

Kertas Bil. 82/2015



**PENYATA JAWATANKUASA PILIHAN KHAS
MENGENAI PENGURUSAN SUMBER AIR SELANGOR
(SPECIAL SELECT COMMITTEE ON WATER RESOURCE
MANAGEMENT OF THE STATE OF SELANGOR (JPK-
SAS) BAGI DEWAN NEGERI SELANGOR BERHUBUNG
PENGURUSAN AIR TERAWAT NEGERI SELANGOR
(KUANTITI): PENGURANGAN NON-REVENUE WATER
(NRW), LAPORAN STATUS KEMAJUAN PROJEK
MITIGASI 2 DAN LANGAT 2**

PENYATA OLEH JAWATANKUASA PILIHAN KHAS PENGURUSAN SUMBER AIR SELANGOR (JPK-SAS), DEWAN NEGERI SELANGOR BERHUBUNG “PENGURUSAN AIR TERAWAT NEGERI SELANGOR (KUANTITI): PENGURANGAN NON-REVENUE WATER (NRW), LAPORAN STATUS KEMAJUAN PROJEK MITIGASI 2 DAN LANGAT 2”

1. PENDAHULUAN

- 1.1. JPK-SAS telah mengadakan pendengaran tertutup pada 7hb September 2015 dan 21hb September 2015 untuk mendapatkan penjelasan daripada pihak-pihak berkenaan mengenai pengurusan air terawat di Negeri Selangor termasuk taklimat pengurangan NRW, taklimat Langat 2 serta lawatan dan taklimat Projek Mitigasi 2.

2. LATAR BELAKANG

- 2.1. Sebagai Jawatankuasa yang bertanggungjawab untuk menyiasat sebarang isu yang berkaitan dengan pengurusan air di dalam Negeri Selangor, adalah penting untuk ahli-ahli JPK-SAS memastikan bahawa Kerajaan Negeri Selangor ada perancangan yang sempurna untuk memastikan bekalan air terawat di Negeri Selangor adalah mencukupi untuk jangka masa pendek dan panjang.
- 2.2. Unit Perancang Ekonomi Negeri, Seksyen Makro dan Penswastaan (UPEN), Syarikat Bekalan Air Selangor (SYABAS), Jawatankuasa Pemantau Air, SMHB Sdn. Bhd., dan PZK Sdn. Bhd., telah dipanggil untuk memberi keterangan bagi tujuan di atas.

3. AHLI JAWATANKUASA

- 3.1. Y.B. Puan Yeo Bee Yin
ADN Damansara Utama
- 3.2. Y.B. Tuan Mohd Shafie bin Ngah
ADN Bangi
- 3.3. Y.B. Tuan Dr Xavier Jayakumar a/l Arulanandam
ADN Seri Andalas
- 3.4. Y.B. Tuan Rajiv a/l Rishyakaran
ADN Bukit Gasing
- 3.5. Y.B. Tuan Idris bin Ahmad
ADN Ijok
- 3.6. Y.B. Dato' Sulaiman bin Abdul Razak
ADN Permatang
- 3.7. Y.B. Tuan Jakiran bin Jacomah
ADN Bukit Melawati

4. SENARAI NAMA SAKSI-SAKSI

- 4.1. Nama saksi-saksi yang hadir pada 7hb September 2015 adalah seperti mana di dalam Lampiran 1 untuk Pendengaran Tertutup Isu *Non-Revenue Water*.
- 4.2. Nama saksi-saksi yang hadir pada 21hb September 2015 adalah seperti mana di dalam Lampiran 2 untuk Taklimat Isu Projek Mitigasi 2 dan Langat 2.

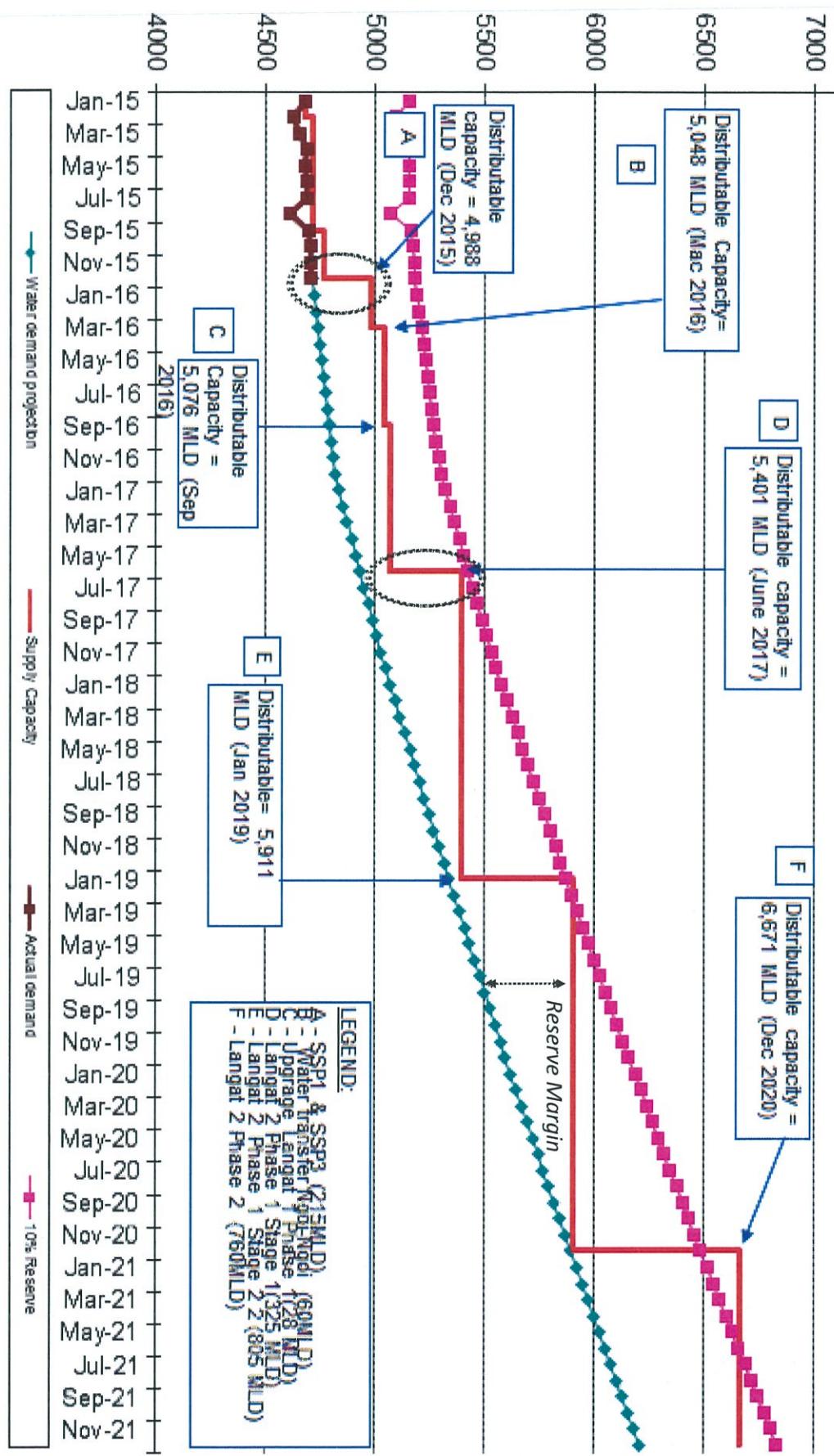
5. RINGKASAN ISU-ISU PENTING

Lampiran menunjukkan pembentangan Powerpoint oleh agensi-agensi yang berkenaan mengenai isu-isu. Di bawah adalah ringkasan isu-isu penting.

5.1. Permintaan dan Penawaran Air Terawat di Negeri Selangor

- 5.1.1. Gambar rajah di mukasurat 3 menunjukkan keluk permintaan dan penawaran (*demand and supply curve*) air terawat di Negeri Selangor bersama dengan keluk hipotetikal 10% margin rezab untuk tujuan perbandingan.
- 5.1.2. Keluk permintaan dijangka meningkat secara beransur-ansur dengan peningkatan 3-4% setiap tahun selaras dengan pembangunan negeri Selangor. Keluk penawaran adalah dalam bentuk bertingkat kerana bekalan air terawat ditingkatkan setiap kali selepas projek penaiktarafan/penambahan infrastruktur air siap seperti yang ditunjukkan dalam gambar rajah bagi Projek A ke F. Peningkatan penawaran belakang air bergantung kepada saiz setiap projek.
- 5.1.3. Rizab margin (*reserve margin*) adalah jarak di antara keluk penawaran dan permintaan. Penambahan bekalan air terawat adalah kritikal apabila keluk penawaran dan permintaan menjadi dekat (rizab margin yang kecil) termasuk pada masa sekarang (hujung 2015), Julai 2017, Jan 2019 dan Jan 2021. Ini bermaksud penyiapan Projek A, D, E dan F pada masa yang dirancangkan adalah kritikal.
- 5.1.4. Dalam tempoh terdekat, penyiapan Projek A (juga dikenali sebagai Projek Mitigasi 2) dan Projek D (Langat 2 Fasa 1 Tahap 1) adalah kritikal dengan masing-masing dapat meningkatkan bekalan air 215 MLD dan 325 MLD. Projek Mitigasi 2 memerlukan perhatian segera untuk memastikan Selangor mempunyai air yang mencukupi menjelang tahun 2016.
- 5.1.5. Di samping itu, pengurangan *non-revenue water* (NRW) yang dapat menurunkan keluk permintaan (dengan mengurangkan pembaziran) dan menjauhkan jarak antara keluk penawaran dan permintaan (menambah rizab margin) juga adalah kritikal.
- 5.1.6. Atas faktor-faktor tersebut, **Jawatankuasa menumpukan perhatian untuk sidang ini kepada Projek Mitigasi 2, rancangan pengurangan NRW dan sedikit tentang Langat 2.**

DISTRIBUTABLE CAPACITY (MLD)



5.2. Projek Mitigasi 2

5.2.1. Projek Mitigasi 2 dijangka akan menambahkan sejumlah 215 MLD air ke dalam bekalan sumber air Selangor. Ia termasuk projek penaiktarafan loji rawatan air (LRA) SSP1 dan SSP3.

5.2.2. Ringkasan Kerja di LRA SSP1

Pakej & Kontraktor	Anggaran Tarikh Siap & Pemanjangan Masa (EOT)
Pakej 1: Unipenta Sdn Bhd Kerja-kerja membina stesen pam di Kompleks Tangki Air Bukit Gasing serta Membekal dan Memasang Loji Pam dan Peralatan Berkaitan, di Wilayah Persekutuan Kuala Lumpur Anggaran Kos : RM 18,627,153	Anggaran Tarikh Siap : 29 Jun 2015 EOT: 27 Ogos 2015
Pakej 2: Tenaga Tiub Sdn Bhd Kerja-Kerja membina stesen pam serta membekal dan memasang loji pam di tangki air imbanding Bukit Matang Pagar, Daerah Gombak, dan Kerja-kerja Paip berkaitan, Daerah Petaling, Selangor. Anggaran Kos : RM 63,890,000	Anggaran Tarikh Siap : 1 Sept 2015 EOT No.1 : 6 Okt 2015

5.2.3. Ringkasan Kerja di SSP3

Pakej & Kontraktor	Anggaran Tarikh Siap & Pemanjangan Masa (EOT)
Pakej 1 : Leika Sdn Bhd Kerja-kerja membekal dan memasang paip keluli bergarispusat 1600mm dari Tangki Imbanding Bukit Tadun ke Paip Penyambungan di Simpang Johawaki Anggaran Kos : RM 50,692,210	Anggaran Tarikh Siap : 13 Feb 2015 EOT 1: 29 Julai 2015 EOT 2: Hujung Nov
Pakej 2 : Ikatan Gemajaya Sdn Bhd Kerja-kerja membina stesen pam di Tangki Air Bukit Jelutong Lama serta membekal dan memasang loji pam dan peralatan berkaitan, Shah Alam, Daerah Petaling, Selangor. Anggaran Kos : RM 18,358,500	Anggaran Tarikh Siap : 6 Julai 2015 EOT: 1 Sept 2015.

Pakej & Kontraktor	Anggaran Tarikh Siap & Pemanjangan Masa (EOT)
Pakej 3 : LBG – Taliworks JV Kerja-kerja membekal dan memasang paip keluli bergarispusat 1200mm dan kerja-kerja berkaitan dari Bukti Jelutong, Shah Alam, ke Bukit Raja, Klang, Selangor. Anggaran Kos : RM 30,639,779.00	Anggaran Tarikh Siap : 6 Julai 2015 EOT: 8hb Dis 2015.
Pakej 4 : Ang Yoke Lian Construction Sdn Bhd Kerja-kerja membekal dan memasang paip keluli bergarispusat 1300mm dari Jalan Landasan ke Tangki Air Bukit Lipat Kajang dan kerja-kerja paip berkaitan, Daerah Klang, Selangor. Anggaran Kos : RM 29,063,052.50	Anggaran Tarikh Siap : 6 Julai 2015 EOT: 23 Nov 2015

- 5.2.4. Merujuk kepada jadual 5.2.2 dan 5.2.3, Projek Mitigasi 2 telah mengalami kelewatan selama 4-6 bulan.
- 5.2.5. Sasaran masa penyiapan sekarang adalah hujung tahun 2015.
- 5.2.6. Kerja-kerja di SSP1 telah hampir siap manakala persiapan Pakej 3 dan 4 di SSP3 seperti yang dijadualkan adalah penting untuk memastikan Projek Mitagasi 2 siap hujung tahun 2015.
- 5.2.7. Laluan genting (*critical path*) dalam satu projek adalah aktiviti yang akan menentu jadual persiapan sesuatu projek. Sebarang penangguhan laluan genting akan mengakibatkan kelewatan projek.
- 5.2.8. Untuk kerja-kerja Pakej 3 di SSP3, tarikh siap asal adalah pada 6 Julai 2015 tetapi berdasarkan telah diberi EOT kepada 8hb Dis 2015. Laluan genting Pakej 3 SSP3 sekarang ialah kelulusan daripada Jabatan Perhutanan Negeri Selangor untuk memasang paip sepanjang 1.8km merentasi Taman Botani Shah Alam.
- 5.2.9. Untuk kerja-kerja Pakej 4 di SSP3, tarikh siap asal adalah pada 6hb Julai 2015 tetapi telah diberi EOT kepada 23 Nov 2015. Laluan genting Pakej 4 SSP3 sekarang ialah proses pengambilan tanah di jajaran Jalan Bukit Jati 6A dan Jalan Kecubong untuk pemasangan paip.

5.3. Projek Langat 2

- 5.3.1. Jawatankuasa telah membuat pendengaran awal dan akan membuat pendengaran menyeluruh selepas Sidang Dewan Oktober-November 2015 kerana masa tidak membenarkan. Jawatankuasa dimaklumkan bahawa Projek ini melibatkan 15 Paket di mana 5 Paket sedang dalam perlaksanaan.
- 5.3.2. Jawatankuasa dimaklumkan bahawa Langat 2 Fasa 1 Tahap 1 dijangka tidak akan berjaya disiapkan sepenuhnya pada tahun 2017 seperti mana yang dimaklumkan sebelum ini. Anggaran terawal adalah pada tahun 2019-2020.

5.4. Pengurangan Kadar NRW

- 5.4.1. NRW adalah bekalan air terawal yang tidak berpendapatan. Keadaan ini berlaku apabila air yang sepatutnya disalurkan kepada pengguna tidak mencapai tujuannya akibat kehilangan komersial (contohnya meter tidak berdaftar, meter dimodifikasi dan lain-lain) dan kehilangan fizikal (contohnya paip bocor, pecah dan sebagainya).
- 5.4.2. Setakat Julai 2015, jumlah NRW direkodkan pada paras 31.85%, di mana 0.3% adalah daripada penggunaan air sah yang tidak di caj seperti pemadam api bomba, kerja-kerja pembaikan kualiti air.
- 5.4.3. Untuk baki NRW, 30% berpunca daripada kehilangan komersial, iaitu modifikasi meter air, salah bacaan dan sebagainya manakala 70% berpunca daripada kehilangan fizikal, iaitu akibat kebocoran dan pecah paip, NRR (*Natural Rate of Rise*) dan reservoir melimpah dan bocor. Kadar NRR di Selangor adalah 1.8%.

5.4.4. NRW Master Plan (2014-2018)

- i. SYABAS telah merangka Master Plan untuk mengurangkan kadar NRW. Menurut perancangan SYABAS, sasaran kadar NRW yang akan dicapai menjelang awal tahun adalah 30.5% (2016), 28.4% (2017), 26.9% (2018) dan 25.5% (2019). Jadual di bawah adalah ringkasan pelan utama dalam NRW Master Plan SYABAS:

Projek	Pengurangan NRW	Kos
Pelan rancangan untuk mengurangkan kehilangan fizikal air NRW.	780 MLD	RM 677 juta atau RM 870,000 per MLD
Pelan rancangan untuk mengurangkan kehilangan komersial air NRW.	119 MLD	RM 95 juta atau RM 800,000 per MLD
Pelan rancangan operasi atau sokongan yang lain.	13.9 MLD	RM 36.5 juta atau RM 2.6 juta per MLD.
Jumlah (Pengurangan NRW/Kos)	912.9 MLD	RM 808.5 juta atau RM 885,639 per MLD

*** Walaupun pelan rancangan operasi dan sokongan lain memerlukan perbelanjaan yang jauh lebih tinggi untuk pengurangan setiap MLD NRW, kerja-kerja ini adalah diperlukan.*

- ii. Penggantian paip tidak termasuk di dalam NRW Master Plan tetapi sekiranya 150km paip diganti setiap tahun bermula 2016 sejumlah 450km paip boleh digantikan menjelang tahun 2019. Kerja ini memerlukan peruntukan sebanyak RM 405 juta untuk pengurangan NRW sebanyak 45 MLD, iaitu RM 9 juta per MLD. Penggantian paip adalah diperlukan untuk memastikan kadar NRR tidak meningkat lagi.

6. PENEMUAN JAWATANKUASA

- 6.1. Untuk mengelakkan kelewatan Projek Mitigasi 2 sekali lagi, laluan-laluan genting iaitu kelulusan daripada Jabatan Perhutanan Negeri Selangor untuk memasang paip sepanjang 1.8km merentasi Taman Botani Shah Alam dan proses pengambilan tanah di jajaran Jalan Bukit Jati 6A dan Jalan Kecubong perlu dipercepatkan.
- 6.2. Jawatankuasa tidak diyakinkan bahawa Projek Langat 2 Fasa 1 Tahap 1 (Projek D) yang akan membekalkan 325MLD air terawat akan siap dibina pada tahun 2017 untuk mengatasi masalah kekurangan air terawat pada masa itu.
- 6.3. Pengurangan NRW yang dicadangkan oleh SYABAS memerlukan dana sejumlah RM 1.2 billion - RM 808.5 juta untuk NRW Master Plan dan RM 405 juta untuk penggantian paip.

7. SARANAN JAWATANKUASA

- 7.1. Jawatankuasa menggesa Kerajaan Negeri memandang serius kedua-dua laluan genting Projek Mitigasi 2 bagi mengelakkan kelewatan kali kedua.
- 7.2. Jawatankuasa menegaskan bahawa Kerajaan Negeri hendaklah memandang serius cadangan SYABAS merujuk kepada Jadual Perenggan 5.4.4 (i) Penyata ini dengan memastikan peruntukan yang mencukupi diberi dan pelaksanaannya mengikut jadual.
- 7.3. Memandangkan Projek Langat 2 Fasa 1 Tahap 1 kemungkinan besar tidak akan siap pada tahun 2017 mengikut jadual dan Selangor mungkin akan mengalami krisis air terawat pada masa itu, Jawatankuasa menyarankan Kerajaan Negeri Selangor untuk menimbaangkan dengan segera:
 - i. Pembinaan loji rawatan air yang berskala lebih kecil (sekitar 250 hingga 500MLD) yang boleh disiapkan pada tahun 2017 di lokasi yang sesuai.
 - ii. Menetapkan sasaran kadar NRW yang lebih rendah daripada apa yang dirancang oleh SYABAS dan memberi peruntukan yang mencukupi untuk mencapai ~~sasaran~~ baru ini. Jawatankuasa menggesa kerajaan negeri selangor untuk meletakkan sasaran pengurangan NRW baru ke paras 25% pada tahun 2017.

- 7.4. Jawatankuasa mencadangkan Kerajaan Negeri Selangor untuk menubuhkan satu kumpulan kerja khas (*task force*) untuk memantau kerja-kerja Projek Langat 2. Kumpulan Kerja Khas Langat 2 ini bertujuan untuk mempertemukan agensi-agensi Kerajaan Negeri dan Persekutuan supaya Projek Langat 2 siap mengikut jadual masa yang ditetapkan.

Penyata ini telah disediakan oleh Y.B. Puan Yeo Bee Yin, Pengerusi Jawatankuasa JPK-SAS, telah dibincangkan dan diluluskan oleh Jawatankuasa JPK-SAS di mesyuarat Jawatankuasa pada 28hb September 2015.

Disahkan oleh :



Y.B. Puan Yeo Bee Yin

Pengerusi Jawatankuasa Pilihan Khas Mengenai Pengurusan Sumber Air Negeri Selangor

LAMPIRAN 1:**Bil. 13/2015**

Tarikh : **7 September 2015 (Isnin)**
Masa : **2.30 petang**
Tempat : **Bilik Mesyuarat**
 Pejabat Dewan Negeri Selangor
 Tingkat 1, Bangunan Annex

Jabatan yang dijemput:**Syarikat Bekalan Air Selangor Sdn. Bhd. (SYABAS)**

1. Encik Kelvin Siew Weng Hoe
(Pengarah Eksekutif NRW)
2. Encik Ahmad Hadli bin Mohamed
(Penolong Pengurus Besar NRW)
3. Puan Kamilah binti Ibrahim
(Pengurus NRW)
4. Encik Mohamed Rizal bin Ghazali
Pengurus NRW

LAMPIRAN 2

Bil. 14/2015

Tarikh : **21 September 2015 (Isnin)**
Masa : **9.00 pagi**
Tempat : **Pejabat Tapak Projek Mitigasi 2
Bukit Jelutong**

Jabatan yang dijemput:**Seksyen Makro dan Penswastaan (UPEN)**

1. Puan Mazidah binti Ahmad Ramli
(Ketua Penolong Pengarah)
2. Encik Mohd Muktafi bin Sarpan
(Penolong Pengarah)

Jawatankuasa Pemantau Air

1. Encik Mohd Sarbani bin Che Noh
2. Encik Mansor bin Abd Ghani
3. Puan Haslina binti Mohd Yahya

SMHB Sdn. Bhd.

1. Ir. Mohd Rousdin bin Hassan
(Pengarah Eksekutif)
2. Ir Ganeshalingam a/l Rasiah
(Pengarah Bersekutu)
3. Ir. Lok Chuan Ming
(Pengurus Projek)
4. Encik Chew Sheng Jye
(Resident Engineer)

PZK Sdn. Bhd.

1. Ir. Zakariah Kemas bin Salleh
(Pengarah Urusan)
2. Encik Sulaimi bin Mohd Zain
(Resident Engineer)
3. Encik Azrul Hafiz bin Abd. Aziz
(Assistant Resident Engineer)

PENYATA OLEH JAWATANKUASA PILIHAN KHAS PENGURUSAN SUMBER AIR SELANGOR (JPK-SAS),
DEWAN NEGERI SELANGOR BERHUBUNG "PENGURUSAN AIR NEGERI SELANGOR (KUANTITI):
PENGURANGAN NON-REVENUE WATER (NRW), LAPORAN STATUS KEMAJUAN PROJEK MITIGASI 2
DAN LANGAT 2"

INDEKS

Bil	Tajuk	Tarikh	Saksi
1.	<p>Pengagihan Semula Kapasiti Rekabentuk Air Terawat Dari Loji Rawatan Air Sungai Selangor Fasa 1 (SSP 1) Sebagai Projek Mitigasi Kekurangan Bekalan Air di Selangor, Wilayah Persekutuan dan Putrajaya.</p> <p>Taklimat Projek Sempena Lawatan JPK-SAS</p>	21hb September 2015	Seksyen Makro dan Penswastaan, Unit Perancang Ekonomi Negeri Selangor (UPEN)
2.	<p>Pengagihan Semula Kapasiti Reka Bentuk Sistem Air Terawat Dari Loji Rawatan Air Sungai Selangor Fasa 3 (SSP 3) Sebagai Projek Mitigasi Kekurangan Bekalan Air di Selangor, Wilayah Persekutuan dan Putrajaya.</p> <p>Taklimat Projek Sempena Lawatan JPK-SAS</p>	21hb September 2015	UPEN
3.	<p>Rancangan Bekalan Air Negeri Selangor– Projek Mitigasi 2</p> <p>Pengagihan Semula Kapasiti Rekabentuk Air Terawat Dari Loji Rawatan Air Sungai Selangor Fasa 3 (Ssp3)</p> <p>Pakej 2: Kerja-Kerja Membina Stesen Pam Di Kompleks Tangki Air Bukit Jelutong Lama Serta Membekal & Memasang Loji Pam Dan Peralatan Berkaitan Di Shah Alam, Daerah Petaling, Selangor.</p> <p>Lawatan Jawatankuasa Pilihan Khas Pengurusan Sumber Air Negeri Selangor (JPK-SAS) Ke Tapak Projek Mitigasi 2</p> <p><i>Progress Presentation</i> (21 September 2015)</p>	21hb September 2015	Ikatan Gemajaya Sdn. Bhd.

PENYATA OLEH JAWATANKUASA PILIHAN KHAS PENGURUSAN SUMBER AIR SELANGOR (JPK-SAS),
DEWAN NEGERI SELANGOR BERHUBUNG "PENGURUSAN AIR NEGERI SELANGOR (KUANTITI):
PENGURANGAN NON-REVENUE WATER (NRW), LAPORAN STATUS KEMAJUAN PROJEK MITIGASI 2
DAN LANGAT 2"

Bil	Tajuk	Tarikh	Saksi
4.	Perancangan Ke Arah Penurunan Jumlah Non-Revenue Water (NRW)	7hb September 2015	Syarikat Bekalan Air Selangor (SYABAS) Sdn. Bhd.
5.	Status Pelaksanaan Projek Langat 2	21hb September 2015	UPEN

INDEKS

1

 UNIT PERANCANG EKONOMI NEGERI 

PENGAGIHAN SEMULA KAPASITI REKABENTUK AIR TERAWAT DARI LOJI RAWATAN AIR SUNGAI SELANGOR FASA 1 (SSP1) SEBAGAI PROJEK MITIGASI KEKURANGAN BEKALAN AIR DI SELANGOR, WILAYAH PERSEKUTUAN DAN PUTRAJAYA.

**TAKLIMAT PROJEK
SEMPENA LAWATAN JPK-SAS**

Tarikh : 21 September 2015

 UNIT PERANCANG EKONOMI NEGERI **CONTRACT PACKAGING**

Pakej 1: Kerja-kerja Membina Stesen Pam di Kompleks Tangki Air Bukit Gasing serta Membekal dan Memasang Loji Pam dan Peralatan Berkaitan, di Wilayah Persekutuan Kuala Lumpur	UNIPENTA SDN BHD
Pakej 2: Kerja-kerja Membina Stesen Pam serta Membekal dan Memasang Loji Pam di Tangki Air Imbangan Bukit Matang Pagar, Daerah Gombak, dan Kerja-kerja Paip Berkaitan, Daerah Petaling, Selangor	TENAGA TIUB SDN BHD



UNIT PERANCANG EKONOMI NEGERI		P1 – Bukit Gasing
Pegawai Penguasa	:	Pengarah UPEN
Kontraktor	:	UNIPENTA SDN BHD
Harga Kontrak	:	RM 18,627,153.00
Maklumat Kerja	:	Tarikh Milik Tapak: 30 Jun 2014 Tarikh Siap Asal : 29 Jun 2015
	:	Tempoh Kontrak : 12 bulan
	:	Tempoh Tanggungan Kecacatan: 12 bulan
Tarikh Siap Berdasarkan EOT NO.1 : 27 Ogos 2015		
	:	Kemajuan Fizikal (18 Sept 2015) : 94.75% A / 100% S (Kelewatan 5.25%)
	:	Kemajuan Kewangan (18 Sept 2015) : 89.46% A / 100% S

UNIT PERANCANG EKONOMI NEGERI

P1 – Bukit Gasing

JUSTIFIKASI LANJUTAN MASA

a) Kontraktor telah mengesan terdapat kabel TNB sediada merentasi bawah tapak cadangan tambahan stesen pam pada 18 Ogos 2014. Kontraktor tidak dapat memulakan kerja-kerja pengorekan bagi tambahan stesen pam tersebut dimana menyebabkan kelewatan kepada projek.

b) Lawatan tapak TNB pada 18 September 2014 dan 2 Oktober 2014. TNB menasihatkan pengalihan kabel.

Lanjutan masa berdasarkan Syarat-syarat Kontrak Klausula 43.1(i) – the Contractor's inability for reason beyond his control and which he could not reasonably have foreseen at the date of closing of tender of this Contract to secure such goods, materials and/or services as are essential to the proper carrying out of the Works.

5

OUTSTANDING ISSUE

Pending connection TNB power cable, replacement of valves and coring works at suction tank outlet chamber. The works will be carried out concurrently during shut down. The shutdown has been rescheduled to 29 September 2015.

SHUTDOWN WORKS (REVISED PROPOSAL)

GROUP 'A' – REPLACE BYPASS VALVE
1600mm BYPASS VALVE
1600mm GATE VALVE
WORKING PERIOD: 8 a.m. TO 8 p.m.

GROUP 'B' – REPLACE INLET VALVE AT SUCTION TANK
1600mm BUTTERFLY VALVE
1600mm GATE VALVE
WORKING PERIOD: 8 a.m. TO 8 p.m.

GROUP 'C' – CORING NEW OUTLET AT SUCTION TANK
1000 x 600mm OPENING
PRE-CORING WORK CORING TO 50% DEPTH COMPLETED ON 29/07/15.
FINAL CORING ON SHUTDOWN: 8 a.m. TO 8 p.m.

6



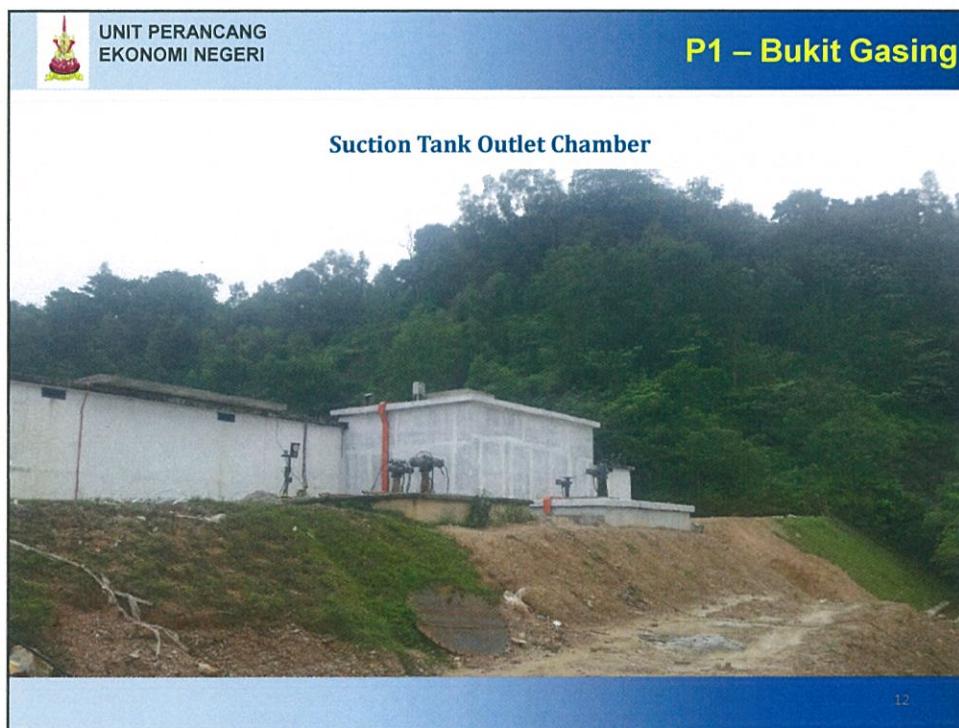
UNIT PERANCANG EKONOMI NEGERI

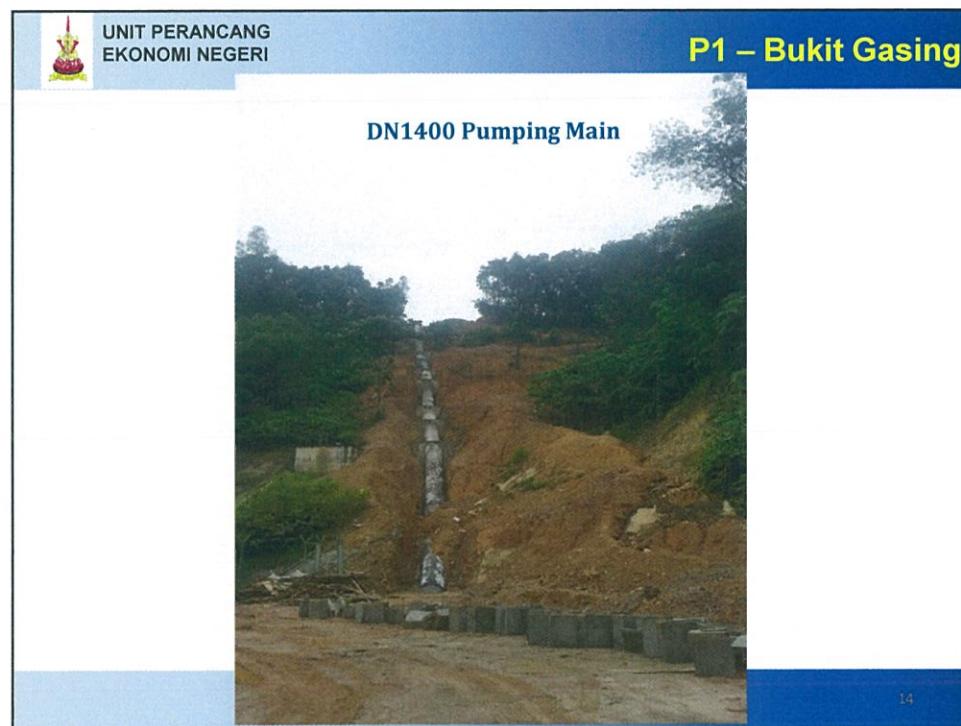
P1 – Bukit Gasing

KEMAJUAN KERJA-KERJA PEMBINAAN

• STRUKTUR BANGUNAN RUMAH PAM	- 100%
• HIGH LEVEL RESERVOIR INLET CHAMBER	- 100%
• SUCTION TANK OUTLET CHAMBER	- 100%
• KERJA-KERJA PEMASANGAN PAIP 1400 ND	- 98%
• ARCHITECTURE & CIVIL WORKS	- 98%

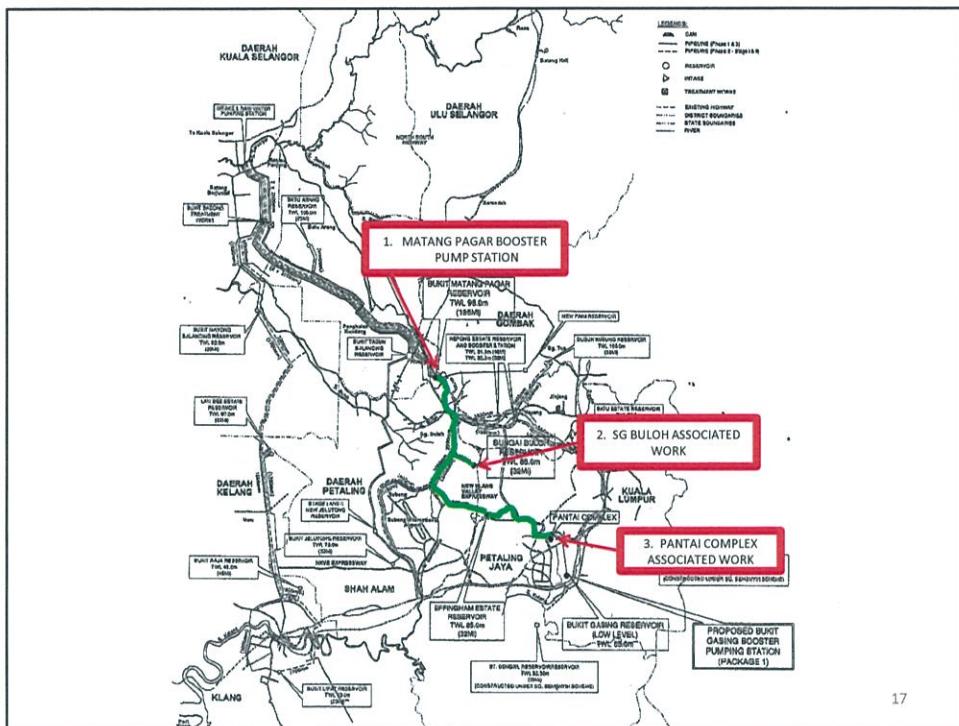






	UNIT PERANCANG EKONOMI NEGERI	P2 – Matang Pagar
Pegawai Penguasa	:	Pengarah UPEN
Kontraktor	:	TENAGA TIUB SDN BHD
Harga Kontrak	:	RM 63,890,000.00
Maklumat Kerja	:	Tarikh Milik Tapak: 2 Jun 2014
		Tarikh Siap Asal : 1 September 2015
		Tempoh Kontrak : 15 bulan
		Tempoh Tanggungan Kecacatan: 12 bulan
		Tarikh Siap Berdasarkan EOT NO.1 : 6 Oktober 2015
		Kemajuan Fizikal (18 Sept 2015) : 85.43% A / 93.01% S (Kelewatan 7.58%)
		Kemajuan Kewangan (18 Sept 2015) : 76.83% A / 89.42% S

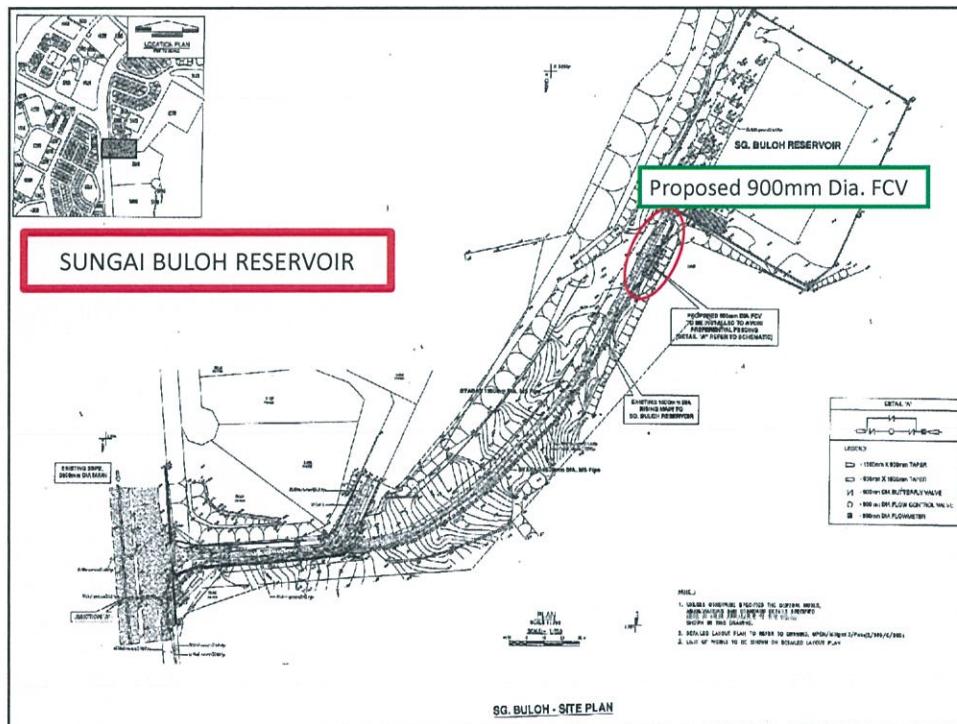
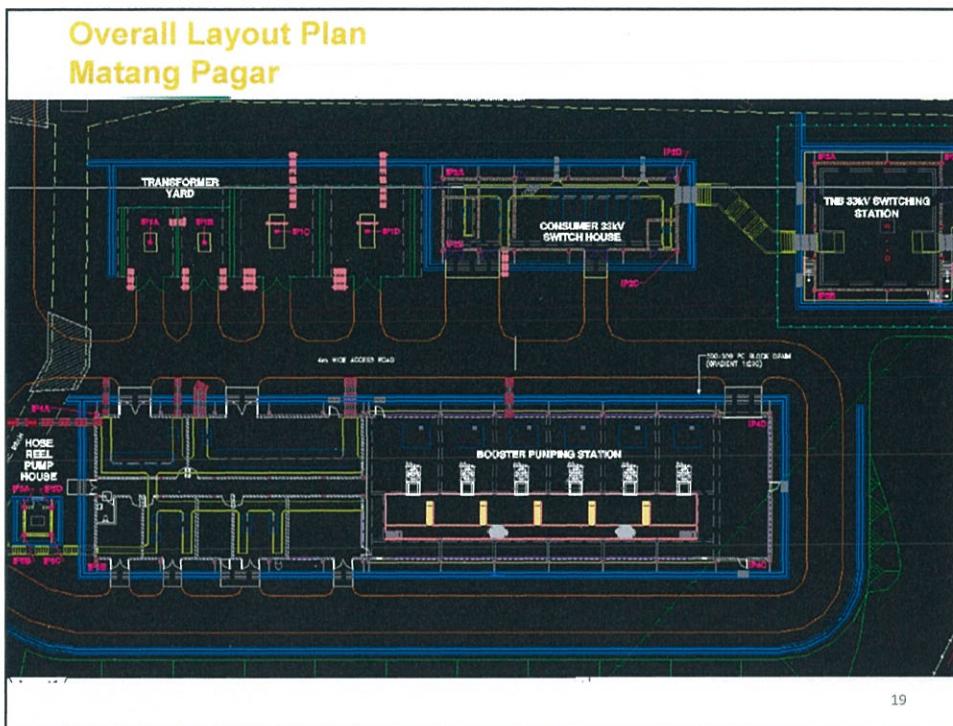
	UNIT PERANCANG EKONOMI NEGERI	P2 – Matang Pagar
<u>JUSTIFIKASI LANJUTAN MASA</u>		
<p>a) Masalah kelewatan memberi milik tapak booster pumping station bagi memulakan kerja-kerja tanah, kerja-kerja pengorekan dan kerja-kerja pembinaan booster pumping station. Pada 22 Ogos 2014, pegawai Jabatan Perhutanan Negeri Selangor telah memberikan arahan berhenti kerja dan menyita tapak dan excavator semasa kerja pembersihan tapak dan kerja tanah di bukit berhampiran cadangan tapak booster pumping station. Jabatan Perhutanan Negeri Selangor mendakwa kontraktor telah menceroboh kawasan mereka.</p> <p>a) Jabatan Perhutanan Negeri Selangor hanya mengiktiraf kawasan berpagar sediada terdiri daripada tangki air imbangan Bukit Matang Pagar, kuarters, jalan dan longkang sediada. Sebahagian cadangan tapak booster pumping station adalah diluar pagar walaubagaimanpun ia adalah di dalam tanah yang akan diwartakan.</p> <p>Lanjutan masa berdasarkan Syarat-syarat Kontrak Klaus 43.1(g) - delay in giving possession of the Site as provided under clause 38.4 hereof other than claim in effecting insurance and Performance Bond.</p>		
16		

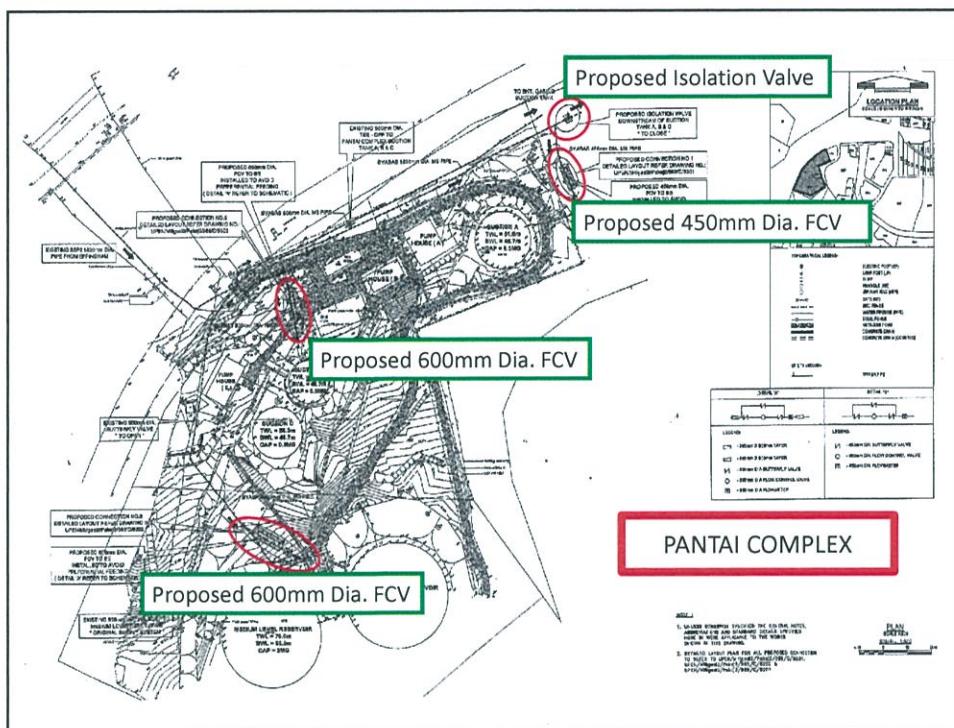


17



18





P2 – Matang Pagar

KEMAJUAN KERJA-KERJA PEMBINAAN

• STRUKTUR BANGUNAN TNB 33kV	- 100%
• STRUKTUR BANGUNAN CONSUMER SWITCH STATION 33kV	- 100%
• STRUKTUR BANGUNAN BOOSTER PUMPING STATION	- 97%
• KERJA-KERJA PEMASANGAN PAIP	- 96%

22

UNIT PERANCANG
EKONOMI NEGERI

P2 – Matang Pagar

Overall view Matang Pagar New Booster Pumping Station, TNB 33kV Switch Station,
Consumer 33kV Switch Station

A wide-angle photograph showing the construction site of the Matang Pagar New Booster Pumping Station. In the center-left, a large, rectangular concrete building is under construction, with a crane visible on its roof. To the right, there are several smaller, partially built structures with white walls and metal roofs. The ground is covered in dirt and construction materials. A hillside is visible in the background on the left.

23

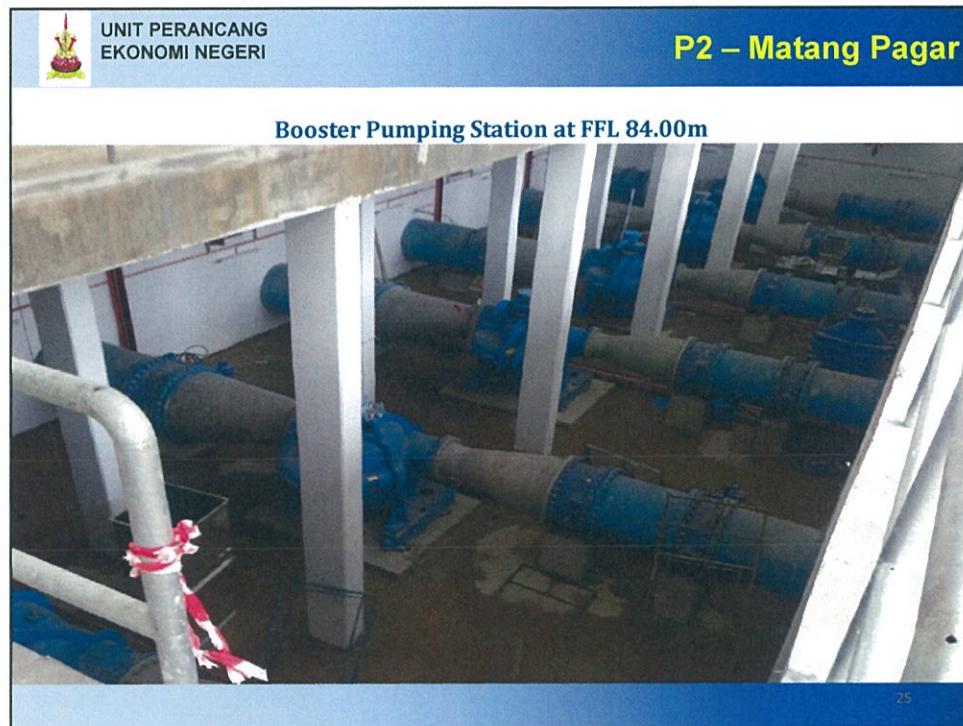
UNIT PERANCANG
EKONOMI NEGERI

P2 – Matang Pagar

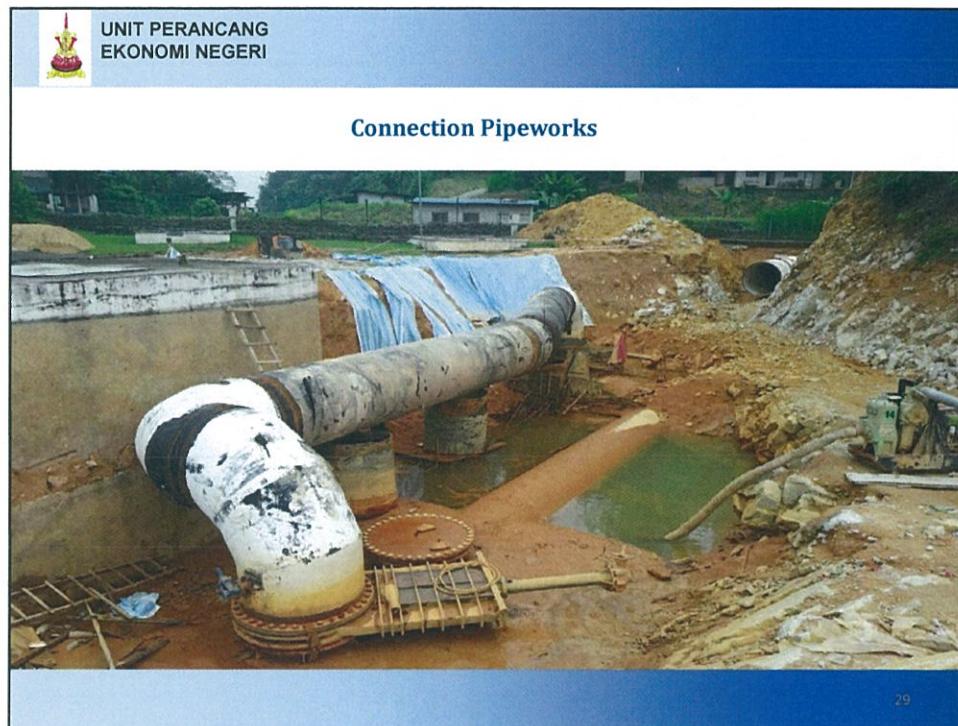
Booster Pumping Station at FFL 91.70m

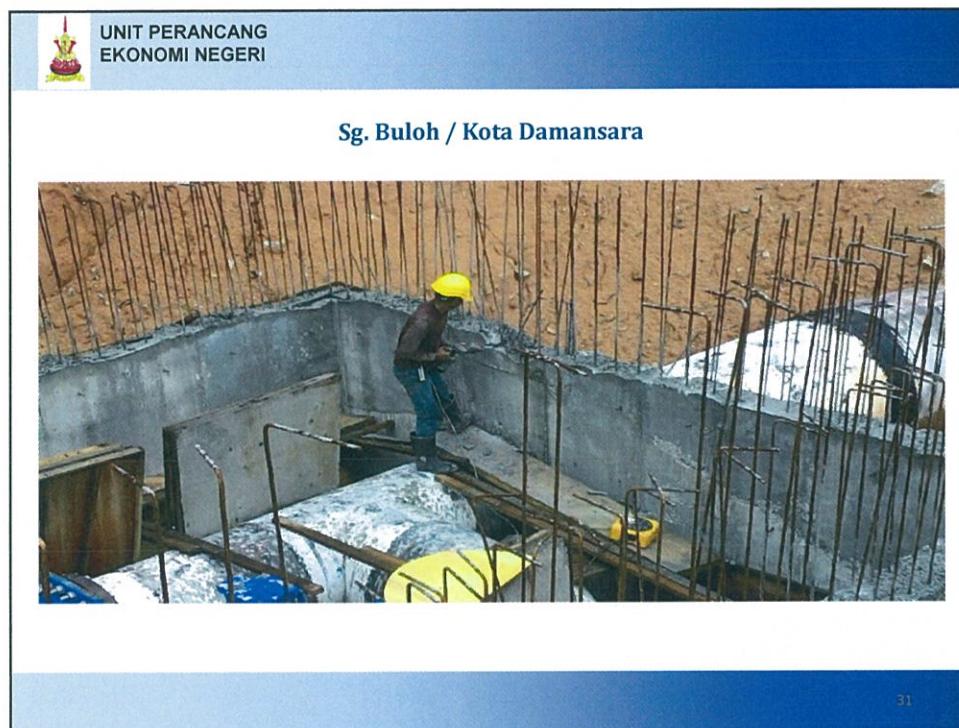
An interior photograph of the Booster Pumping Station. The space is a long, open hall with high ceilings and multiple levels. Large windows along the sides provide natural light. The floor is concrete, and there are various industrial equipment, pipes, and hoses scattered across it. A yellow safety banner hangs from the ceiling. The overall atmosphere is one of a large, functional industrial facility still in the process of being completed.

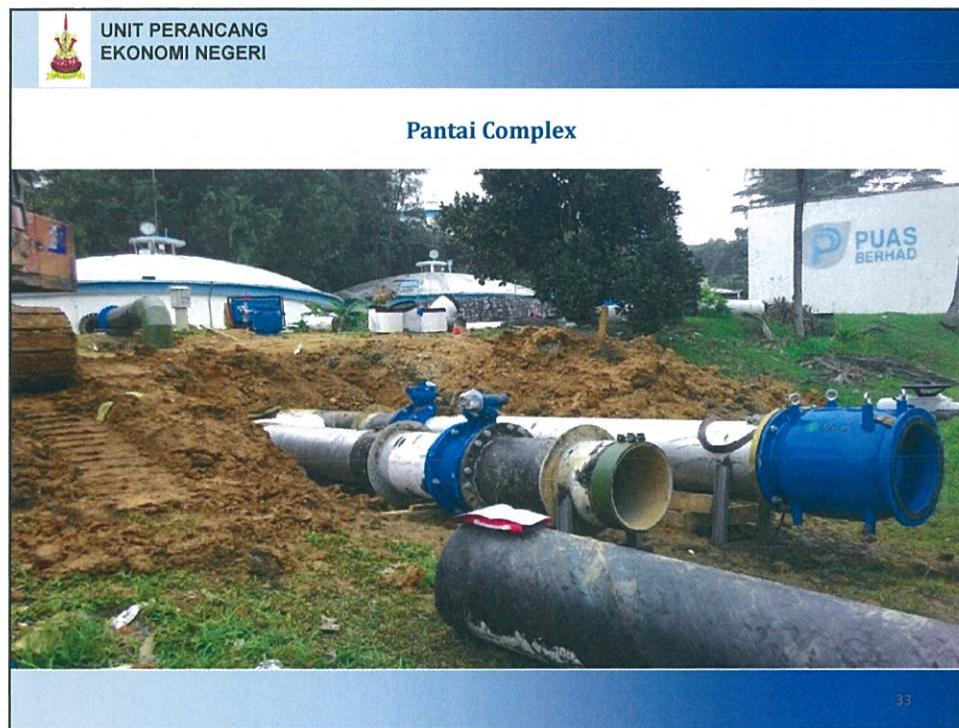
24











INDEKS

2



RANCANGAN BEKALAN AIR NEGERI SELANGOR
– PROJEK MITIGASI 2

PENGAGIHAN SEMULA KAPASITI REKABENTUK AIR TERAWAT DARI LOJI
RAWATAN AIR SUNGAI SELANGOR FASA 3 (SSP3)
PAKEJ 2: KERJA-KERJA MEMBINA STESEN PAM DI KOMPLEKS TANGKI AIR
BUKIT JELUTONG LAMA SERTA MEMBEKAL AND MEMASANG LOJI PAM
DAN PERALATAN BERKAITAN DI SHAH ALAM, DAERAH PETALING,
SELANGOR.

LAWATAN JAWATANKUASA PILIHAN KHAS PENGURUSAN SUMBER AIR
NEGERI SELANGOR (JPK-SAS) KE TAPAK PROJEK MITIGASI 2

PROGRESS PRESENTATION (SEPT 2015)

21 SEPTEMBER 2015



TAKLIMAT LAWATAN JAWATANKUASA PILIHAN KHAS PENGURUSAN SUMBER AIR
NEGERI SELANGOR (JPK-SAS) KE TAPAK PROJEK MITIGASI 2

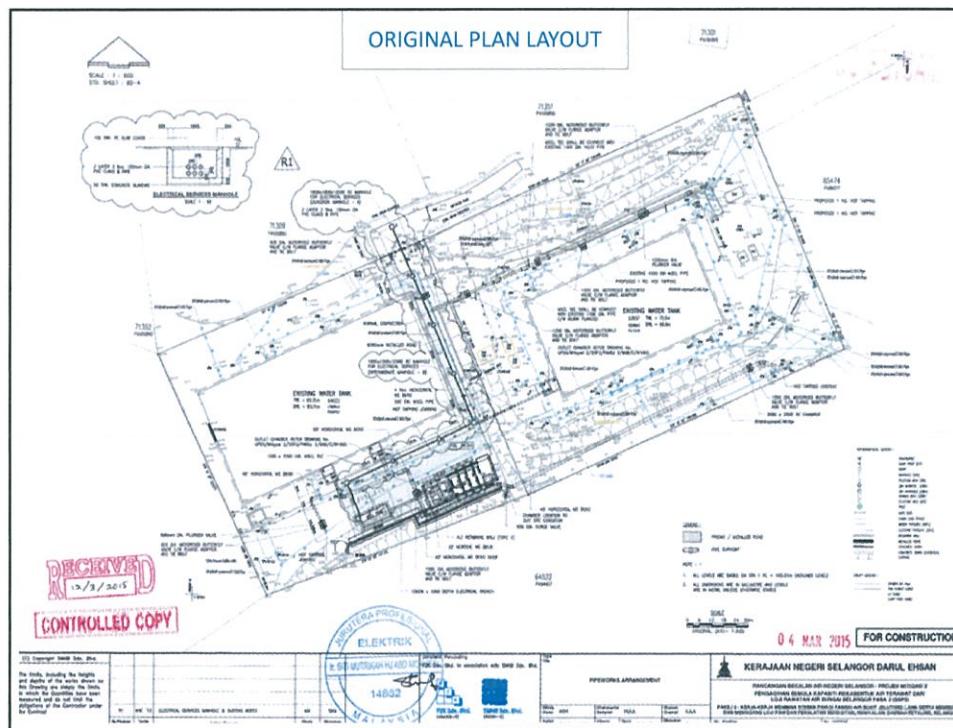
Objektif projek ini adalah untuk menyedia dan mengagihkan **210 JLH** air terawat kepada sistem bekalan air Sg Semenyih melalui penggunaan tangki imbangan HICOM. Ia dapat dicapai dengan :-

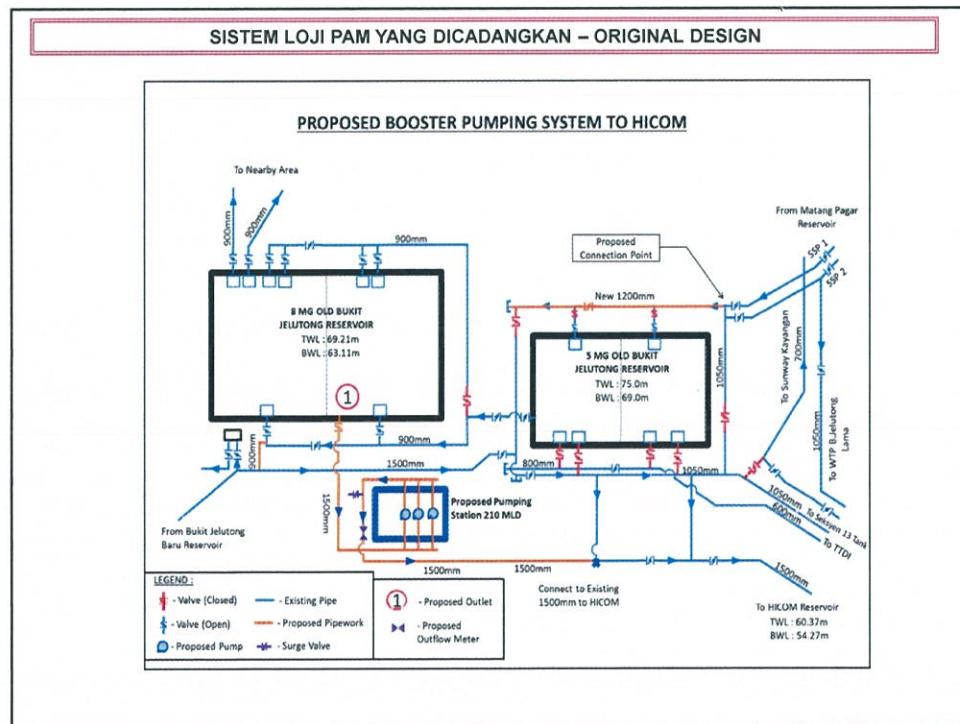
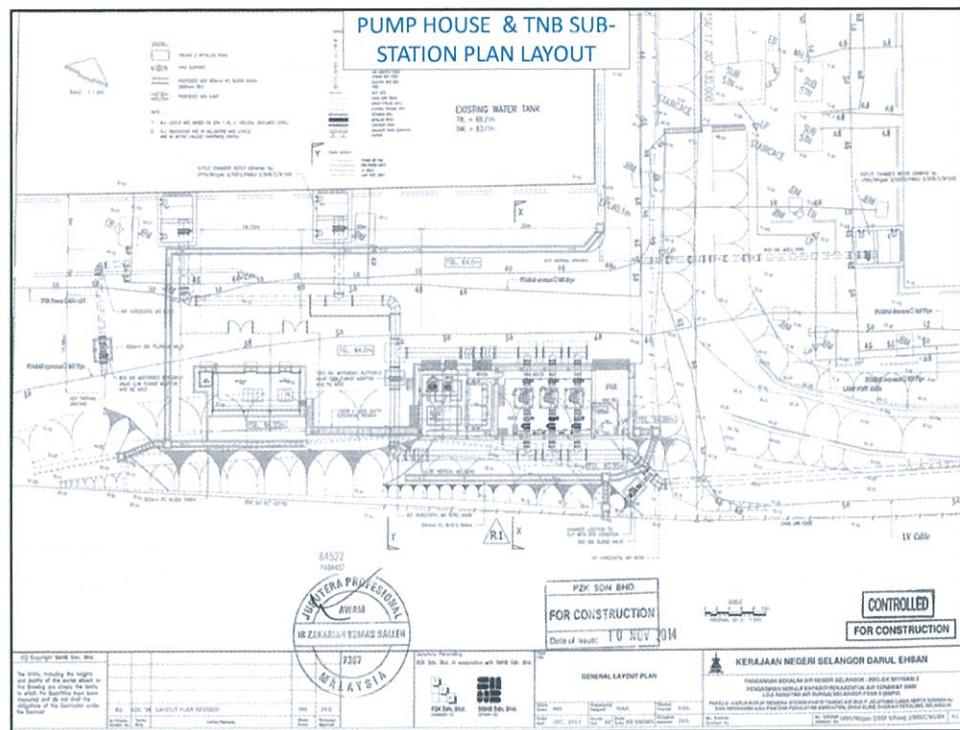
1. Mengagihkan air terawat ke tangki air Bukit Jelutong Lama melalui penambahan kapasiti di SSP1 dan SSP2.
2. Menyalurkan air terawat daripada tangki air Bukit Jelutong Baru sepenuhnya ke kawasan Klang.
3. Menggunakan tangki air Bukit Jelutong Lama secara optimum membekalkan air terawat berjumlah **210 JLH** ke tangki imbangan HICOM.

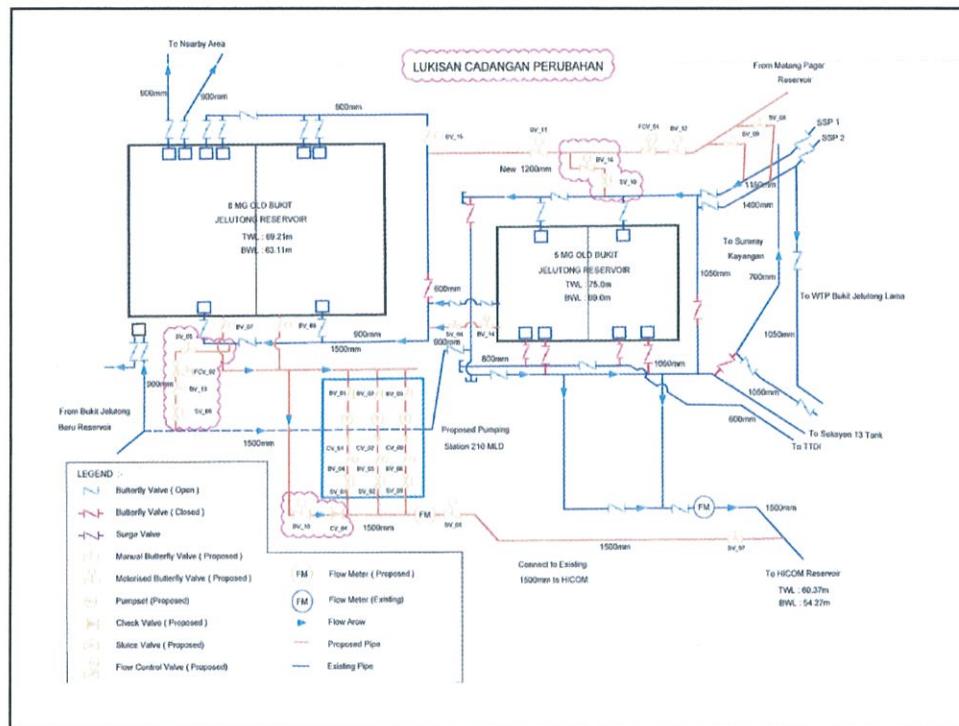
LATAR BELAKANG PROJEK

		SUMMARY OF CONTRACT	
1	Project Title	PENGAGIHAN SEMULA KAPASITI REKABENTUK AIR TERAWATDARI LOJI RAWATAN AIR SUNGAI SELANGOR FASA 3 (SSP 3) - SEBAGAI PROJEK MITIGASI KEKURANGAN BEKALAN AIR DI SELANGOR, WILAYAH PERSEKUTUAN KUALA LUMPUR DAN PUTRAJAYA	
2	Package	PAKEJ 2 : KERJA-KERJA MEMBINA STESEN PAM DI TANGKI AIR BUKIT JELUTONG LAMA SERTA MEMBEKAL DAN MEMASANG LOJI PAM DAN PERALATAN BERKAITAN, SHAH ALAM, DAERAH PETALING, SELANGOR	
3	Tender No.	2081/4/4.1	
4	Contract Sum	RM18,358,500.00	
5	Employer	KERAJANAN NEGERI SELANGOR UNIT PERANCANGAN EKONOMI NEGERI TINGKAT 16, 15, & 5 (R&D), Bangunan Sultan Salahuddin Abdul Aziz Shah, 4000 Shah Alam, Selangor Tel: 03-5544 700/114/7129 Fax: 03-5510 9229	
6	Engineering Consultant	SMHB SDN BHD No. 38, Jalan 1/76D, Desa Pandan, 55100 Kuala Lumpur. Tel: 03 - 9281 1122 Fax: 03 - 9281 1199	/ PZK SDN BHD Wisma PZK, Jln Suarasa 8/3 Lake Valley, Bdr Tun Hussein Onn 43200 Cheras, Selangor Tel: 03-90764869 Fax: 03-90749844
7	Main Contractor	IKATAN GEMAJAYA SDN BHD No. 28-2, Jalan Anggerik Vanilla W 31/W, Kota Kemuning, Seksyen 31, 40460 Shah Alam, Selangor Darul Ehsan. Tel : 03-51227363 Fax : 03-51222363	
8	Letter of Award Date	25th June 2014	
9	Date of Commencement	7th July 2014	
10	Date for Completion	6th July 2015	
11	Extension Of Time (EOT No.1)	1 st September 2015	 Ikatan Gemajaya Sdn Bhd (99641-A)









WORK PROGRESS SUMMARY

Work Progress	Month	Last Month	This Month
		31st August 2015	18th September 2015
Overall Physical Progress	Scheduled	100.00%	100.00%
	Actual	98.00%	98.60%
	Ahead / (Delay)	-2.00% -14 days	-1.40% -9 days
Overall Financial Progress	Scheduled	100.00%	100.00%
	Actual	93.92%	93.92%
	Ahead / (Delay)	-6.08%	-6.08%

Batu Gajah Maju Sdn Bhd
(888641-A)

WORK PROGRESS SUMMARY			
GENERAL & PRELIMINARIES			
NO.	TASK DESCRIPTION	REMARKS	STATUS
1.	Advance Payment	Insurance guarantee	Done
2.	Works, Public Liability & Workmen Compensation Insurances	Coverage by Multi-Purpose Insurans	Done
3.	CIDB Levy	Payment to CIDB	Done
4.	JKKP Selangor	Project notification	Done
5.	SYABAS Klang	Project notification	Done
6.	Site office for S.O. and Contractor	Shop office @ Plaza Jelutong	Done
7.	4WD Vehicle	Toyota Hilux	Done
8.	Motorcycle	Honda EX5	Done
9.	Hoarding installation	From Jln Bidai U8/13 to entrance of reservoir	Done


 Iklan Gemilang Sdn Bhd
 (599641-A)

WORK PROGRESS SUMMARY					
CIVIL WORKS			COMPLETION DATE		
NO.	TASK DESCRIPTION	REMARKS	STATUS		
TNB Station construction					
1.	Piling works – hydraulic jack in type	Completed	100%	17/11/2014	29/11/2014
2.	Structural works	Completed	100%	23/01/2015	8/02/2015
3.	Brick and plastering works	Completed	100%	10/02/2015	26/02/2015
4.	Apron and drain	Completed	100%	1/03/2014	16/03/2015
5.	Waterproofing & Painting	Completed	100%	5/03/2015	23/03/2015
6.	TNB progress inspection	Completed	100%	17/02/2015	31/03/2015
Pumphouse construction					
7.	Piling works – hydraulic jack in type	Completed	100%	8/12/2014	6/12/2014
8.	Pump area – ground slab & wall	Completed	100%	6/02/2015	6/02/2015
9.	Cast-in pipe installation	Completed	100%	24/01/2015	23/01/2015
10.	Electrical room – trench & ground slab	Completed	100%	18/02/2015	25/03/2015
11.	Loading bay – ground slab	Completed	100%	24/02/2015	26/02/2015
12.	Column and roof beam	Completed	100%	21/03/2015	25/03/2015

WORK PROGRESS SUMMARY					
INFRASTRUCTURE WORKS			COMPLETION DATE		
NO.	TASK DESCRIPTION	REMARKS	STATUS	Planned	Target
Pipe Laying					
1.	1500mm MS Pipes & fittings delivery	Completed	100%	6/02/2015	6/02/2015
2.	1500mm MS Pipes pipelaying	Completed	100%	30/03/2015	30/03/2015
3.	1200mm MS Pipes & fittings delivery	Completed	100%	30/1/2015	2/03/2015
4.	1200mm MS Pipes pipelaying	Completed	100%	16/03/2015	15/04/2015
5.	900mm MS Pipes & fittings delivery	Completed	100%	15/02/2015	6/04/2015
6.	900mm MS Pipes pipelaying	Completed	100%	23/03/2015	15/03/2015
7.	Hot-tapping works	Completed	100%	28/05/2015	28/05/2015
Outlet RC Chambers					
8.	Installation of steel bar + Hilti	Completed	100%	23/02/2015	4/04/2015
9.	Construction of outlet RC chamber	Completed	100%	23/03/2015	8/05/2015
10.	Water tightness test	Completed	100%	30/03/2015	15/05/2015
11.	Coring works	Completed	100%	27/04/2015	30/05/2015

WORK PROGRESS SUMMARY					
MECH. WORKS			DELIVERY DATE		
NO.	TASK DESCRIPTION	REMARKS	STATUS	Planned	Target
1.	System curve study	Completed	100%	7/10/2014	21/10/2014
2.	Pumpset	Completed	100%	7/04/2015	30/03/2015
3.	11-ton Crane	Completed	100%	14/03/2015	6/04/2015
4.	Butterfly valves	Completed	100%	4/04/2015	11/04/2015
5.	Sluice valves	Shut down permission From SYABAS rejected. Contractor advised to find another method.	95%	4/04/2015	11/04/2015
6.	Check valves	Completed	100%	13/04/2015	11/04/2015
7.	Plunger valves	Completed	100%	27/04/2015	17/04/2015
8.	Pipe fittings for pump	Completed	100%	7/04/2015	6/04/2015

Note:

100% - FAT progress
100% - Material delivered to site
100% - Installation completed

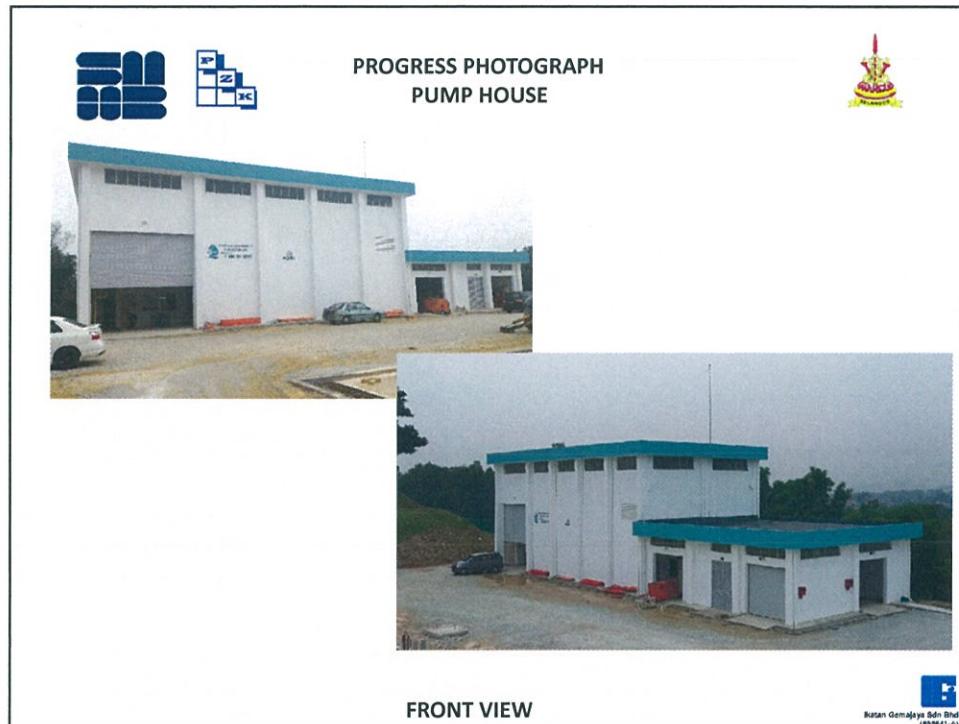
Butan Gemilajaya Sdn Bhd
(999641-A)

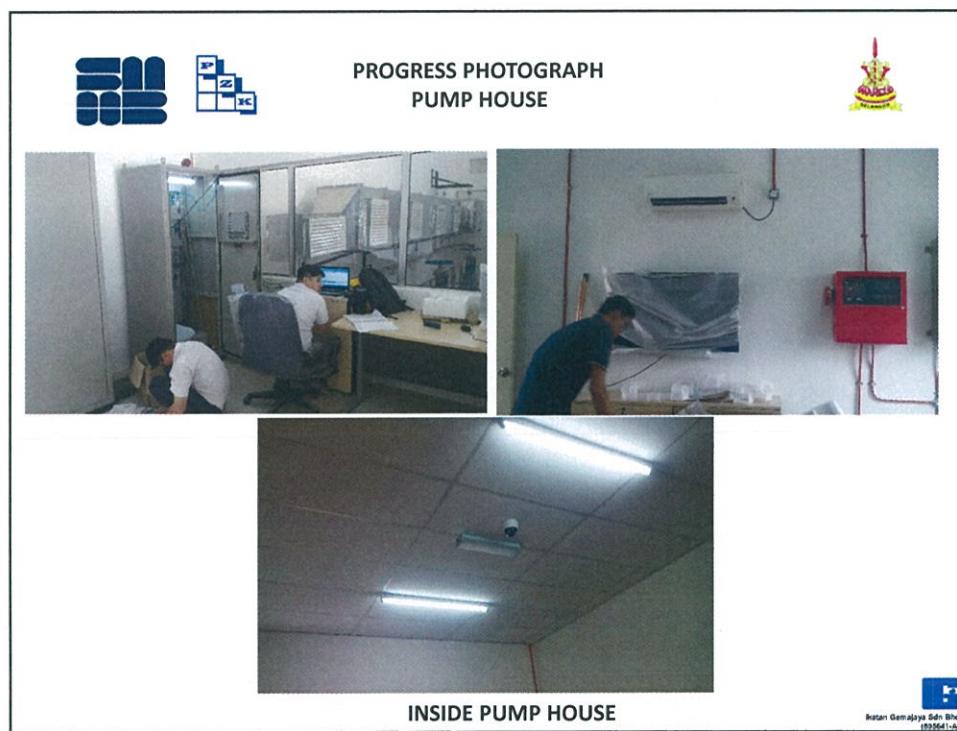
		WORK PROGRESS SUMMARY				
INFRASTRUCTURE WORKS				DELIVERY DATE		
NO.	TASK DESCRIPTION	REMARKS	STATUS	Planned	Target	
1.	Drainage	Completed	100%	7/10/2014	21/10/2014	
2.	RC Chamber @sump	Completed	100%	7/04/2015	30/03/2015	
3.	Fencing	In progress	95%	14/06/2015	14/06/2015	
4.	Road Works	In Progress	95%	25/8/2015	30/8/2015	
5.	Turfing	Completed	100%	15/6/2015	30/8/2015	
6.	Site Clearing	In Progress	98%	30/8/2015	1/09/2015	

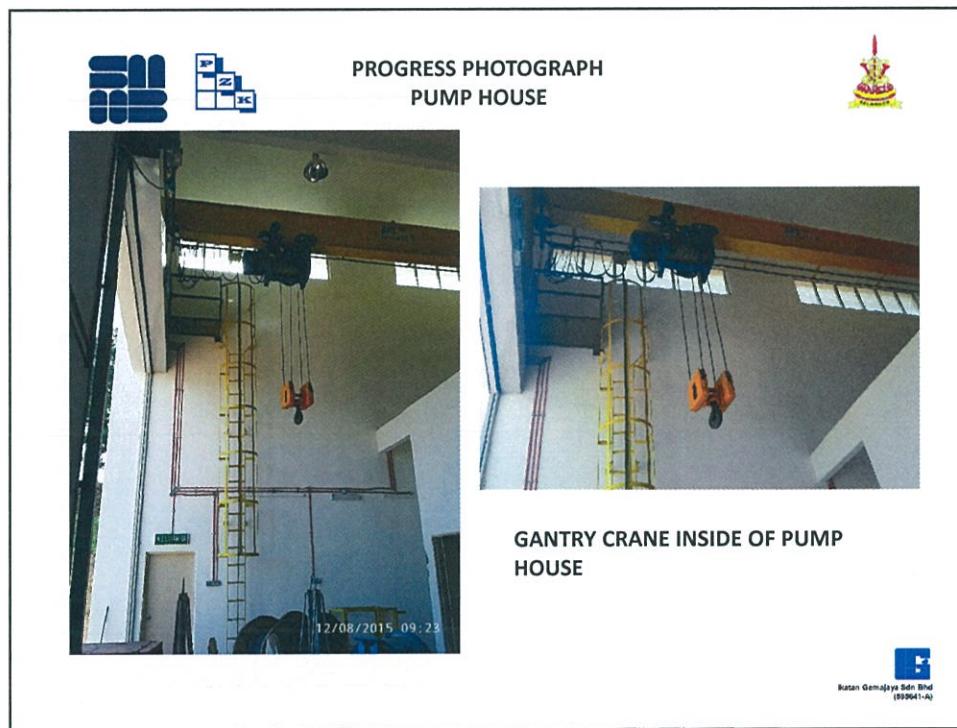
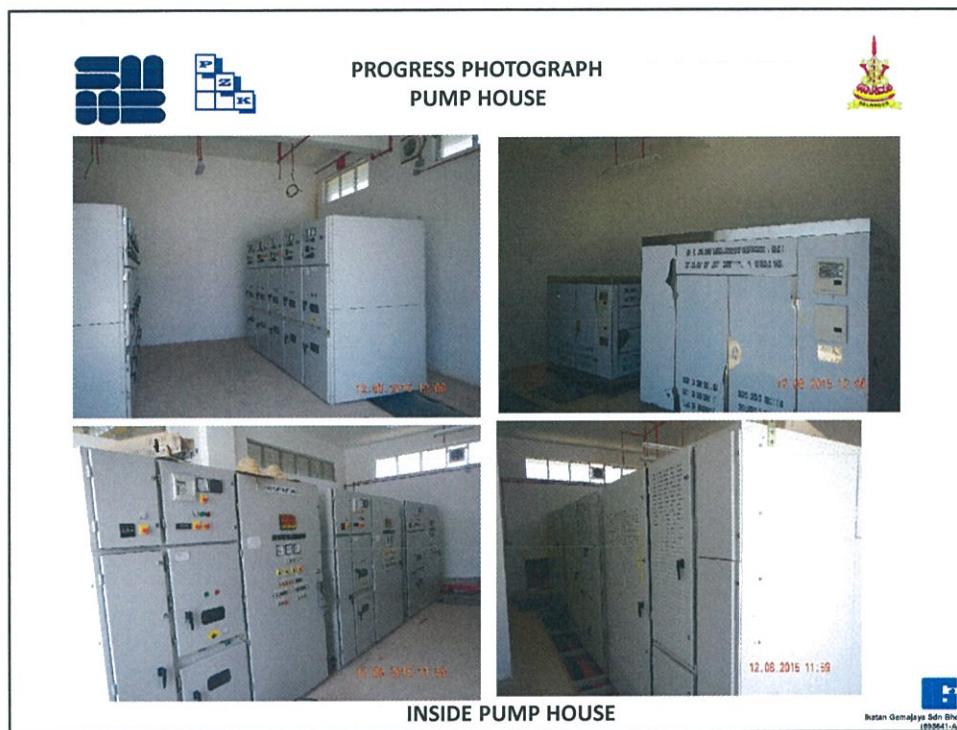

Butan Gemajaya Sdn Bhd
(099641-A)

ELECTRICAL & BUILDING SERVICE WORKS			DELIVERY DATE		
NO.	TASK DESCRIPTION	REMARKS	STATUS	Planned	Target
1.	TNB Contribution	Completed	100%	10/02/2015	31/03/2015
2.	Transformer	Completed	100%	30/03/2015	25/04/2015
3.	HT & Control Panels	Completed	100%	3/04/2015	2/04/2015
4.	Instrumentation	Completed	100%	22/4/2015	4/5/2015
5.	SCADA	Completed	100%	22/4/2015	4/5/2015
6.	Cables	Completed	100%	10/03/2015	10/04/2015
7.	Lightning protection	Completed	100%	13/04/2015	13/04/2015
8.	Fire protection system	Completed	100%	3/04/2015	3/04/2015
9.	Air-Cond & ventilation	Completed	100%	22/04/2015	22/04/2015
10.	CCTV system	Completed	100%	11/05/2015	11/05/2015
11.	Small lightings service	Completed	100%	13/04/2015	13/04/2015
12.	Distribution system	Completed	100%	3/04/2015	3/04/2015


Butan Gemajaya Sdn Bhd
(099641-A)









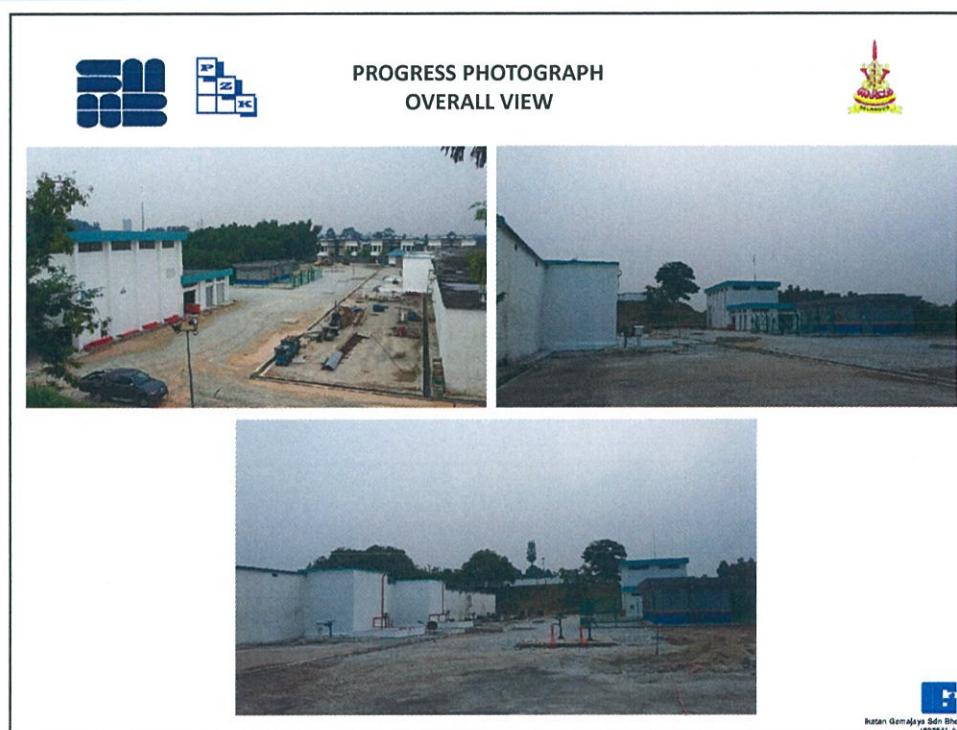
Batan Gemilang Sdn Bhd
(959641-A)



Batan Gemilang Sdn Bhd
(959641-A)

OUTLET CHAMBER





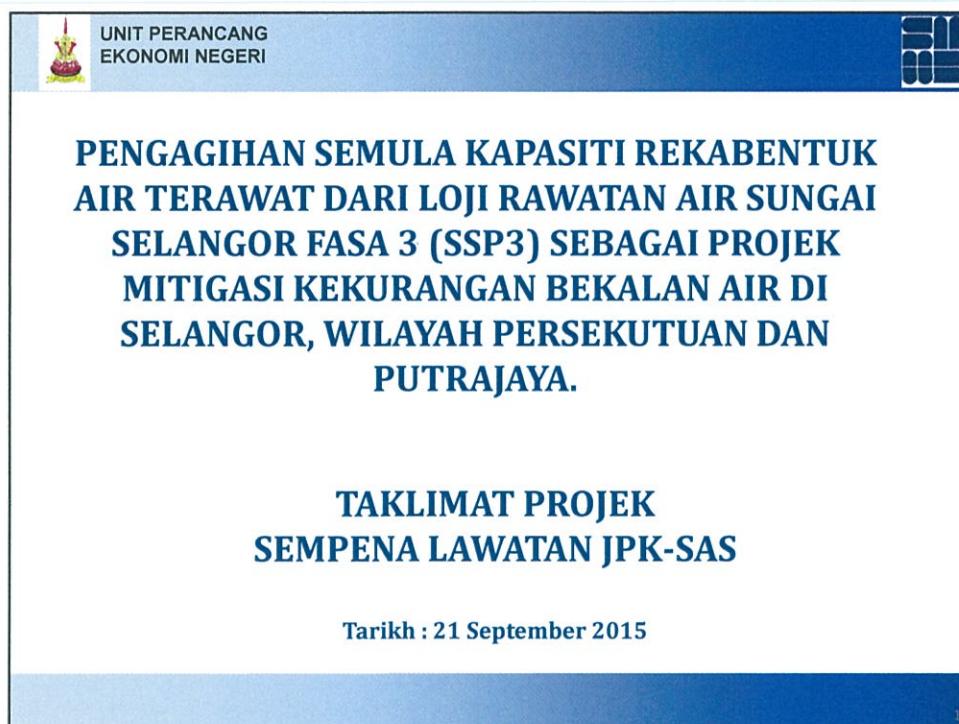


THANK YOU

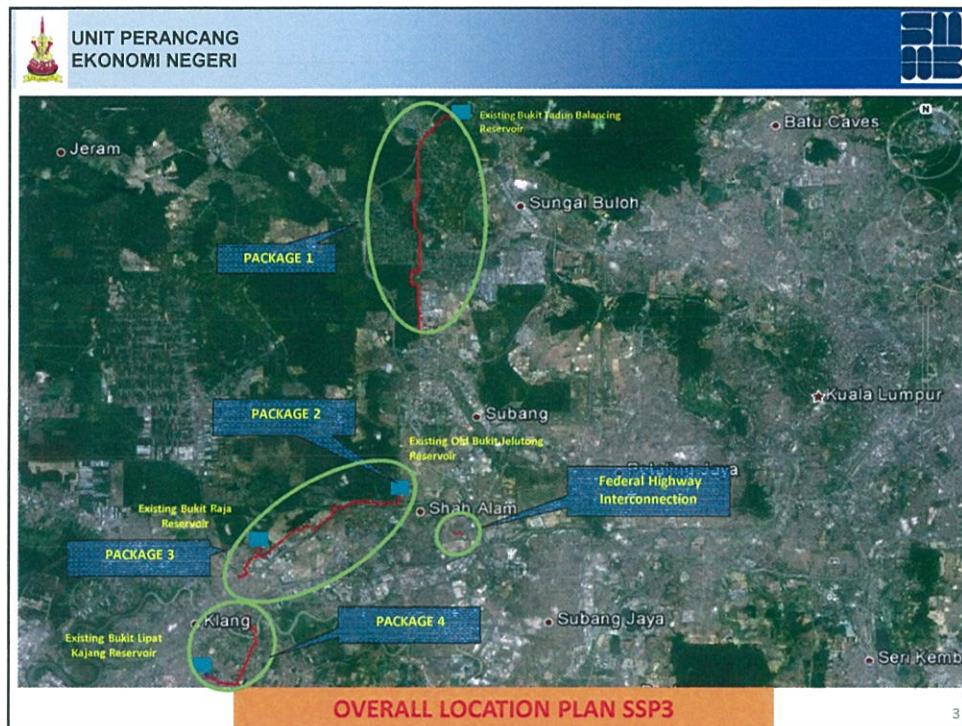


INDEKS

3



UNIT PERANCANG EKONOMI NEGERI		CONTRACT PACKAGING
PENGAGIHAN SEMULA KAPASITI REKABENTUK AIR TERAWAT DARI LOJI RAWATAN AIR SUNGAI SELANGOR FASA 3 (SSP3)		
Pakej 1: Kerja-kerja Membekal dan Memasang Paip Keluli Bergarispusat 1600 mm dari Tangki Imbangan Bukit Tadun ke Paip Penyambungan di Simpang Johawaki		LEIKA SDN BHD
Pakej 2: Kerja-kerja Membina Stesen Pam di Tangki Air Bukit Jelutong Lama serta Membekal dan Memasang Loji Pam dan Peralatan Berkaitan, Shah Alam, Daerah Petaling, Selangor		IKATAN GEMAJAYA SDN BHD
Pakej 3: Kerja-kerja Membekal dan Memasang Paip Keluli Bergarispusat 1200 mm dan Kerja-kerja Berkaitan dari Bukit Jelutong, Shah Alam, ke Bukit Raja, Klang, Selangor		LGB -TALIWORKS JV
Pakej 4: Kerja-kerja Membekal dan Memasang Paip Keluli Bergarispusat 1300 mm dari Jalan Landasan ke Tangki Air Bukit Lipat Kajang dan Kerja-kerja Paip Berkaitan, Daerah Klang, Selangor		ANG YOKE LIAN CONSTRUCTION SDN BHD



UNIT PERANCANG EKONOMI NEGERI		Pakej 1 (Bukit Tadun - Johawaki)
Pegawai Penguasa		Pengarah UPEN
Kontraktor	:	LEIKA SDN BHD
Harga Kontrak	:	RM50,692,210.00
Maklumat Kerja	:	Tarikh Milik Tapak : 14 Februari 2014 Tarikh Siap Asal : 13 Februari 2015 Tempoh Kontrak : 12 bulan Tempoh Tanggungan Kecacatan: 12 bulan Tarikh Siap Berdasarkan EOT NO.1 : 29 Julai 2015
		Kemajuan Fizikal (18 Sept 2015) : 98.70% A / 100% S (Kelewatan 1.3%)
		Kemajuan Kewangan (18 Sept 2015) : 87.7% A / 100% S

UNIT PERANCANG EKONOMI NEGERI

P1 – Bukit Gasing

JUSTIFIKASI LANJUTAN MASA (EOT NO.1)

a) Terdapat rumah yang dibina berdekatan sempadan rezab paip sediada di Kg. Kubu Gajah. Satu strip daripada Lot No. 3642 di Kg. Kubu Gajah, Daerah Petaling diambil milik bagi memudahkan pemasangan paip baru.

Lanjutan masa berdasarkan Syarat-syarat Kontrak Klaus 43.1(g) - delay in giving possession of the Site as provided under clause 38.4 hereof other than claim in effecting insurance and Performance Bond.

5



Pakej 1 (Bukit Tadun - Johawaki)



**UNIT PERANCANG
EKONOMI NEGERI**



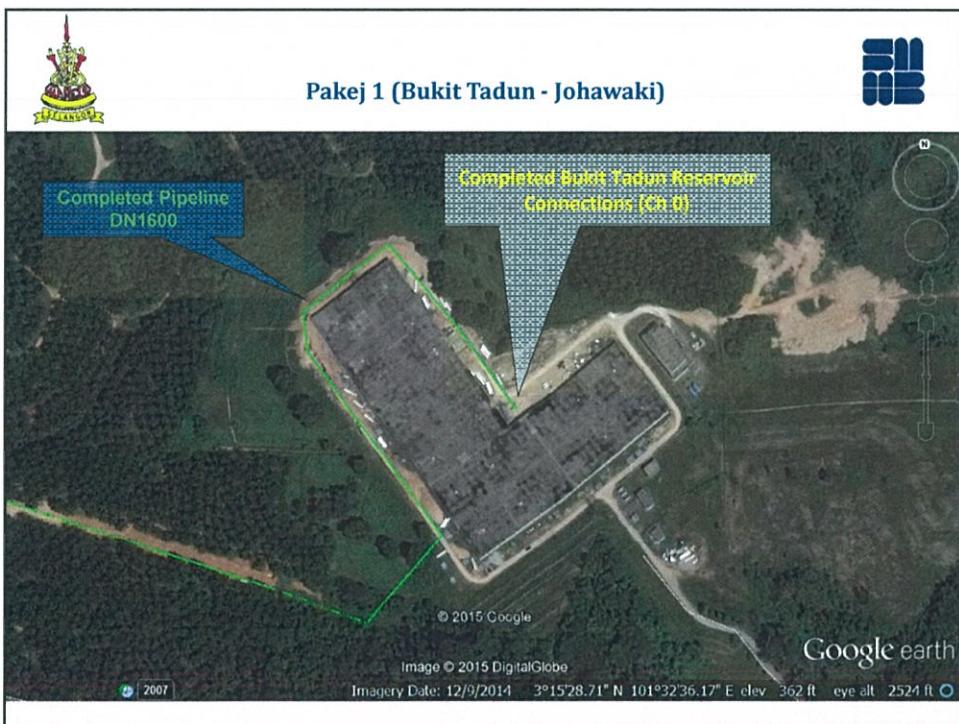
Completed Works

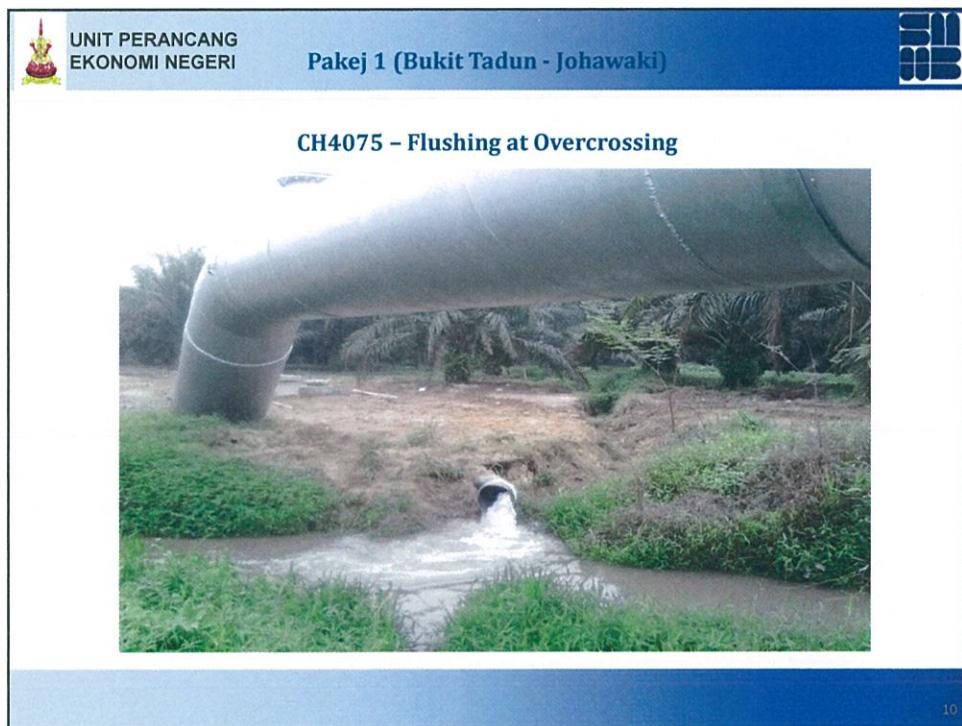
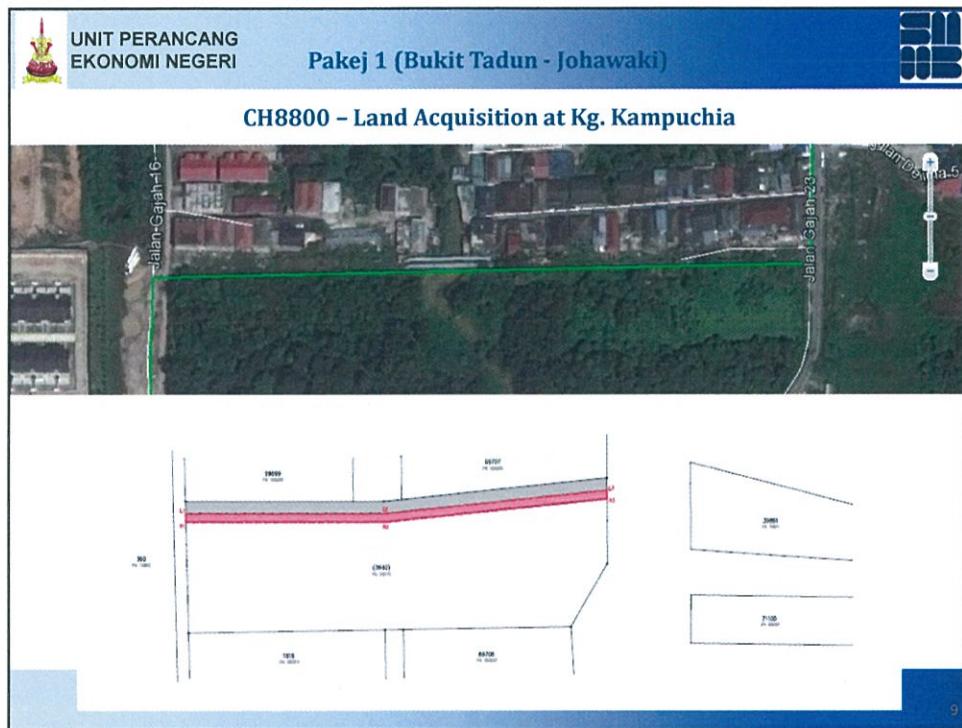
Works	Quantities
1600mm Pipeline	12750 m
Steel Structure Overcrossings	5 nos
Tadun Connection Chambers	4 nos
Interconnection Pipe Works	2 nos
Flowmeter / Switchboard / Scada	1 no

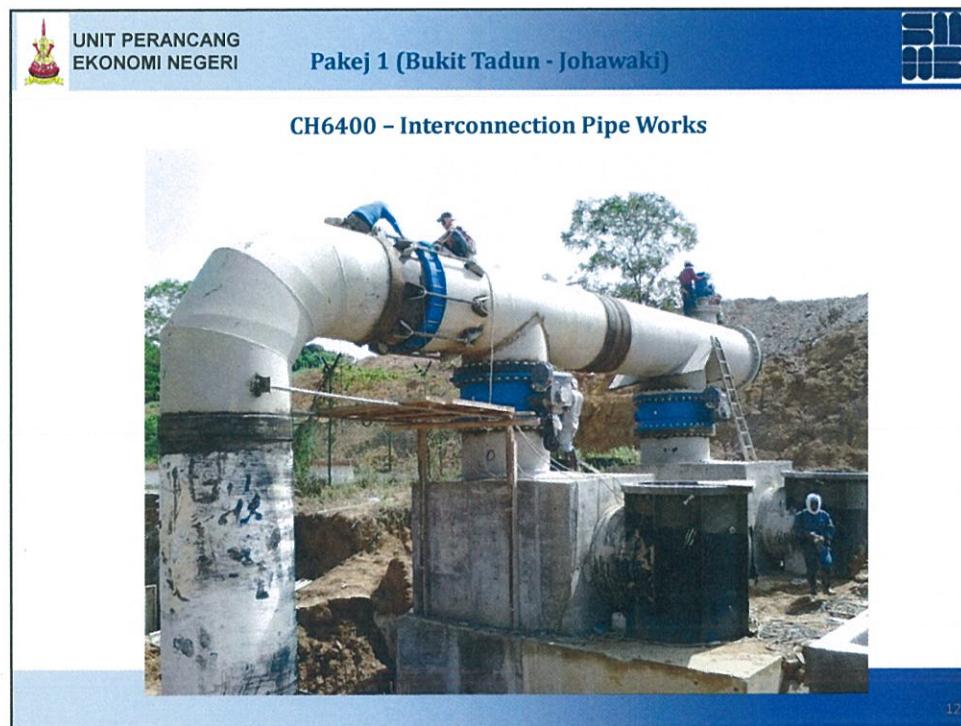
Outstanding Works

Works	Quantities
In-line isolation valve at Johawaki	1 no
Hot tapping at CH6400 and CH12085	4 nos

7







UNIT PERANCANG
EKONOMI NEGERI

Pakej 1 (Bukit Tadun - Johawaki)

CH12085 - Interconnection Pipe Works

The left photograph shows a large, horizontal industrial pipe with blue insulation and various fittings, situated outdoors on a dirt ground. The right photograph shows a vertical pipe being lowered or positioned by a crane, with workers visible near the base.

13

UNIT PERANCANG
EKONOMI NEGERI

Pakej 3 (Bukit Jelutong - Bukit Raja)

Pegawai Penguasa	:	Pengarah UPEN
Kontraktor	:	LGB -TALIWORKS JV
Harga Kontrak	:	RM30,639,779.00
Maklumat Kerja	:	Tarikh Milik Tapak : 7 Julai 2014 Tarikh Siap Asal : 6 Julai 2015 Tempoh Kontrak : 12 bulan Tempoh Tanggungan Kecacatan: 12 bulan
Tarikh Siap Berdasarkan EOT NO.1 : 8 Disember 2015		
	Kemajuan Fizikal (18 Sept 2015) : 81.40% A / 84.50% S (Kelewatan 3.1%)	
	Kemajuan Kewangan (18 Sept 2015) : 79.30% A / 82.70% S	

14

**UNIT PERANCANG
EKONOMI NEGERI**

P1 – Bukit Gasing

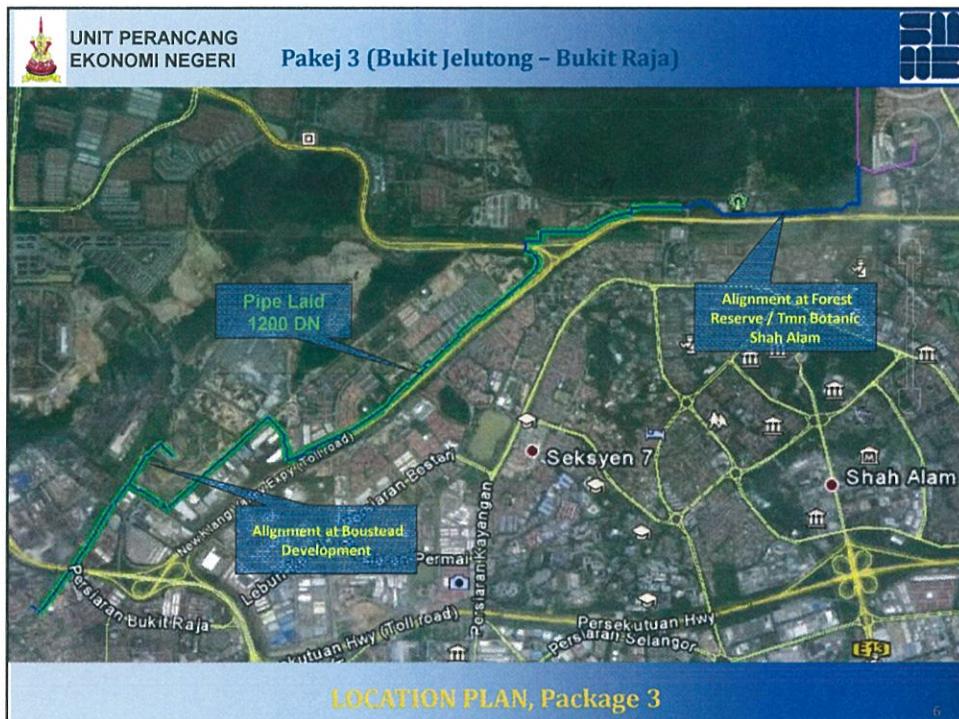
IJUSTIFIKASI LANJUTAN MASA (EOT NO.1)

a) Permohonan permit JPNS adalah untuk pemasangan paip di CH.0 sehingga CH.1800 termasuk pemasangan 90m span *steel truss overcrossing* tasik Taman Botani Negara Shah Alam dan pembinaan akses masuk ke rezab gas PETRONAS. Mesyuarat Majlis Mesyuarat Kerajaan Negeri Ke 20/2015 yang bermesyuarat pada 24 Jun 2015 telah meluluskan secara dasar permohonan permit penggunaan. Walaubagaimanapun, pihak kontraktor perlu menyediakan bank draf bagi caj yang dikenakan oleh JPNS dan melantik subkontraktor pembalakan yang dicadangkan oleh JPNS bagi menjalankan kerja-kerja pembalakan yang melibatkan jajaran paip di CH.0 sehingga CH.1800 dan pembinaan akses masuk ke rezab gas PETRONAS bagi pemasangan paip di jajaran CH.360 sehingga CH.410.

b) Kelewatan permit *pipe jacking* Lebuhraya Selat Klang dan NKVE disebabkan kelewatan surat kelulusan bersyarat oleh LLM, diperoleh pada 29 Januari 2015. Walaubagaimanapun kontraktor perlu memenuhi syarat-syarat permohonan permit kerja LLM/PLUS/SHAPADU. Permit *pipe jacking* Lebuhraya Selat Kelang telah diperoleh pada 3 Julai 2015.

Lanjutan masa berdasarkan Syarat-syarat Kontrak Klaus 43.1(g) - delay in giving possession of the Site as provided under clause 38.4 hereof other than claim in effecting insurance and Performance Bond.

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**UNIT PERANCANG
EKONOMI NEGERI**

Pakej 3 (Bukit Jelutong – Bukit Raja)

SM
BDB

Aktiviti	Jumlah rekabentuk	Jumlah dilaksanakan	Peratus
Pemasangan paip	10586 m	8363 m	79%
Hot Tapping	2 nos	(Piloting & site study)	15%
Pipe Overcrossing	2 nos	(Fabrication steel truss in progress)	42%
Pipe jacking -NKVE -Lebuhraya Selat Klang -Jalan Waja	3 nos	1 no. done (Jalan Waja) Pits construction in progress (Selat Klang)	49%
Inlet chamber at Bukit Raja reservoir	2 nos	(Construction in progress)	80%

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UNIT PERANCANG
EKONOMI NEGERI

Pakej 3 (Bukit Jelutong – Bukit Raja)

CH1900 - Pipelaying at Persiaran Gunung Nuang



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UNIT PERANCANG
EKONOMI NEGERI

Pakej 3 (Bukit Jelutong – Bukit Raja)

Fabrication of steel truss overcrossing



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UNIT PERANCANG
EKONOMI NEGERI

Pakej 3 (Bukit Jelutong - Bukit Raja)

Inlet chamber at Bukit Raja Reservoir



21

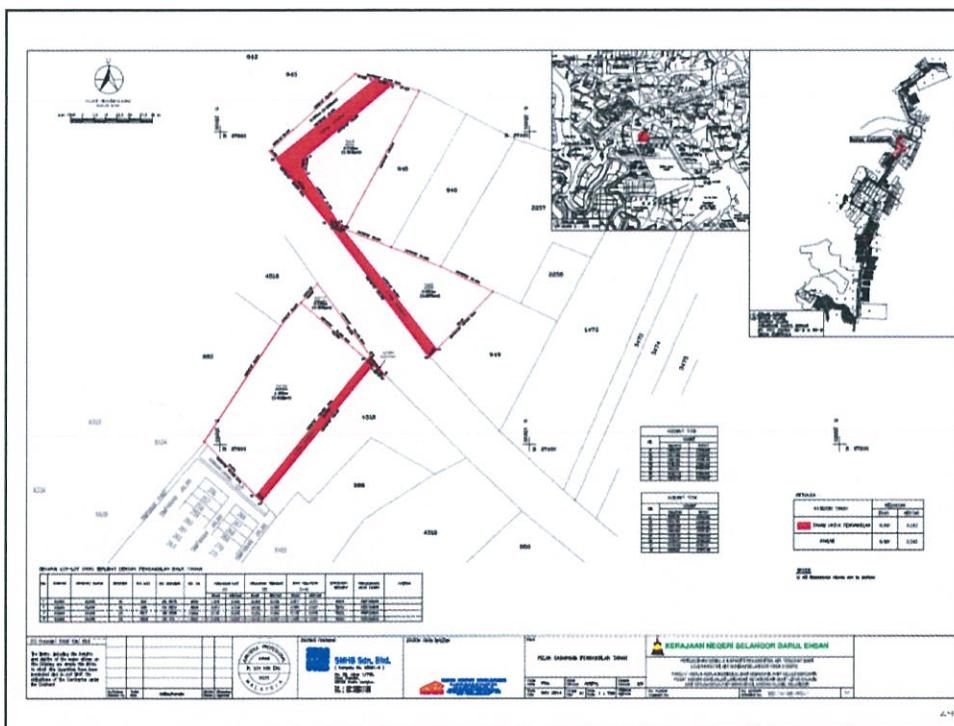
UNIT PERANCANG
EKONOMI NEGERI

Pakej 4 (Jalan Landasan - Bukit Lipat Kajang)

Pegawai Penguasa	:	Pengarah UPEN
Kontraktor	:	ANG YOKE LIAN CONSTRUCTION SDN BHD
Harga Kontrak	:	RM29,063,052.50
Maklumat Kerja	:	Tarikh Milik Tapak: 7 Julai 2014
		Tarikh Siap Asal : 6 Julai 2015
		Tempoh Kontrak : 12 bulan
		Tempoh Tanggungan Kecacatan: 12 bulan
		Tarikh Siap Berdasarkan EOT NO.1 : 23 November 2015
		Kemajuan Fizikal (18 Sept 2015) : 82.30% A / 87.00% S (Kelewatan 4.7%)
		Kemajuan Kewangan (18 Sept 2015) : 81.80% A / 86.30% S

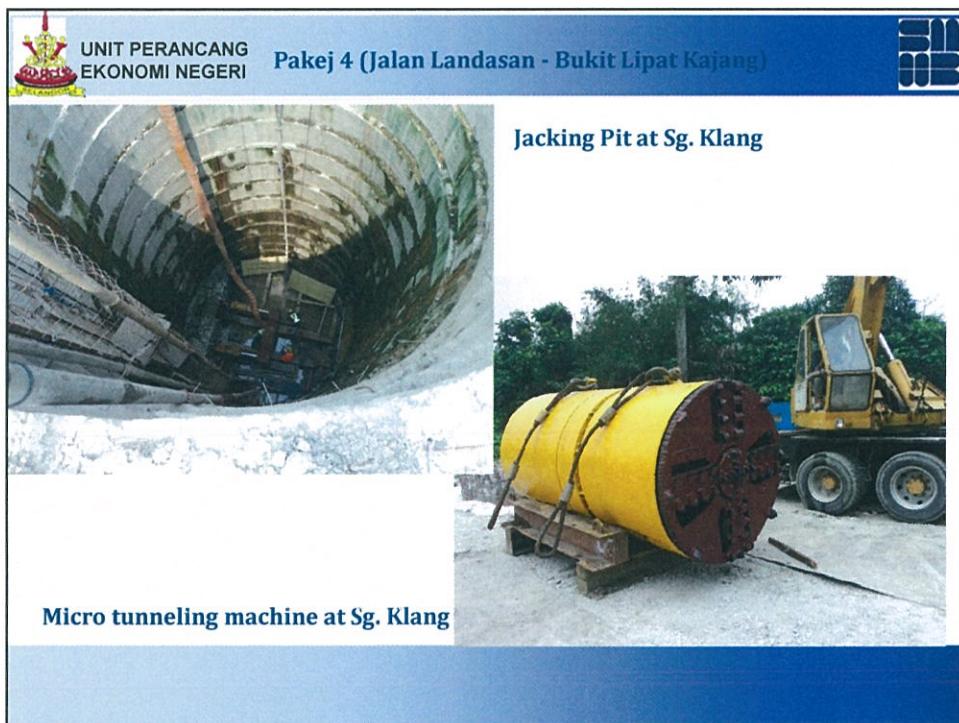
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 UNIT PERANCANG EKONOMI NEGERI	P1 – Bukit Gasing
<u>JUSTIFIKASI LANJUTAN MASA (EOT NO.1)</u>	
<p>a) Kelewatan pengeluaran Permit Kerja oleh Majlis Perbandaran Klang (MPK) dan Jabatan Kerja Raya (JKR). Permit MPK diperoleh pada 2 Mac 2015 dan permit JKR dianggarkan diperoleh pada 4 Jun 2015.</p> <p>b) Kelulusan bersyarat LLM dan PAK/KTMB masing-masing diperoleh pada 29 Januari 2015 dan 6 Julai 2015. Walaubagaimanapun kontraktor perlu memenuhi syarat-syarat permohonan permit kerja LLM/PLUS dan PAK/KTMB.</p> <p>b) Cadangan jajaran paip di bawah jalan sediada di Jalan Bukit Jati 6A dan Jalan Kecubong, walaubagaimanapun status jalan adalah tanah hak milik. Pengambilan balik tanah di lot-lot berkaitan wajar dibuat bagi menyelesaikan isu tanah tersebut.</p> <p>Lanjutan masa berdasarkan Syarat-syarat Kontrak Klausula 43.1(g) - <i>delay in giving possession of the Site as provided under clause 38.4 hereof other than claim in effecting insurance and Performance Bond.</i></p>	
23	

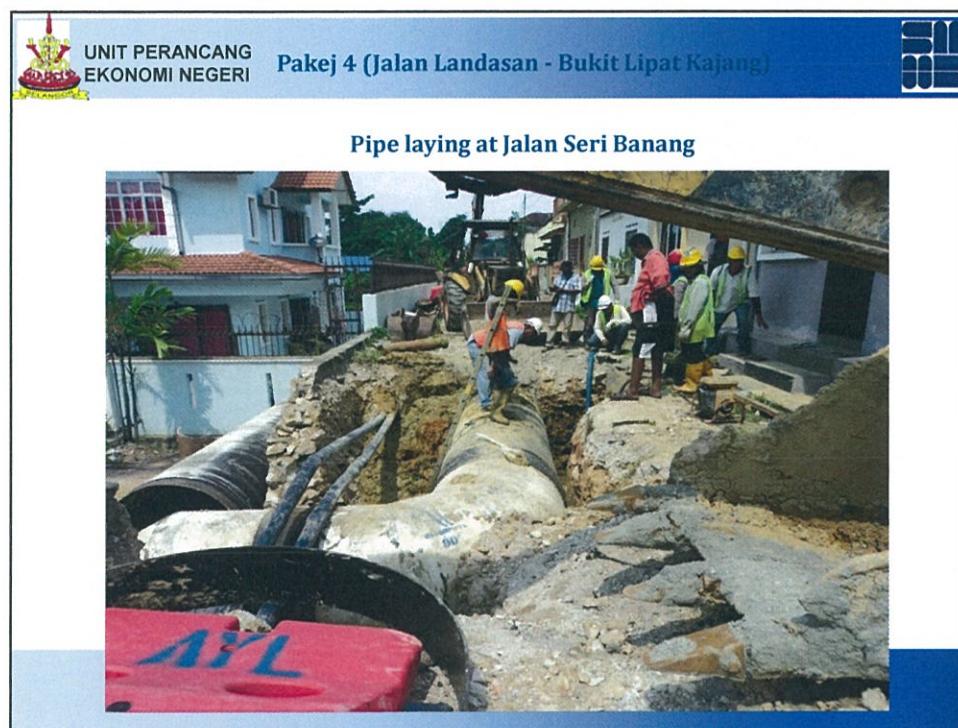




Aktiviti	Jumlah rekabentuk	Jumlah dilaksanakan	Peratus	Outstanding
Pemasangan paip	5700 m	4332 m	76%	Jln Bukit Jati 6A / Jln Kecubong, Jalan Kota Raja, Jalan Raja Jumaat, Taman Rakyat
Hot Tapping	2 nos	1 no. (Jalan Landasan)	50%	1 no at Federal Highway
Line Stopping	1 nos	0	0%	1 no at Federal Highway
Pipe jacking -Sg. Klang -JKR road -MPK road -Federal Highway -KTMB rail track	1 nos 2 nos 2 nos 1 nos 1 nos	(Pipejacking in progress) (Pits construction at Jln Kota Raja in progress) (Pipejacking at Jln Raja Jumaat in progress) 2 0 0	Overall 49%	
Inlet chamber of Bukit Lipat Kajang	4 nos	(Construction in progress)	39%	









INDEKS

4

SYARIKAT BEKALAN AIR SELANGOR SDN. BHD. (Formerly
A Subsidiary of Puncak Niaga Holdings Berhad)

*Supplier of Quality
Clean Water*

PERANCANGAN KE ARAH PENURUNAN JUMLAH NON-REVENUE WATER (NRW)

07 SEPTEMBER 2015

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D-7	Pipe replacement program
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F	GOING FORWARD



A. OVERVIEW OF NRW

A-1 NRW TARGET-CA

Klausus 20 Dalam CA – Non Revenue Water

The Company undertakes to reduce Non-Revenue Water to a level of fifteen percentum (15%) by the year 2015 PROVIDED THAT if the costs to achieve such levels of losses are in excess of the economic benefits to be derived, the parties shall negotiate the new and more appropriate levels to be achieved. The State Government shall use its best endeavours to provide all such assistance as may be reasonably required of it by the Company to enable the Company to comply with its undertakings under Clause 19 and 20.

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A. OVERVIEW OF NRW

A-1 NRW TARGET-CA

Under the Concession Agreement (CA), SYABAS is to progressively reduce Non-Revenue Water (NRW) from 42.78% to the interim and ultimate targets as summarized below:-

OPERATING PERIOD	TARGET (%)	CUMULATIVE TARGET (%)
1/1/2005 (COMMENCEMENT OF CONCESSION AGREEMENT CA)	42.78	
FIRST (1/1/2005-31/12/2005)	37.78	5.00
SECOND (1/1/2006-31/12/2008)	27.98	14.80
THIRD (1/1/2009-31/12/2011)	19.98	22.80
FOURTH (1/1/2012-31/12/2014)	15.48	27.30
FIFTH (1/1/2015-31/12/2017)	15.00	27.78
(END OF CA) (31/12/2034)	15.00	

Table 1: NRW Target

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A. OVERVIEW OF NRW

A-2 BASELINE OF CA

- Beginning of CA: 1 January 2005
- Reference NRW level for Selangor, WP KL dan Putrajaya : 42.78%

Where

- System Input Volume (SIV): 3,766 Million litre per day (Mld)
- Billed Consumption : 2,155 Mld
- NRW : 1,611 Mld or 42.78%

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A. OVERVIEW OF NRW

A-3 DIFFERENCE BETWEEN ASSET PROVISION (CA VS ACTUAL)

Distribution Network much bigger than informed.

The existing assets can be summarised as follows:

List of Assets	As recorded in CA	Actual SYABAS Record	Difference
i) Pipe length	10,000 km	25,000 km	15,000 km
ii) Service reservoir	570 nos	1,500 nos	930 nos
iii) Booster pump	240 nos	600 nos	360 nos
iv) All valves	Not listed	129,200	129,200

In order to manage the losses within the additional pipe length system, SYABAS would have to put in extra efforts and financial resources together with additional NRW programs to manage this under-declared 15,000 km pipe lines. The additional length also resulted in more burst and leaks leading to higher repair cost and obviously higher NRW.

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A. OVERVIEW OF NRW

A-4 NRW COMPONENTS

Total System Input Volume (100%) 4,666 (Mid)	Consumption (68%) 3,195 Mid	Billed Consumption (68%) 3,180 Mid	Revenue Water (68%) 3,180 Mid
		Unbilled Authorised Consumption (UAC) ie: Fire fighting work, water quality improvement work etc. (0.3%) 15 Mid	
	Water Losses (31.5%) 1,471 Mid	Commercial Losses (9%) 450 Mid a) Meter under registration d) Meter not read b) Reading errors e) Illegal tapping c) Modified meter	Non revenue water 1,486 Mid (31.85%)
		Physical Losses (22%) 1,021 Mid a) Pipe bursts and leaks d) Reservoir overflow and leak b) Leak at fittings c) NRR (due aging infrastructure)	

Note: Based on data as of July 2015 (yearly average)



A. OVERVIEW OF NRW

A-5 NRW COMPUTATION

As per Clause 11.3 (6) (e) of the CA, the percentage of NRW for a measuring period shall be determined as follows:

$$\text{NRW (\%)} = \frac{(\text{Qin} - \text{Qmetered})}{\text{Qin}} \times 100\%$$

Where

Qin = Total Quantity of water supplied in m³ into the distribution area over a measuring period.

Qmetered = Total quantity of water in m³ consumed by consumers within the distribution area during the corresponding period.



A. OVERVIEW OF NRW

A-6 NATURAL RATE OF RISE

In relation to NRW reduction effort, the effect of Natural Rate of Rise (NRR) should not be overlooked.

As acknowledged by international NRW experts, all water distribution networks will inherently experience increase in background leakage directly proportional to:

- (a) total length of pipelines;
- (b) condition and age of distribution network;
- (c) consumer connections;
- (d) average system pressure.

The rate that new leaks are being generated and hence NRW losses due to the above factors is widely known as NRR.

As an international practice, intervention work has to be carried out on a continuous basis to contain NRR effectively or else the increase in background losses will lead to escalation in NRW.

SYABAS NRR is computed at 1.8% from total production per year.

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B. NRW ACHIEVEMENT

B-1 OVERVIEW

SYABAS Reduced NRW Quickly In First Four Years (2005-2008)

The overall NRW level has been reduced from 42.78% to 33.0% as at 2008, representing a total reduction of 10% over the four (4) year period.

The total NRW reduction achieved since 1 January 2005 can be summarized as follows:

Period	Production	Billed consumption	NRW	
			Mid	Mid
(A) 1 January 2005	3,766	2,155	1,611	42.78
(B) 31 December 2008 (Avg)	3,867	2,584	1,283	33.17
Difference (B-A)	+101 or 2.7%	+429 or 19.9%	-328	-9.61 (Reduction)

Production increase = 101 Mid or 2.7%

Consumption increase = 429 Mid or 19.9%

The increase in billed consumption is attributed to natural growth of demand and commercial loss reduction.

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B. NRW ACHIEVEMENT

B-1 OVERVIEW

NRW Effort Hampered Since 2008

In reviewing the NRW reduction program achieved by SYABAS, we would like to highlight that SYABAS effort to further reduce the NRW level to the set target was hampered and impeded by the following issues which directly limited SYABAS ability and resources in carrying out the planned NRW works as follows:-

- i) Limited approval of planned and proposed CAPEX program by SPAN starting July 2008;
- ii) Cash flow problem faced by SYABAS due to delay in the implementation of tariff adjustment for three (3) consecutive periods on 1 Jan 2009, 1 Jan 2012 and 1 Jan 2015 by the Government;
- iii) The negative effect on financing capacity resulting from the proposed restructuring of Selangor water supply sector
- iv) A bigger distribution network and hence higher level of leakage that SYABAS has to bear due to inaccurate record of CA which under quoted the actual assets

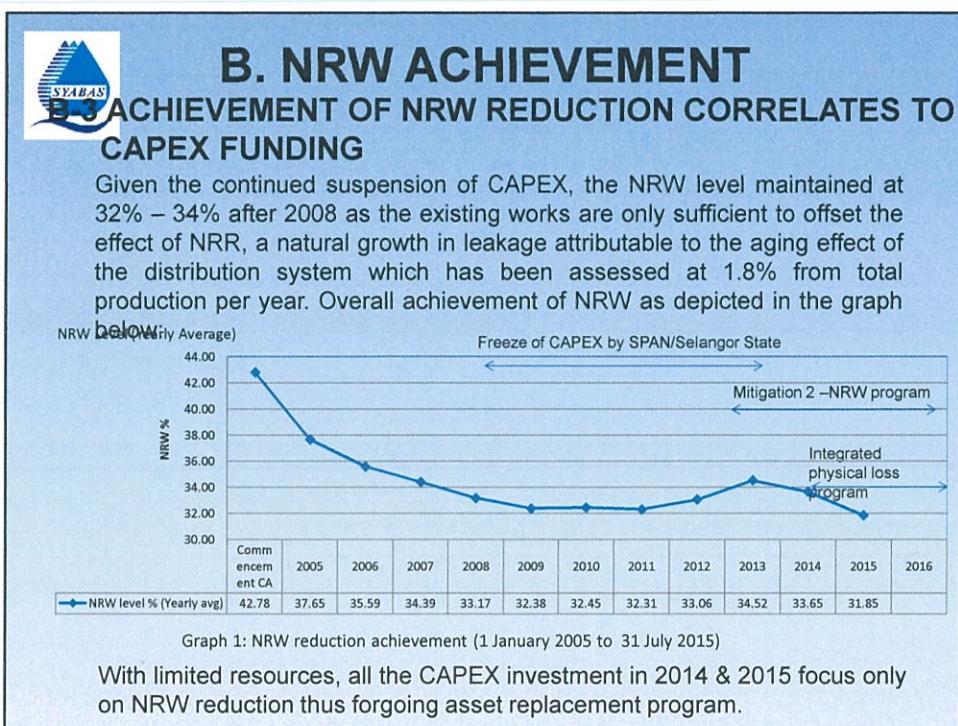


B. NRW ACHIEVEMENT

B-2 NRW PROGRAM (PROPOSED VS ACTUAL)

Value of proposed against approved funding in 3rd and 4th Operating Period for NRW programs are summarized in table below.

No	Program	3rd Operating Period (2009-2011)		4th Operating Period (2012-2014)		Total Proposed (RM Mil)	Total Approved (RM Mil)	% Approved
		Proposed (RM Mil)	Approved (RM Mil)	Proposed (RM Mil)	Approved (RM Mil)			
1	Meter replacement/New dev. Meter	36	48	95	95	131	143	109%
2	Pipe replacement	432	102	800	96	1,232	198	16%
2	Corro pipe replacement	187	0	150	6	337	6	2%
3	Reservoir overflow monitoring SCADA	67	27	38	2	105	29	28%
4	Reservoir overflow monitoring Logger	12	8	4	3	16	11	67%
5	Leak Detection Program	3	0	54	0	57	0	0%
6	Pressure management prog (DNZ/PMZ)	0	19	128	76	128	95	74%
7	Integrated Physical Reduction	0	0	271	271	271	271	100%
	Total	737	204	1,540	549	2,277	753	33%



B. NRW ACHIEVEMENT

B-4 SUMMARY NRW PROGRAMS

No.	Program	Operating Period 1 & 2 (2005-2008)	Operating Period 3 (2009-2011)	Operating Period 4 (2012-2014)	Total	Average savings (m3/day)
1.	Main pipe replacement (km)	811	8	200	1,019	58 - 108
2.	Communication pipe replacement (set)	150,000	-	-	150,000	0.4 - 0.57
3.	District Metering Zone or Pressure Management Zone (DMZ/PMZ) (nos)	798	316	125	1,239	130 - 500
4.	Meter replacement (meter)	730,835	209,646	935,059	1,875,540	0.1 - 0.14
5.	EM meter replacement	450	120	-	570	50 - 90
6.	Reservoir monitoring system					
	6.1) "Supervisory Control & Data Acquisition" (SCADA) (nos)	-	250	-	250	
	6.2) Sistem Logger (nos)	-	100	-	100	



C. CURRENT NRW PROGRAM

C-1 CURRENT NRW LEVEL

Monthly NRW level for year 2015 is summarized below.

Month	Production (m3/day) (A)	Consumption (m3/day) (B)	Measured NRW C = (A-B)/(A)	
			m3/day	%
Jan-15	4,685,568	3,094,404	1,591,164	33.96
Feb-15	4,630,679	3,169,623	1,461,056	31.55
Mar-15	4,655,431	3,209,900	1,445,531	31.05
Apr-15	4,689,867	3,217,136	1,472,731	31.40
May-15	4,688,278	3,196,483	1,491,795	31.82
Jun-15	4,689,216	3,185,024	1,504,192	32.08
Jul-15	4,625,680	3,188,608	1,437,072	31.07
Avg 2015	4,666,388	3,180,168	1,486,220	31.85

The progressive reduction of NRW indicates the positive impact of the integrated physical reduction program as mentioned above in reducing water losses.



C. CURRENT NRW PROGRAM

C-1 INTEGRATED PHYSICAL LOSS REDUCTION PROGRAM

-Subsequent to proposed program under NRW Master Plan, to assist in mitigating the shortage of water supply an aggressive program plan called " Integrated Physical Loss Reduction Program has been proposed and implemented by SYABAS.

-After nine (9) months of delay, SPAN has approved the program for implementation for 2 years (21 September 2014 - 21 September 2016) on 11 Sept 2014.

-Physical work commenced on 22 September 2014 with expected savings of 320 MLD gross NRW savings or 154 MLD net saving at completion period on 22 September 2016.

-The Contract specified performance based on achieving net saving of 154 Mld. The difference between gross & net is the Contractor has to reduce 320 Mld to achieve net of 154 Mld to overcome the additional leakage during the period called Natural Rate of Rise (NRR).

C. CURRENT NRW PROGRAM						
C-1 INTEGRATED PHYSICAL LOSS REDUCTION PROGRAM						
The progress of all the various programs compared with contractual targets as of July 2015 is shown below:						
No.	Scope Of Works	Overall target	Target As Of July	Actual	% Vs Target As Of July	Remarks
1	Overall Physical Progress	100%	26.12 %	24.75 %	(1.37%)	
2	NRW Saving –Gross (Mid)	320 Mid	93 Mid	86 Mid	92%	
3	No of Leak Detection & Repairs	135,000 nos	48,500 nos	46,090 nos	95 %	
4	New DMZ Establishment	120 nos	20 nos	17 nos	85%	
5	WBA Establishment	160 nos	128 nos	76 nos	59 %	
6	Reservoir Overflow Level Sensor installation	900 nos	756 nos	756 nos	84 %	Completed 100% of balance tanks not in SCADA & Others ⁹

C. CURRENT NRW PROGRAM						
C-1 INTEGRATED PHYSICAL LOSS REDUCTION PROGRAM						
The progress of all the various programs compared with contractual targets as of July 2015 is shown below:						
No.	Scope Of Works	Overall target	Target As Of July	Actual	% Vs Target As Of July	Remarks
6	Communication Pipe & Spaghetti Pipe Replacement	16,000 nos	1,000 nos	119 nos	12%	13 Sites approved with 2,065 nos. Target 5.4mld savings
7	SMARTBALL Trunkmains Leak Detection	2,400km	850 km	800 km	94 %	
8	SAHARA Trunkmains Leak Detection	240 km	15 km	17 km	100 %	Started in June 2015

C. CURRENT NRW PROGRAM									
C-1 INTEGRATED PHYSICAL LOSS REDUCTION PROGRAM									
NRW Reduction Performance Measurement – Net saving as of June:									
Description		Rolling Avg (mld)							
Oct	Nov (Avg Oct-Nov)	Dec (Avg Oct-Dec)	Jan (Avg Nov-Jan)	Feb (Avg Dec-Feb)	Mac (Avg Jan-Mac)	Apr (Avg Feb-Apr)	May (Avg Feb-May)	June (Avg Mac-June)	
NRW %	33.05%	33.16%	33.07%	32.83%	31.97%	31.31%	31.14%	31.60%	31.97%
NRW volume (A)	1,528.55	1,538.12	1,530.51	1,526.33	1,484.05	1,458.38	1,450.85	1,478.31	1,499.08
Initial Baseline (B)	1,567.81	1,567.81	1,567.81	1,567.81	1,567.81	1,567.81	1,567.81	1,567.81	1,567.81
Reduction (C = B-A)	39.26	29.69	37.30	41.48	83.76	109.43	116.96	89.50	68.73
SYABAS effort (D)	24.29	51.00	51.69	50.28	57.79	57.16	56.29	55.71	55.17
Contract performance (E= C-D)	14.97	(21.31)	(14.39)	(8.80)	25.97	52.27	60.67	33.79	13.56
Target	0.00	0.00	0.00	2.00	5.00	9.00	13.00	17.00	21.00
	Pass	Fail	Fail	Fail	Pass	Pass	Pass	Pass	Fail

Note:
i) Two months are required to compute the performance saving. Eg: Oct 2014 performance can only be finalized in December 2014.
ii) NRW % computed based on three (3) months rolling average

Nett NRW savings for the month of June is 13 Mld against target 21 Mld.

C. CURRENT NRW PROGRAM						
C-2 SYABAS INTERNAL PROGRAM-METER REPLACEMENT						
Summary program for year 2015 is as follows:						
No.	Program	Total Nos	Expected gains (Mld)	Schedule as of August 2015 (A)	Achievement as of August 2015 (B)	Ahead/Delay (B-A)
1.	Aged meter replacement	66,737	6.7	17,385	11,101	(6,284)
2.	Stuck meter replacement	156,000	21.8	18,005	33,174	+15,169
3	Stuck bulk meter	300	1.5	103	94	(9)
Total		223,863	34.1	35,493	44,369	8,876

The above program has been commenced on 3rd August 2015



C. CURRENT NRW PROGRAM

C-2 SYABAS INTERNAL PROGRAM-OTHER PROGRAM

In addition to the above program, the other operational program done by SYABAS are as follows:

No.	Programs
1.	Reservoir overflow and monitoring
2.	Control of quality of material for HDPE comm pipe repairs
3.	Speed up repair time
4.	Preventive maintenance on altitude/float valves and repair faulty units
5.	Enforcement of illegal connection
6.	Meter resizing



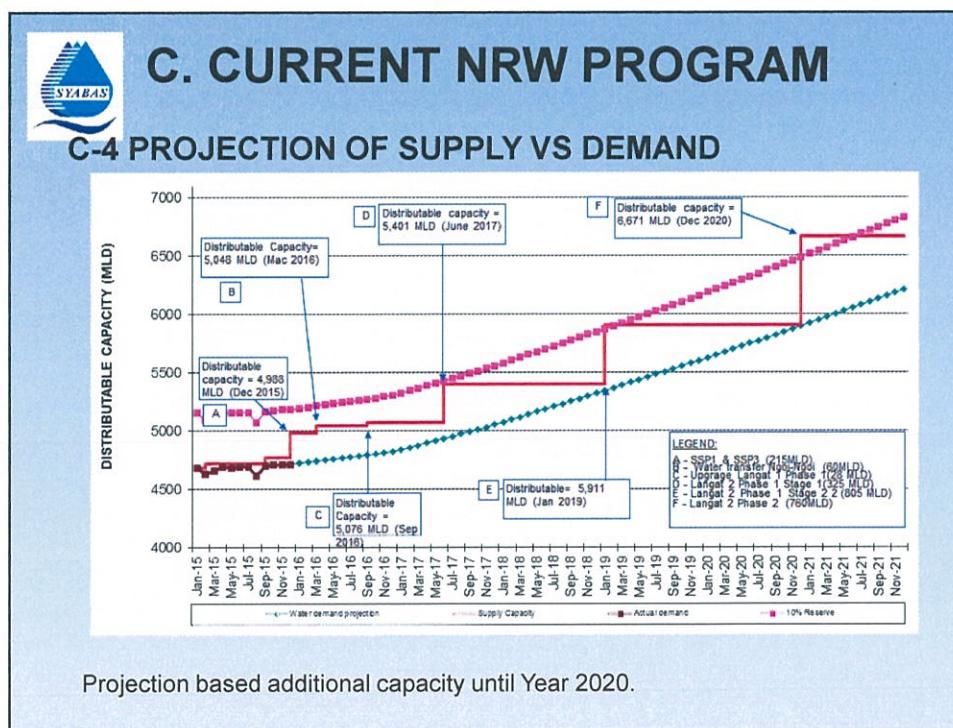
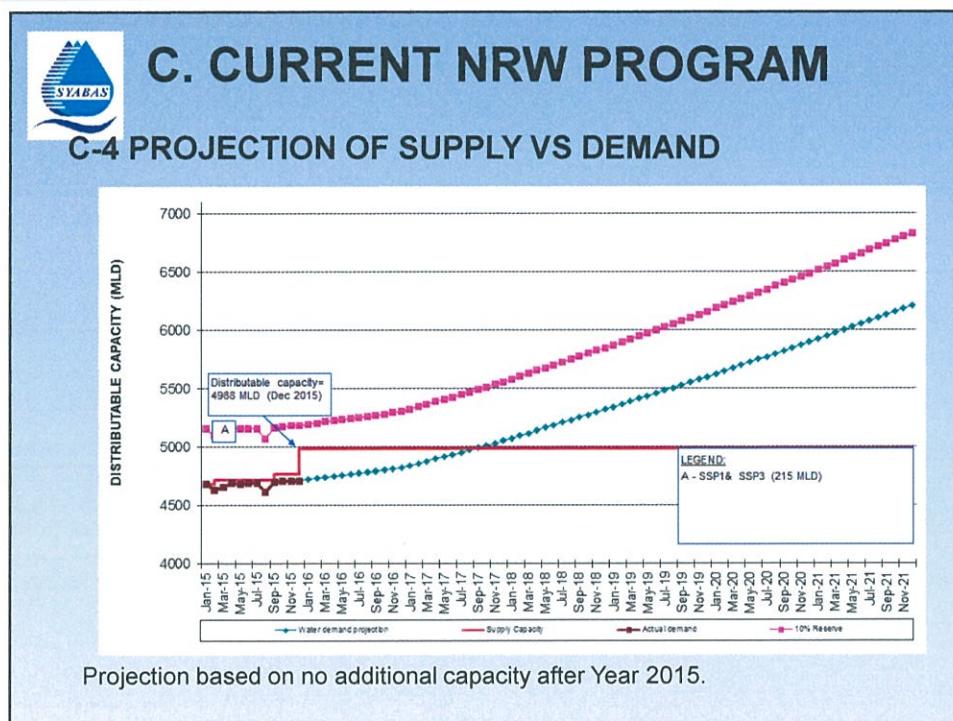
C. CURRENT NRW PROGRAM

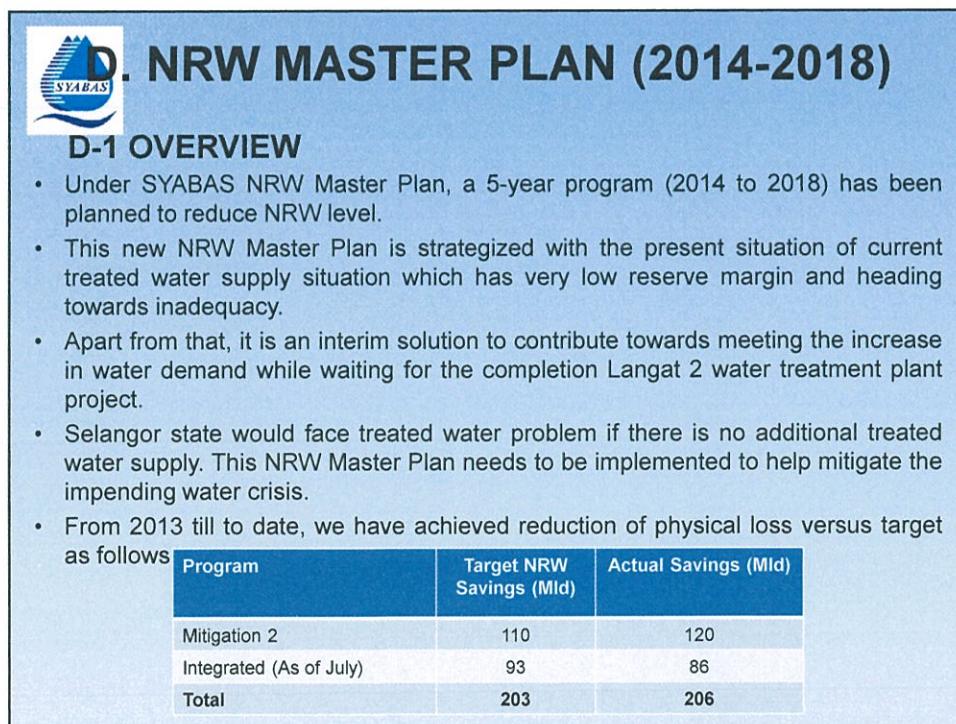
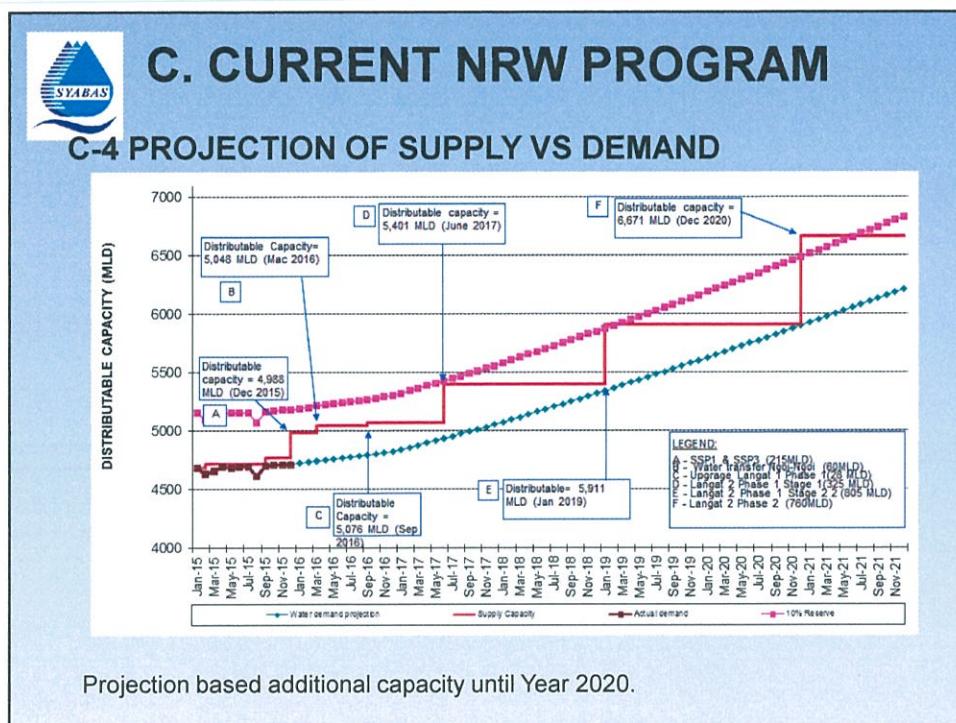
C-3 STATUS OF PROGRAM (ACTUAL VS SCHEDULE)

No	Program	Actual savings as of 31 July 2015	Targeted achievement as of July 2015	Ahead/Delay %	Targeted achievement as of Dec 2015	Targeted overall savings till end of program
1.	Integrated Meter	86 Mld	93 Mld	92%	162 Mld	320 Mld
2.	replacement					
i)	Age meter	-	-	-	3.8 Mld	6.6 Mld
ii)	Stuck meter	-	-	-	12.5 Mld	62.4 Mld
iii)	Stuck meter(Bulk)	-	-	-	1.2 Mld	1.5 Mld
iv)	Meter resize	1.4 Mld	1 Mld	140%	2.7 Mld	4.1 Mld
3.	Enforcement	1.6 Mld	3.5 Mld	46%	6 Mld	6 Mld
	Total	89 Mld	97.5 Mld	91%	188.2 Mld	

Note:

- i) Program will be completed on September 2016 (item 1).
- ii) Program will be completed on February 2015 (item 2 (i,ii,iii & iv)).
- iii) Planning program as of December 2015 (item 3).







D. NRW MASTER PLAN (2014-2018)

D-2 FOCUS AND STRATEGY

FOCUS AND STRATEGY FOR THE NRW MASTER PLAN

The strategy of the NRW Master Plan will be focused on:-

- a) Reduction in distribution system that are outside the existing DMZ which includes trunk mains, primary mains, secondary mains, reservoirs, pump houses and supply areas which have no DMZ;
- b) Further reduction of existing DMZ areas where opportunities for further reduction;
- c) Commercial loss reduction program to generate more savings.



D. NRW MASTER PLAN (2014-2018)

D-2 FOCUS AND STRATEGY

FOCUS AND STRATEGY FOR PHYSICAL REDUCTION PROGRAM

The above proposed plan covers 2 phases namely 3-year Phase 1 aggressive program covering for establishment and further NRW reduction in new and existing zones while 2-year Phase 2 program covers for further development and maintenance of all the zones established.

The proposed timeline by each phase is illustrated as follows:

2014	2015	2016	2017	2018
	Phase 1		Phase 2	
1 Further reduction in 574 Phase 3 DMZ				
2 Further reduction in 20 KTAK DMZ /4 PMZ				
3 Establish new 230 small DMZ			Further reduction	
4 Establish 160 WBA			sub zoning	
5 Further reduction in 686 Mitigation 2 DMZ			Further reduction	
Development (Phase 1)		Further development and maintenance (Phase 2)		

D. NRW MASTER PLAN (2014-2018)



D-2 FOCUS AND STRATEGY

Proposed programs under SYABAS NRW Master Plan are grouped under 3 categories as follows:

- Main physical loss reduction programs;
- Commercial loss reduction programs;
- Operational and other supporting programs.

Program for 2014-2018	Saving (Mld)	Total Saving (Mld)	Investment (RM Mil)			RM Mil/Mld
			CAPEX	OPEX	TOTAL	
Main physical loss reduction	780					
Commercial loss reduction	119	913	804	4	808	0.9
Operational and other supporting program	14					

D. NRW MASTER PLAN (2014-2018)



D-3 PHYSICAL LOSS REDUCTION

The expected gains and cost based on main programs structured to be carried out from 2014 to 2018 are summarized below.

1) Physical Loss Reduction Programs

1	NRW Program	Expected gains (Mld)	Cost (RM Mil)	RM Mil /Mld
Main Physical Loss Reduction Program				
1.	Further NRW Reduction in 574 nos Phase-3 DMZ	90	75	0.83
2.	Further NRW Reduction in 20 KTAK-DMZ and 4 Trunkmains PMZ	20	18	0.90
3.	Establish 230 Small DMZ to cover "Pocket Areas"	68	57	0.84
4.	Establish 160 Water Balance Areas	468	399	0.85
5.	Further NRW Reduction in 686 Mitigation 2 DMZ	134	115	0.84
6.	Project Management & Supervision cost at 2% of the overall cost project	-	13	-
Sub total Main Programs - physical loss reduction				
780 677 0.87				

D. NRW MASTER PLAN (2014-2018)																
D-3 PHYSICAL LOSS REDUCTION																
Projection of saving and cost from Main Physical Reduction Program																
No.	NRW Program	Unit	2014	2015	2016	2017	2018	Total	Estimated cost (RM Mil)	RM Mil	Qty	Gains (Mld)	Qty	Gains (Mld)		
A. Main Program																
1	Further NRW Reduction in 574 nos Phase-3 DMZ (160m3/d/dmz)	DMZ	574	17	574	30	574	24	574	10	574	9	574	90	75	0.83
2	Further NRW Reduction in 20 KTAK-DMZ and 4 Trunkmains PMZ	DMZ/PMZ	24	7	24	9	24	4	24	0	24	0	24	20	18	0.90
3	Establish 230 Small DMZ to cover "Pocket Areas" (300m3/d/DMZ)	DMZ	40	13	70	20	60	16	30	10	30	9	230	68	57	0.84
4	Establish 160 Water Balance Areas (3mrd/WBA)	WBA	20	76	50	110	50	100	20	92	20	90	160	468	399	0.85
5	Further NRW Reduction in 684 Mitigation 2 DMZ (200m3/d/dmz)	DMZ	0	0	684	32	684	40	684	32	684	30	684	134	115	0.86
6	Project Management & Supervision at 2%														13	
Total Main Program				113		201		184		144		138		780	677	0.87

D. NRW MASTER PLAN (2014-2018)				
D-4 PHYSICAL LOSS REDUCTION				
2) Commercial Loss Reduction Programs				
2.	NRW Program	Expected gains (Mld)	Cost (RM Mil)	RM Mil /Mld
	Commercial Loss Reduction Program			
	Meter replacement			
	Achievable gains			
1.	- Age domestic meter(15-40mm) -2014 - 2018 ≥ 7 year, 940,000 nos	85	72.4	0.8
2.	-EM meter	25	12.5	0.5
	Sub total Achievable gains	110	84.9	0.7
	Potential gains			
	-Replacement of Class B mechanical bulk age meter of ≥ 7 year (≥ 50 mm dia).	9	9.0	1.1
	Grand Total	119	95	0.8

D. NRW MASTER PLAN (2014-2018)													
D-4 COMMERCIAL LOSS REDUCTION													
Projection of saving and cost from Commercial Reduction Program													
No.	NRW Program	Unit	2014		2015		2016		2017		2018		Total
			Qty	Gains (Mld)	Estimated cost (RM Mil)								
B. Commercial Reduction Program													
1	-Aged domestic meter (15mm - 40mm) -2014 - 2018 ≥ 7 year	Nos	250,000	22.5	250,000	22.5	160,000	14.4	140,000	12.6	140,000	12.6	940,000
2	-EM meter (bulk meter)	Nos	50	2.5	125	6.25	125	6.25	100	5	100	5	500
3	-Replacement of Class B mechanical bulk meter of ≥ 7 year (≥ 50 mm dia).	Nos	500	2	450	1.8	450	1.8	450	1.8	450	1.8	2,300
Total Commercial Program			250,550	27	250,575	31	160,575	22	140,550	19	140,550	19	942,800
													95
													0.8

D. NRW MASTER PLAN (2014-2018)													
D-5 OPERATIONAL & OTHER SUPPORTING PROGRAM													
Operational and Other Supporting Programs													
No.	NRW Program										Expected gains (Mld)	Cost (RM Mil)	
											OPEX	CAPEX	
Operational and other supporting programs													
	Potential gains												
	Reservoir overflow control												
1.	-Recovery of water from bleeding at drum system inlet control valve										0.9	1.3	-
	Water loss at pumping station												
2.	-Recovery of water loss from bleeding at surge anticipating valves										0.02	-	4.6
3.	-Install double inlet control mechanism for auto-pumping system										-	-	4.5
	Sub total										0.9	1.3	9.1
	Illegal connection												
4.	Reduction of illegal use										10.0	3.0	-
5.	Replacement of 'spaghetti' communication pipe										3.0		23.1
	Grand Total Operational										4.3	32.2	
											13.9	36.5 Mil	
												RM2.6 Mil/Mld	

No.	NRW Program	Unit	2014		2015		2016		2017		2018		Total		Estimated cost (RM Mil)		RM Mil
			Qty	Gains (Mid)	Qty	Gains (Mid)	Qty	Gains (Mid)	Qty	Gains (Mid)	Qty	Gains (Mid)	Qty	Gains (Mid)	OPEX	CAPEX	
C. Operational and other supporting program																	
Potential Saving																	
Reservoir overflow																	
1 Recovery of water from bleeding at drum system inlet control valve	Nos	20	0.3	15	0.3	15	0.3						50	0.9	1.3		
Water loss at pumping system																	
2 Recovery of water loss from bleeding at Surge Anticipating valve	Nos	60	0.008	60	0.008	64	0.008	-	-	-	-	184	0.024		4.6		
3 Install double control mechanism for auto-pumping system	Nos	10	-	10	-	10	-	-	-	-	-	30	-		4.5		
Meter relocation and consumption audit																	
4 Replacement of Spaghetti Communication Pipe	km	10	1	10	1	11	1	-	-	-	-	31	3		23.1		
Illegal connection																	
5 Reduction of illegal use	-	-	2	-	2	-	2	-	2	-	2	-	10	3	-		
Grand total operational and other supporting programs			3.3		3.3		3.3		2		2		14	4.3	32.2	2.6	
Grand total CAPEX+ OPEX															36.5		

D. NRW MASTER PLAN (2014-2018)																			
D-6 REDUCTION OF NRW TARGET WITHOUT PIPE REPLACEMENT																			
It is estimated that with the implementation of the above NRW programs, the NRW level will reduce from 34.5% to 26.3% or 8.2% reduction as tabulated below:																			
Year	Production beginning of year (Mid)	Consumption beginning of year (Mid)	NRW		Increase in NRW D		Estimated Growth E		Net increase due to demand growth (Mid)		Reduction in physical loss (Mid)		Increase in consumption due to demand growth (Mid)		Reduction in commercial loss (Mid)		Projected water demand end of year (Mid)	Projected Consumption end of year (Mid)	Projected Average NRW for the year (Mid %)
			Mid	%	Mid	%	Mid	%	Mid	%	Mid	%	Mid	%	Mid	%	Mid	%	
2014	4,694	3,072	1,622	34.6%	85	1.8	3.5		164		171		108		27	4,772	3,207	1,566	32.8%
2015	4,772	3,207	1,566	32.8%	86	1.8	3.5		167		204		112		31	4,821	3,350	1,472	30.5%
2016	4,821	3,350	1,472	30.5%	88	1.8	3.5		169		187		117		22	4,891	3,489	1,402	28.7%
2017	4,891	3,489	1,402	28.7%	84	1.7	3.5		171		146		122		19	5,000	3,630	1,370	27.4%
2018	5,000	3,630	1,370	27.4%	86	1.7	3.5		175		140		127		19	5,121	3,776	1,345	26.3%
2019	5,121	3,776	1,345	26.3%															
Total savings(mld)												848		118					

NRW target is based on original plan. Assuming program planned started in January 2014. However due to delay approval by SPAN, original target was delay accordingly.



D. NRW MASTER PLAN (2014-2018)

D-7 PIPE REPLACEMENT PROGRAM

Pipe replacement is not part of the NRW Master Plan since this program will be undertaken as asset replacement program with some contribution to NRW saving.

However, if the program included into this plan, a total of 150km pipe length could be replaced a year with estimate saving of 100m³/day/km. Until 2018, a total of 450km pipe length could be replaced with total saving of 45Mld or equal to about 0.9% of water production. Total estimated budget for pipe replacement is RM405 Million.



D. NRW MASTER PLAN (2014-2018)

D-8 PROJECTION OF NRW TARGET WITH PIPE REPLACEMENT PROGRAM

New NRW target if pipe replacement program to be implemented under NRW Master Plan program is as table below:

Year	Production beginning of year (Mid)	Consumption beginning of year (Mid)	NRW		Estimated Growth E	Net increase due to demand growth (Mid)	Reduction in physical loss (Mid)	Increase in consumption due to demand growth (Mid)	Reduction in commercial loss (Mid)	Projected production end of year (Mid)	Projected Consumption end of year (Mid)	Projected NRW for the year			
			Mid	%											
2014	4,694	3,072	1,622	34.6%	85	1.8	3.5	164	171	108	27	4,772	3,207	1,566	32.8%
2015	4,772	3,207	1,566	32.8%	86	1.8	3.5	167	204	112	31	4,821	3,350	1,472	30.6%
2016	4,821	3,350	1,472	30.5%	87	1.8	3.5	169	202	117	22	4,875	3,489	1,386	28.4%
2017	4,875	3,489	1,386	28.4%	83	1.7	3.5	171	161	122	19	4,968	3,630	1,338	26.9%
2018	4,968	3,630	1,338	26.9%	85	1.7	3.5	174	155	127	19	5,072	3,776	1,295	25.5%
2019	5,072	3,776	1,295	25.5%											
Total savings (mld)										893	118				

NRW target is based on implementation of pipe replacement program from 2016 to 2018 with total 450 km pipe length or 150 km per year.



E. CONCLUSION

1. NRW reduction effort requires continuous effort and investment to maintain and further reduction.
2. SYABAS reduce NRW progressively since for first four (4) years however, SYABAS effort to further reduce NRW as per target in the CA was hampered due to CAPEX freeze by SPAN.
4. SYABAS managed to reduce NRW with Mitigation 2 Program (Federal Government fund) and Integrated Program (SYABAS internal fund). This has contributed in reducing current water stress situation.
5. This 5 year Master Plan proposed targets NRW saving of 913 Mld and NRW level of 26.3% by Year 2019 with total investment of RM819 Million.



F. CONCLUSION

1. NRW reduction effort should be supported by SPAN and Selangor State Government.
2. Based on current positive NRW reduction, SPAN and Selangor State Government to support the implementation of second part of Master Plan to ensure continuation of NRW reduction effort successful.
3. SPAN and Selangor State Government to also support with additional fund of RM405 Mil for pipe replacement program. It is long term solution to control and further reduce pipe burst and pipe leak as well as to reduce consumer complaint due to interruption supply.
4. With this additional fund for pipe replacement program, the plan targets NRW savings of 1,011 Mld and NRW level of 25.5% by Year 2019 with total investment of RM 1,224 Million.

INDEKS

5



UNIT PERANCANG EKONOMI NEGERI

PROJEK LANGAT 2

STATUS PELAKSANAAN PROJEK LANGAT 2

PEMBENTANG KEPADA JPK-SAS
21 SEPTEMBER 2015



UNIT PERANCANG EKONOMI NEGERI

PROJEK LANGAT 2

Agenda Pembentangan

- 1) Latar Belakang Projek
- 2) Skop Kerja Utama
- 3) Status Pelaksanaan
- 4) Tempoh Pelaksanaan
- 5) Kos Bekalan Air mentah dari Pahang



UNIT PERANCANG EKONOMI NEGERI

PROJEK LANGAT 2

LATAR BELAKANG PROJEK

3



UNIT PERANCANG EKONOMI NEGERI

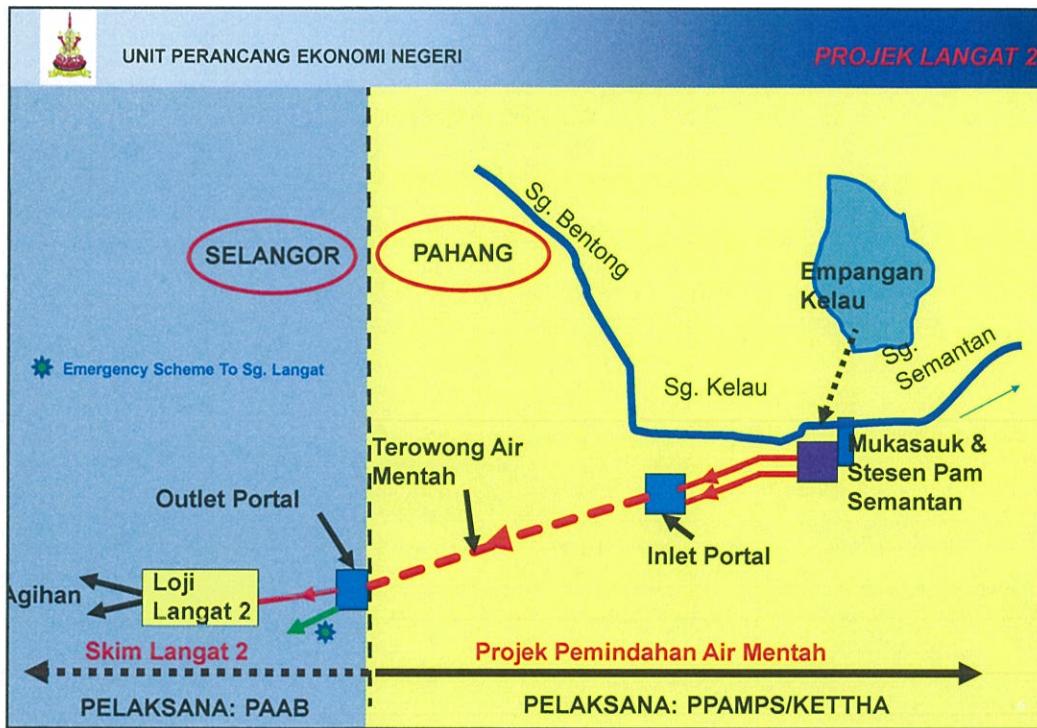
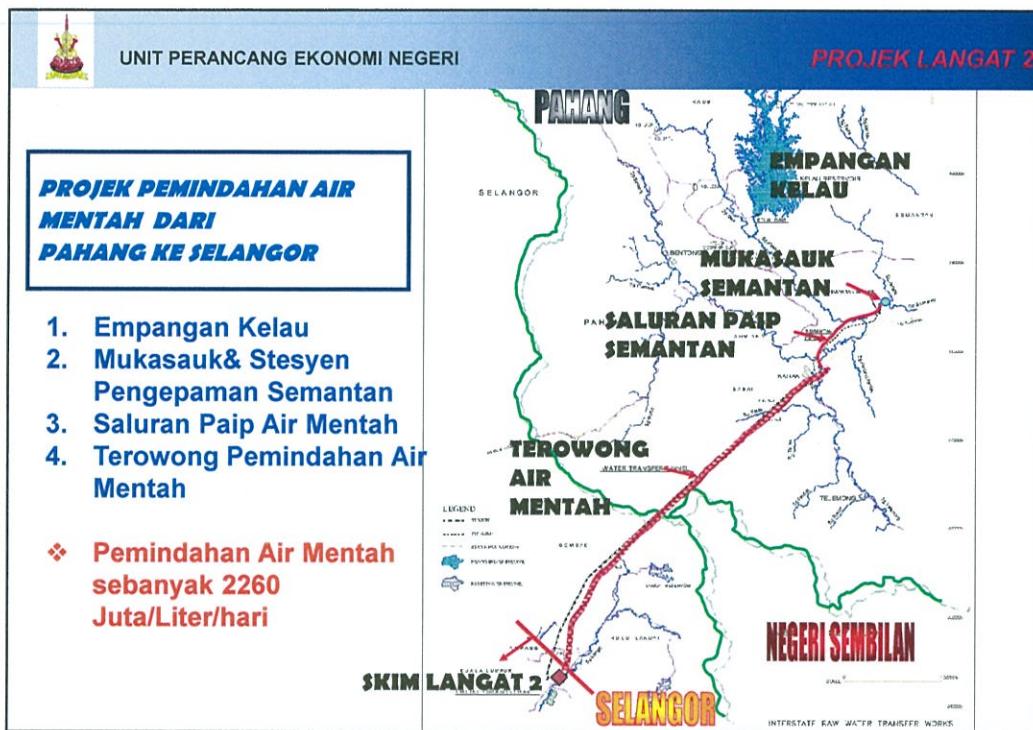
PROJEK LANGAT 2

PROJEK LANGAT 2 AKAN DILAKUKAN BERSAMA PROJEK PEMINDAHAN AIR MENTAH DARI PAHANG:

1. PROJEK PEMINDAHAN AIR MENTAH DARI PAHANG KE SELANGOR
DILAKUKAN OLEH PASUKAN PROJEK PENYALURAN AIR MENTAH (PPAMPS) AGENSI DI BAWAH KEMENTERIAN TENAGA, TEKNOLOGI HIJAU DAN AIR (KeTTHA)

2. PROJEK LOJI RAWATAN AIR LANGAT 2
DILAKUKAN OLEH PENGURUSAN ASET AIR BERHAD (PAAB)

4



 UNIT PERANCANG EKONOMI NEGERI **PROJEK LANGAT 2**

Tujuan Projek Langat 2:-

(i) Penambahan air terawat sebanyak 1130 Juta Liter Sehari (JLH)

(ii) Air terawat akan diagihkan ke kawasan-kawasan berikut:

(a) Koridor Barat sebanyak 517.5JLH untuk diagihkan ke kawasan sekitar Cheras, Sg. Besi, Bkt Jalil dan Puchong

(b) Tangki Imbangan sediada Hulu Langat sebanyak 325.5JLH untuk diagihkan terutamanya ke kawasan Kuala Lumpur

(c) Koridor Utara sebanyak 287JLH untuk diagihkan ke kawasan Ampang dan Hulu Klang

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 UNIT PERANCANG EKONOMI NEGERI **PROJEK LANGAT 2**

SKOP KERJA UTAMA
PROJEK LANGAT 2

8

 UNIT PERANCANG EKONOMI NEGERI PROJEK LANGAT 2

Skop kerja utama yang terlibat dalam Projek Langat 2 - Fasa 1 ini termasuk :

- (i) Pembinaan Loji Rawatan berkapasiti 1130 Juta Liter Sehari (JLH)
- (ii) Pemasangan paip air mentah dan terawat bergarispusat 1m sehingga 3m sejauh lebih dari 60km
- (iii) Pembinaan tujuh (7) kolam air dengan jumlah kapasiti lebih dari 500 juta liter
- (iv) Tapak perlupusan enapcemar dari Loji Rawatan

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 UNIT PERANCANG EKONOMI NEGERI PROJEK LANGAT 2

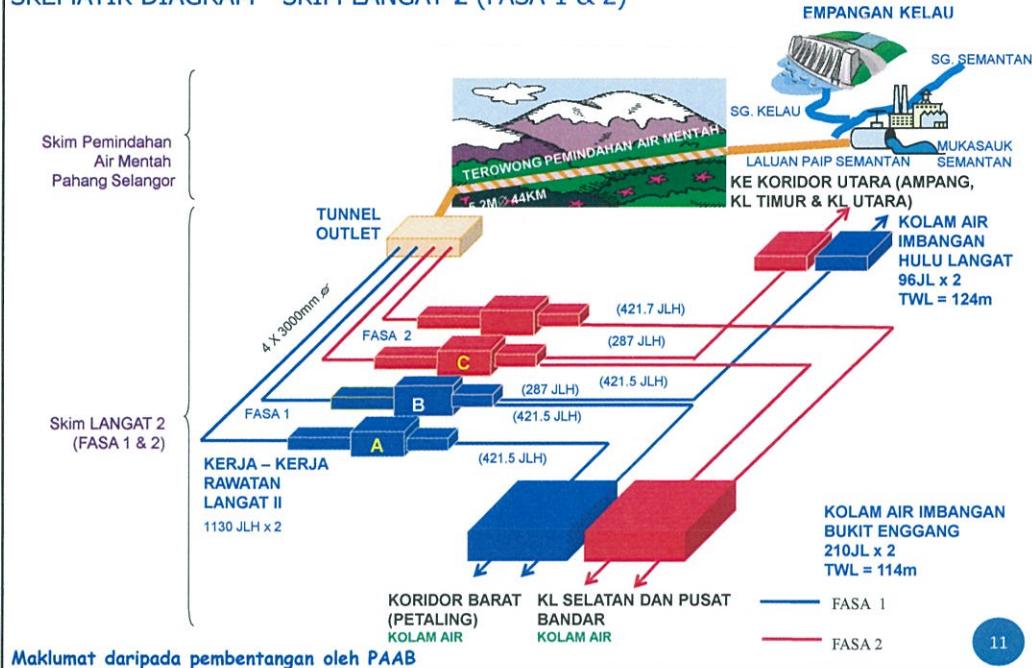
A) LATAR BELAKANG PROJEK (LANGAT 2)



The map illustrates the 'KORIDOR UTARA' (North Corridor) and 'KORIDOR BARAT' (West Corridor) highlighted in red. The 'LOJI RAWATAN LANGAT 2' (Langat 2 Treatment Plant) is located near the northern end of the corridor. The 'HULU LANGAT FOREST RESERVOIR' is shown to the east. Key urban areas labeled include PETALING JAYA, PUCHONG, KINRARA, BUKIT JALIL, and CHERAS. Other features include the KLCC, Hulu Langat BR, SKT. ENOGANG, and BANDAR MAHKOTI CHERAS. Arrows indicate the direction of the project's path through these areas.

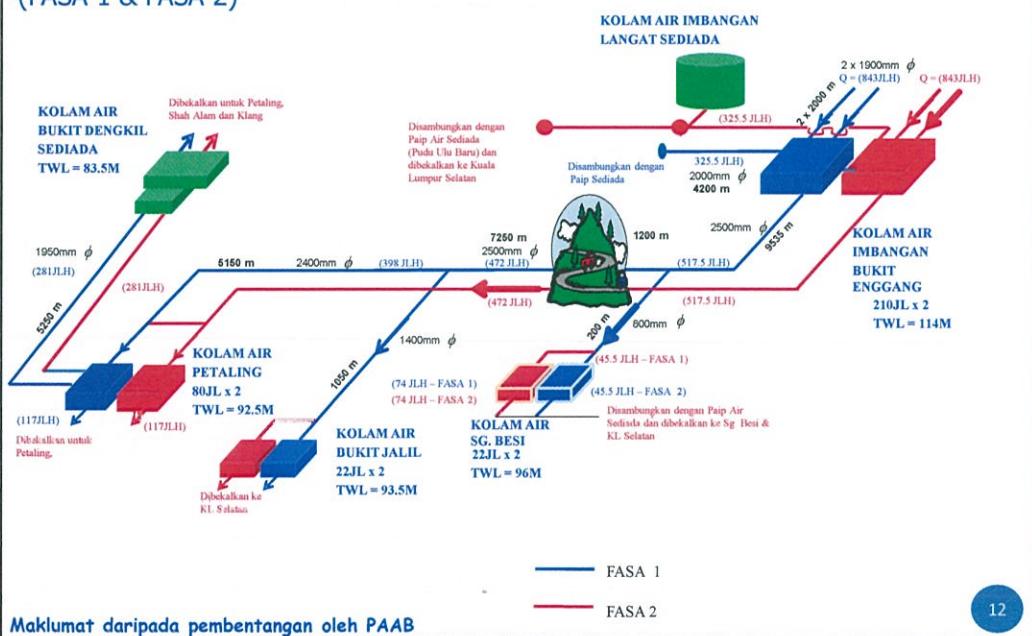
10

SKEMATIK DIAGRAM - SKIM LANGAT 2 (FASA 1 & 2)



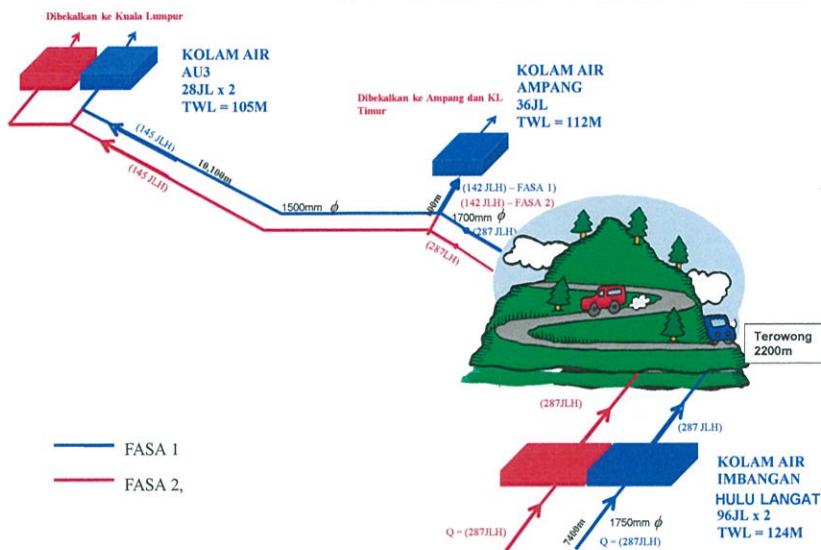
11

SKEMATIK DIAGRAM - PENGAGIHAN KE KORIDOR BARAT (FASA 1 & FASA 2)



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3) SKEMATIK DIAGRAM - PENGAGIHAN KE KORIDOR UTARA (FASA 1 & 2)



Maklumat daripada pembentangan oleh PAAB

13

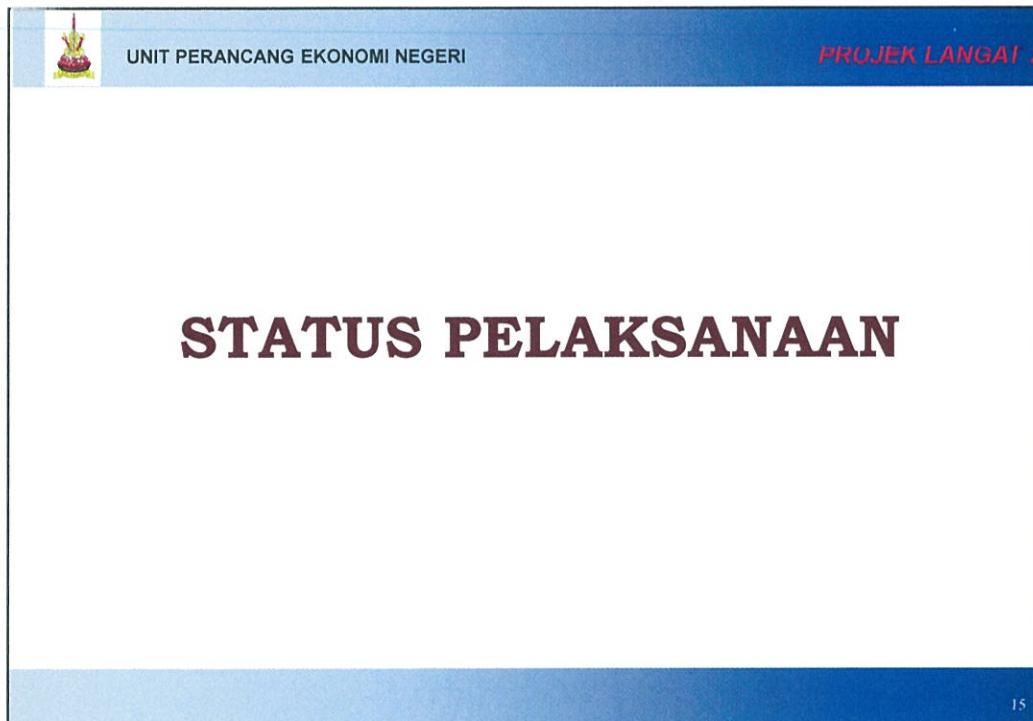
UNIT PERANCANG EKONOMI NEGERI

PROJEK LANGAT 2

Loji Rawatan Langat 2 ini merupakan komponen terpenting dalam Projek Langat 2 ini, maklumat dan status adalah seperti berikut:

No	Perkara	Ulasan
1	Kapasti Loji	1130 JLH (Fasa 1) Kapasiti Keseluruhan Fasa 1 dan 2 = 2260 JLH
2	Kawasan Agihan Fasa 1	= 520 JLH ke Petaling, Sg. Besi, Kinrara dan Puchong (Koridor Barat) = 325 JLH ke KL Selatan dan Pusat Bandar KL = 285 JLH ke Ampang, KL Timur dan KL Utara (Koridor Utara)
3	Tanah Persendirian yang terlibat di Loji Rawatan	Fasa 1 = ~ 80ha (~200 ekar) Fasa 2 = ~ 35ha (~86 ekar) Jumlah = ~ 115ha (~286 ekar) Lot = 86 Lot (3 Lot masih belum mendapat Borang K)

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STATUS KERJA PROJEK LANGAT 2			
Bil	Pakej	Nama	Status
1.	1A	Paip Air Terawat dari Loji Rawatan ke Kolam Air Imbangan Bkt Enggang	Siap
2.	1B	Paip Air Mentah	Sudah dianugerah 11.7% (J) 4.3% (S)
3.	2A	Loji Rawatan Langat 2	Sudah dianugerah 32.3% (J) % 23.3%(S)
4.	2B	Kuarters Pekerja	Skop kerja
5.	3	Perlupusan Enapcemar	Kaitan
6.	4	Kolam Air Imbangan Bkt Enggang	Sudah Tender*
7.	5	Paip Air Terawat ke Kolam Air Imbangan Hulu Langat & Kolam Sediada Hulu Langat	Sudah dianugerah 24.5% (J) 7.9% (S)
8.	6	Paip Air Terawat Koridor Utara	Sudah Tender*
9.	6A	Terowong Koridor Utara	Rekabentuk

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STATUS KERJA PROJEK LANGAT 2 (samb)

Bil	Pakej	Nama	Status
10	7	Kolam Air Imbangan Hulu Langat	Sudah Tender**
11	8	Kolam Air Ampang	Rekabentuk
12	9	Kolam Air AU3	Sudah Tender*
13	10	Paip Air Terawat dari Kolam Air Imbangan Bkt Enggang ke Sg. Besi (paip koridor barat)	Sudah Tender*
14	11	Paip Air Terawat dari Sg. Besi ke Punchong (paip koridor barat)	Sudah Tender*
15	12	Kolam Air Sg. Besi	Sudah Tender*
16	13	Kolam Air Bkt Jalil	Sudah Tender*
17	14	Kolam Air Petaling	Rekabentuk
18	15	Interconnection	Skop kerja

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UNIT PERANCANG EKONOMI NEGERI

PROJEK LANGAT 2

**TEMPOH PELAKSANAAN
PROJEK LANGAT 2**

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- Tempoh pembinaan bagi Pakej kerja yang belum dianugerahkan akan mengambil masa dari 24 sehingga 30 bulan bergantung kepada skop kerja.
- Walaubagaimanapun, dengan mengambil kira keperluan proses rekabentuk, pengambilan balik tanah, permohonan kelulusan dari PBT, tender dan pembinaan. Keseluruhan proses sehingga siapnya sesuatu kerja akan mengambil masa dalam lingkungan 45 bulan
- Tidak ada kepastian berkaitan dengan tarikh penyiapan Langat 2

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KOS BEKALAN AIR MENTAH DARI NEGERI PAHANG

20



- ❑ Di dalam perjanjian Jual Beli Air Mentah Pahang Selangor yang ditandatangani pada 22 November 2007, harga air mentah yang dipersetujui adalah pada kadar sepuluh (10) sen bagi setiap meter padu bermula dari tarikh pertama penyaluran bekalan air mentah tersebut.
- ❑ Kadar Royalti Air Mentah akan disemak semula selepas tamat tempoh lima (5) tahun yang pertama dan semakan seterusnya akan dibuat setiap sepuluh (10) tahun berikutnya.

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Terima Kasih