


IRBM in Malaysia

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Malaysia


PHILIPPINES
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Kuantan
Sarawak
KUALA LUMPUR
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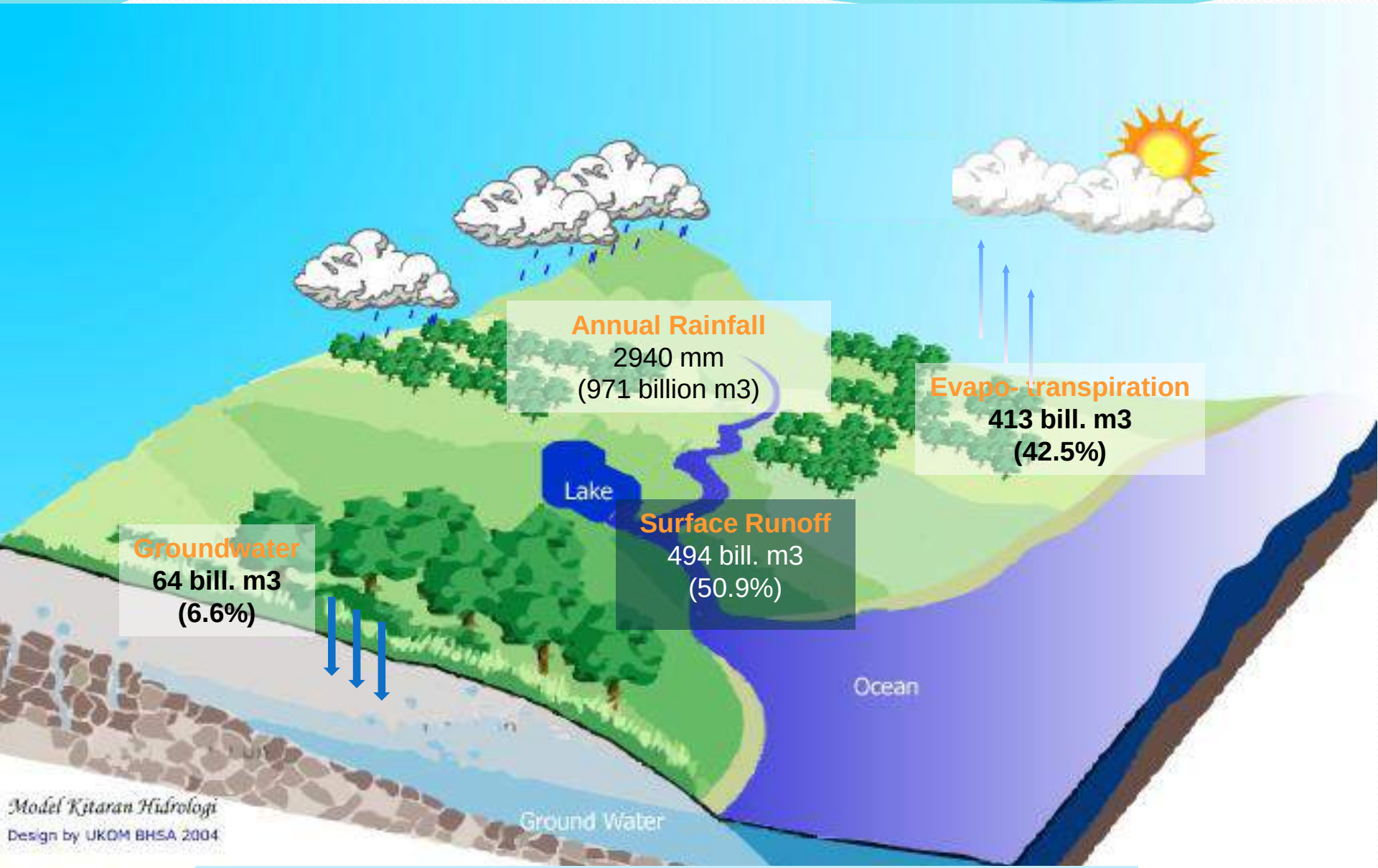
Kuching
INDONESIA
Indian Ocean
Java Sea

Malaysia – Information

- Comprises two distinct bodies of land
  - 3 Federal Territories and 13 States
- Total land area – 329,750 km^2
- Population - 28 million (2010)
- A multi-racial, multi-cultural country
- Climate - warm and humid
- Annual average rainfall
  - Peninsular Malaysia 2,500 mm
  - Sabah 3,000 mm
  - Sarawak 3,500 mm

Water Resources In Malaysia



Based on Review of National Water Resource Study 2000-2050


RIVERS PROVIDE
97 %
OF ALL THE
WATER USED IN
MALAYSIA !!

Definitions

- "river" means a body of inland water flowing for the most part of the surface of the land but which may flow underground for part of its course. (Adapted from EU Water Framework Directive 2000)

- "river basin" means the area of land from which all surface run-off flows through a sequence of streams, rivers and possibly, lakes into the sea at a single river mouth, estuary or delta. (Adapted from EU Water Framework Directive 2000)

River Basin

River Basin In Malaysia

- Classify rivers into 3 categories - based on the Provision of Federal Constitution
  - Category 1 - river wholly within a state
  - Category 2 - river shared more than one state
  - Category 3 - river shared with other country

River Basin In Malaysia

- No of basin by category:
  - Category 1 - river wholly within a state = 2,958
  - Category 2 - river shared by more than one state = 22
  - Category 3 - river shared with other country = 6

River Basin In Malaysia

Area	No.	Major River Basin (>80km^2)
Peninsular Malaysia	1,235	74
Sabah	1,468	75
Sarawak	283	40
Total	2,986	189

RIVER BASIN IN PENINSULAR MALAYSIA

Major river basin(189) – 95% of land area in Malaysia

Small river basin(2797) – 5% of land area in Malaysia

RIVER BASIN IN PENINSULAR MALAYSIA

RIVER BASIN IN SABAH

RIVER BASIN IN SARAWAK

Current Issues and Challenges

Floods - 2014

Kelantan (Dec)

Floods - 2012

Sg. Batu, Sg. Gombak & Sg. Klang, Segambut (Oct)

Sg. Kuyuh, Serdang (Sept)

Floods - 2011

Muar and Johor Bahru (January)

Floods - 2010

Perlis (November)

Kedah (November)

Sg. Damansara, Kg. Melayu Subang (April)

Floods – 2009

Chaos as flash floods hit city

By Fadhal A. Ghani and Alang Bendahara
news@nst.com.my

KUALA LUMPUR: Sungai Gombak overflowed its banks causing chaos that had not been seen in more than three decades in the heart of the city yesterday evening.

Areas which were hit for the first time included the basement car park of the Putra World Trade Centre and large

ings were also affected by flash floods.

Azizan added that the Central Fire and Rescue Department station which is situated just across PWTC was also hit by floods.

At Jalan Ipoh, which rarely sees flash floods, water levels were recorded at between one and two metres high, completely submerging vehicles.

To add to the city folks' woes, RapidKL's Kelana Jaya line

Massive flood causes havoc in Kuala Lumpur

Stranded

Wat-er mess: Cars parked behind the PWTC in Kuala Lumpur submerged in muddy flood waters after a downpour yesterday evening. — AHMAD ASMADI

Hulu Langat (Mac)

Floods – 2007

Johor (January)

All flooded: An aerial view showing the level of flooding in Kota Tinggi town yesterday. - 15 January, 2007

People carrying their belongings walk through flood waters in Kota Tinggi after heavy rainfal over the past two days caused a return of the dreaded floods. - 13 January, 2007

Novel idea: A family using a water tank and a tyre tube as a mode of transport i Kota Tinggi yesterday. - 15 January, 2007

People carrying their belongings from their shops in the town centre walk through flood waters to return home in Kota Tinggi after heavy rainfal over the past two days caused a return of the dreaded floods. - 13 January, 2007

ater, water everywhere: An aerial view of a housing estate in Kota ggi town at 9am yesterday. ? Courtesy of Oong Boon See - 14 nuary, 2007

Floods – 2006

Kelantan

OFF TO WORK: Two Immigration o
in Rantau Panjang after their quarte

Terengganu

ntara kawasan yang dilanda banjir besar sejak tiga hari lepas.

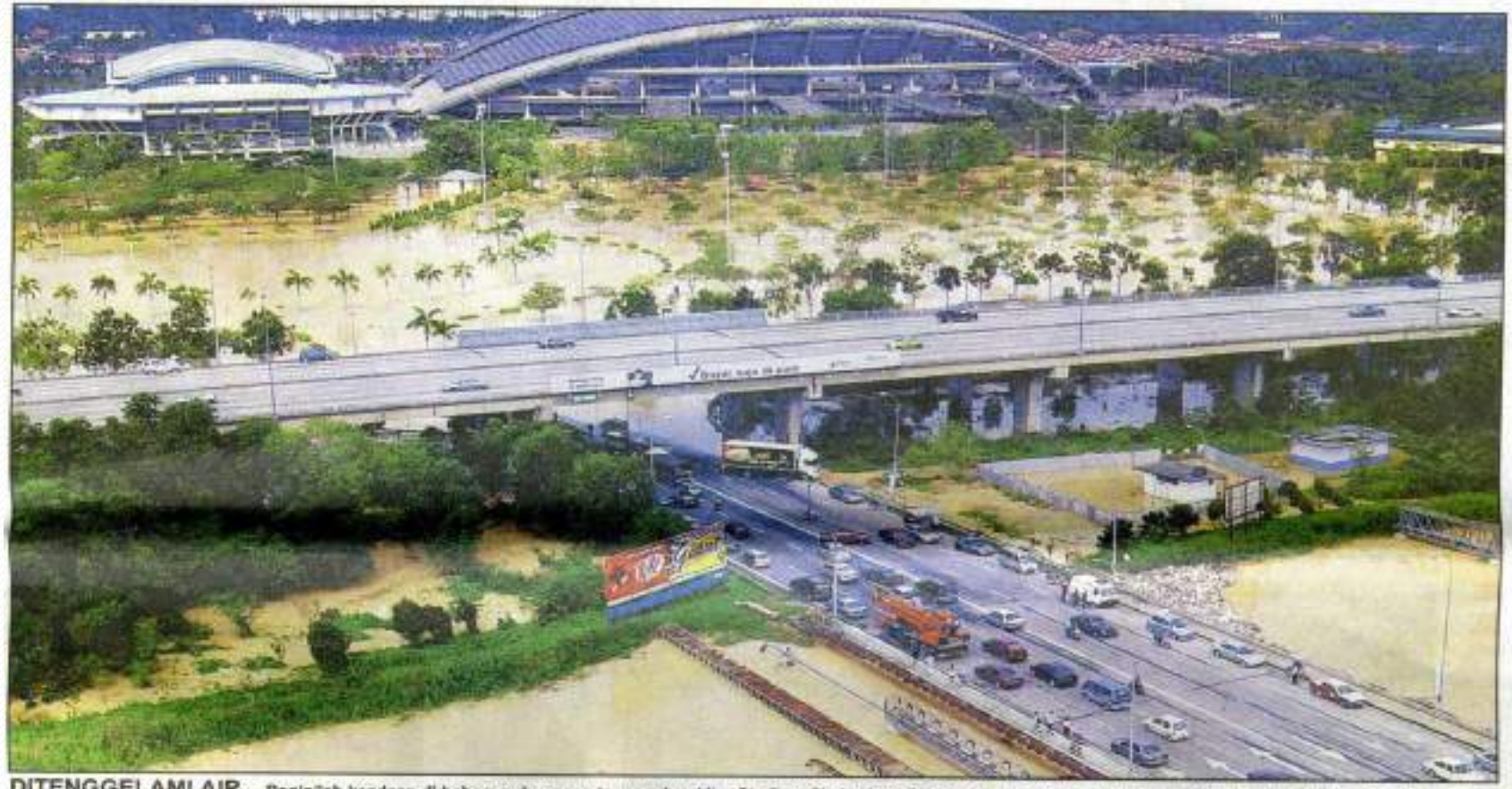
Pahang

ATAS: Adnan Yaakob (kanan) menaiki bot ketika meninjau kawasan banjir sekitar Sungai Lembing, Kuantan.

Floods – 2006

• Paling buruk dalam tempoh 10 tahun • 1,240 penduduk dipindah

Shah Alam banjir besar



DITENGGELAMI AIR... Beginilah keadaan di beberapa kawasan termasuk sekitar Stadium Shah Alam, Selangor yang dilanda banjir kilat ekoran hujan lebat awal pagi semalam. – Gambar FAUZI BAHARUDIN

Oleh FAUZIAH AROF dan ZAINI RABAN

Floods – 2005


NASIONAL
Banjir di Perlis luar biasa


Harian
Pemandu Berhemah
TEKAKATA
BERITA HARIAN
D11
Dapatkan percuma bersama BERITA HARIAN
HARI INI
Rempuh tiang
NASIONAL 8
C3
Isnin
DITERBIT SEJAK 1957
BERITA HARIAN
ILMU DAN MAKLUMAT
www.bharian.com.my
FAKTA
1
2
3
4
5
Jalan K. Trengganu - Besut
Lebih 16,000 mangsa dipindah
Banjir di Kedah, Perlis dan Perak bertambah buruk, dua lemas di Pantai Timur


Floods hit 4 states
>Perlis
>Kedah
Over 3,000 evacuated
>Kelantan
Over 1,600 evacuated
>Terengganu
Water levels rose to 1.5m in Hulu Terengganu, Setiu, Besut, Dungun and Kemaman
Reports and pictures on Pages 4 and 6
Jitra, Kedah
Cut off

Floods – 2004

• Dua lagi mati lemas di Kelantan • 13,000 mangsa dipindahkan

Banjir semakin buruk

Oleh RUHAIDINI ABDUL KADIR, NIZAM ABDULLAH, SAIFULIZAM MOHAMAD, RAJAMAH HASAN, YULFERMAN ABU, ZUFAKRI ABIDIN dan SAIFUL MOKHTAR

KUALA LUMPUR 13 Dis. — Banjir yang melanda negeri-negeri Pantai Timur semakin buruk hari ini apabila jumlah penduduk yang dipindahkan mencecah hampir 13,000 orang.

Fenomena tenggelam itu juga menyebut dua lagi nyawa menjadikan angka kematian meningkat kepada 13 orang, sembilan daripadanya di Kelantan.

Mangsa terbaru ialah dua remaja, Ahmad Shakrul Azman Che Alias, 18, dari Kampung Padang Gudril yang sedang menunggu keputusan SPM Tingkat Persekolahan Malaysia (STPM) dan Mohd. Razi Senan, 18, dari Kampung Cheyang Lelil. Kedua-dua mereka berasal dari Tanah Merah, Kelantan.

● Lagi laporan, gambar — Muka 2, 12, 13

Berita-cita penduduk di Kelantan, Terengganu dan Pahang juga dilaporkan terpaksa 'tergelap' sejak kelmarin apabila Tenaga Nasional Berhad (TNB) menutup 331 pencawang elektrik di tiga-tiga negeri tersebut akibat ancaman banjir.

Penutupan pencawang yang rata-rata mengalirkan 11 kilowatt (kV) elektrik itu juga menyebabkan keadaan elektrik bekalannya di Kelantan terjejas teruk apabila 210 pencawang tersimpan termasuk bekalan kawasan Kota Bharu ditutup.

Bagaimanapun, Jabatan Perkhidmatan Kaji Cuaca memberitahu keadaan cuaca di Kelantan, Terengganu, Pahang, timur Johor dan kawasan pantai Sabah serta Sarawak dijangka bertambah baik sehingga Jumaat ini apabila hujan hanya turun dalam jangka waktu satu hingga dua jam pada satu-satu masa sahaja.

Di Kota Bharu, Ketua Polis Daerah Tanah Merah, Deputi Superintendan Anuar Mohamed Isakim, Ahmad Shakrul Azman yang sedang menunggu keputusan peperiksaan STPM dipercayai lemas dihanyutkan arus deras di kawasan padang yang dinaiki air sedalam hampir dua meter berbekalan setahunya kira-kira pukul 12 tengah hari ini.

Selain berkata, Mohd. Razi pula dihanyutkan oleh arus deras ketika mandi bersama dua rakannya di satu kawasan lapang di kampungnya yang dinaiki air sedalam lebih satu meter kira-kira pukul 1 petang ini.

PEMANDANGAN ulang menyelubungi kawasan sekolah di Kota Bharu dilenggelami air sebelum hari ini. Sehingga semalam, hampir 6,000 penduduk negeri itu dipindahkan ke pusat pemindahan

KEADAAN di jalan raya Sultan Jim Besar, Kota Bharu yang dilenggelami banjir sehingga paras lutut semalam.

Kelantan (December)

Floods – 2003

P. Pinang & Kedah (Oct)

RONANA Kerya yang baru melahirkan anak empat hari lalu, diangkat oleh suaminya, Saiful Abdul Aziz yang meredah banjir untuk dibawa ke klinik bagi rawatan bayi mereka, dengan sebuah kenderaan kesihatan di kampung Lahar Yooi dekat Tasek Gelugor, Pulau Pinang, semalam.

ANGGOTA tentera menggunakan kereta perisai jenis Condor untuk mengangkut mangsa-mangsa banjir ke pusat

Rabu 8 Oktober 2003

Banjir kian buruk, 39,013 mangsa dipindah

Oleh Rasid Rahaman, Saufi Hamzah, Johari Ibrahim, Faiza Zainuddin, Yahya Awang dan Yusof Hamid

jumlah itu, Seberang Prai Utara (SPU) mencatat peningkatan tertinggi daripada 9,023 kepada 13,717.

Seberang Prai Selatan (SPS) ke

Water Shortage

Rapid economic growth, coupled with periodic occurrence of prolonged drought has brought the problems of water imbalance into sharper focus, especially development is concentrated in ‘water stress’ regions.

Dams running dry during the dry spell

There are more people than what a river basin can support in some regions. 1998 Klang Valley is a case in point

Kemarau punca loji kering

BH 26/3/98

DARI MUKA 1

alternatif bagi mengatasi masalah bekalan air di Lembah Klang. Kajian itu kini di peringkat akhir dan akan diumumkan sebaik saja siap.

Penolong Pengarah Kanannya, V Subramanian, berkata JBA kini menghadapi masalah untuk membekalkan air kepada pengguna di sekitar Lembah Klang kerana musim kemarau.

"Musim kemarau yang melanda di sektar Lembah Klang menyebabkan loji kekeringan dan beberapa tempat di sekitar Lembah Klang terputus bekalan air.

"Loji Hulu Langat dan Cheras tidak mampu membekalkan air di kawasan tanah tinggi dan sekitarnya kerana pengeluarannya berkurangan 40 peratus akibat kemarau," katanya ketika dihubungi.

Dalam perkembangan berkaitan, bekalan air ke beberapa kawasan di Lembah Klang sekali lagi terganggu apabila loji rawatan air Batu 11 Cheras ditutup hari ini bagi kali keenam sejak Januari berikutan kandungan tinggi ammonia dalam air mentah yang mengalir dari Sungai Langat.

Puncak Niaga (M) Sdn Bhd, syarikat yang mengendalikan loji itu, berkata musim kering sekarang menyebabkan paras air Sungai Langat menurun dan air mentah itu tidak mencukupi untuk melarutkan ammonia melalui proses semula jadi.

Masalah air semakin kritikal

BH 26/3/98

SABAR... dengan menggunakan baldi dan pelbagai jenis bekas lain, penduduk Taman Setiawangsa di Ibu Kota yang terputus bekalan air, mengambil bekalan yang dibawa lori Jabatan Bekalan Air (JBA) Gombak.

Sehingga kini, kebanyakan kawasan di sekitar Kuala Lumpur menghadapi masalah air yang sangat kritikal berikutan cuaca kering yang melanda sebahagian besar negara sekarang.

Keadaan itu menyebabkan paras air di sungai yang membekalkan air mentah ke loji penapisan tidak mencukupi dan berikutan itu, bekalan ke kawasan perumahan sering terputus.

Dalam keadaan sedemikian, mungkin ada warga kota yang berhijrah dari kampung asal masing-masing berasa lebih mudah mendapatkan air yang bersih dan jernih di desa, terutama jika ada perigi. – Gambar oleh Izahari Arifin.

1998 drought has caused serious water rationing and hardship for 1.8 million residents of Kuala Lumpur and other Klang Valley Towns

worst dry spell in living memory

cky Garden.

■ By Sheridan Mahavera
mahavera@nst.com.my

ALOR STAR, Wed. — The current dry spell in Kedah, which is causing bush and field fires, has been described by some as the worst in living memory.

The lakes and dams essential to the State's rice industry are also fast drying up.

The Pedu, Ahning and Muda dams in the interior of the State report water levels that are 10 per cent lower than in previous years.

Resorts surrounding the man-made Pedu Lake have cancelled water sports activities, such as canoeing and jet skiing as receding water levels have exposed the lake's underwater trees.

Mutiara Pedu Lake Resort business development manager Wan Fauziah Wan Mamat said the dry season this year had hit the resort's business.

"We had to reorganise our activities for our guests by offering inland activities such as jungle trekking since the water level at the lake has made it too dangerous for water sports.

"Last year was not as bad as this year.

"Three months ago, it was worse as water levels dropped to 95.3 metres from the optimum level of 106.7 metres," she said.

Fire and Rescue Departments in the State are on high alert until next month as the dry season has sparked off numerous bush and field fires in the padi planting areas of Kota Star, Pendang and Yan.

State Fire and Rescue Department chief Mohd Yunos Abu Hassan said stations received an average of nine to 10 calls per day starting from last month.

"Compared with the same period last year, we have recorded a hike in bush fires.

"The most critical are the padi fields which flank the North-South Expressway as smoke from the fires can envelop the highway and cause accidents," Mohd Yunos said.

Fires, he said, were not just caused by discarded cigarette butts but also spontaneous combustion of dry fields when high temperatures caused twigs, shrubs and stalks to reach their flashpoint.

Agriculture authorities have been monitoring falling water levels in the three dams, but are confident that there is enough water for the next padi planting season in April.

Muda Agricultural Development Authority general manager Datuk Abdul Rahim Salleh said there was enough water to meet the State's domestic and industrial needs.

"God willing we will have enough water for the 96,000 hectares of padi fields under us.

"This is because the dams only supply 30 per cent of their water.

"The rest is from rainfall and other sources," Abdul Rahim said.

If the situation worsens, he added, farmers would have to practise dry seeding in the next season.

Meanwhile, residents and those working in the hot sun have resorted to various measures to keep themselves cool in the wake of the heat.

Trishaw rider Mustapha Man, 56, has taken to having occasional dips in a fountain along the Lebuhraya Darulaman to cool off after his trips.

"I come to the fountain to wash my head and face usually in the late afternoon before Asar prayers at the Zahir mosque.

"I sometimes come twice a day to cool off. I can't remember when it was this hot," he said when met at the fountain.

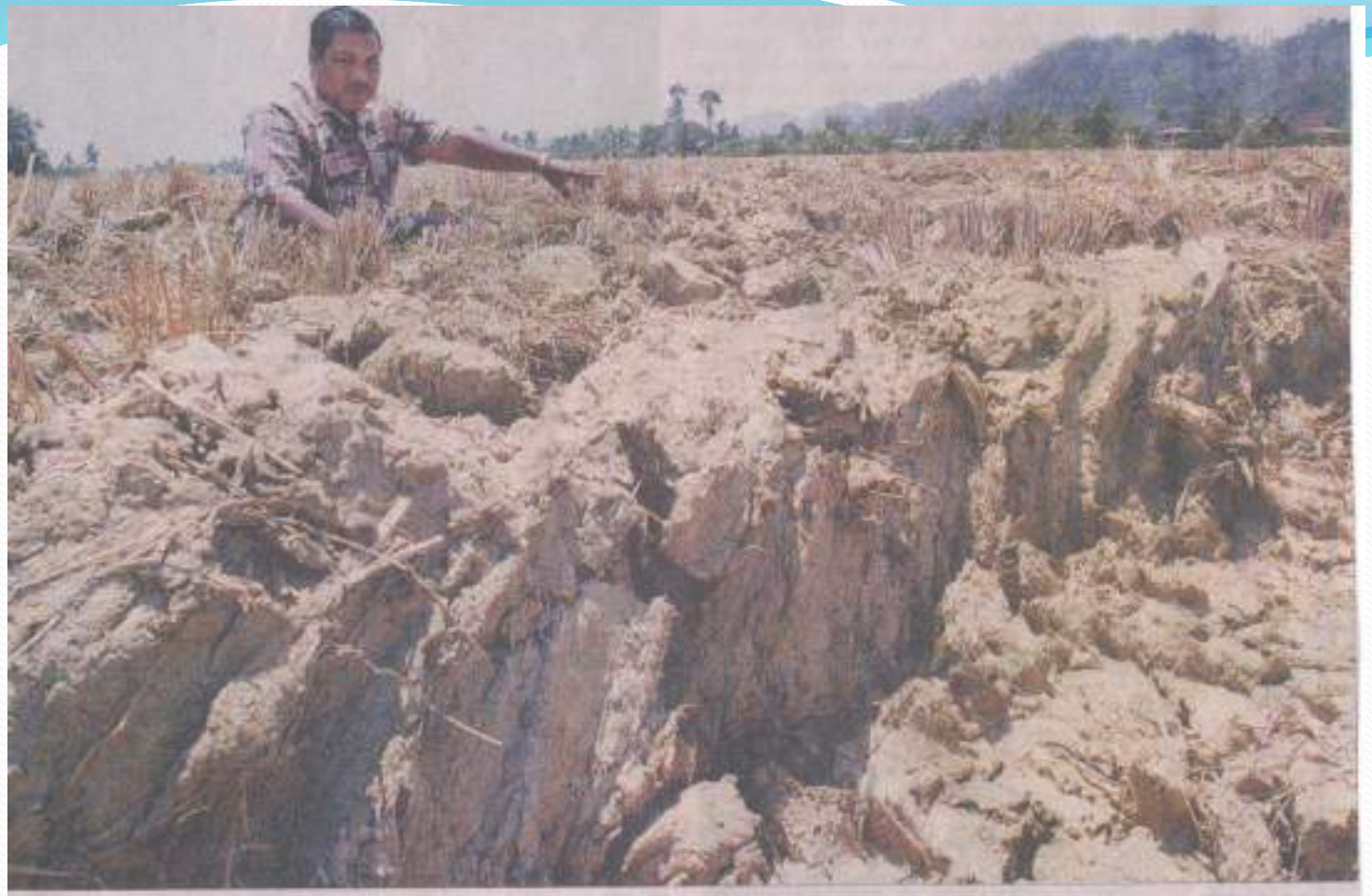
MANAGEMENT" (INNOBP-Urban)

vent, Exhibition • 8 - 9 March: Conference, Exhibition

/CASE STUDIES:

CONFIRMED SPEAKERS

Kedah (NST 25 February 2005)



KERING-KONTANG... Lebih 6,000 petani di Perlis kini imbang kemungkinan hilang mata pencarian apabila bendang nereka kering-kontang kerana air tidak dapat disalurkan ke awah.

Jabatan Pengairan dan Saliran (JPS) negeri itu tidak dapat erbuat demikian kerana paras air di Empangan Timah Tasoh erus susut kepada 27.02 meter semalam.

Akibatnya, para petani yang sepatutnya memulakan tanaman padi dalam masa beberapa hari lagi tidak dapat mengerjakan sawah mereka.

Ia merupakan kali kedua bekalan air untuk pertanian di negeri itu terpaksa dihentikan. Sebelum ini ialah pada 1998 ekoran fenomena El-Nino.

● SALLEH Abu Bakar menunjukkan keadaan sawahnya kering-kontang akibat kemarau panjang yang menyebabkan penanaman padi tidak dapat dilakukan di Kampung Teluk Jambu Bintong, Kangar, Perlis, semalam. — Gambar NIDZUWAN ZAINAL ABIDIN

Kangar Perlis (2005)

NEW STRAITS TIMES MONDAY, MAY 9, 2005

Villagers turn to rivers for supply

FRESH SUPPLY: Felcra Bukit Tandak worker Rizwan Abdul Rani using a tractor to transport water twice a day from Bukit Kwong dam in Lubok Stol to Bukit Tandak. — Bernama picture

RANTAU PANJANG, Sun. — A drought that has lingered from the beginning of this year has forced people in at least 10 villages in the Gual Periok state constituency to use water from swamps and rivers for their daily needs.

A check revealed that the wells in the villages, located on high ground, had dried up and the piped water supplied by Air Kelantan Sdn Bhd (AKSB) is sufficient for only a small number of the 30,000 people in the constituency.

The AKSB provided water up to Kampung Kubang Kual and is unable to channel water to Kampung Tasek Gondang, some 1.8km away, according to Abdul Rahim Che Wil, 56, who lives in Tasek Gondang.

"As a result, we are forced to use well water as our main source of supply, and have to spend RM30 a month to buy clean water for drinking and cooking," he said.

"We also have to use the dirty water from nearby rivers for bathing and washing clothes, which has resulted in some of the people suffering from itchiness of the skin," he added.

Abdul Rahim said the people in the village also forked out money to buy a RM120 pump to channel water from a mangrove swamp.

Gual Periok State Assemblyman Datuk Shaari Mat Hussain said the Federal Government had provided 48-metre deep tube wells in 13 villages in the constituency.

"Nevertheless, the tube wells are unable to meet the needs of the 30,000 people," he said. — Bernama

Drought at Rantau Panjang, Kelantan (NST 9 May 2005)

River and Water Pollution

River water quality deteriorated with development – both point and non point source

Out of 473 rivers monitored:

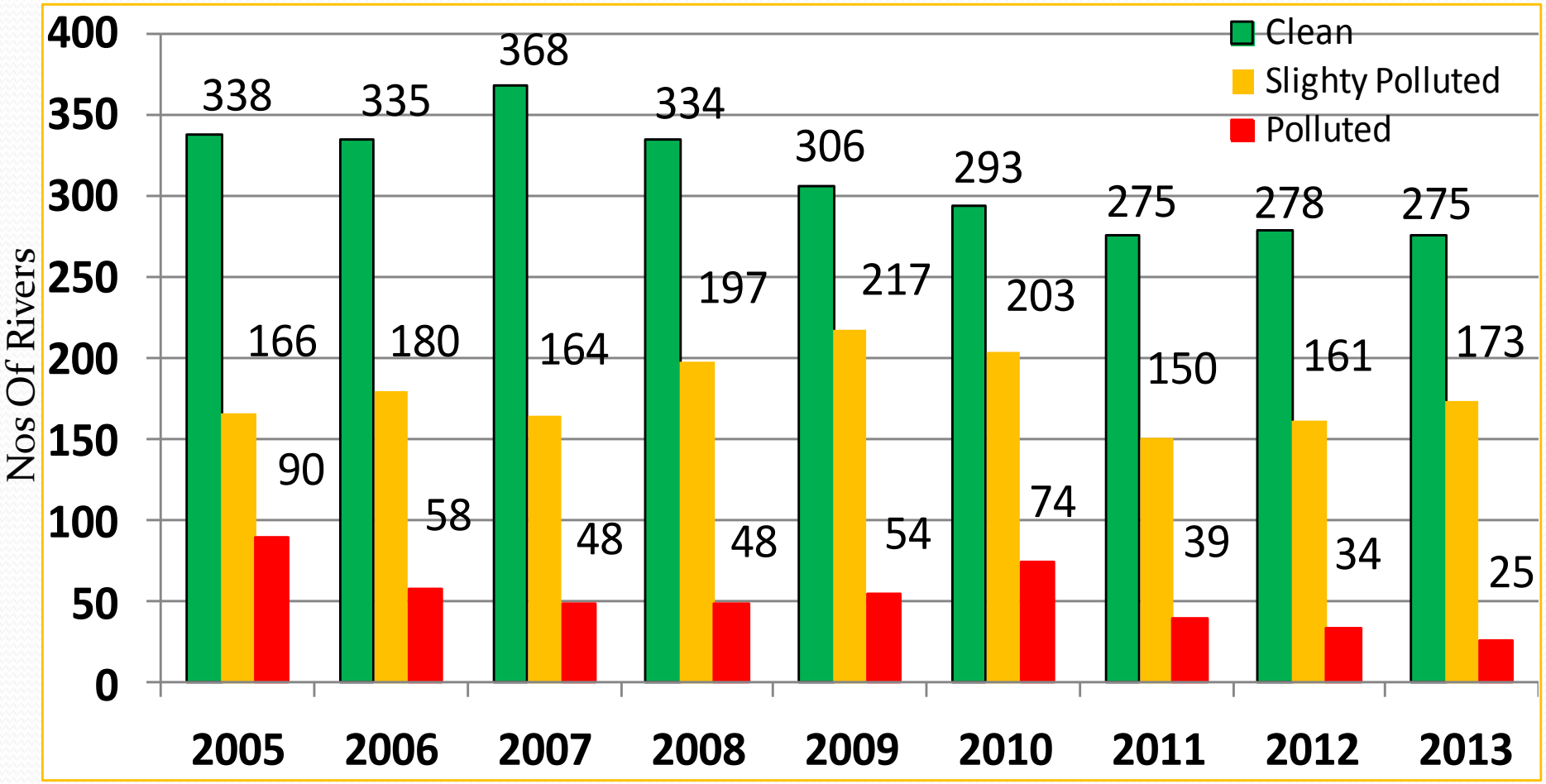
278 =59% clean

161 = 34% slightly polluted

34 = 7% polluted

Sources: Environmental Quality Report, 2012

Malaysia: River water quality trend



Sources: Environmental Quality Report, 2013

River Pollution: Main Causes

- Discharges of sewage and domestic wastewater
- Urban Surface runoff
- Discharges from restaurants, wet markets & food courts
- Animal farming
- Land clearing & earthworks
- Sand mining
- Agricultural and manufacturing activities

Sewerage Treatment Plant

In Malaysia
Standard A or Standard B

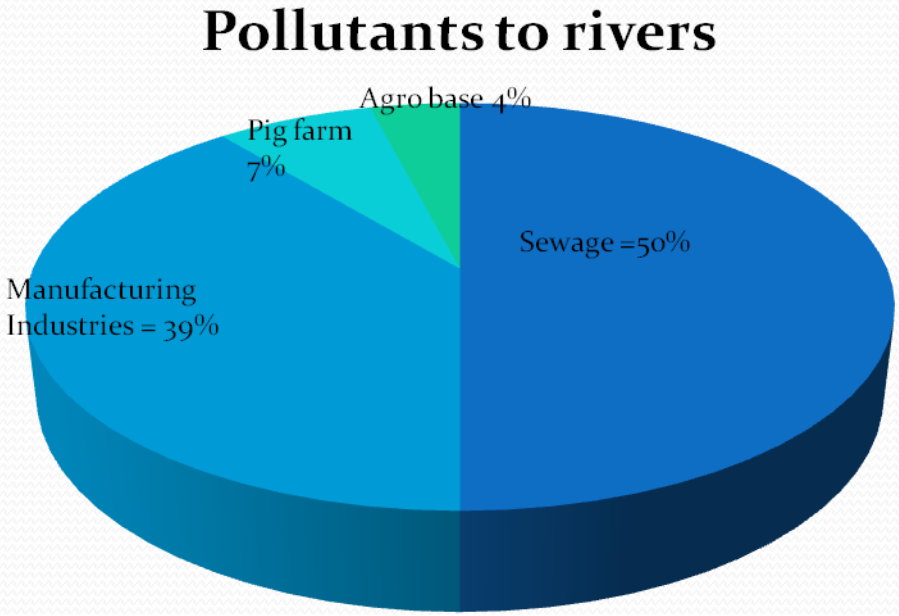
POOR MAINTENANCE OF STP
IMPROPER FUNCTION STP

SOURCES OF SEWAGE POLLUTION

Effluent from public STPs(*IWK)*

Non-IWK Sources

- Effluent from private STPs
- Effluent from Individual Septic Tanks
- Sullage(from households)
- Discharge of raw sewage(squatters)
- Sewage from primitive systems
- Wet markets/Eateries



Source of sullage pollution begins at home

Solid Waste

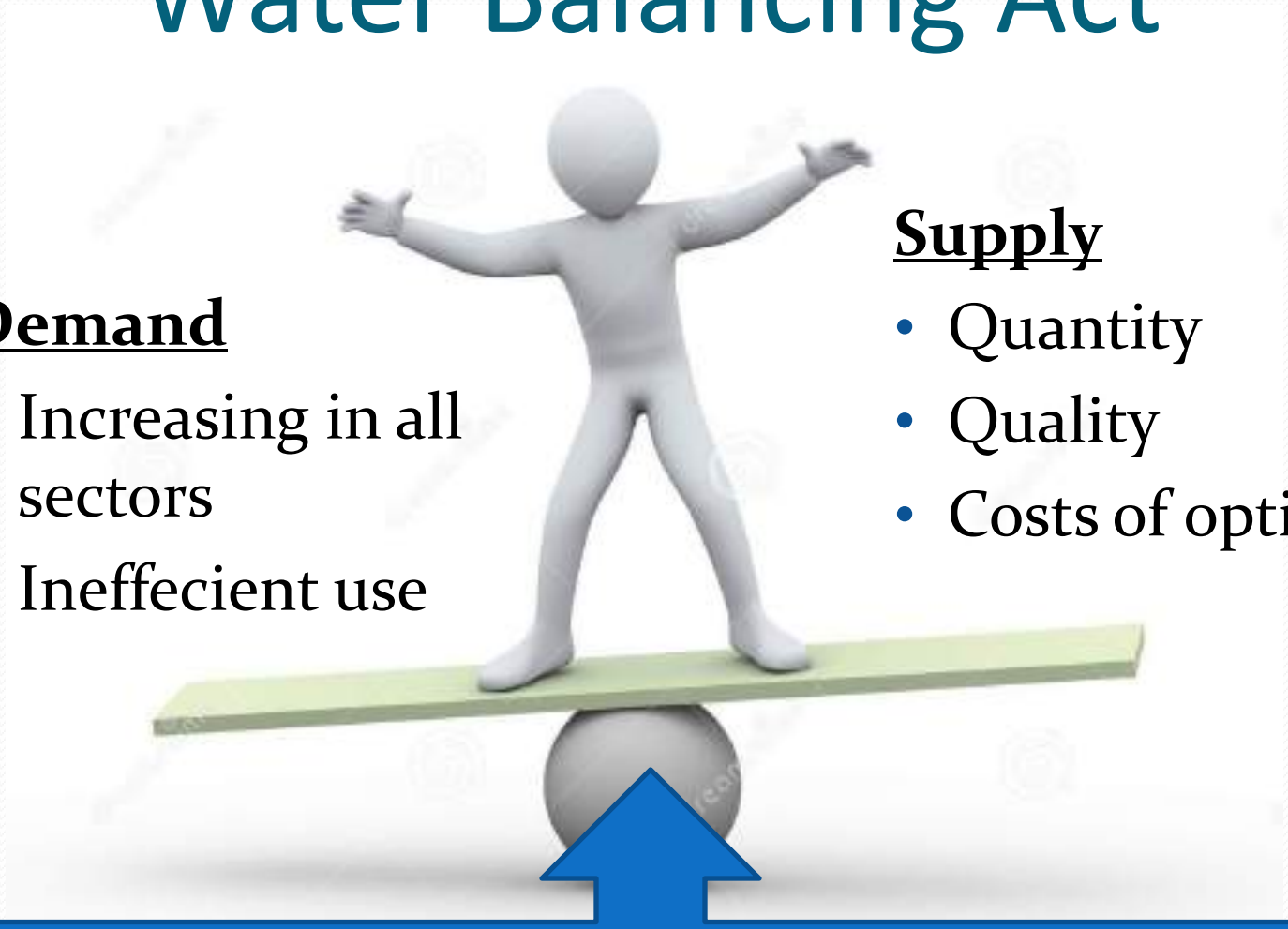
Based on Environment Rehabilitation And Flood Mitigation of The Klang Valley Studies In 2003 280,000 ton of rubbish is being collected and nearly 10% end up in the river.

Land clearing and river sedimentation

TIDAK TERKAWAL: Kawasan bukit di tanah tinggi Lojing digondolkan pihak tertentu mencetus isu hangat kemusnahan alam sekitar.

Adaptations and Approaches

Water Balancing Act



Demand

- Increasing in all sectors
- Ineffecient use

Supply

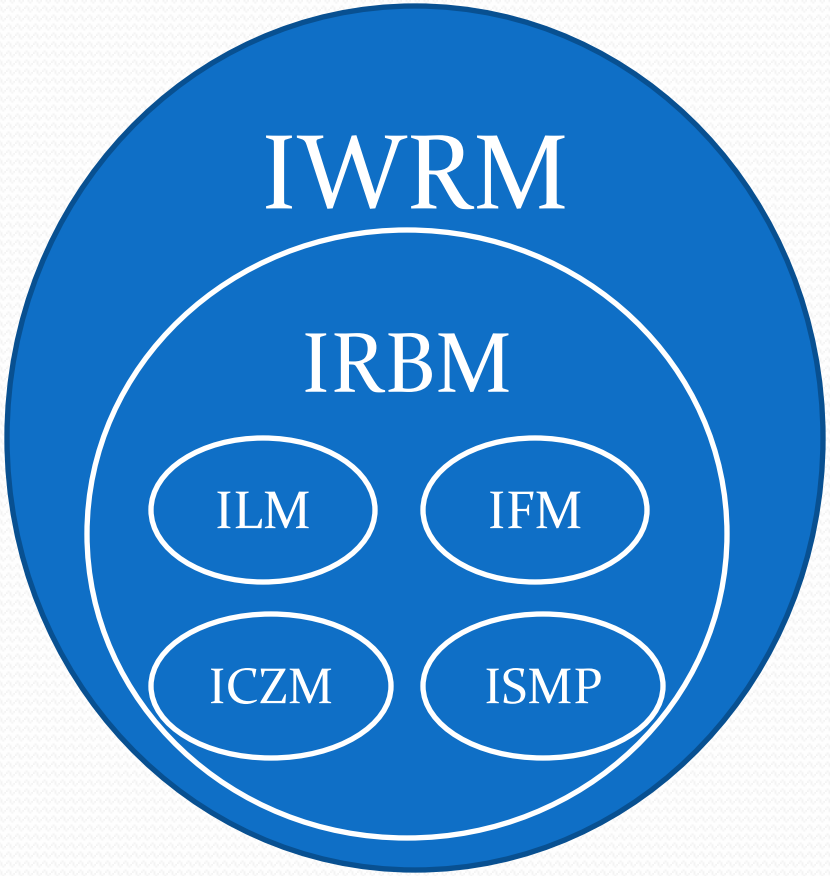
- Quantity
- Quality
- Costs of options

IWRM

A balance between conditions for sustainable development *(national interest)*
and desirable socio-economic development *(public interest)*
with ecological conditions *(environmental integrity)*

Integrated Approaches

- Integrated Water Resources Management (IWRM)
- Integrated River Basin Management (IRBM)
- Integrated Lake Management (ILM)
- Integrated Coastal Zone Management (ICZM)
- Integrated Shoreline Management Plan (ISMP)
- Integrated Flood Management (IFM)



All approaches to help structure current practices towards better water resources management

Malaysian Context on IWRM/IRBM

- IWRM/IRBM in line with aspirations of Malaysian Government in different policy documents:

√ *The Third Outline Perspective Plan, Malaysia (OPP3) 2003-2010*

√ *The 8th Malaysia Plan, 2001-2005*

√ *The 9th Malaysia Plan, 2006-2010*

√ *The 10th Malaysia Plan, 2011-2015*

Reforms in the Malaysia Water Sector

- In 1998, National Water Resources Council (NWRC) has been set up.
- In 2003, the NWRC has decided that the formulation of Integrated River Basin Management (IRBM) master plans be carried out for all the 189 river basins.
- Cabinet Reshuffle in March 2004,
  - 11 agencies from 4 different ministries were combined in the Ministry of Natural Resources and Environment (NRE).

Reforms in the Malaysia Water Sector (contd)

- the Department of Water Supply and the Department of Sewerage Services were moved to the Ministry of Energy, Green Technology and Water.

- The Federal Constitution was amended in January 2005 to transfer matters related to water supply services from the State list to the Concurrent list. The amendment enabled the Federal Government to regulate the water supply services while ownership and control of water resources, dams and catchment areas remained with the state governments.

Ministry of Natural Resources and Environment

1. Management of the implementation of **policies, strategies and programmes relating to natural resources** and environment.
2. Enforcement and monitoring the implementation of and compliance with policies, legislation and guidelines relating to the management and conservation of natural resources and the environment.

Ministry of Energy, Green Technology and Water

1. Formulation and implementation of national policy on **water supply services and sewerage services** industry.
2. Formulating licensing and supervising policy and framework.
3. Formulating and determining tariffs.

Ministry of Agriculture and Agro-based Industry

1. **Agricultural irrigation and drainage**.
2. To regulate the paddy and rice industry under the Control of Paddy and Rice Act 1994.
3. To formulate, plan and implement the National Agriculture Policy.

But….

- DID has been promoting IRBM since 1990's by:
  - IRBM studies (Sg Muar, Sg Langat, etc)
  - Love Our River Campaign
  - 10 Years Klang River Clean-up

IRBM

What is IRBM?

"Integrated River Basin Management (IRBM) is the **sustainable management** of ***land and water*** based on ***natural geographical boundaries,*** rather than administrative units."

Integrated River Basin Management

the process of coordinating conservation, management and development of water, land and related resources across sectors within a given river basin, in order to maximize the economic and social benefits derived from water resources in an equitable manner while preserving and, where necessary, restoring freshwater ecosystems.

(Adapted from Integrated Water Resources Management, Global Water Partnership Technical,Advisory Committee Background Papers, No. 4, 2000.)

DID Roles,

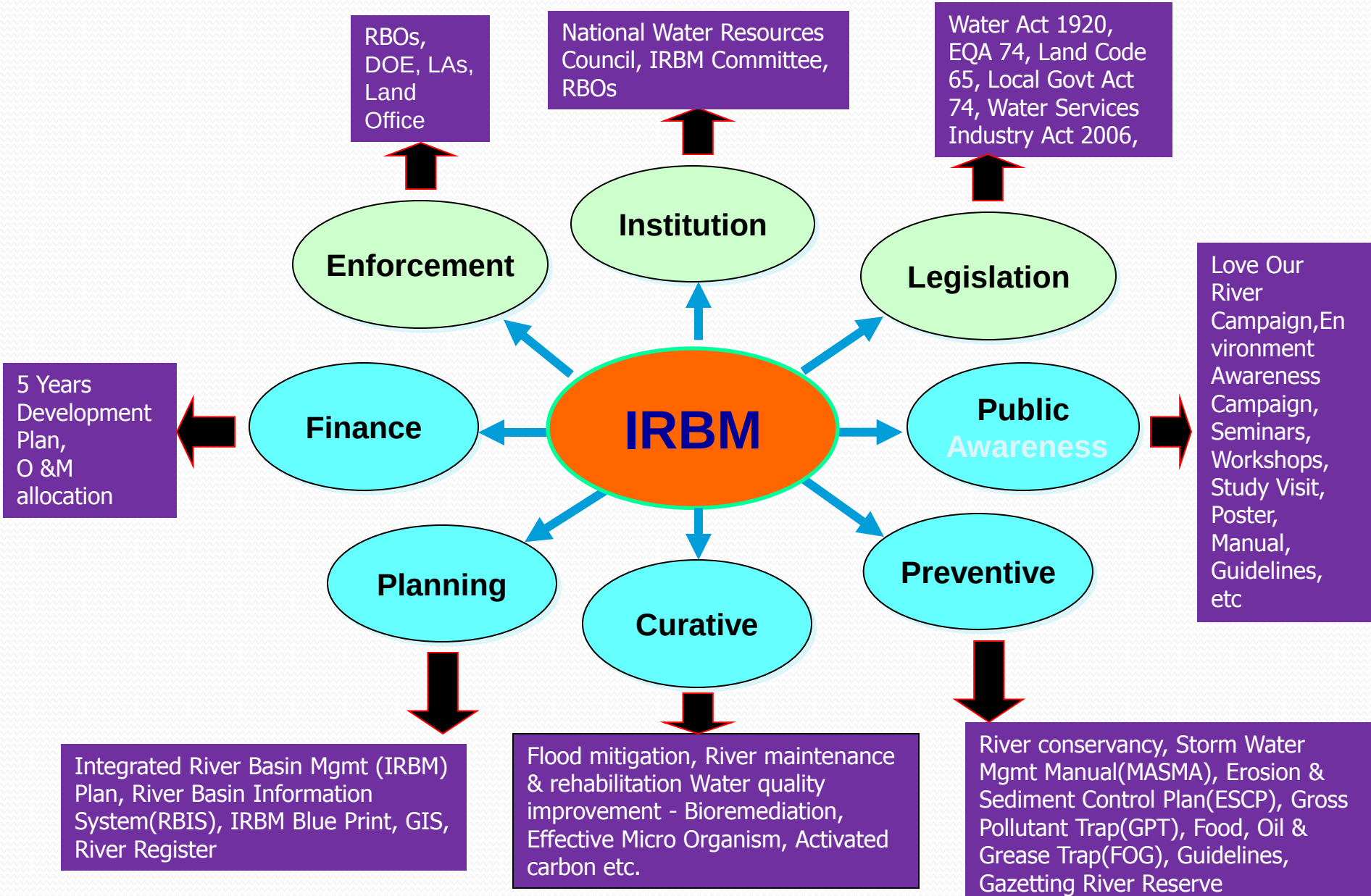
Ministerial Functions Act 1969 [Act 2]
Ministers of the Federal Government (No.2) Order 2013 [P.U.(A) 184/2013]

- Subjects;
  - Formulation, revision and amendment of policies, legislation and guidelines relating to natural resources and the environment,
  - Etc **(page 136-138)**

Ministerial Functions Act 1969 [Act 2]
Ministers of the Federal Government (No.2) Order 2013 [P.U.(A) 184/2013]

- Department of Drainage and Irrigation:
  - Subjects:
    - Implementation of planning and development of flood and drought forecast system, management of hydrological data and information and assessment and management of national water resources,
    - Development of planning and management of river basins,
    - Enhancing the planning and development of infrastructure as well as water management for crops and other agricultural needs,
    - Development of planning and management of flood mitigation programmes,
    - Implementing of development and management of coastal zones to reduce coastal erosion and sedimentation problems at river mouths,
    - Managing and regulating the implementation of storm water in town areas management programmes
    - **(page 142-143)**

IRBM Components



IRBM initiatives

CINTAILAH SUNGAI KITA

(LOVE OUR RIVERS CAMPAIGN)

1993-2003

10 Tahun

(10 *YEARS*)

JABATAN PENGAIRAN DAN SALIRAN MALAYSIA

Love Our River

1. Adopted river:

- **Village category (*Kategori Jawatankuasa Kemajuan dan Keselamatan Kampong (JKKK*)**
- **School category**
- **Tourist category**

2. River watch

3. River expedition

4. Education and talk

5. River beautification

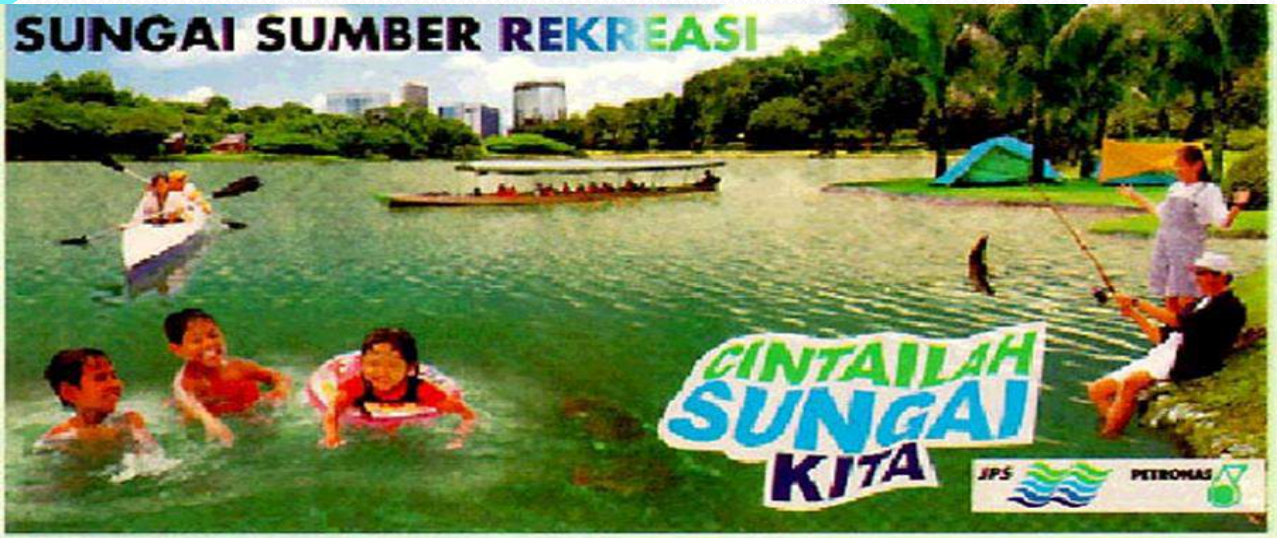
Supporting Programme

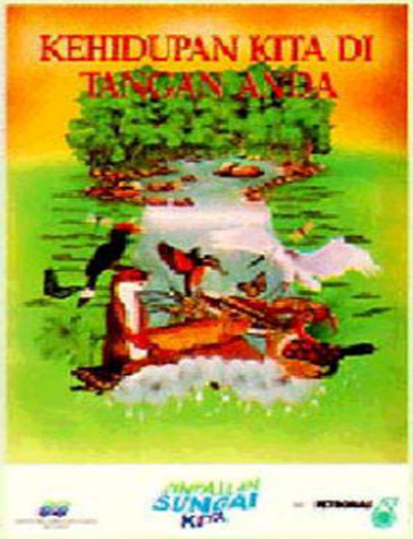
1. **Symposium and seminar**

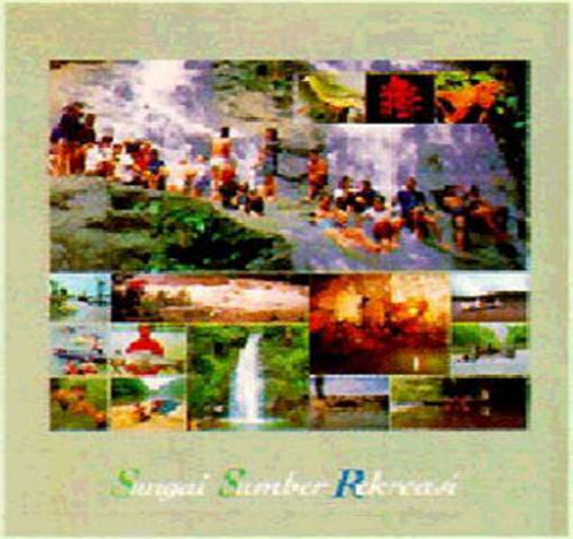
2. **River cleaning**

3. **River polution treatment**

Love Our River







Campaign Materials

One State One River Programme (1S1R)

1S1R is Mini IRBM

- **1 RIVER – Start with 1 River and its catchment**
- **1 PLAN – Catchment Management Plan**
- **1 MANAGEMENT – 1 Steering Committee**

Objectives

- To ensure clean, living and vibrant rivers – Class IIB by 2015,
- To turn rivers and their environment into natural recreation areas,
- To ensure rivers are free from solid waste and flooding.



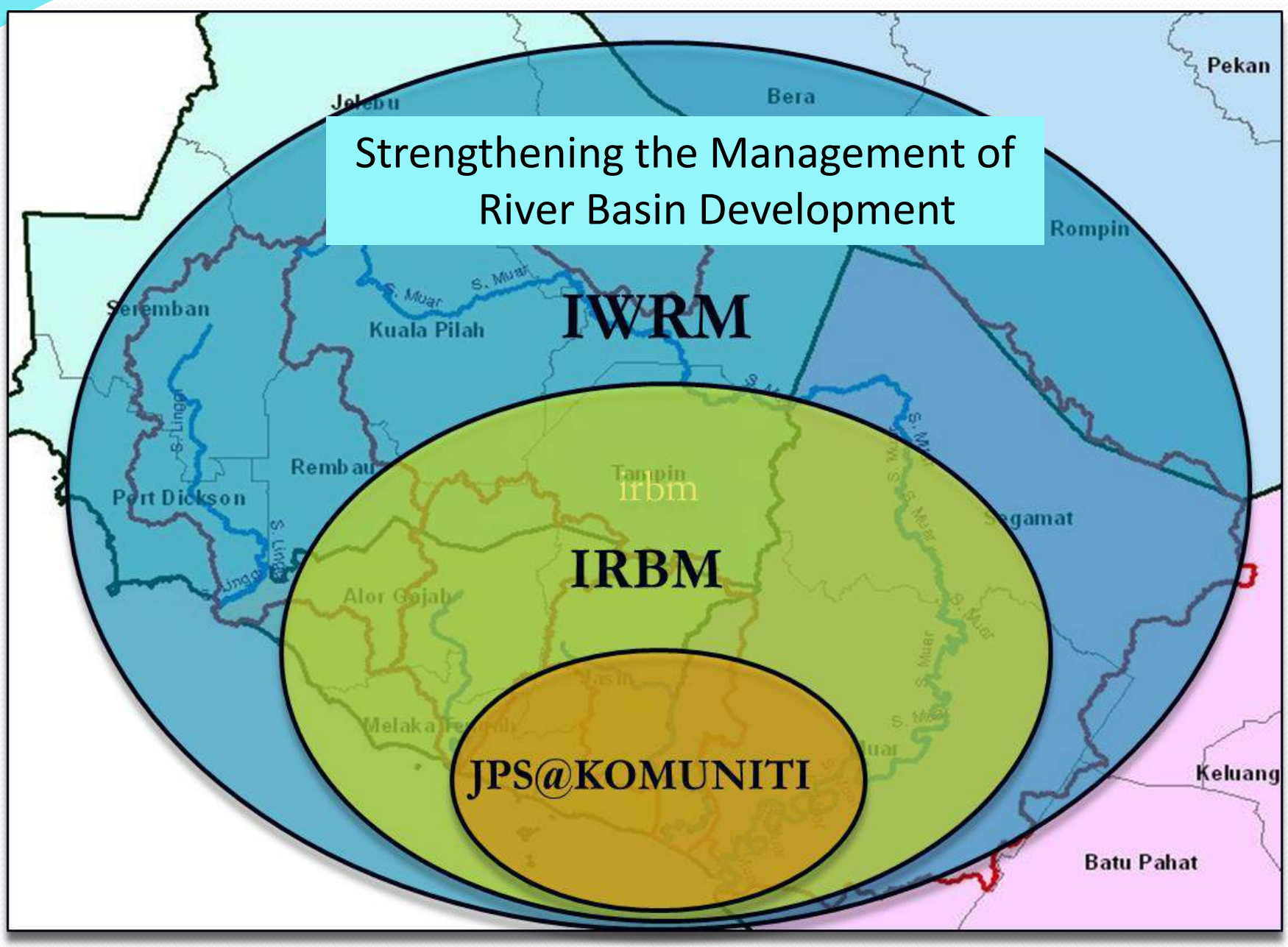

PERSIDANGAN KEBANGSAAN
'jps@komuniti'
Dirasmikan oleh
YB. Dato Sri Douglas Uggah Embas
Menteri Sumber Asli dan Alam Sekitar

jps@komuniti

Doing IWRM the DID way

It is a systematic, integrated, ‘sub-basin’ approach of solving 7 DID related problems in the whole district in a speedy, community friendly and effective way under the leadership of the District Engineer while receiving full support from DID State and DID Headquarters.

jps@komuniti



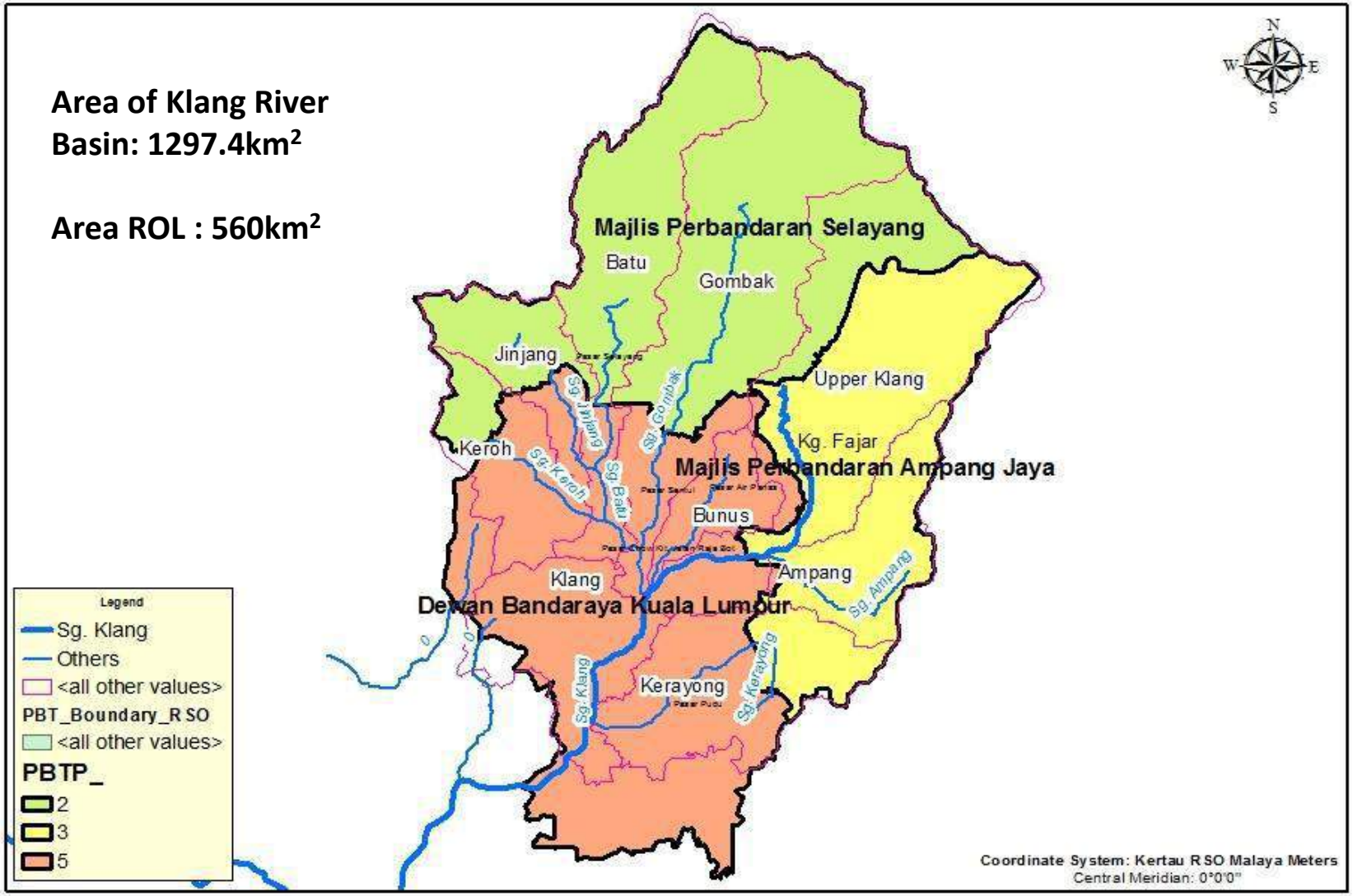
Output of this program

1. District Profile Report – information gathering.
2. Action Plan Report – for each sub-basin

1. RIVER OF LIFE PROJECT (ROL), Klang River

Area of Klang River Basin: 1297.4km^2

Area ROL : 560km^2



Local Authorities in River of Life Area

Transforming Klang & Gombak Rivers into a vibrant and livable waterfront with high economic value

2011 → **River Cleaning** → **River Beautification** → **Land Development** → 2020

River Cleaning

- Clean and improve the **110km stretch along the Klang River basin** from current **Class III-V to Class IIB by 2020**
- Covers the municipal areas of:
- -Selayang (MPS)
- -Ampang Jaya (MPAJ)
- -Kuala Lumpur (DBKL)

River Beautification

- Masterplanning and **beautification works** will be carried out **along a 10.7km** stretch along the Klang and Gombak river corridor
- Significant landmarks in the area include Dataran Merdeka, Bangunan Sultan Abdul Samad and Masjid Jamek

Land Development

- Cleaning and beautification works will **spur economic investments** into the areas immediately surrounding the river corridor
- Potential government land will be identified and tendered out to private developers through competitive bidding

OBJECTIVES OF RIVER CLEANING

The overall Greater Kuala Lumpur's aspiration "to be the metropolis in Asia that simultaneously achieves **top-20 economic growth and be among the global top-20 most livable cities by 2020",** under part of the **EPP (Entry Point Project), the River of Life** .

The main objectives are :

- Enhancing, rehabilitating and preserving the river and its environment compatible with the envisaged Greater Kuala Lumpur City status for the project area, including improving and sustaining the Klang River and its tributaries within the study area **Water Quality to Class IIB** (suitable for body-contact recreational usage) by **year 2020**.

- Providing **adequate level of flood mitigation** protection to the project area, in support of achieving the Greater Kuala Lumpur City status.

Main Challenge

JPS cannot do it alone.

We have to engage all stakeholders to manage the sub-basin

Stakeholder Engagement

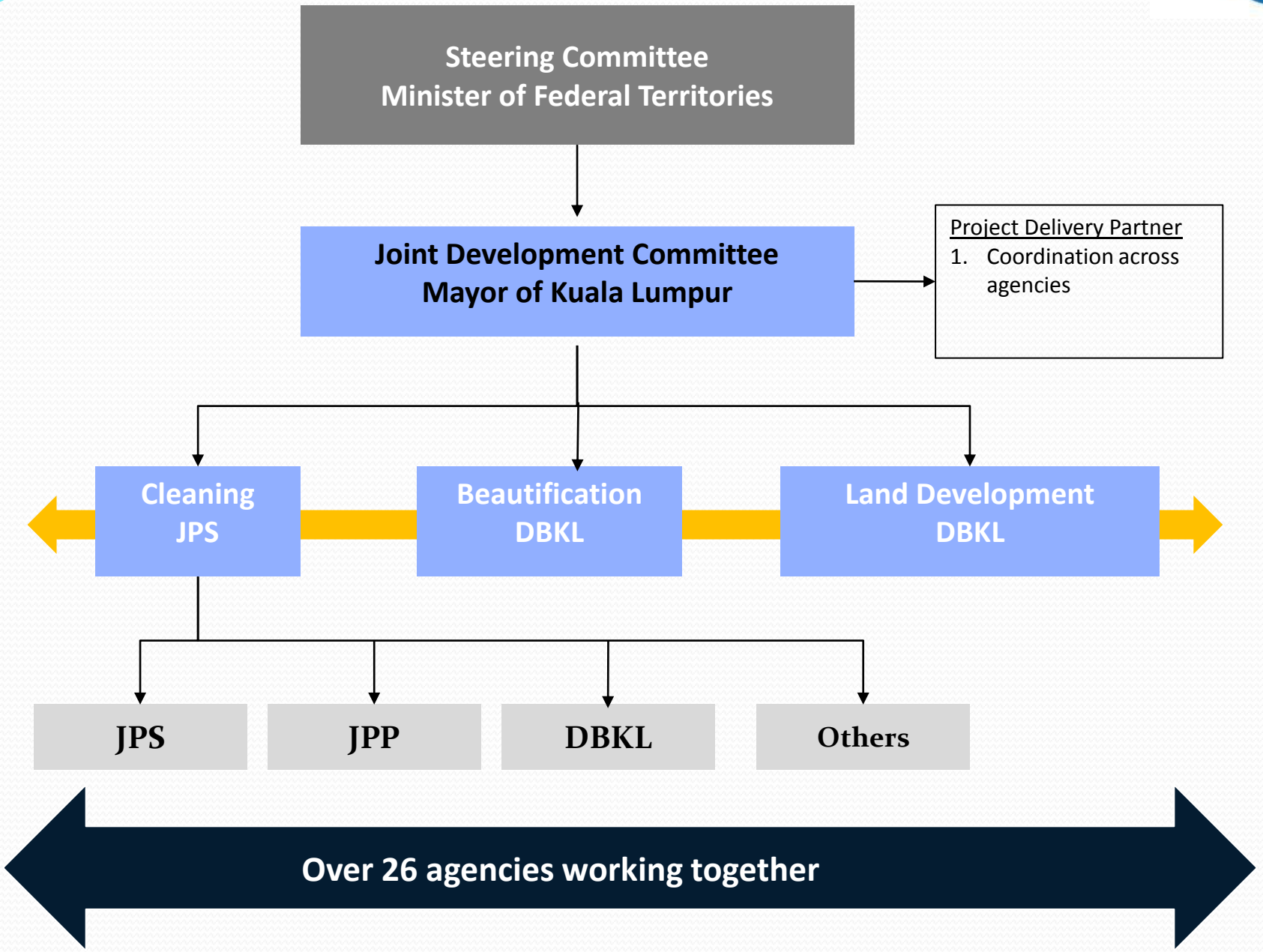
<u>Government</u>

multi agency, IRBM approach

<u>Public</u>

Public outreach programme

The River of Life governance structure



Source Of Pollution

Industry

Residential, Commercial Area

Sewerage Line and Service Area of STP

Squatters

Workshops

Car Wash

Food Beverages, Markets

1 52% of river pollution is caused by Sewerage Treatment Plants (STPs) with the remaining attributable to other sources (eateries, industrial etc)

Sources of pollution

Hawker centers and other eateries

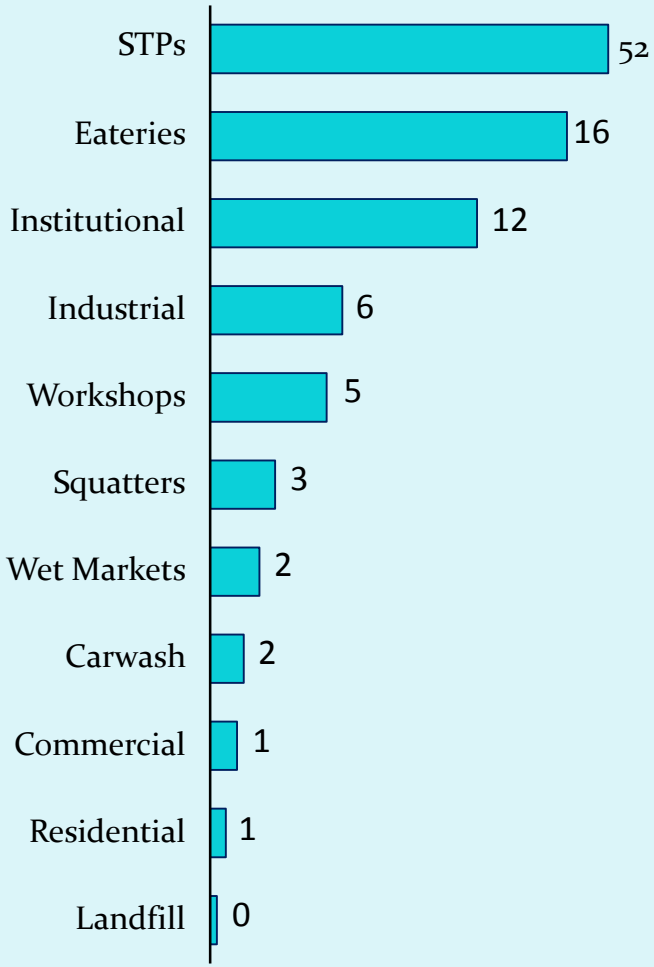
Industrial waste

Leachate and erosion from urban development

Construction & demolition waste

Squatters residing along the river corridor

% of pollution contribution

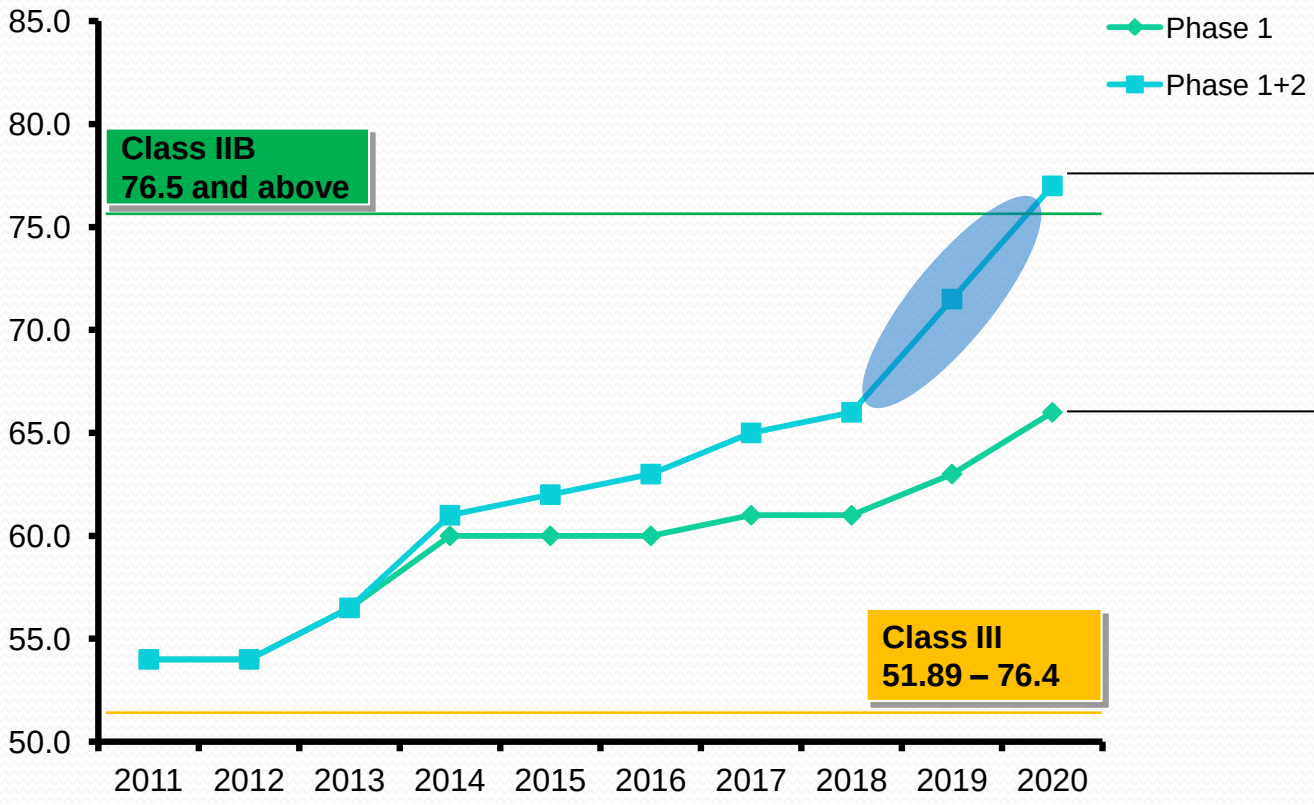


Enforcement required

1. Continuous pollution will impede the improvements to water quality unless strict enforcement measures are put in place.
2. Strong public support is also needed to keep the rivers clean in a sustainable manner.

1 Major improvement of Water Quality Index (WQI) will be seen from 2018 onwards.

Water Quality Index (WQI)
Class IIb is WQI 76.5



Phase 1+2
- Pre-treat food courts, wet markets & restaurants
- Connection to Sewerage System
- Interceptor System
- Upgrade effluent quality
- Public outreach programs

Phase 1
Initiatives derived from ETP Lab Report
(12 Key Initiatives)

Class IIB	Safe for contact, not suitable for consumption.
Class III	Not safe for contact or consumption.

River of Life: River Cleaning

Transforming the Klang river requires an integrated approach that stops pollution at the source

Aspiration

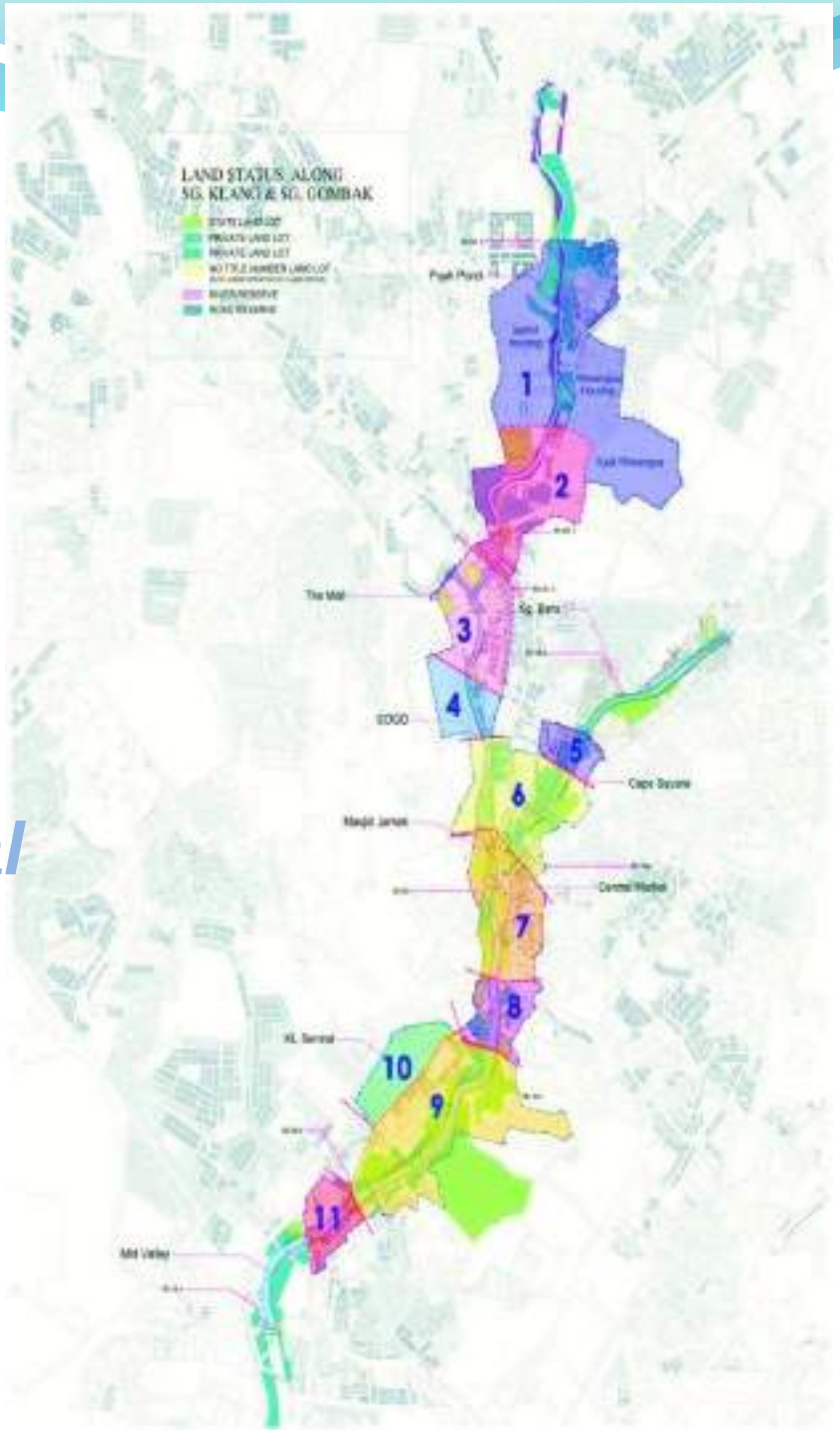
Class III & IV
- **unsafe for body contact**

Class IIB
- **recreational use with body contact**

Key Initiative	Description	Lead Agency
1	Upgrading existing sewerage facilities is the most impactful and important initiative to reduce Klang river pollution	JPP
2	Existing regional sewage treatment plants must be expanded to cater for future growth	JPP
3	Wastewater treatment plants need to be installed at 5 wet markets to decrease rubbish and pollutants	DBKL
4	Install additional gross pollutant traps will improve the river aesthetics and water quality	JPS Selangor / DBKL
5	Utilise retention ponds to remove pollutants1 from sewage and sullage	JPS WPKL
6	Relocation of squatters will significantly reduce sewage, sullage, and rubbish in the Klang river	MB Sel office/MPAJ
7	Implement the Drainage and Stormwater Management Master Plan to upgrade drainage systems	JPS
8	Systematic hydrological study and rehabilitation of the river are needed for flow control	JPS
9	Promote, enforce, and manage river cleanliness and health – erosion from urban development	JPS
10	Promote, enforce, and manage river cleanliness and health – restaurants, workshops, and other commercial outlets	JKT
11	Promote, enforce, and manage river cleanliness and health – industries that generate wastewater/ effluent	JAS
12	Promote, enforce, and manage river cleanliness – general rubbish disposal	JPS/JPSPN
13	Interceptor System	DBKL/JPS

River of Life: River Cleaning

- ***Structural***
- ***Non-structural***



River of Life: River Cleaning

Structure Measure for River Cleaning

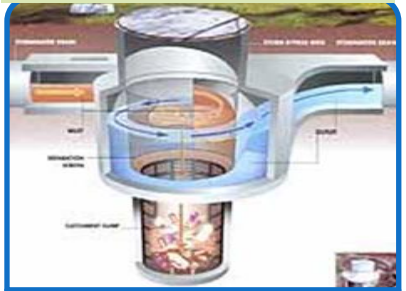
KI 1 & KI 2 : JPP

Upgrading Sewerage Treatment Plants

KI 3 & KI 4b : DBKL

Waste Water Treatment Plant

KI 4a : JPS



Gross Pollutant Trap

KI 5 : JPS

Puah Pond

KI 5 : JPS

Floating Wetland

KI 7 : JPS

Gross Pollutant Trap

River Water Treatment Plant

Mechanically Stabilized Earth Wall

Public Outreach Programme (POP)

Objective

i. Increase awareness of the targeted group about River Of Life project
ii. Nurturing cooperation and sense of responsibility to protect our river

POP Location

i. Phase 1 - Hulu Klang
ii. Phase 2 - Sungai Bunus Kuala Lumpur

SUNGAI UNTUK KEHIDUPAN ANDA (SUKA)

awareness → participation → action → ownership

increasingly effective

increasingly difficult to initiate

Public Outreach Programme (POP)

General Public

Local Communities

Developers

Friends of River of Life

Restaurants

Schools

Industries

Kuala Lumpur

Tranforming this….

to this one….

10 - Malay Mail - Thursday, 7/7/2011

KL River of Life masterplan

Planning for city with soul

VIBRANT WATERFRONT: The proposed river beautification project area

2 - New Straits Times - Saturday, 2/7/2011

River project to transform KI

By V. Shankar Ganesh

AJC Planning Consultants director Ahmad Jafri Clyde (second from left) briefing Prime Minister Datuk Seri Najib Razak on the River of Life project launch of a RM4 billion river beautification project in Kuala Lumpur yesterday. — NST picture by Ahmadfiz Saad

3 - Utusan Malaysia - Saturday, 2/7/2011

'Sungai Nadi Kehidupan' ubah wajah KL

NAJIB Tun Razak mendengar penerangan mengenai projekt perintisan Pelan Induk Sungai Nadi Kehidupan simbol diperhatikan Raja Nong Chik Raja Zainal Abidin pada majlis pelancarannya di Kuala Lumpur semalam.

2- The Star - Saturday, 2/7/2011

River of Life in full flow

Project aims to revitalise and transform Klang and Gombak rivers into waterfronts

KUALA LUMPUR: The much-anticipated River of Life project, which aims to revitalise and transform the city's dirty rivers, has taken off.

Prime Minister Datuk Seri Najib Tun Razak yesterday launched the project which seeks to transform the Klang and Gombak rivers into iconic waterfronts on par with waterways in cities like Amsterdam, London, Melbourne and Paris by 2020.

The Greater KL-Klang Valley project is an Entry Point Project under the Government's Economic Transformation Programme.

"I believe there will be a drastic change to Kuala Lumpur's image. This is what Kuala Lumpur folk have been waiting for.

"The Klang river has all the elements to become an attractive waterfront bustling with daily activities," Najib said at a ground-breaking ceremony near Jalan Pahang yesterday.

He said there would be a joint effort to clean the rivers and improve water quality.

"It is estimated that 170 tonnes of rubbish enter the Klang river every year but only 25 tonnes are cleared.

"There is also treated and non-treated sewage entering the river every day," he said.

Najib said strict enforcement and a change of mindset were needed to ensure the rivers were kept clean.

The project, he said, had huge economic potential, would attract more tourists, create jobs as well as raise property value along the Klang and Gombak rivers.

Najib said the project was expected to contribute RM11.3bil to the country's Gross Domestic Product until 2020.

The project is divided into three parts, namely river cleaning, which will involve a 110km stretch along the Klang river basin; river beautification along a 10.7km stretch by the Klang and Gombak river corridor which will include pedestrian walkways; and corridor development.

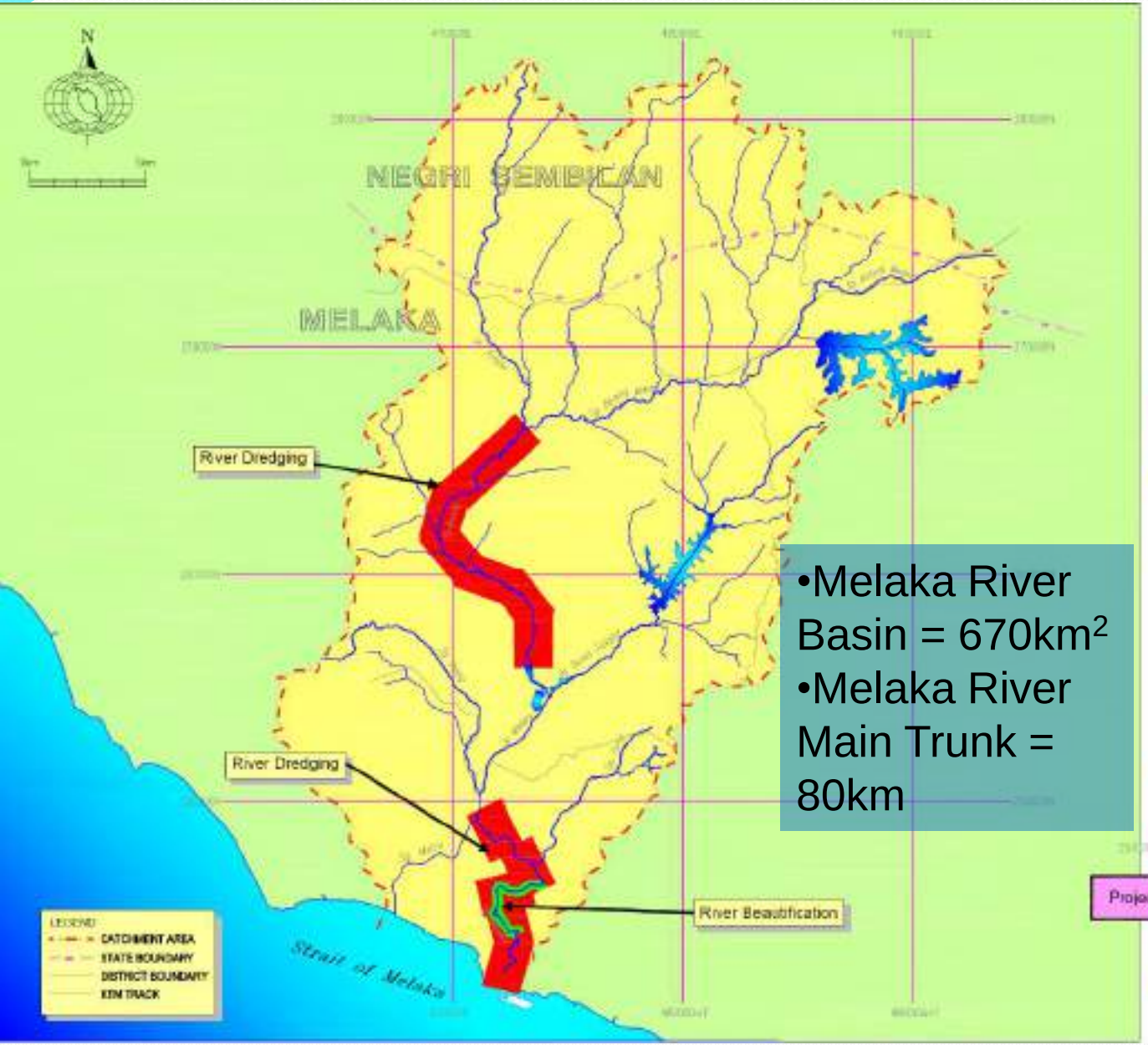
Najib also viewed the five masterplan proposals for the river beautification master planning competition.

Later, at the launch of the Kuala Lumpur Architecture Festival, he said a new affordable home scheme for low and middle-income earners would be launched on Monday.

Economic potential: Najib cracking a joke after launching the River of Life project near Jalan Pahang in Kuala Lumpur yesterday. With him are (from left) Natural Resources and Environment Minister Datuk Seri Douglas Uggah Embas, Raja Nong Chik, Deputy Federal Territories and Urban Well-being Minister Datuk M. Saravanan, Kuala Lumpur Mayor Tan Sri Ahmad Fuad Ismail and Minister in the Prime Minister's Department Datuk Seri Idris Jala.

MELAKA RIVER CLEANING AND BEAUTIFICATION PROJECT

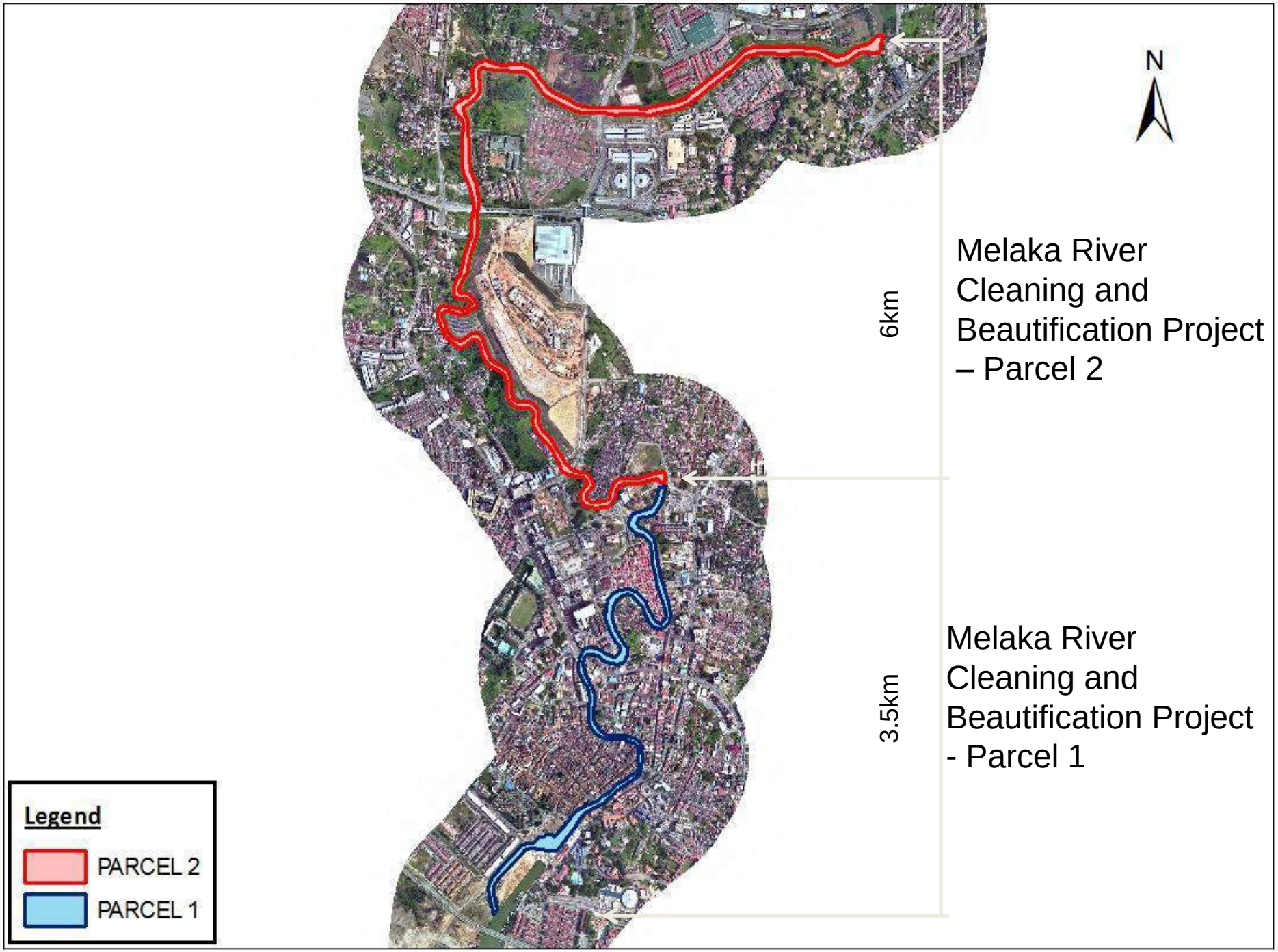
Melaka River Basin



- Melaka River Basin = 670km^2
- Melaka River Main Trunk = 80km

Key Plan

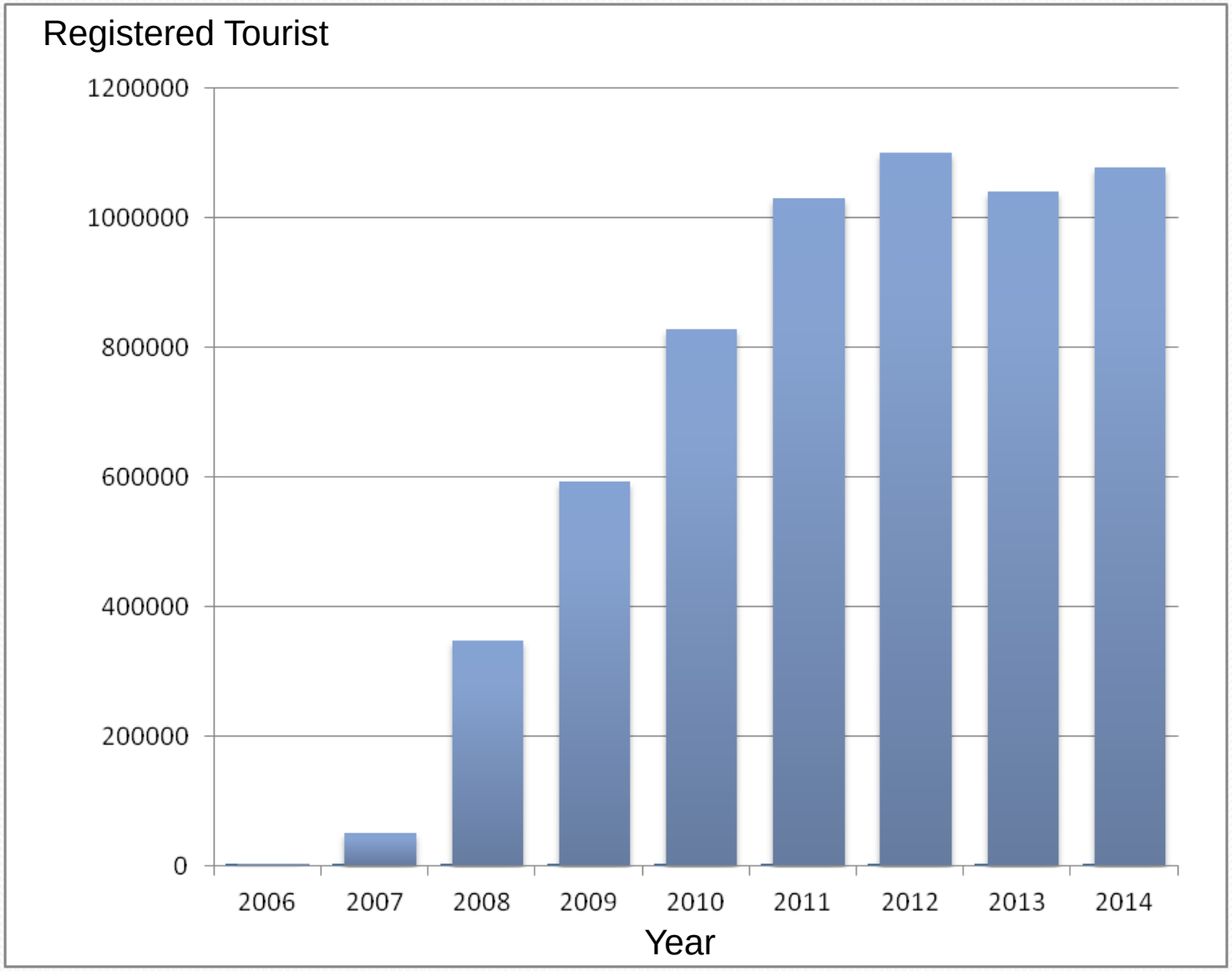
Key Plan : State of Melaka


N
6km
Melaka River Cleaning and Beautification Project – Parcel 2
3.5km
Melaka River Cleaning and Beautification Project - Parcel 1
Legend
PARCEL 2
PARCEL 1

Melaka River Cleaning and Beautification Parcel 2

- Successful Implementation of River Beautification Project (Parcel 1) from River mouth to Jambatan Hang Jebat brought huge revenue and profit to the Government
- The State Government decided to extend Beautification programme till Batu Hampar Tide Control Gate

Statistic Tourist – River Cruise Sg. Melaka



PROJECT OBJECTIVES

- River Capacity Improvement
- River Corridor Beautification
- Rejuvenation of Sg Melaka as Tourist Attraction
- Integration of Navigation as an Alternative Public Transport

EXISTING RIVER WATER QUALITY

MAJOR PROJECT COMPONENTS

- Land Acquisition
- River Improvement work (Widening and Deepening)
- Riverbank protection works
- Main terminal/water taxi station, River Information Centre
- Waste water treatment plant (36,000 PE)
- Jetty/ Pick up points
- Beautification works by landscaping components
- Beautification of existing bridges
- Gross Pollutant Traps (GPTs)
- Pedestrian Bridge
- Automatic WQ monitoring station (SCADA)
- Boardwalk
- Decorative lighting
- Public amenities, etc.

Transforming Melaka River to ‘Venice of The East’

The rise of the ‘Venice of The East’

Oleh M. JEFRI RAZALI

A RENOWNED Portuguese traveller, Tom Pires, in is book 'Suma Oriental' which was published around 1515 had labelled the Melaka River as the 'Venice of the East' which is a perfect description of the river which was Melaka's lifeline at that time.

Just like other State in the Malay Peninsula at that time, the river was the main mode of transportation. That was also the case in Melaka, where the Melaka River had played a great part during the heydays of the Melaka Malay Sultanate.

As such, it was not surprising when an observer like Pires came up with such a description for the famous river.

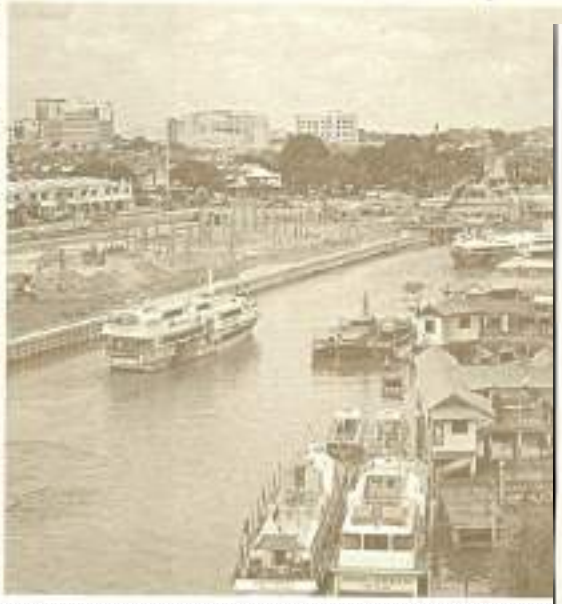
However, the glory Portuguese, and subsequently the laying of a new nation's foundation.

One thing is for sure, the future of this once mighty river has somewhat changed for the better.

It will be incomplete to talk about the Melaka River without referring to one individual who had played an immense role in its beautification.

That individual is none other than the Chief Minister, Datuk Seri Mohd Ali Rustam, himself.

The fate of the once bleak river had changed for the better when he assumed the post of the Chief Minister, where he subsequently made the cleaning and beautification of the river as one of the State



Pengindahan Sungai Melaka bawa pelaburan RM1 bilion

BANDARAYA MELAKA, 5 Feb – Projek pengindahan Sungai Melaka yang kini semakin hampir siap, dijangka membawa pelaburan sebagai projek kota di sepanjang sungai ini.

kata, [illegible] projek kecil [illegible] projek [illegible] "Cita del Rio" [illegible] Lebuhraya Ayer Keroh [illegible]

Mohd Ali berkata, [illegible] projek [illegible] RM5 juta.

"Semua [illegible] projek [illegible] dan [illegible] di Melaka [illegible] "Cita del Rio" yang [illegible] RM5 juta.

[illegible] "Semua [illegible] projek [illegible] dan [illegible] di Melaka [illegible] "Semua [illegible] projek [illegible] dan [illegible] di Melaka [illegible]

Dalam [illegible] "Menaru yang boleh berpusat 360 darjah itu, adalah [illegible] "

Pengindahan Sungai Melaka

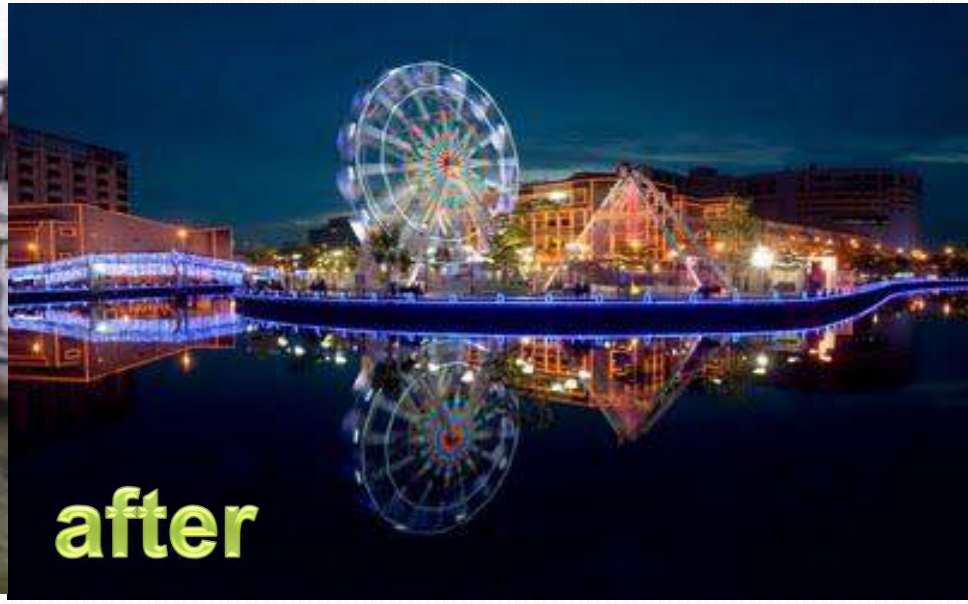
Jadi Tumpan Utama Pelancong

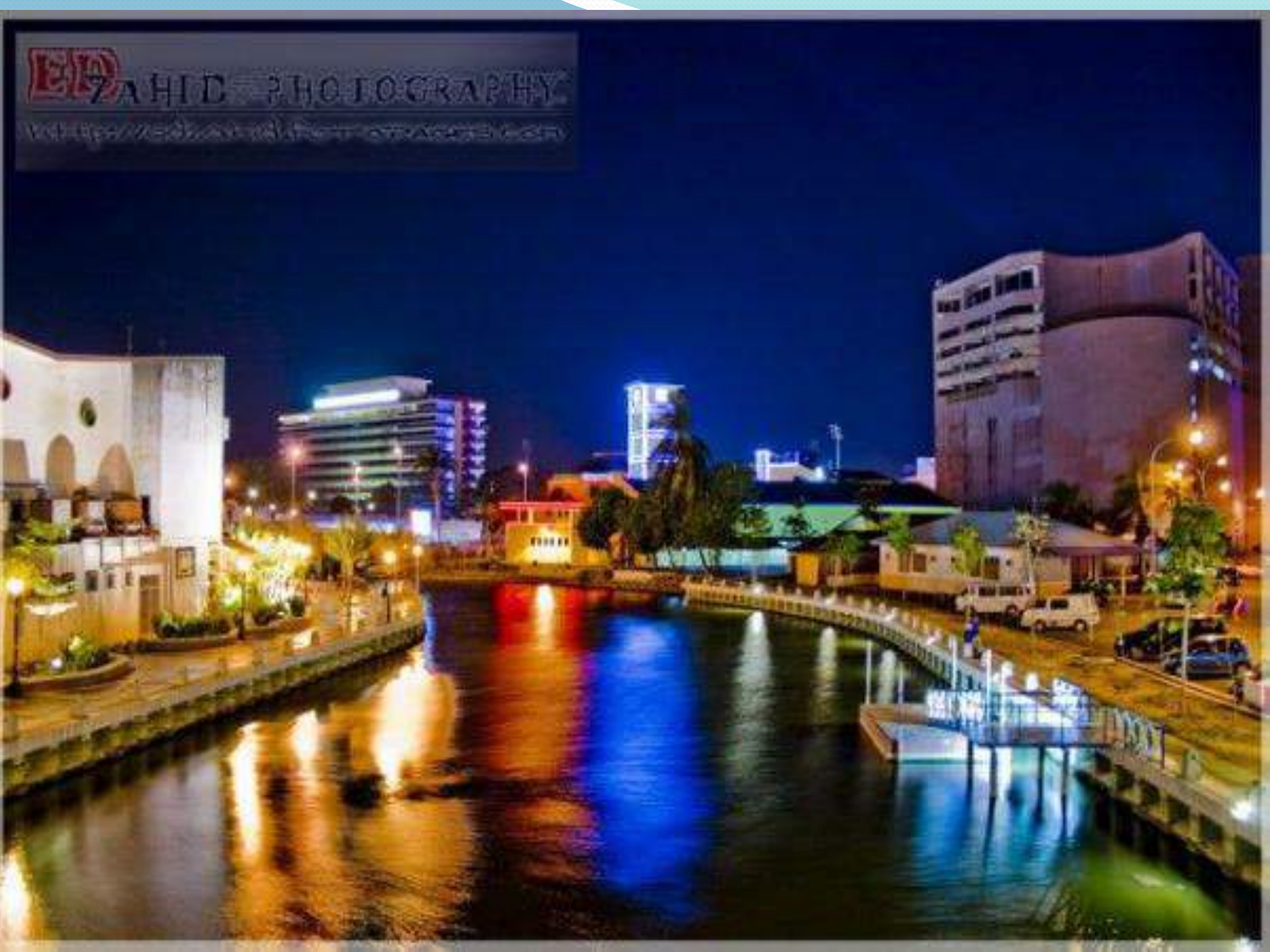
Melaka River– Clean And Beautiful

Before

After

Melaka River – Clean And Beautiful



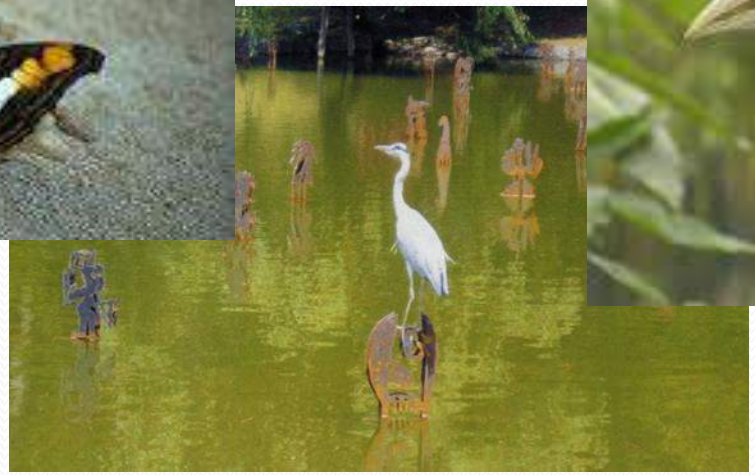

ZAHID PHOTOGRAPHY

Conclusion

Conclusions

- Water resources need to be managed in an integrated and holistic manner
- IRBM approach is way forward in water resources management especially in urban context
- Political and administrative framework and commitment vital to ensure success
- In Malaysia, we need more to be done

For Nature



For Future Generation


THANK YOU