

SUNDAY INTERVIEW

Smart solution to flood woes

Q: Now that the Stormwater Management and Flood Tunnel (Smart) system is finally up and running, what are the city's chances of fighting floods now?

A: Perhaps this has become a misconception. People think the tunnel is the solution to floods. Maybe we should have explained more, but we did say that it is not the only project to solve the flood problem.

Kuala Lumpur is fed by three rivers, and is the meeting point of two — Sungai Klang and Sungai Gombak. Over the years, massive development in the Ulu Klang area, Kepong and Jangau has resulted in the changing of the characteristics of the land. No more trees or soil to hold the water. The water reaching Masjid Jamek, the meeting point, has increased by three times. So, my first strategy was to store the rainwater. We built Batu Dam and raised the height of the existing Klang Gatos Dam.

We wanted a third dam, but could not construct it for social reasons. Then, we came up with the plan to divert the extra water from Sungai Gombak, in the middle, into a big pond, and on the left side, we are taking the water from Sungai Keroh — KL's third river — and diverting it into another pond. But we had another river to look at, Sungai Klang. There was no suitable place for a pond. If we couldn't store it, we needed a new bypass. That's where the tunnel comes in to take the extra water, bypassing the city centre. From the start, it was designed to take care of the water from Sungai Klang.

Q: You say the tunnel is not the only solution to the problem, but people would say this is a project worth billions built to relieve the situation in a big way.

A: The tunnel is designed to handle 45 per cent of floodwaters coming from the rivers. When people look at the tunnel and the high cost, they think it would cover all, but in fact, it only takes care of 45 per cent.

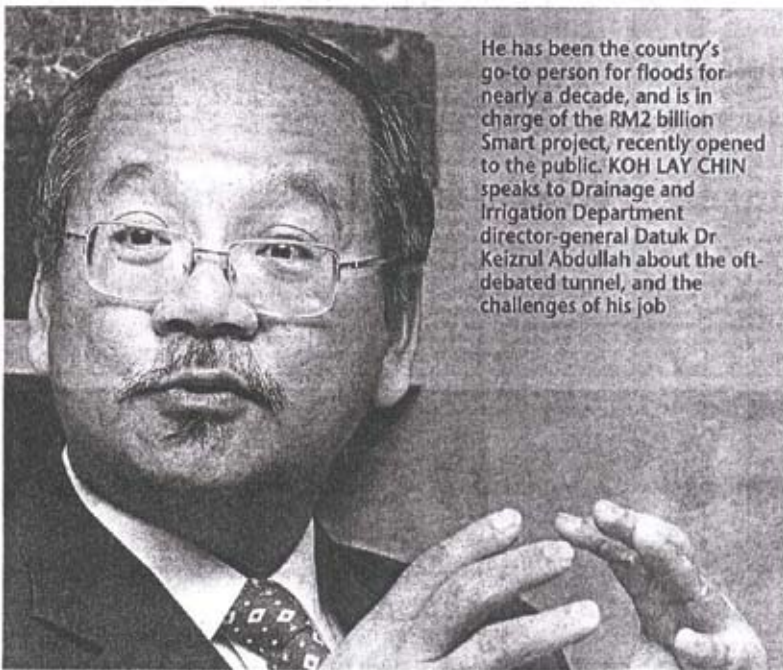
Q: An expensive project that solves only half the problem?

A: I'm amazed because when we have a road that costs RM2 billion, nobody says it is expensive. I have a tunnel which is 9.7km long, the biggest tunnel in Southeast Asia. It has a concrete thickness of half a metre. Imagine a concrete bridge 10km long. People would say it was good if I could build it for RM1 billion. The public need to look at this in the context of what we are doing.

The bigger question is do I need to do it this way? Could I not create a big river there? Actually, that was what we had wanted to do. Can't have a big pond, so let's build a river or dig a big drain. But we did an analysis and I could not build a new river because this site is on high ground. There would be no KL city if we built that river. So, we needed a tunnel. Everything combined would cost us RM1.3 billion.

Q: As to the second component, the highway?

A: People are saying that we don't want to operate the tunnel now because we want to collect toll, but you have to understand how it started. We needed a tunnel for the water flow. Our then prime minister Tun Dr Mahathir Mohamad asked me if we had this tunnel, how often would it be used? I



He has been the country's go-to person for floods for nearly a decade, and is in charge of the RM2 billion Smart project, recently opened to the public. KOH LAY CHIN speaks to Drainage and Irrigation Department director-general Datuk Dr Keizrul Abdullah about the oft-debated tunnel, and the challenges of his job

said the tunnel would be used once, or three times yearly.

Spending RM1.3 billion for something which won't be used the whole year needed re-evaluation. He asked: "Could we piggy-back onto that and add value to it?" We saw the alignment of the tunnel and realised that the southern gate of the city near Jalan Sungai Besi was congested frequently.

So if we added more money, we could offer it for two purposes — flood and traffic. You add the other costs and it comes to over RM2 billion. Another RM600 million added for a highway — that is the toll we are paying to the concessionaires. A tunnel for a normal highway would have cost us over RM1 billion anyway.

Q: Could you give us a scenario of how the tunnel will work?

A: The tunnel has two decks because there were concerns about safety. So, no two-way traffic flow, no head-on collisions. Below the second level is a small quarter of space, the bottom segment, which can always be used as a river.

But in normal times, the water from Sungai Klang will flow through the city centre. It's important to note we still want the natural flow of the river. If it rains, and the water reaches a certain level, I will close the river gates, pushing water into the holding pond. The water from there will flow into the bottom segment. Traffic continues. But when it rains heavily, I will stop traffic flow

and evacuate traffic. The design is such that it will only operate as a flood tunnel when I open the tunnel gates.

Remember, it is 9.7km long but only the middle 3km is for traffic. That portion has two gates each on both sides. When there's a heavy rain, I open the gates. If I can't evacuate people in time, I don't open the gates. So there are three modes. One — no water, two — divert moderate rainfall through the bottom segment, and three — all the water goes through the tunnel.

Q: But in the case of evacuating traffic, the area is heavily congested during peak hours. What if you need to close it then? Wouldn't there be problems?

A: If I cannot evacuate them in time, then I will not operate for flood. No flood is more important than a life. We have a series of rainfall stations and I can know beforehand if there is going to be a flood. Time is short, even a two-hour rain can cause havoc.

If the data indicates a problem, we will first divert the water from the river into the pond, which has a capacity of 600,000 cubic metres. It would take half an hour to fill that pond.

Meanwhile, I have to close the tunnel for traffic. In the concession agreement, I am the only one who makes the decision of traffic closure. They can't hold the tolls open when I tell them to close. When they close, I have half an hour to clear the traffic. In a normal situation, it takes 10 minutes

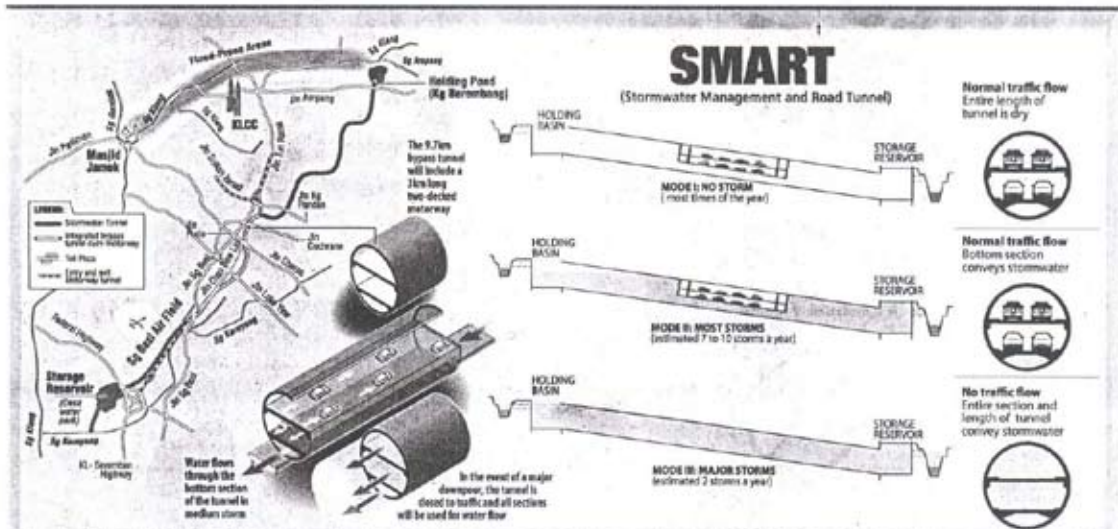
for a car to go through the tunnel but, of course, in extreme cases we have traffic jams. With half an hour to fill the pond, and the capacity of the other non-traffic sections of the tunnel to hold water, I have another half an hour. In the worse case scenario, I have one hour, like when a car breaks down.

Q: What about emergencies, such as the water from the bottom segment leaking out to the traffic segments? Cracks? Rubbish from floods?

A: If I were to say emergencies never happen, I would be tempting fate. But we have included that in the design. Our designers were from consulting firms overseas who are in the business of designing tunnels. So it is not so much surprising that it is a problem. My biggest worry is the complete bursting of the bottom slab. Anyway, it has been designed to tackle that problem. As for rubbish, we have intake structures at the river point. This has been designed in such a way that the water will pass through a trash screen.

Imagine a mesh, a barrier. We know rubbish may clog the screen, so there are bars going down and machines scraping it continuously. Water going into the pond will be relatively cleaner, and in the pond, we have built walls to create a longer path for the flow of water before it reaches the tunnel.

So along the way, which is our bigger



Tunnel fully operational

By Abdul Razak Ahmad
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KUALA LUMPUR: The much-awaited dual-purpose tunnel became fully operational at the stroke of midnight yesterday.

The RM2 billion Smart project's floodwater channel came online at 12.01 am, weeks earlier than planned following a stern directive by the prime minister after massive floods hit the city centre again two weeks ago.

The project's motorway component was opened to traffic on May 14.

Key Drainage and Irrigation Department officers, including director-general Datuk Dr Kotirul Abdullah, hold authority to divert excess water from Sungai Klang through the tunnel to alleviate flooding in the city centre.

The decision on when to divert rests solely with the department, which has teams on a round-the-clock watch of Kuala Lumpur river and rain levels.

Kotirul said the tunnel could cut down the amount of floodwaters in the next Kuala Lumpur flood, which in past years happened mainly in June, by almost half.

He said 55 per cent of Kuala Lumpur's floodwaters came from Sungai Gombak and Sungai Batu, while the remaining 45 per cent came from Sungai Klang.

"The Smart project was designed to divert excess water from Sungai Klang so (the time floods occur) we can reduce the amount of floodwaters in the city by 45 per cent," said Kotirul after briefing on the floods at Universiti Malaya yesterday.

The flood-hit, organised by the department, was attended by several Kuala Lumpur members of parliament and representatives from interest groups.

The tunnel, said Kotirul, was designed to handle the same amount of floodwaters that hit Kuala Lumpur in the infamous 1971 floods, one of the worst incidents on record.

To illustrate its capacity, Kotirul said it would take a large number of pumps working 24-hours a day over a month to fill the tunnel with water.

But he cautioned that the tunnel might not be able to operate well if the next bout of heavy rains in Kuala Lumpur hit Sungai Gombak instead of Sungai Klang, which it was designed to divert water from.

problem, will deposit there. But we anticipate a lot of silt going into the tunnel, and there would still be rubbish. It will probably take two days to clean up after each closing.

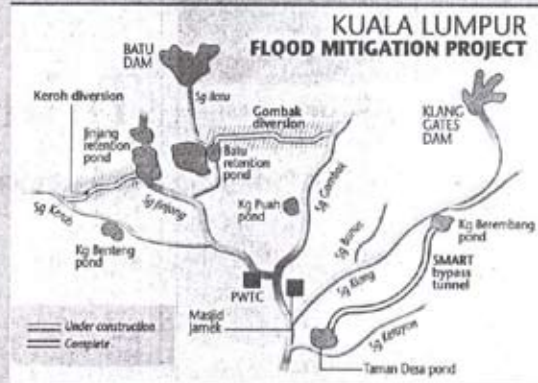
Q: What about other huge and unexpected problems, such as fires and accidents?

A: You mean like a disaster movie (laughter). Well, until I open the two gates, water does not get into the tunnel, so people cannot get washed away. If there is a power failure for some reason, we have backup generators. If nothing works, then the gates cannot be opened, and you won't be swept away. We have also installed more than 200 CCTVs. We had one interesting incident recently. Inside, the tunnel seems much longer than you'd expect. We had one motorist driving inside and

to her, it seemed such a long drive that she thought there was no way out. She panicked and stopped her car. We were ready for break-downs, accidents and fires but we never thought somebody would panic. There are emergency crews on motorcycles patrolling at both ends. So somebody told her the exit was close by. Finally, she went on her way.

Q: What was it like for you, on June 10, to know that the tunnel was now completed and that it could not help with the floods?

A: Malaysians forget easily. On June 3, KL had flash floods. There was flooding in Sungai Besi, near the Parliament House and a few other places. Even then, the newspapers asked why there were floods when the tunnel had been completed. On June 8, I organised a press conference to explain this. But when the flood



This limitation had led to some public unhappiness but was in part due to a misunderstanding, said Kotirul, adding that work was

under way to build a bypass system and retention ponds for Sungai Gombak and Sungai Batu.

came on June 10, I was asked again: "Why are there still floods?" I felt so very unfortunate in that we were so close to it being operational and the floods came. But I had to look at it from a different angle. I am thankful it only came on June 10. Because in 2000, KL had a big flood and the following year, it flooded twice.

In 2002, it flooded on June 11. In 2003 it was on June 10. And then in 2004, 2005 and 2006, there were no big floods. The project was ongoing and I am thankful that God was kind enough not to give floods for three years.

Q: Is there any other plan to improve the other 55 per cent then?

A: Perhaps because the Smart system is unique, all the attention has been on the tunnel. But we have always been working on the

other components. Since 2003, we have been making two big storage ponds with diversion channels — the Batu and the Injang ponds. They are scheduled to be completed by the end of this year but I have directed the contractor to speed it up as we want one of the ponds to be operational by October.

Also in 2006, we developed the Malaysian Environment Friendly Manual (Mefma), which tells developers — "Do what you want, but don't give me extra water" — which results from development projects in an area. We based ways to hold water but developers said it was too expensive. We compared a Masira drainage system with a conventional one to deal with water, and our system was 10 per cent cheaper. So now, new development projects will have to follow Mefma. But we won't see the effects yet because it takes years, from planning to project completion.