

Why the water keeps rising

MONSOON TROUBLES: The Drainage and Irrigation Department has been tasked with implementing structural and non-structural flood mitigation measures since 1971. Yet, the frequency and severity of floods in Malaysia do not seem to subside. Director-general Datuk Ahmad Husaini Sulaiman tells Tan Choe Choe why flooding can never be eliminated and his plans to develop a nationwide flood-risk map

Question: Billions of ringgit have been spent on flood mitigation and risk-management efforts for years, yet there doesn't seem to be any reduction in the severity of floods. Why?

Answer: The intensity of rainfall that we have here is high — 3,500mm annually. We have plenty of rain throughout the year, especially during the monsoon season. You must accept that most structural measures we've implemented have solved many problems. There may still be flooding, but not the kind we used to have.

Question: But many new areas are getting flooded.

Answer: Yes. We're looking into the reasons. But when building flood mitigation projects and structural measures, we design them to a certain flood defence level.

You can't tell people that it could cope with the biggest rainfall that would ever happen — that will take huge amounts of money and land. There can't be zero flooding but it will be minimised. In our case, we design (our projects) for a rainfall of 100-year return period.

(A return period is an estimate of how long it will be between rainfall events of a given magnitude. If the return period for a two-hour rainfall of 101mm in Tebrau is 10 years, then a 101mm rainfall over two hours will occur in Tebrau once every 10 years.)

If the rainfall is too intense, then the system that we've built earlier for the 100-year return period won't be able to cope with it. Billions have been spent, yes, but we must also understand that structural measures are expensive.

And you must understand when water flows into the river, it flows from one end (upstream) to the sea. It is a long stretch. The total solution would be to address the whole stretch. But that's going to be very expensive. So, we strategise and decide where best to put the structural measures along the river.

There are two types of floods: river and flash floods. River flooding occurs when the river spills its banks, flooding the surrounding lowlands. Flash floods are short-period floods that occur because of the concentration of heavy rainfall in an area. If the area's internal drainage system is not good, not properly maintained, then you get flash floods.

Question: So, it's mostly a drainage issue for flash floods?

Answer: Yes, you can't help it when you have these problems. The im-

Drainage and Irrigation Department director-general Datuk Ahmad Husaini Sulaiman says flood mitigation projects and structures are designed to a certain flood defence level.



portant thing is to maintain the system for better water flow. If not, you get drains that are choked with rubbish and when rain falls, water won't be able to flow into the river. That creates flash floods. The other reason is the increasing intensity of rain. It's so intense that the local drainage system cannot cope with the amount of water falling in that short period of time.

Question: You've taken over the DID from your predecessor for more than four years now. What has been the most challenging problem to you?

Answer: It's our vision to see that the country achieves a better standard of living in terms of what we say the "Happiness Index". We hope that flooding will not get too serious so people will be happy in Malaysia that we've got a good system that can cope with the rain.

Question: Then I must measure badly on that "Happiness Index" because whenever it rains, it's 'Sigh, can't go home again'.

Answer: In Kuala Lumpur, we're talking about flash floods, but river

flooding is almost nil because of the Stormwater Management and Road Tunnel (Smart) that we've built. A lot of rainwater that flows into Sungai Klang has been diverted, bypassing the city centre entirely.

Question: In terms of flash floods, is there any mitigation effort that you're looking at?

Answer: I can't pinpoint any agency which should be looking at that. We are looking at the bigger system. The internal drainage will have to be the local authorities.

Question: Doesn't the DID advise them?

Answer: Yes, we do talk to see what the best solutions are for improving internal drainage.

Question: But you can't compel them to follow through with your suggestions?

Answer: Not really. We advise. If a developer is developing a piece of land, they have to submit the drainage plan to us for our comments. Then, we will advise the local authorities on whether the system is acceptable or not.

Question: If you find that the drainage plan they submitted is not acceptable, do you have the authority to halt the project until they revise the plan?

Answer: No, we are only giving our comments. It is up to the local authorities to listen to us and advise the developer to make the necessary changes.

Question: In that context, the DID's power seems to be limited. It's pretty much up to the local authorities?

Answer: Yes.

Question: Do you feel frustrated by this? We see a lot of new developments and Kajang is one example where plenty of new developments have been taking place, and floods there have been shocking recently.

Answer: What can I say? We've given our comments, our advice on how the system should be built. It is up to the developers and the local authorities to agree on how best to build on what has been approved.

Question: Are most drainage plans submitted by the developers up on a par, or do you often find something lacking in their plans?

Answer: It depends. Some are good, some are not. We don't have figures to show how many are good and how many are not.

Question: The Integrated Flood Management System (IFM) — how does it really work? Does it only cover river flooding or does it also address flash floods?

Answer: Both. We look at the structural and non-structural measures. We look at maximising the positive effects of the water cycle, to integrate land and water management and to adopt the best strategies with a participatory approach.

It's not easy to understand or implement some of these elements. Like getting people to work with us, there are those who are willing to listen and those who are not. They assume that any problem should be solved by the government and so it's not their responsibility.

Question: DID is the lead agency in IFM and is responsible for solving river and flash floods. But you indicated earlier that the DID's hands are tied in terms of flash floods as it's more an internal drainage issue at the hands of local authorities. How can the IFM address flash floods then?

Answer: It's an integrated system, so they also have to come and play a part. If the local authorities need advice from us, we'll sit together and discuss what is best to be done.

Question: When you propose measures, do they listen?

Answer: Yeah, they listen, they have to listen. Otherwise who else are they going to depend on?

Question: Yet, you indicated earlier that...

Answer: Yeah, of course, but I can't say for sure the reasons sometimes they don't listen to us. I don't know. But usually, they will listen.

Question: Yet the severity of flash floods, in Kuala Lumpur for example, hasn't gone down. Why?

Answer: When it rains, there will be standing water on the road. Then people slow down and that creates a jam that will drag about 3km to 4km down the road.

But that's not a flash flood, which gets to a certain height or even goes into your house for one or two hours before it recedes.

Yes, maybe in KL, in the Gombak catchment area, there are one or two cases where we have that problem because of intense rainfall. But usually, it is still manageable.

You're right, there are floods, but I don't think it's that serious. Remember in 2006, when Smart wasn't completed yet and Sungai Klang overflowed its banks? The whole city was like a sea. Now, you don't see that any more.

Question: What is the biggest challenge in implementing the IFM?

Answer: Updating of flood hazard maps. When there's a flood, we need to update our data, to see the reason of flooding. We need to do this frequently and there have been intense rainfall and changes in land use as development has been quite rapid, especially in the Klang Valley.

There are three types of maps: flood map, hazard map and flood-risk map. The flood map tells you areas with historic flooding. The hazard map is generated using simulations to show all areas that would potentially be flooded with certain magnitudes of rainfall.

The flood-risk map has the two elements, with a third component. It tells you where to head in times of floods, and what to do. It will also tell you where the relief centres are.

We have the flood and hazard maps now, but we are still building our flood-risk maps.