% (Table 6.22 and Figure 6.49). This corresponds to the high number of vessels which can operate in Zone A and Zone B (<40 GRT) with lower numbers for fishing vessels in Zone B and beyond.

Table 6.22 Fish landings in retail value (RM) for the Kuala Nerus district according to zone.

Year	Fishing Zones				
	Zone A	Zone B	Zone C	Zone C2	Total
2013	93,122,166.09	40,933,229.14	14,350,818.95	23,891,393.14	172,297,607.32
2014	91,265,911.27	48,191,881.76	18,041,398.22	15,493,722.23	172,992,913.48
2015	12,122,267.59	n/a	n/a	n/a	12,122,267.59
2016	22,537,348.89	2,322,598.80	n/a	n/a	24,859,947.69
2017	27,476,359.33	4,957,384.43	n/a	n/a	32,433,743.76
Total	246,524,053.17	96,405,094.13	32,392,217.17	39,385,115.37	

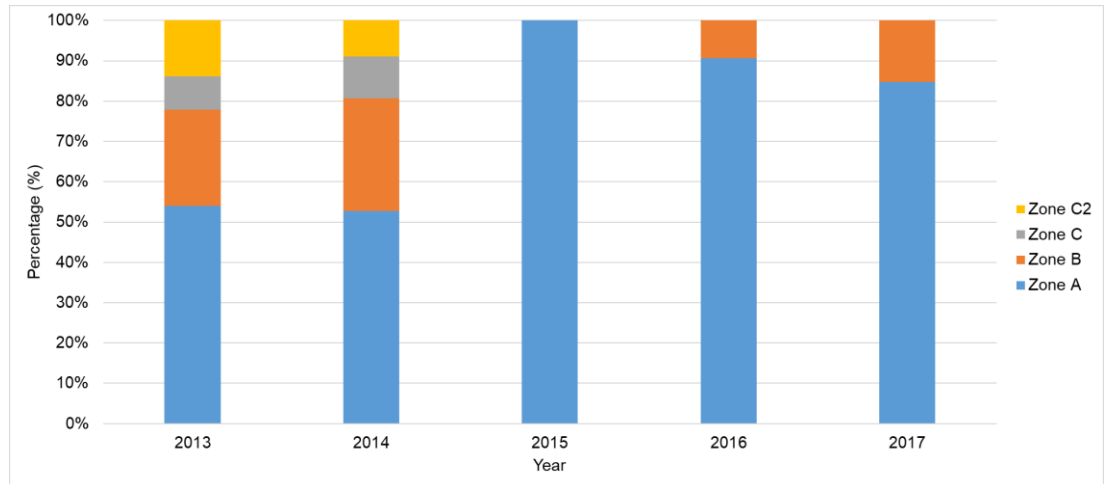


Figure 6.49 Fish landings retail value according to zones in percentage for the Kuala Nerus district.

#### 6.4.4.2 Fishermen Profile

The fishermen community in the study area fall under the Fishermen’s Association of Kuala Terengganu Selatan and Kuala Terengganu Utara. The total members of the two associations are 1,796 fishermen. LKIM Terengganu estimates the total number of fishermen in the area to be approximately 2,000 if including unregistered fishermen (pers. comm., August 2019). According to the Kuala Terengganu Fishermen’s Association, there are currently 12 fishing villages in the study area (Figure 6.50).

The findings from the socioeconomic survey indicated that 64 out of 343 respondents (~19%) questioned within the study area were fishermen. Of these 64 fishermen interviewed, 14 resided within 1 km of the Project, while the remaining resided between 1 – 5 km of the study area (Table 6.23). There are six fishing villages located within 1 km of the Project which are:

- (i) Kg. Ketapang,
- (ii) Kg. Telaga Daing,
- (iii) Kg. Baharu Seberang Takir,
- (iv) Kg. Hulu Takir,
- (v) Kg. Seberang Takir; and
- (vi) Kg. Tanjung Seberang Takir.

Table 6.23 Fishermen interviewed by distance from Project.

Distance from Project	0-1 km	%	1-5 km	%	Total
No. of fishermen respondents	14	21.9	50	78.1	64

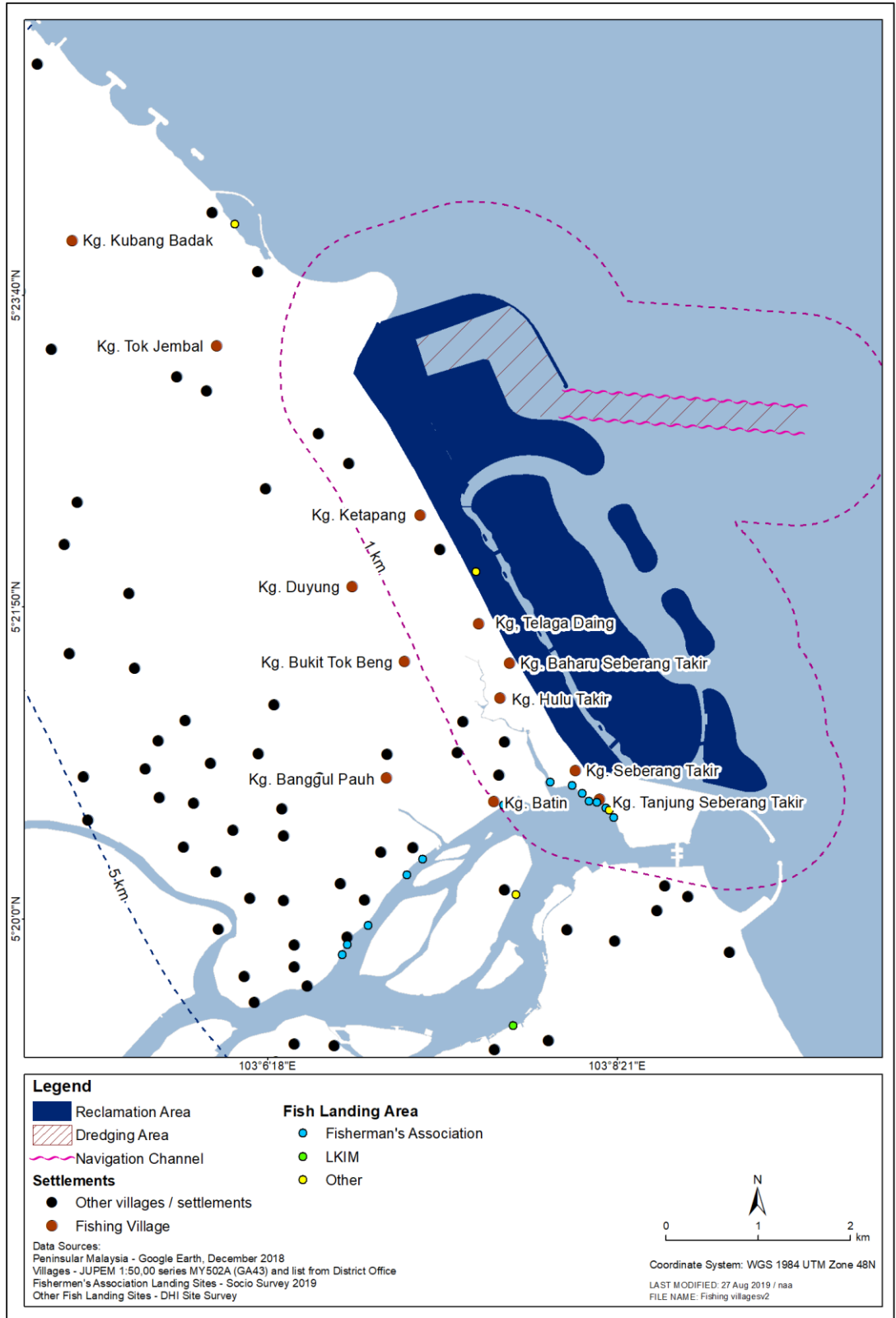


Figure 6.50 Locations of the fishing villages within 5 km of the Project area.

Most of the fishermen interviewed are relatively senior, with almost half being above the age of 50, and those more than 60 years old were the largest group representing 27% of the fishermen (Figure 6.51). Only 8% of respondents fell within the 21 – 30 year age group, while none were below 20 years old. The low percentage of younger

fishermen (< 30 years old) has previously been attributed to the migration of rural youths to urban areas in search of employment and the lack of interest for working as fishermen /76/.

Most of them (57%), have been working as fishermen for longer than 20 years, followed by 6 – 10 years (23%), 1 – 5 years (18%), 11 – 15 years (2%), and none with 16 – 20 years of experience (Figure 6.52).

Comparing age groups and working experience, 92.3% of the fishermen above the age of 60 have been working as fishermen for more than 20 years (Figure 6.53). Interestingly, all of the fishermen aged between 21 – 30 years of age have also been working as fishermen for more than 20 years which means that they started at a young age. Fishermen aged 51 – 60 years were mostly long time fishermen (>20 years), however a large number were also relatively new (1 – 5 years). This may be due to some of them becoming fishermen after retirement.

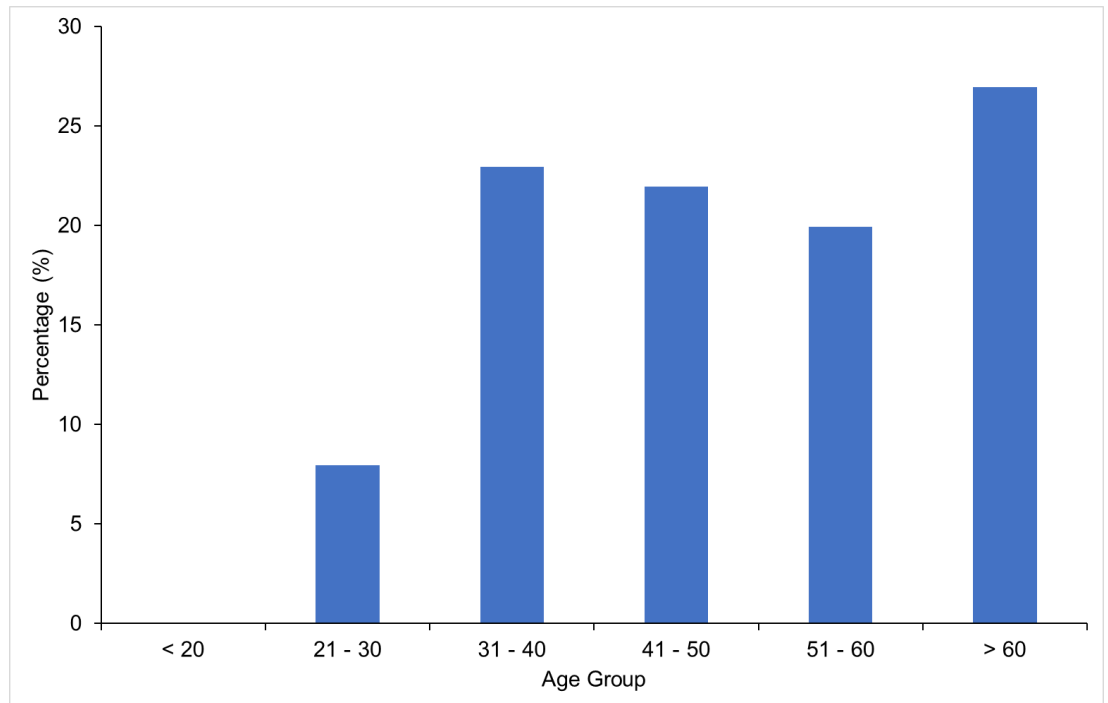


Figure 6.51 Age distribution of the fishermen.



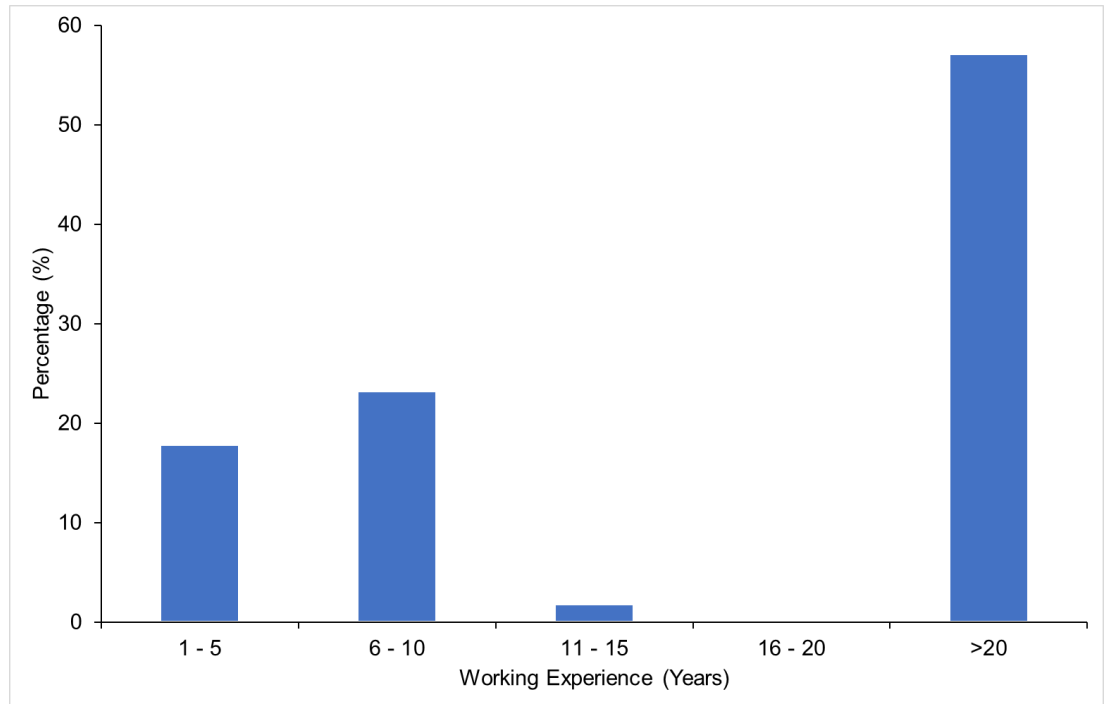


Figure 6.52 Distribution of the fishermen’s working experience.

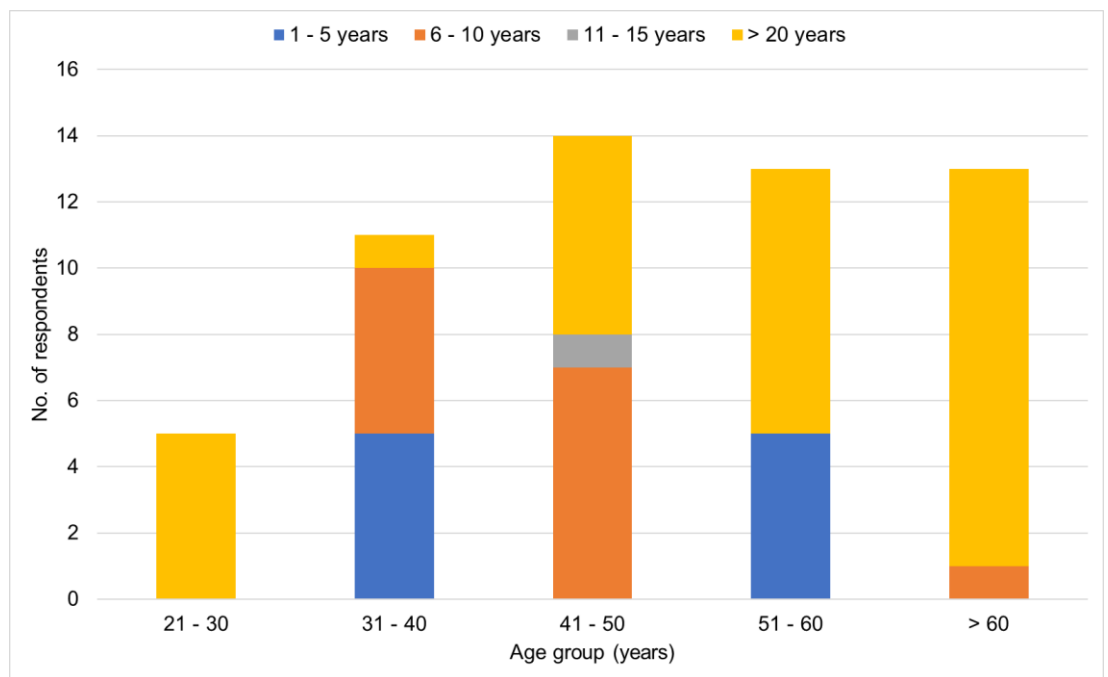


Figure 6.53 Distribution of working experience according to age groups of the fishermen (n=56). Note that the total is not 64 as some of the respondents did not specify their work experience.

### 6.4.4.3 Fishing Activity

In terms of fishing equipment, the majority of the respondents used fishing rods (45%), followed by trawlers (23%), fishing net (10%), *tukun* (9%), *bubu* (8%), and the least-used equipment was fishing cage at 4%.

Figure 6.54 is a heat map showing the fishing grounds indicated by fishermen during the socioeconomic survey. Note that the figure does not show the exact fishing grounds used by the fishermen as the locations are approximated by the fishermen in the questionnaire. Most of the fishing areas marked are located further than five kilometres from the Project area. The majority of the fishermen will travel more than 10 km from the shoreline to fish which is outside of the Zone A boundary (5 nautical miles, or 9.26 km) where trawling is allowed as the second most used fishing gear was trawlers.

While the fishermen go out to sea all year round, the high season is reported to be the months of March and April which is after the Northeast monsoon. During this high period, catch can range between 5 - 50 kg per trip. However, LKIM Terengganu indicated that September to October (before Northeast monsoon) is also a high season for fish. Shrimp season starts after the end of the Northeast monsoon whereby fishermen fish in the shallow waters right up to the shore of Pantai Teluk Ketapang using seine nets.

The majority of respondents (57%) reported an income of between RM600 - RM1,000 per month from fishing with some reporting incomes between RM1,600 – RM2,000 (21%). The given range is attributed to the availability of fish throughout the year as indicated by the preferred months for fishing.

For the Kuala Nerus district, five LKIM fish landing jetties are present which are Seberang Tuan Cik, Seberang Takir, Batu Rakit, Mengabang Telipot, and Seberang Bukit Tumbuh jetties. None of these however are located along the Project shoreline. In addition to these LKIM fish landing jetties, another main fish landing site is in the Tok Jembal breakwaters (Photo 6.23). Small boats also land at several locations along Pantai Teluk Ketapang in the Project area, adjacent to the villages (Photo 6.24). Photo 6.25 shows the fish landing area for Kg. Seberang Takir located in the Sg. Terengganu tributary.

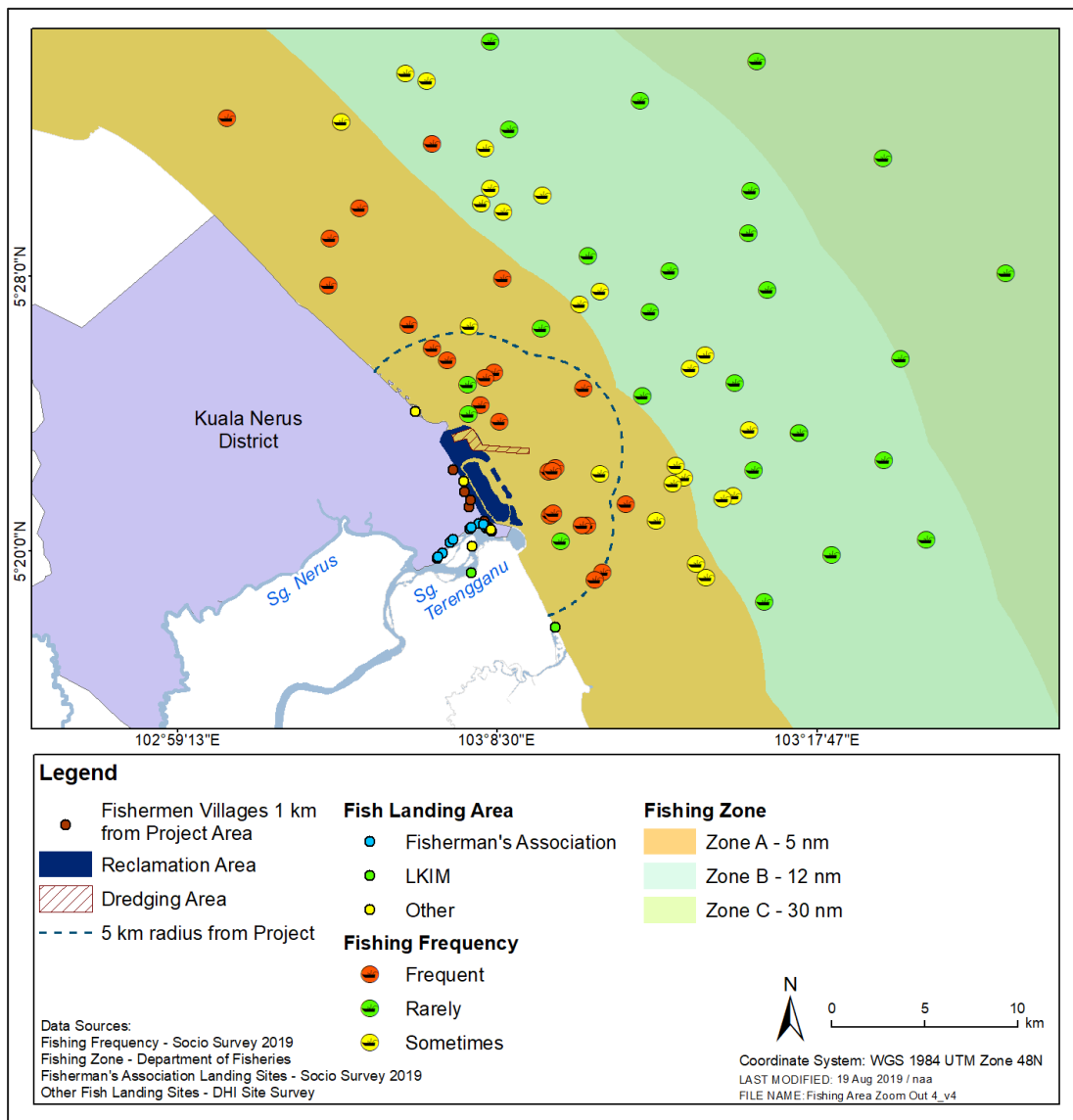


Figure 6.54 Fishing grounds indicated by fishermen in the socioeconomic survey.



Photo 6.23 Fish landing at Tok Jembal breakwater.



Photo 6.24 Fish landing at Pantai Teluk Ketapang stretch.



Photo 6.25 Fish landing for Kg. Seberang Takir inside Sg. Terengganu (tributary).

#### 6.4.4.4 Focus Group Discussion

A focus group discussion was carried out with fishermen, LKIM and Fishermen's Association representatives as mentioned in Section 6.4.3. The session was carried out on 12 June 2019 at Dewan Sivik Seberang Takir, Kuala Nerus.

Table 6.23 summarizes the lists of concerns and needs expressed during FGD session with the fishermen, while full details are provided in Appendix J.

Table 6.24 Concerns and needs expressed by fishermen.

Concerns
Impacts of Project to fishermen's income
Loss of Pantai Teluk Ketapang
Fishermen's movement (i.e. navigation) may be impacted
Interests of affected fishermen must be considered

Concerns
Needs
Project Proponent to build the breakwater first prior to reclamation
Consultation with fishermen directly impacted by the Project (i.e. those fishing along the Project area)
Compensation to fishermen due to loss of income
Compensation of affected FADs by replacement to other locations
Compensation of affected fishing ground

#### 6.4.5 Tourism and Recreational Activities

Based on data from Terengganu’s Economic Planning Unit, almost 4 million foreign tourists and almost 1 million domestic tourists visited Terengganu in 2017 (refer to Figure 3.10). The main attractions in Terengganu are the offshore islands. Terengganu has some of the most beautiful paradise islands including the ever popular Perhentian Islands, coral-fringed Redang Island and Kapas Island. However, almost all island resorts are closed during the Northeast monsoon period, and inland tours will be promoted, especially inland fishing and city tours /5/.

The main tourism attractions for Kuala Terengganu district have been classified in this document according to the following types:

- Beach Recreation
- Historical Heritage
- Cultural
- Food

Figure 6.55 shows the overall location of the tourism attractions in Kuala Terengganu within 5 km radius of the Project.



Figure 6.55 Overall attractions found around Kuala Terengganu.

### 6.4.5.1 Beach Recreation

Three beaches have been identified as tourism attraction in the study area, which are Pantai Teluk Ketapang, Pantai Tok Jembal and Pantai Batu Buruk. These beaches are visited by the locals, domestic and international tourists.

Located at Kampung Teluk Ketapang which is only 0.5 km from Sultan Mahmud International Airport, Pantai Teluk Ketapang stretches approximately 5 km from the north at Kampung Teluk Ketapang towards the south at Kampung Seberang Takir. Pantai Teluk Ketapang is known by locals as a recreational area and one of the coastal attractions in Kuala Terengganu. Visitors mostly visit the approximately 1 km northern stretch of the beach where stands of rhu trees line the road as indicated in Figure 6.56. The majority of the activities such as fishing, jogging and horse riding can be found there. It is also a popular place for picnics in the evening. The area in the northern section of the beach is equipped with public facilities such as public toilets, 'surau' playground and gazebo for visitor's convenience. In the evening, there are many hawkers selling variety of food and beverages at the northern section of Jalan Pantai Teluk Ketapang as shown in Figure 6.56. The hawkers start their business in the evening and close around 8.00 pm.

The usage of the area varies from morning to evening, where a lot of recreational activities can be seen during evening period. Even so visitors also come during morning to midday just to wind down and enjoy the scenery there.



Figure 6.56 Activities and facilities found within the northern section of Pantai Teluk Ketapang.

### Beach Users

A survey of beach users was carried out at Pantai Teluk Ketapang, Pantai Tok Jembal and Pantai Batu Burok. During the survey, 104 respondents identified themselves as



tourists while 47 respondents are local to the area. In general, the respondents visited these three beaches are due to the scenic view (42%), recreational activities available there (23%), affordable / low cost place for vacation (16%), cultural uniqueness (8%) as well as historical attraction (1%). Up to 68% of the respondents stated that visitors tend to come during school holidays, followed by 21% visiting all year round and 11% during weekends, believed to be mainly the local residents.

Meanwhile, when asked about their perception on the Project, majority of the beach users have no objection to the Project. The respondents believe the Project would bring benefit to the surrounding community in aspects of employment opportunities, development growth of local economy, increased facilities, planned development, as well as improved residents' socioeconomic status.

#### 6.4.5.2 Historical Tourism

Historical heritage is defined as pieces of political, military, cultural or social history that have been preserved due to their heritage value to the area. A historic site may be any building, landscape, site or structure that is of local, regional, or national significance. In tourism, these places have attraction value due to its representation of specific history of the past. As for the locals, the site possesses value that adds to their sense of belonging.

Kuala Terengganu has variety of products and attractions that offer the unique tradition of local heritage and its rich culture. Seven historical tourism attractions are found in the study area (see Figure 6.57 and examples in Photo 6.26 to Photo 6.27) but are all located south of Sg. Terengganu with the closest (Bukit Puteri) approximately 1.2 km from the Project area. Most of the historical sites are open for free to public visit. Other sites of more local interest also exist around Pantai Teluk Ketapang; these are described further in Section 6.4.6.

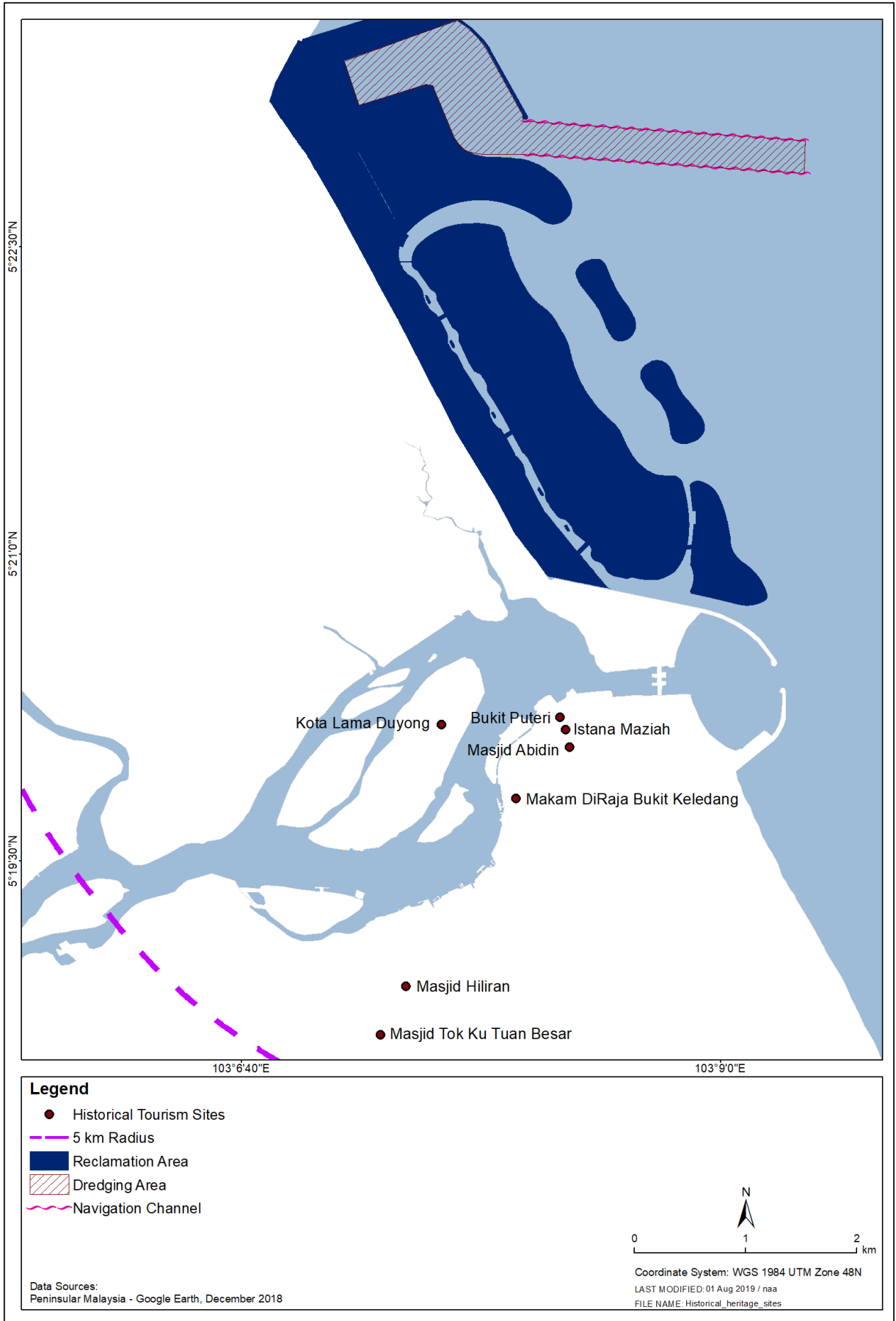


Figure 6.57 Locations of historical tourism sites within 5 km from the Project area.