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DATUK Zulkefli Hassan has been busy meeting DID officers nationwide since his appointment on March 21.

The 59-year-old Perakian, who rose up the ranks from junior engineer more than three decades ago to Drainage and Irrigation Department (DID) director-general, wanted to know what challenges his men faced. Zulkefli, a father of three, also wanted to drive home the importance of integrity and explain to them his personal KPI.

The youthful-looking grandfather keeps healthy jogging but with retirement just a year away, he has his work cut out for him.

Recalling how his 91-year-old policeman father always stressed on education – and regular haircuts – the third of four siblings jokes about his cropped army look and shares his plans to keep floods and droughts at bay.

What's your main water management concern?

Water security because it concerns national security. Food, health, energy, industry and domestic sectors all need water. DID was formed in 1932.

In the early days, the focus was on rice, crops, farming and the rivers. Today, our function includes flood mitigation, urban drainage, coastal zones, hydrology and water resources. But it's only now that we're focusing on water resources because with climate change, we must.

Take food for example – we import almost

30% of rice from countries like Thailand, Myanmar and India but these countries face the same weather problems as us.

In 2014, taps were dry in the Klang Valley. Without water security, who'll want to invest in our country? Right now it doesn't make sense – floods for a month, no water the next.

Tell us your personal KPI.

Making sure that our move from KL to Putrajaya is on track. Implementing the National Flood Forecasting and Warning Programme, or *Program Ramalan dan Amaran Banjir Negara (Prab)*, and National Water Balance Management System (Nawabs).

Why's having a new building in Putrajaya so important?

Our offices are scattered all over the place right now – the DID divisions are located in different buildings and locations. Our headquarters in KL is very cramped.

Imagine having to call for an emergency meeting. How can I wait for everyone to come when time is of the essence?

We need a building that can house all the divisions under one roof. We've been planning this for years. It's long overdue. Securing a site and allocation was a problem. We cannot just ask money from the Government. But we're seeing the light at the end of the tunnel. We're getting a building which is more than 30 storeys high with rainfall harvesting facilities in Putrajaya and a training centre in Ipoh, thanks to a land swap deal.

The DID headquarters will also be upgraded. It'll house the Federal Territories office

when we move out. After construction is done, we'll hand over our 4.8ha land in Ampang to the developer. The deal is now being handled by the Public Private Partnership Unit (Ukas). Hopefully, a developer will be picked soon. At least once I've signed on the dotted line, the project will officially be on. This will really motivate our junior engineers.

What's the National Flood Forecasting and Warning Programme (Prab) about?

All this while, during floods, we evacuated victims by boat. Warnings issued to them are very late – which means they have barely six hours to pack up and move. Our job is to warn.

I feel bad for the uniformed forces because they have such a short window period to evacuate the victims. I want to give them accurate, early warning – at least two days before it starts to flood, so that important documents and belongings can be salvaged.

We can do it with Prab. Simply put, Prab allows evacuation by lorry, when the land's still dry. No need for boats. Now, we rely on sirens and the warning is only sounded hours before the water rises. It's embarrassing if the DID has to find out about floods when people call us and we're caught unaware. Our warning system needs to be better. And, it'll be with Prab.

We'll work closely with the Meteorological Department. Detailed information on the topography is needed. Radars, rainfall and water level stations must be increased for better forecast. With all warning systems in place and linked up, we can give early alerts. We're starting with Kelantan, Terengganu,

Pahang, Perak and Sarawak, because these states are the ones worst effected by monsoon floods.

And the National Water Balance Management System (Nawabs)?

It's related to Prab. The infrastructure, monitoring systems and devices for both are about the same but Nawabs is focussed on linkages between the water sources. Nawabs is the "brain" that tells us where to get the water from and how to distribute it. It tells us where sources like ponds, groundwater, dams, and lakes are and how much water there is.

With Nawabs, we can give early drought warnings and prevent dry taps. For example, we will be able to tell if in two weeks, Selangor will be dry and we can plan to get water from another state (inter-basin) or from alternative water sources within the state (intra-basin). But sourcing via inter-basin can only happen if there's a protocol between the states because water and land are under the state purview.

We have so many states and all are independent so there must be an agreement to ensure easy access to the water source if and when needed. We must look at water management in terms of resource and usage holistically.

Inter-basin water sharing is the key to Nawabs' success. The Natural Resources and Environment Ministry is selling the idea to the individual states and response has been good so far. Hopefully, the first reading of the Water Resources Bill, which covers this, will take place by the end of the year or early next year.

Water security for future generations

Waterman on a mission

To mark the recent World Environment Day, Sunday Star caught up with newly-appointed Drainage and Irrigation Department director-general Datuk Zulkefli Hassan to talk about his plans. The man with a flood-fighting mission is also making water security his priority.

When is Nawabs kicking off?

We're starting with Sungai Muda, Sungai Kedah, Sungai Bernam, Sungai Melaka and Sungai Klang because these are in water-stressed urban areas. Not forgetting the rural areas, we're also going to Sarawak. There are many living in the hinterlands where rainwater harvesting and groundwater are viable sources.

Must we resort to treating wastewater like Singapore's NEWater?

We're only collecting about 15% of our annual rainfall. If we can get at least 50%, it'll be enough for sure but our rainfall is scattered. We have lots of water but where are we going to store it?

With infrastructure – more dams, enhancing the capacity of existing dams and ponds in urban areas, tapping into groundwater in the rural areas and rainfall harvesting, to retain more water, and an inter-basin protocol between the states in place – there won't be anymore dry taps.

Treating wastewater is the extreme. We can get water from dams, ponds, groundwater and rainfall. Eventually, we'll need low gate barrages like Singapore. Although it's very expensive, we can use barrages to store fresh water, prevent salt water from coming in from the sea, and during the floods, release excess water into the sea.

Malaysia faces heavy rains and monsoons yearly yet we haven't figured out how to solve our flooding woes. Why?

We're very urban-centric. We talk about flash floods in the city while the villagers suffer in silence. We've already got small pro-

jects going on in Sarawak. They only need RM5mil to RM10mil to solve their flood woes unlike in urban areas where it's more expensive because it's more complicated. We need to build walls, install pumps and deal with obstructions unlike in the villages where we just have to improve the rivers.

Our Natural Resources and Environment Minister Datuk Seri Dr Wan Junaidi Tuanku Jaafar has repeatedly reminded us not to neglect the villagers. He wants us to be people-centric. The biggest challenge is the warning system.

Dry taps is something we can solve but it's tougher with floods. There are two types of floods – flash floods where the rain comes down fast and is localised, and big floods in December where rivers overflow.

Flash floods are harder to predict. Under the 11th Malaysia Plan, we got RM11.8bil for 2015 to 2020. Of that, RM7.5bil is for flood mitigation alone. We're experiencing climate change now. Look at the rainfall pattern over the last few years – look at how much water we are getting in an hour.

Recently in Cameron Highlands, we got 100mm in three hours. Can our system cope with such intense rainfall within such short period? We not only need the infrastructure, but good maintenance too.

The local councils are responsible for maintenance but we help. The DID comes up with yearly urban drainage masterplans for towns to implement. The local authorities just have to follow it but allocation for them, is an issue.

States like Selangor, Penang and Johor are okay because their assessment rates are high but what about the small towns in states like

Sarawak? They need the Government's help.

Flooding isn't always an engineering problem. Rubbish is clogging up the waterways because of our Third World mentality. If the river water level is low yet water cannot flow into it, either the drainage system needs improvement or litter is the culprit.

From 2005 to 2015, the number of polluted rivers have been going up and down. Why isn't it steadily decreasing? Is there a problem with our strategy?

It's going down. In 2005, there were 90 polluted rivers. Last year it was 33. This year, we hope it will be even less but it's tough unless we have strict enforcement for industries, reduce and improve on the quality of effluent discharge, and stop throwing rubbish into the waterways.

Data from a US climate agency says there's a good chance that heavier than normal rainfall will hit between October and December. Are we ready?

I'm not expecting big floods in the coming months. But flash floods because of localised heavy rainfall, yes.

Our systems are in place and the sirens and rainfall stations are working but ultimately it's an act of God. We do our best to mitigate. Hopefully, major infrastructure projects in Kelantan will be ready come 2020. These include walls along Sungai Kelantan, two dams in Nenggiri and Lebir, and drainage works. Once done, Kelantan will be safe.

In Pahang, Kuantan and Pekan are always the worst hit. In Sabah and Sarawak – Kuching in particular – the Minister (Dr Wan Junaidi) pushed very hard to secure alloca-

tion for flood mitigation works there. Projects are also on-going in Sungai Muar, Sungai Kemaman and Sungai Pahang.

We know roughly how much rain each state gets in a year. The bulk of it is in December.

As of June 2, Sabah and the peninsula have received between 24% and 30% of the year's average rainfall, but it's already up to 78% in Sarawak. So based on statistics, Sarawak is safe because the amount of rainfall has almost reached the estimated level for the entire year.

But it's not that easy. When I was Pahang DID director, the big floods happened in Kuantan. On average, the rainfall in December is 300mm per month but during the big floods, we had 1,000mm in three days. So every year, we carry out preparations but how much it rains is out of our control.

You turn 60 next year. Are you looking forward to retirement?

I'll retire August 2016 so I have about a year to achieve my goals. The previous D-G and I have relatively short tenures but the next guy who takes over should be given at least four years to carry out his duties.

I've already identified four possible successors and am grooming them. It's important for continuity and implementation of projects.

I like to travel, so maybe when I retire – probably in Ipoh – I'll finally get to do that with my wife. I'd like to visit New Zealand. For now, I'm content watching TLC on Astro. I like exotic locations like Peru and the Bahamas.