



FLOOD MITIGATION PROJECT SUNGAI KEDAH / ANAK BUKIT (SKAB)

Project Briefing
To
Institute For Global Environmental
Strategies, IGES
10 Julai 2019



Jabatan Pengairan Dan Saliran
Malaysia

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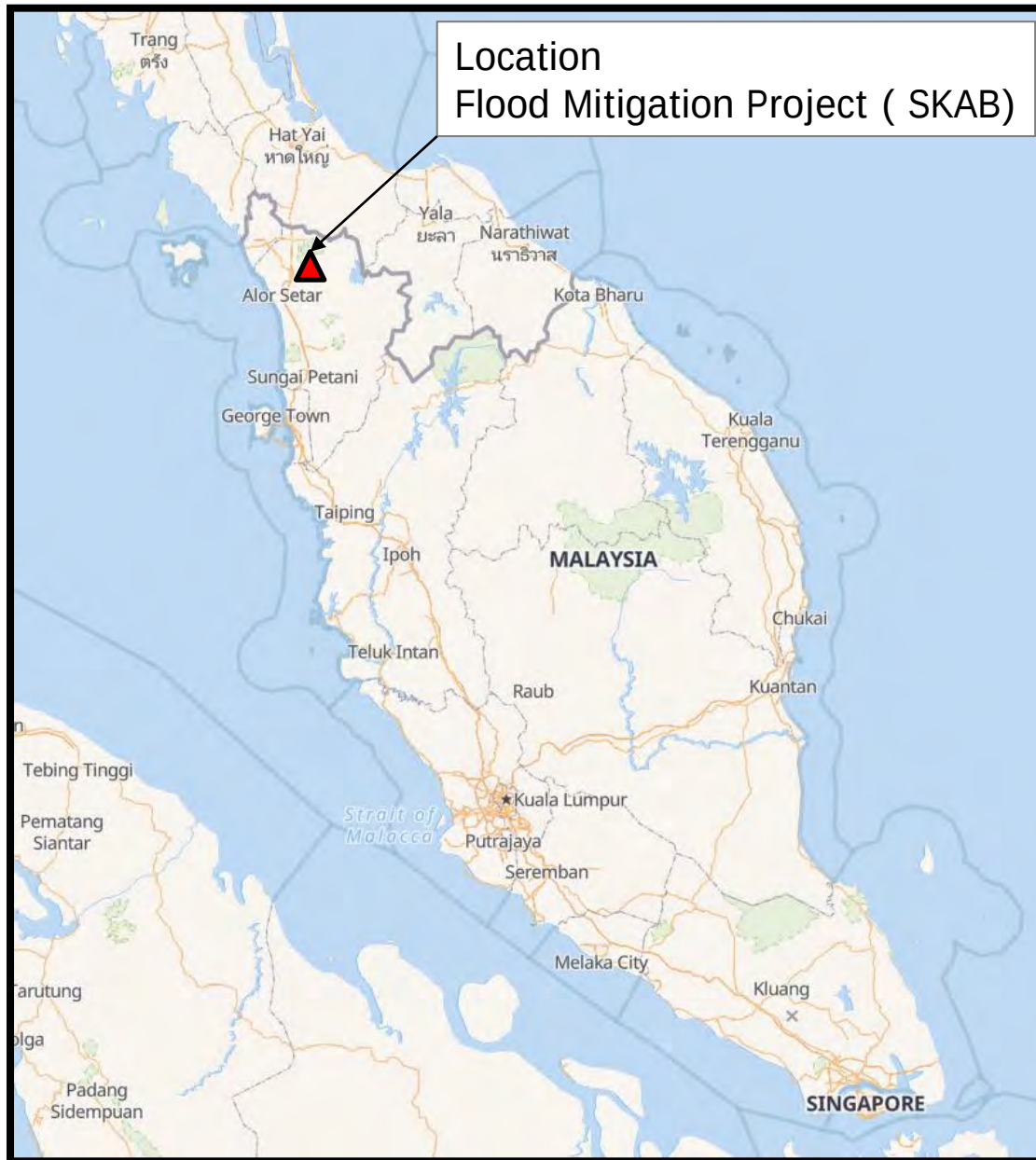
- BACKGROUND OF PROJECT

The Kedah River Basin is the main river basin in the northern part of the State of Kedah. With a total area of 3,605 km², the Kedah River becomes the main source of water supply for irrigation as well as domestic needs with the construction of two (2) dams, namely Pedu and Ahning in the upstream.

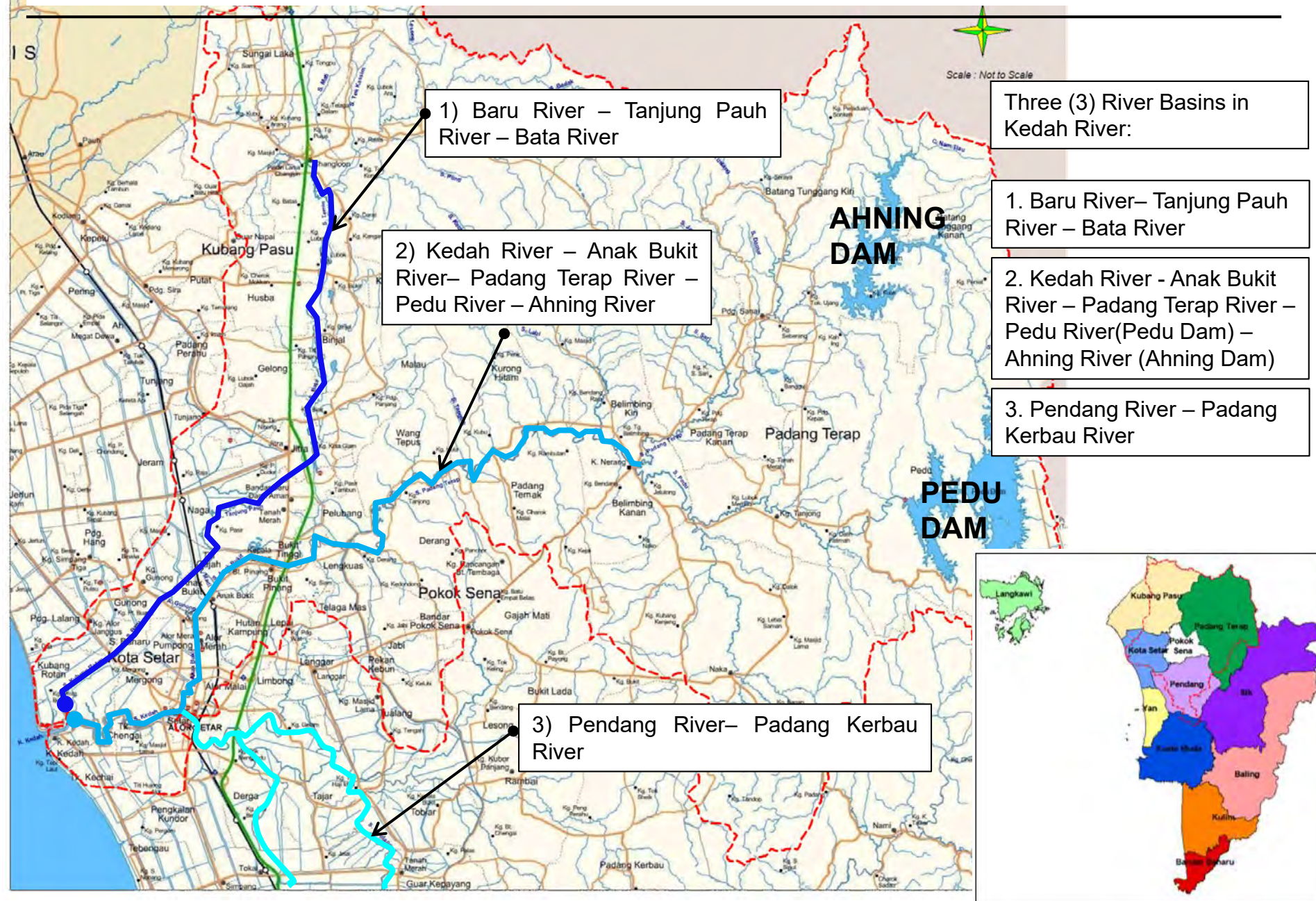
Kedah Rver is the main outlet of Anak Bukit River which flows through the town of Alor Setar. Upstream of it is Padang Terap River (to the East) and Tg. Pauh River / Bata River (to the North) which find their origins in mountainous area of Banjaran Kedah – Singgora. The openings up of the river plains and the rapid development activities have caused hardships and losses to the people and property when severe flooding occurs almost every year. Many villages and sections of urban areas are submerged and hundreds of hectares of agricultural/paddy lands are destroyed by flood waters.

Therefore, the Federal Government has agreed to implement the Flood Mitigation Plan (RTB) Sg. Kedah / Anak Bukit to reduce flood events and problems associated with them.

- BACKGROUND OF PROJECT

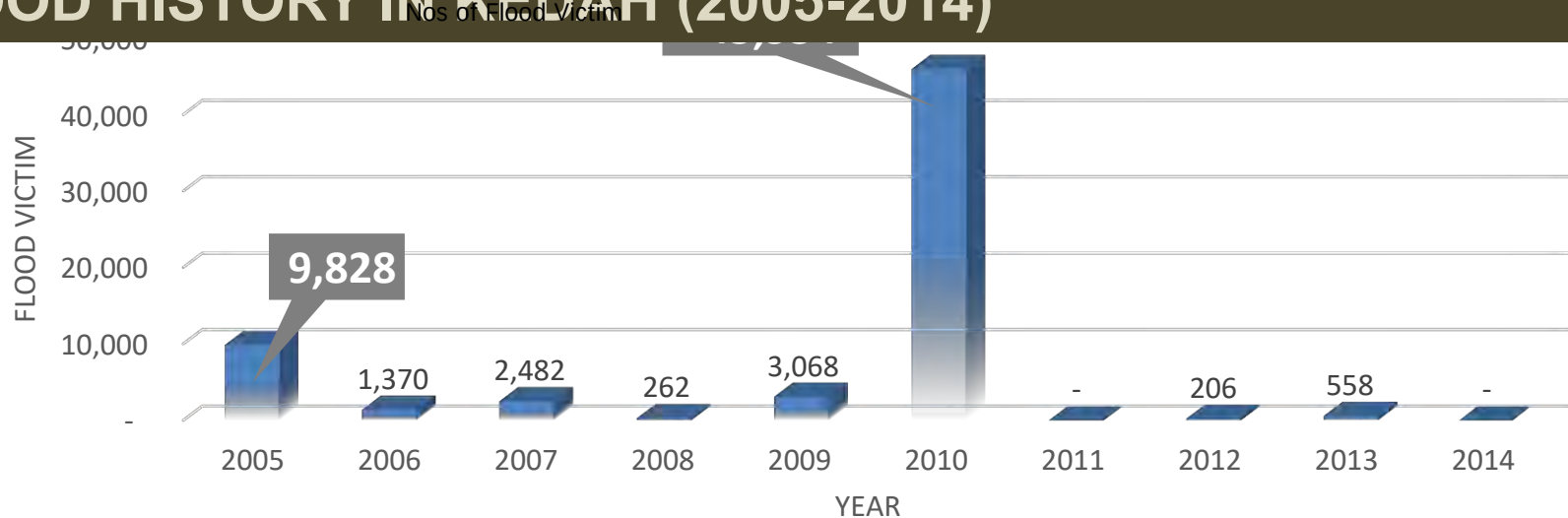


- PROJECT BACKGROUND- cont'

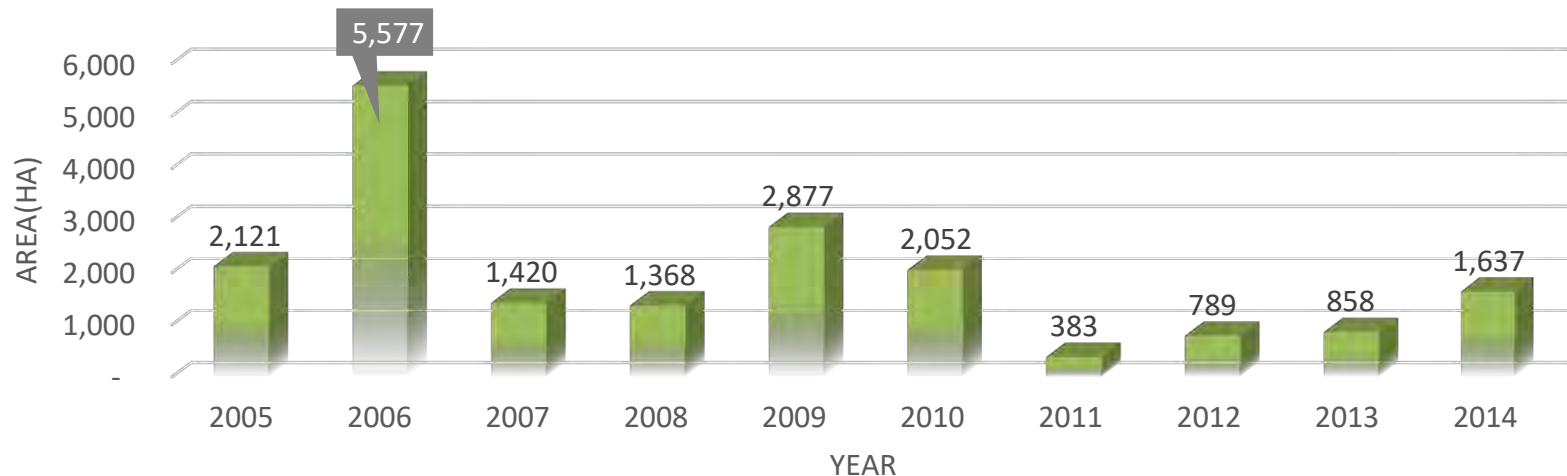


FLOOD HISTORY IN KEDAH (2005-2014)

FLOOD HISTORY IN KEDAH (2005-2014)



AREA OF PADDY DAMAGE (HA)

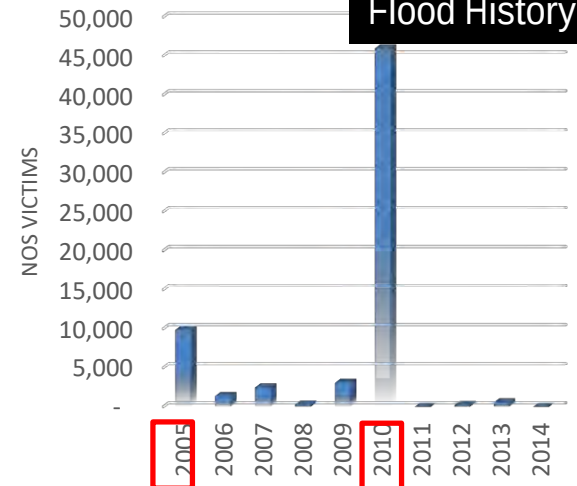


FLOOD MAP OF KEDAH RIVER BASIN (2010)

Number of Flood Victims

45,954

Flood History



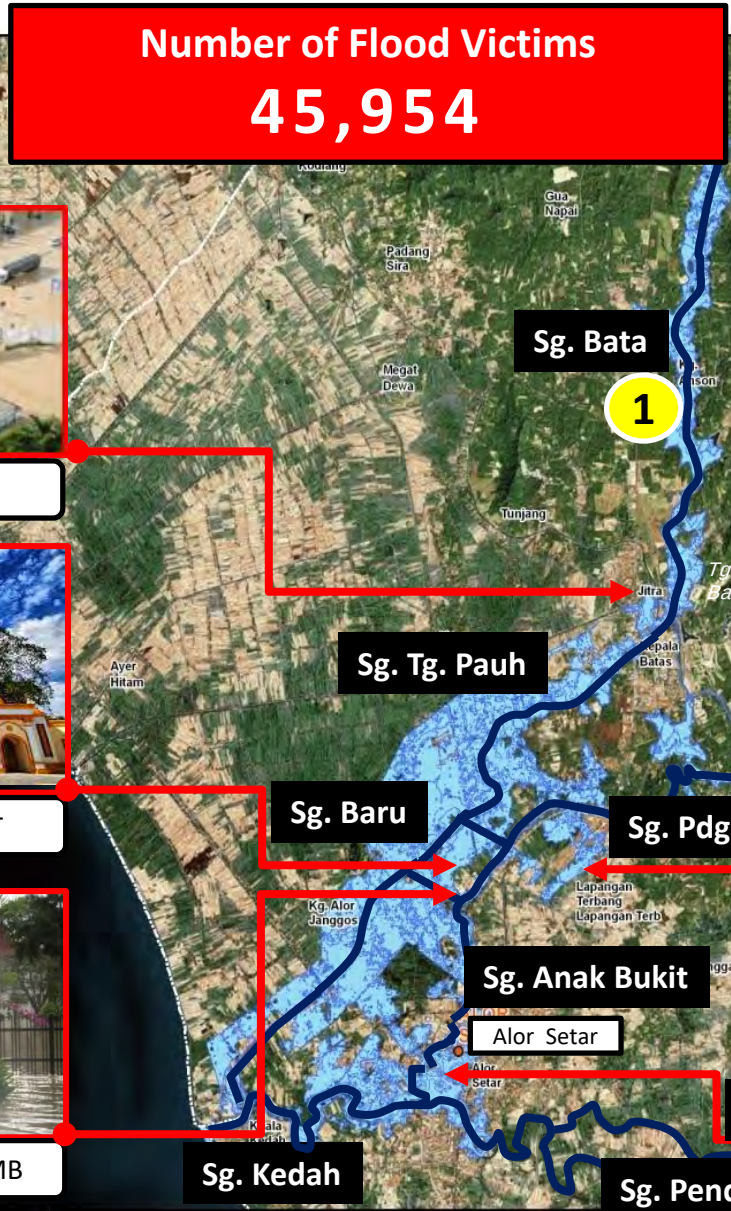
PEKAN JITRA



ISTANA ANAK BUKIT



RUMAH KEDIAMAN MB



Sg. Bata

1

Sg. Tg. Pauh

Sg. Pedu

2

Sg. Baru

Sg. Pdg Terap

Sg. Anak Bukit

Alor Setar

Sg. Pdg Kerbau

Sg. Kedah

Sg. Pendang

3



KOLEJ TENTERA UDARA



BANDAR ALOR SETAR

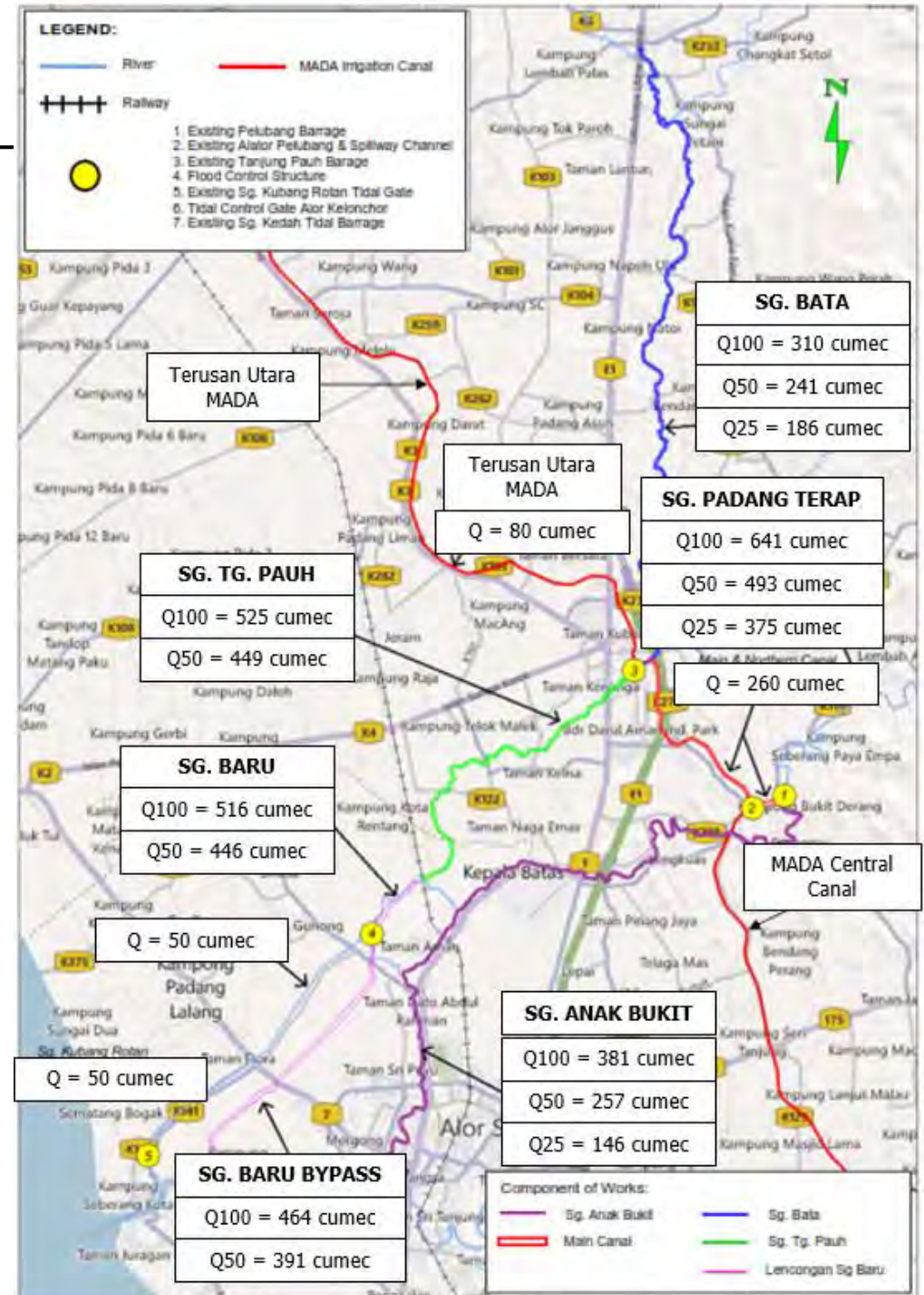
- FLOOD MITIGATION CONCEPT

1. The design for flood mitigation of Average Recurrence Interval (ARI) 50-years (Diversion Baru River and Tg. Pauh River), 25-years ARI (Bata River and Anak Bukit River)
2. Construction a new diversion (Baru River) to cater for the upper of Sg. Bata catchment, overspill and bypass from Padang Terap River/ Anak Bukit River
3. Widening of MADA Main Canal and Northern Canal from Pelubang Barrage to Tanjung Pauh Barrage
4. River improvement and Flood Protection works along from existing Tanjung Pauh Barrage until KTMB Railway Track
5. Widening of existing MADA Secondary Canal (ACLBD 4 Lower) as flood diversion and replace it with precast concrete U-canal both side of flood diversion
6. River improvement and Flood Wall Protection at Sg. Anak Bukit

- OBJECTIVES OF PROJECT

1. Reducing the frequency, area and depth of floods in Alor Setar City and Jitra City including villages, residential parks and industrial areas around Baru River, Tanjung Pauh River and Anak Bukit River
2. Reducing the loss of life, property damage due to floods and to protect against paddy losses.
3. Reducing disruption to the socio-economic activities of Kedah residents especially those living in flood-prone areas.

Schematic Diagram of Design Peak Discharge



IMPLEMENTATION OF PROJECT

PACKAGE 1

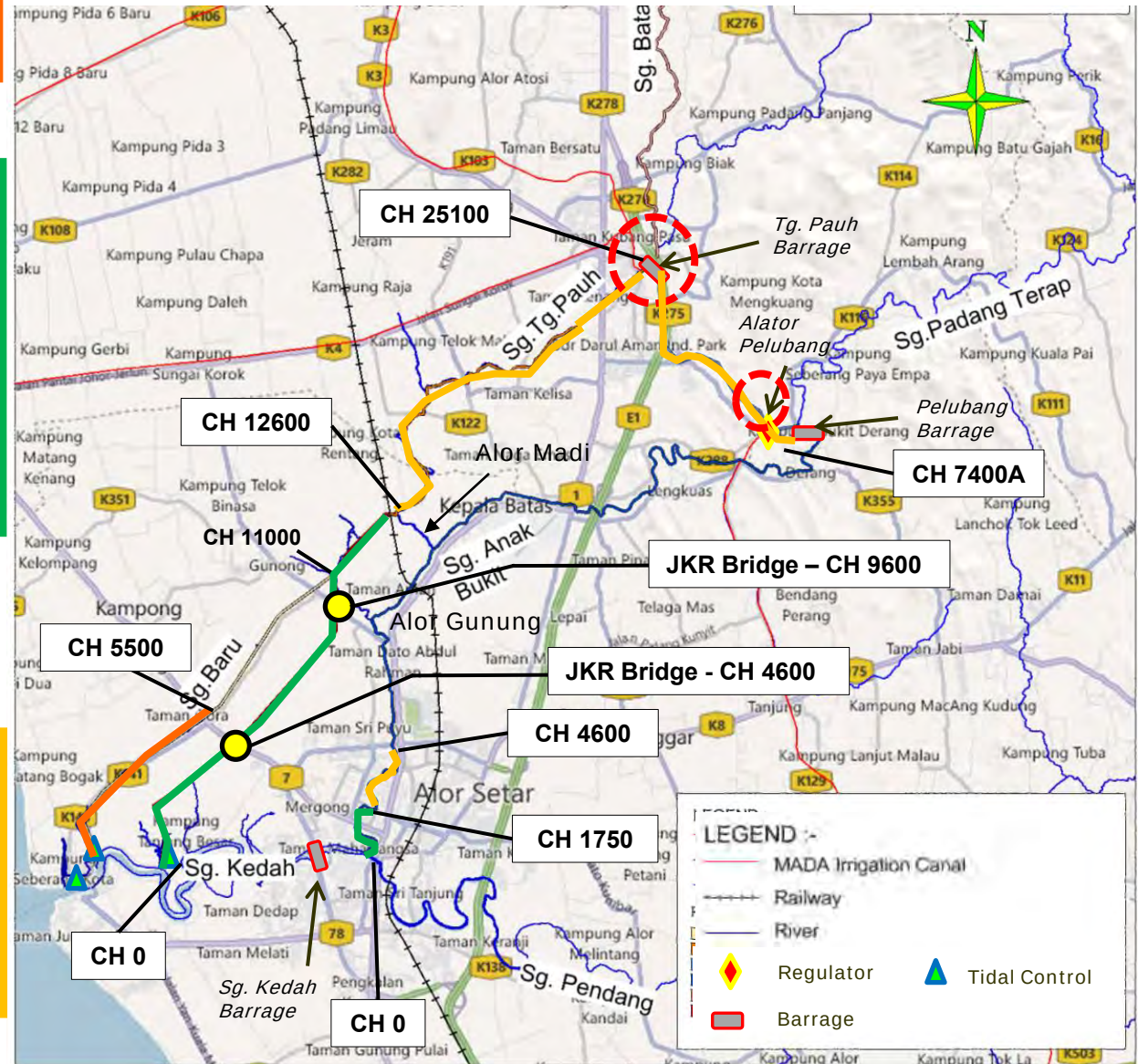
Upgrading Baru River/ Kubang Rotan River (Ch 0 – Ch 5,500) – **Completed 2012**

PACKAGE 2

- i. Construction of Diversion Baru River (CH0 – CH12600)
- ii. Replace Secondary Canal MADA ACLBD 4
- iii. Build New JKR Bridge Alor Setar - Kuala Perlis at (CH4600)
- iv. Build New JKR Bridge Alor Setar – Gunong Keriang at (CH9600)
- v. Upgrading Anak Bukit River (CH0 – CH1750)

PACKAGE 3

- i. Upgrading Tanjung Pauh River (CH12600 – CH25100),
- ii. Upgrading Main Canal and Northern Canal MADA (CH0A – CH7400A)
- iii. Upgrading Anak Bukit River (CH1750 – CH4600)



PROGRESS OF PROJECT

PAKEJ 2 (REDMAX SDN. BHD.) KOS RM 132 juta – DALAM PEMBINAAN

Pembinaan Lencongan Sungai Baru (CH0 – CH12600) Dan Menaiktaraf Sungai Anak Bukit (CH0 – CH1750) Serta Kerja-Kerja Berkaitan, Rancangan Tebatan Banjir Sungai Kedah/Anak Bukit, Kedah.

- Pembinaan Lencongan Sungai Baru - 12.6 km
- Menggantikan Taliar Kedua MADA ACLBD 4
- Membina Baru 2 Jambatan JKR :-
- Jln Alor Setar – Kuala Perlis
- Jln Alor Setar – Gunung Keriang

Tarikh Mula : 25/09/2013

Tarikh Siap : 24/11/2015

EOT 1 : 27/05/2016

EOT 2 : 27/09/2017

EOT 3 : 19/07/2018

EOT 4 : 22/09/2018

Kontrak ditamatkan. Dalam proses penyediaan dokumen tender kontraktor penyelamat. Dijangka tender semula Julai 2019

Kemajuan
Projek
Pakej 1

100 %

PAKEJ 1 (PENDING MAKMUR SDN. BHD.) KOS RM 13.97 juta SIAP OKT 2012

Menaiktaraf Sungai Baru/Sungai Kubang Rotan (Ch 0 – Ch 5,500)

Pakej 2

77.18 % (A)
/ 100 % (S)

PAKEJ 3 (AWARD CONSORTIUM SDN. BHD.) KOS RM 108 juta – DALAM PEMBINAAN

Menaiktaraf Sungai Tanjung Pauh (CH12600 – CH25100), Menaiktaraf Terusan Utama dan Terusan Utara MADA (CH0A – CH7400A) Dan Menaiktaraf Sungai Anak Bukit (CH1750 – CH4600) Serta Kerja-Kerja Berkaitan, Rancangan Tebatan Banjir Sungai Kedah/Anak Bukit, Kedah.

- Menaiktaraf Sungai Tanjung Pauh -12.5 km
- Menaiktaraf Terusan Utama dan Terusan Utara MADA -7.4 km
- Menaiktaraf Sungai Anak Bukit - 2.85 km

Tarikh Mula : 05/11/2014

Tarikh Siap : 04/11/2016

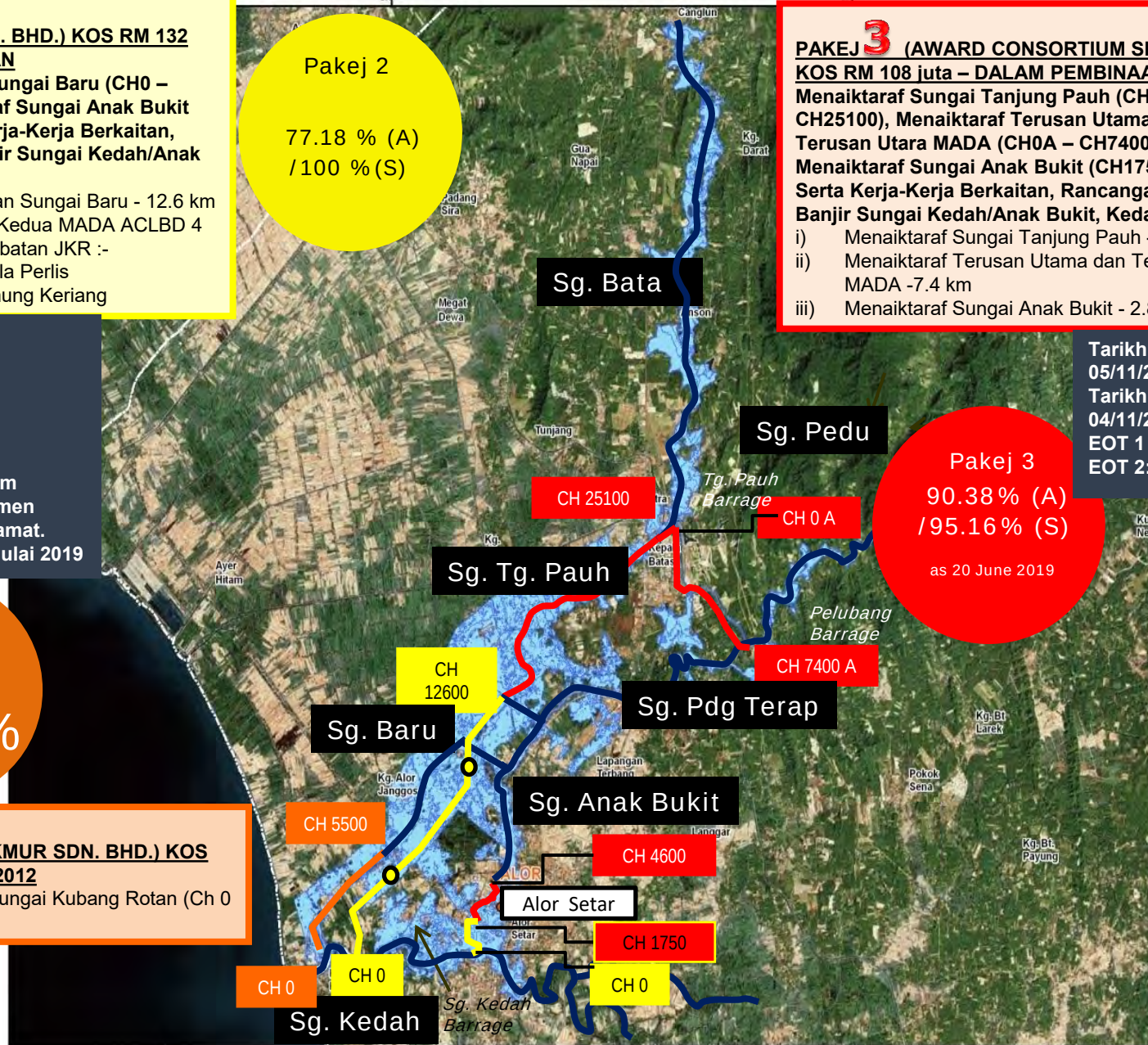
EOT 1 : 27/06/2018

EOT 2 : 27/08/2019

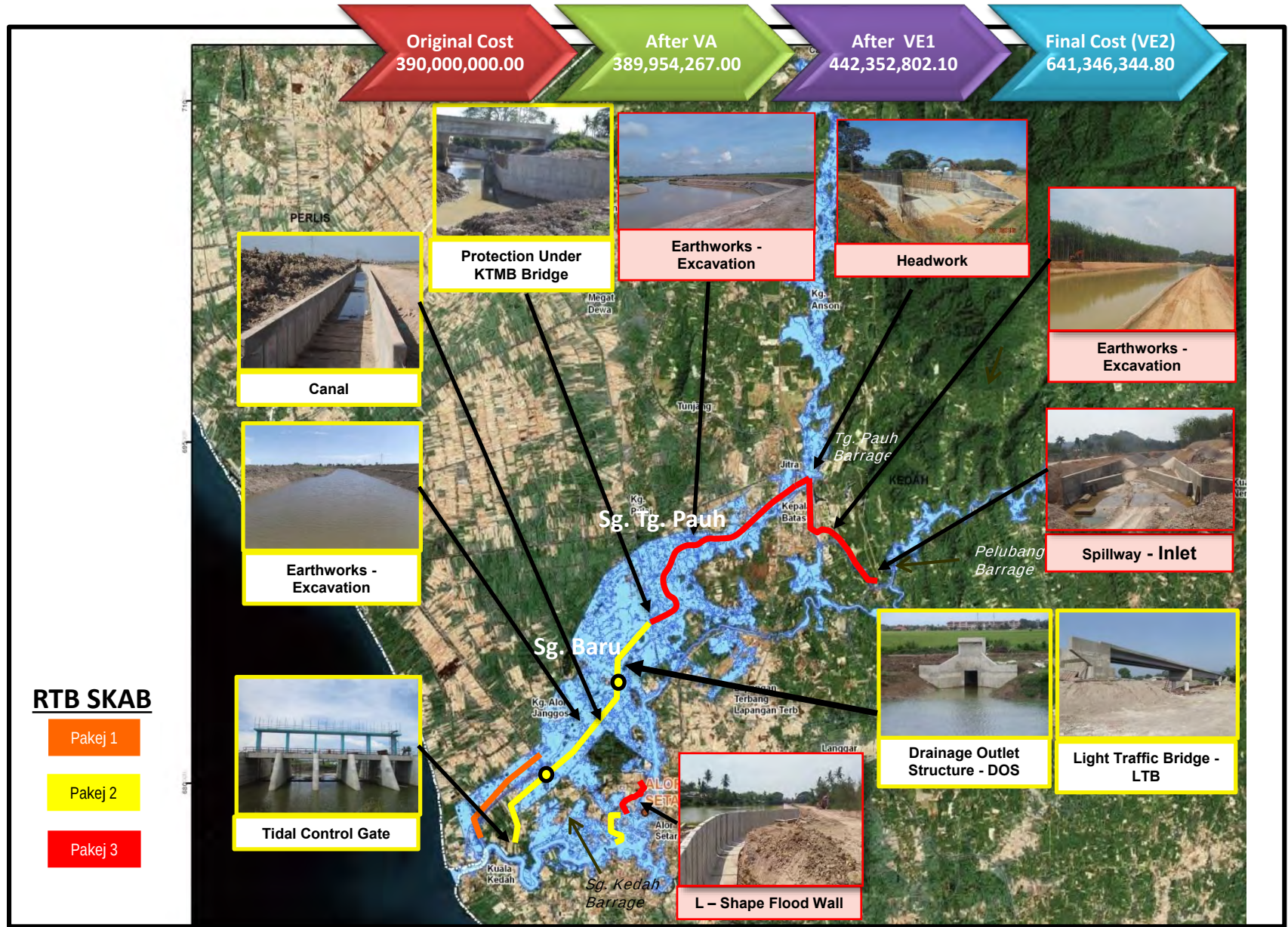
Pakej 3

90.38 % (A)
/ 95.16 % (S)

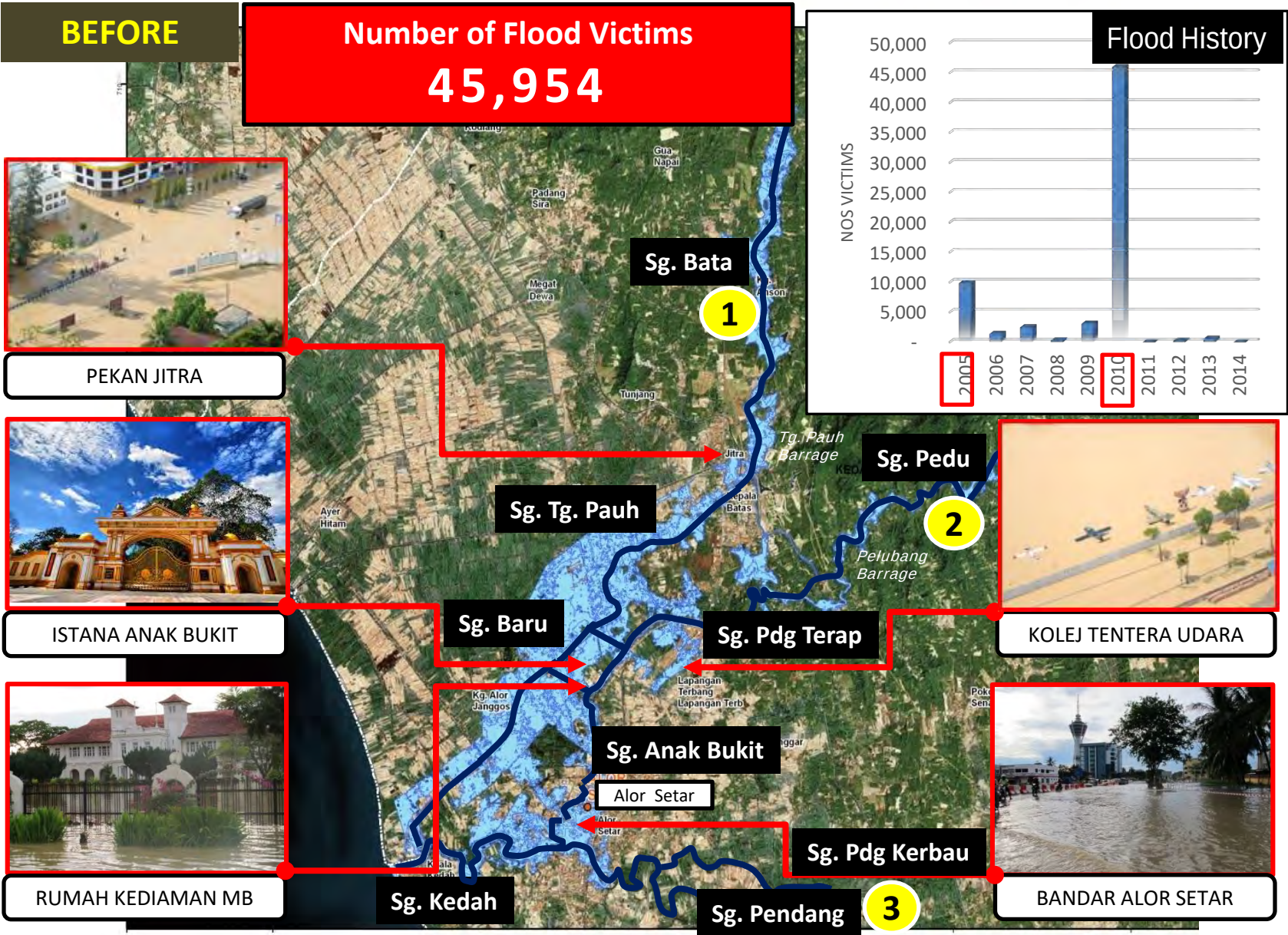
as 20 June 2019



OUTPUT OF PROJECT



FLOOD MAP OF KEDAH RIVER BASIN (2010)



OUTCOME OF PROJECT

AFTER

Flooded Area 50% ↓
from 105km²

Flood Protection 50 ARI

Flood Victims 50% ↓
from 63K nos

Protection Paddy 9K ha

RTB SKAB

Pakej 1

Pakej 2

Pakej 3



Langkah Mitigasi di Bawah Projek Berasingan (RTB Sg. Pendang)

SKAB PACKAGE 1

Kerja Menaiktaraf Sg Baru / Sg Kubang Rotan Dan Kerja-kerja Berkaitan (CH 0 – CH5500)



SKAB PACKAGE 2

SKOP KERJA UTAMA KONTRAK

PAKEJ 2

PEMBINAAN LENCONGAN SUNGAI BARU
(CH 0 – CH 12600) SERTA KERJA – KERJA BERKAITAN

Ch12,600

P.Kerengga

Lencongan Sg
Baru & Benteng

Jmbtn JKR J.Alor
Setar – Gunung
Keriang

Jmbtn JKR J.Alor
Setar – Kuala
Perlis

Taliair MADA

Double Trek

Barrage

Kuala Kedah

Ch00

A. Keronchor

Sg Kedah

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Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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Streaming ||||| 100%

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Pointer 6°08'06.25" N 100°19'24.31" E

Eye alt 26903 ft

Pembinaan Lencongan Sungai Baru

CH0 —CH750



Pembinaan Lencongan Sungai Baru

CH750 –CH1800



Pembinaan Lencongan Sungai Baru

CH4600 —CH5600



Pembinaan Lencongan Sungai Baru



**JAMBATAN JKR @ CH4600
(F007 JALAN ALOR SETAR - KANGAR)**

Pembinaan Lencongan Sungai Baru (LTB)

CH6400 –CH7400



Pembinaan Lencongan Sungai Baru (LTB)

CH8400 –CH9600



Pembinaan Lencongan Sungai Baru

CH9600 –CH10500



Pembinaan Lencongan Sungai Baru



**JAMBATAN JKR @ CH9600
(K02 JALAN ALOR SETAR - G. KERIANG)**

Pembinaan Lencongan Sungai Baru

CH10500 –CH11100



Pembinaan Lencongan Sungai Baru

CH11100 –CH11500



Pembinaan Lencongan Sungai Baru (LTB)

CH12000 –CH12600



SKAB PACKAGE 3

MENAIKTARAF SUNGAI TANJUNG PAUH DAN TERUSAN UTAMA DAN UTARA MADA



SKOP KERJA UTAMA KONTRAK

PAKEJ 3

MENAIKTARAF SUNGAI ANAK BUKIT (CH1,750 – CH 4,600)



SUNGAI TANJUNG PAUH Ch. 13000



SUNGAI TANJUNG PAUH Ch. 18400



SUNGAI TANJUNG PAUH Ch. 19865



SUNGAI TANJUNG PAUH Ch. 24500



SUNGAI TANJUNG PAUH Ch. 25000



TERUSAN UTAMA DAN UTARA MADA Ch. 900A



TERUSAN UTAMA DAN UTARA MADA Ch. 2200A



SUNGAI ANAK BUKIT Ch. 2800



SUNGAI ANAK BUKIT Ch. 3850



SUNGAI ANAK BUKIT Ch. 4300



Thank You
....TERIMA KASIH....