

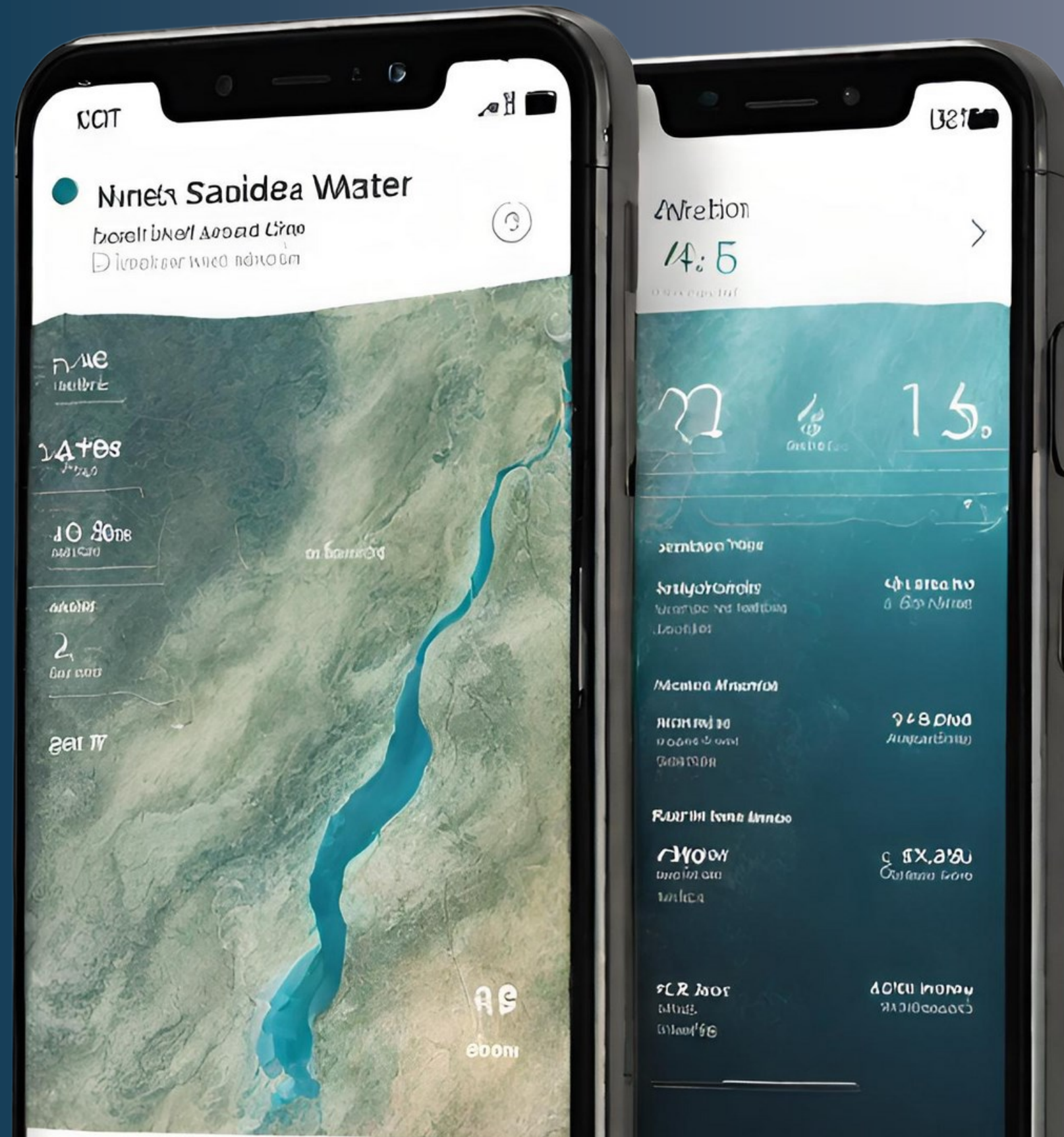
“If I had an hour to solve a problem, I'd spend 55 minutes thinking about the problem, and five minutes thinking about solutions.”

A DATA-DRIVEN FUTURE FOR

Digitalisation for a more sustainable and prosperous future.

Presented by:
Team MAKE WATER OK (MALAYSIA)

Our Proposed Solution



Hydrodata Hub

*Landslide Risk Assessment
System*

Smart Water Meter System

Product Functionalities

Landslide Risk Assessment System

ASSESS THE SAFETY LEVEL OF THE SITE

SMOOTH THE PROCESS OF DATA COLLECTION

Smart Water Meter System

VISUALIZE DULL DATA

BETTER ALLOCATE WATER RESOURCES

How is it measured?

GATHER USER FEEDBACK FROM THE AUTHORITIES
(PHBR TEAM)

CONDUCT CASE STUDY OF A MAJOR LANDSLIDE
THAT OCCURED IN 2017

OBTAIN USER FEEDBACKS FROM AUTHORITIES

VISUALIZE DIFFERENT ASPECT OF WATER USAGE
OVER VARIOUS TIME INTERVALS

ov/pub/data/ccd-data/nrmcp.txt2)	YRS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP			
oaa.gov/pub/data/ccd-data/nrmcp.txt3)	30	4.84	4.53	5.23	4.38	4.99	4.38	4.80	3.93	3.90	3.4		
a.gov/pub/data/ccd-data/nrmcp.txt2)	30	4.89	4.84	5.21	4.32	5.11	4.29	4.05	3.61	3.72	3.59	4.9	
pub/data/ccd-data/nrmcp.txt)	30	5.67	4.81	6.43	4.57	5.30	6.37	6.46	6.13	5.31	4.11	5.00	5.1
aa.gov/pub/data/ccd-data/nrmcp.txt2)	30	4.65	5.28	5.95	4.02	3.54	4.07	5.24	3.96	3.97	2.92		
a.gov/pub/data/ccd-data/nrmcp.txt2)	30	0.73	0.72	0.60	0.47	0.72	0.97	1.83	3.25	2.99	2.03	1	
ov/pub/data/ccd-data/nrmcp.txt)	30	10.73	7.31	8.05	6.77	5.56	4.88	4.65	6.96	9.79	13.92	12.29	
v/pub/data/ccd-data/nrmcp.txt)	30	0.13	0.14	0.09	0.16	0.18	0.32	0.98	1.05	0.72	0.41	0.21	0
/pub/data/ccd-data/nrmcp.txt)	30	0.78	0.72	0.71	0.74	1.14	1.72	2.36	3.25	2.75	1.65	1.60	1.1
/pub/data/ccd-data/nrmcp.txt)	30	0.81	0.85	0.58	0.60	0.88	1.40	2.36	2.64	1.91	1.04	0.91	0.1
ov/pub/data/ccd-data/nrmcp.txt2)	30	0.31	0.28	0.18	0.23	0.90	2.31	2.68	1.89	1.03	0.80	0.63	
v/pub/data/ccd-data/nrmcp.txt)	30	3.16	2.98	2.70	2.42	2.60	2.72	2.48	3.68	4.73	4.76	4.98	4
gov/pub/data/ccd-data/nrmcp.txt2)	30	0.58	0.42	0.25	0.31	0						3	0.6
v/pub/data/ccd-data/nrmcp.txt)	30	0.46	0.51	0.30	0.24	0.65						0.72	0
pub/data/ccd-data/nrmcp.txt)	30	2.63	1.71	1.65	1.07	0.82	0.82	1.55	2.34	3.31	2.57	2.79	3

RAW DATA

MAR APR MAY JUN JUL AU

4.53, 5.23, 4.38, 4.99, 4.38, 4.80, 3.93

5.21, 4.32, 5.11, 4.29, 4.05, 3.61, 3.72

1.57, 5.30, 6.37, 6.46, 6.13, 5.31, 4.11

8, 5.95, 4.02, 3.54, 4.07, 5.24, 3.96, 3

, 0.60, 0.47, 0.72, 0.97, 1.83, 3.25, 2.1

5, 6.77, 5.56, 4.88, 4.65, 6.06, 9.79, 13

0.72, 0.74, 1.14, 1.72, 2.38, 3.23, 2.75, 1.6

0.60, 0.88, 1.40, 2.36, 2.64, 1.91, 1.0

18, 0.23, 0.90, 2.31, 2.68, 1.89, 1.03,

2.42, 2.60, 2.72, 2.48, 3.68, 4.73, 4.7

0.25, 0.31, 0.60, 1.37, 2.16, 1.88, 1.10

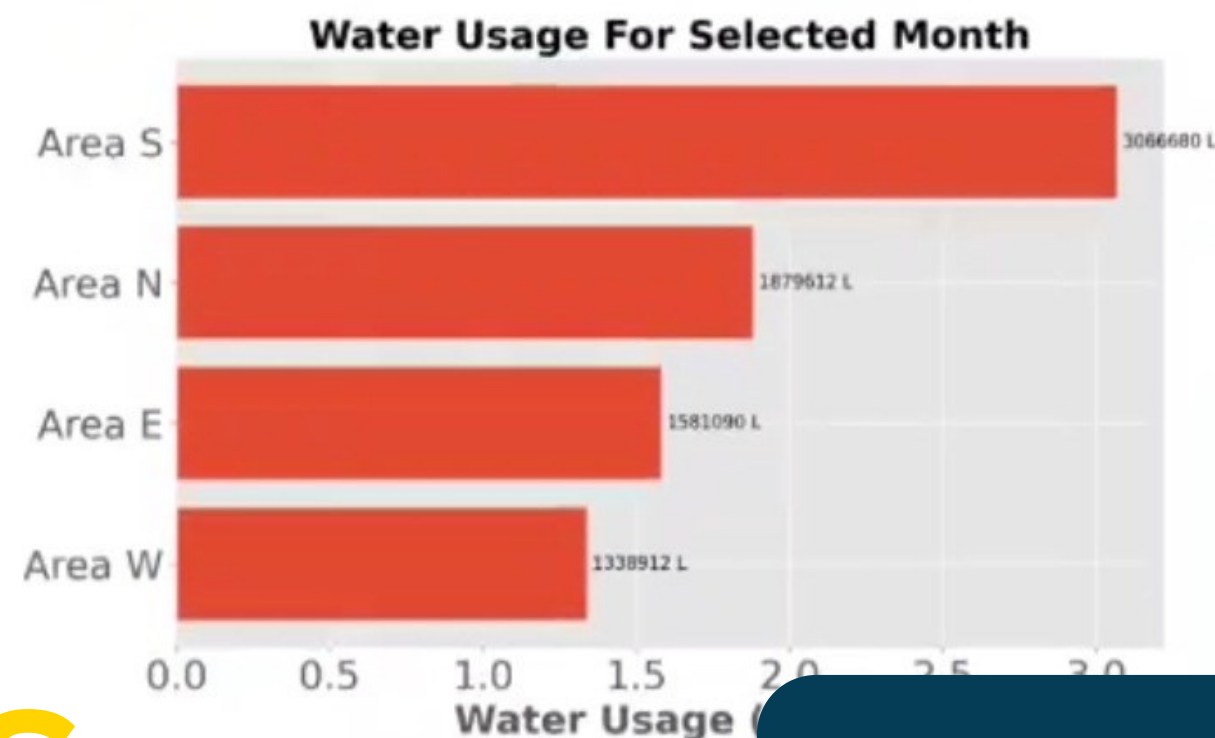
, 0.24, 0.65, 1.40, 1.81, 1.80, 1.58, 1.1

1.07, 0.82, 0.82, 1.55, 2.34, 3.31, 2.5

RAW DATA

VS

Area Water Usage



Reservoir Water Level

Reservoir	Water Level (%)
Air Itam	<div><div></div></div>
Tiger Hill	<div><div></div></div>
Teluk Bahang	<div><div></div></div>
Mengkuang	<div><div></div></div>

USEFUL INFORMATION

Avg Rainfall 

241 mm

↑ 51mm from last month

AUTHORITY FEEDBACKS

For the Landslide assessment, I think the current model has improved significantly and the parameters are easier to adjust and the units are much more accurate and precise

For the Water Usage Monitoring model, I think it can be more precisely described and defined what does it actually do.. is it going to predict the water usage for the next month based on the historical data?? And why in the weather forecast, you have confined it to 3 months data?? Any specific reason for it??

I think that's my feedback.. Again, good luck and all the very best for the upcoming pitching 🙌🙌😊😊

21:34



9:32 PM

No worries.. at least you all are aware that's some area to be improved 😊

9:32 PM



It's a good prototype knowing that in such a short time and little information

9:33 PM



You guys are doing great 🙌

9:33 PM



For the name..

1. Dato' Cheok Lay Leng
2. En. Muhammad Sahrizan Bin Sepiai
3. Pn. Norshazwina Binti Johari

9:34 PM

Good luck to all of you 🙌🙌🙌🙌

9:35 PM

In Good Condition

Installed Slope Stabilization Measures

- ☐ Soil Nails
- ☐ Erosion Control Netting
- ☐ Gabion Walls
- ☐ Rubble Masonry Walls

Record of Previous Landslides in This Area: ?

- ☐ Yes
- ☒ No

Calculate Risk

Perhaps can consider to include none - for area that has not been installed any slope stabilization measures

9:29 PM

Dr Yang Kok Lee, PHBR

Perhaps can to include some suggestion what to do in those high demand month

Will note that into future improvement

9:30 PM

MR. ALAN (WAN HENG LOON)
SENIOR PROJECT OFFICER
PROJECT PLANNING &
DEVELOPMENT DEPARTMENT,
PENANG HILL CORPORATION

DR. YANG KOK LEE
SENIOR PROJECT OFFICER
PROJECT PLANNING &
DEVELOPMENT DEPARTMENT,
PENANG HILL CORPORATION

PN. NORSHAZWINA BT JOHARI
PENANG HILL ENGINEERING &
REHABILITATION TEAM

How are we fulfilling the **needs** of our beneficiary?

The Authority - PHBR

1

We have provided a way to assess landslide risk effectively.

2

We have provided an informative way to manage & sustain their water resources.



Shift from a manually written method to a digitilised system.

Intuitive visualizations for them to effectively understand the whole thing.

Landslide Risk Assessment System



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Data Sources and References:

- [Rainfall Data - Malaysia Flood Information](#)
- [Slope Steepness Data - USGS](#)
- [Soil Moisture Data - NASA's SMAP satellite](#)
- [Soil Information - Department of Agriculture Malaysia](#)
- [Malaysia Meteorological Department](#)

Height of Surface Cover (m)

100

Slope Steepness Category (%):

0-4.9 (Very Gentle)

Nature of Slope:

☒ Natural

☐ Engineered

Vegetation Coverage on Slope in Percentage:

0-10%

Impact of Human Activity

Presence of Human Activity:

☒ Absent

☐ Present

Soil Moisture Percentage (%):

62

Forecasting of Rainfall

Projected Rainfall (mm) for the Next 3 Months:

300

Presence of Cracks

Are there any cracks visible?

No Cracks Detected

Presence of Structural Features

Drainage System Condition

Drainage System Condition:

Smart Water Meter System



system. It helps authorities save water and manage resources better.

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Data Sources and References:

- [Rainfall Data - Malaysia Flood Information](#)
- [Weather Forecast - AccuWeather](#)

RUNNING... Stop

Smart Water Management Dashboard

Jul 17 Year: 2023

Select a Month to Display

April

Avg Temperature 🌡️

Avg Rainfall ☁️

Avg Humidity 💧

1 ! 2 @ 3 # 4 \$ 5 % 6 ^ 7 & 8 * 9 (0) Del

Q W E R T Y U I O P ⌫

The ENGINE of our Product: Data-driven Decision Making



Data Collection :
Collect
Environmental
and Usage Data



Data Preparation:
Clean and
preprocess the data

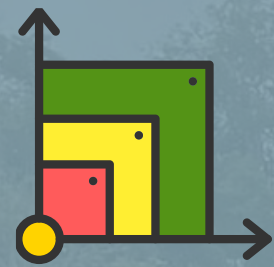


Data Analysis:
Analyze data using
advanced algorithms

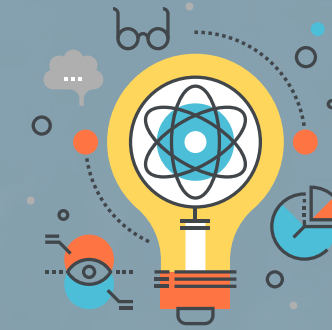


Data Visualization:
Present data in an
intuitive format
(Geographical
Information System and
Water Charts)

How is this project **sustainable**?



SCALABLE



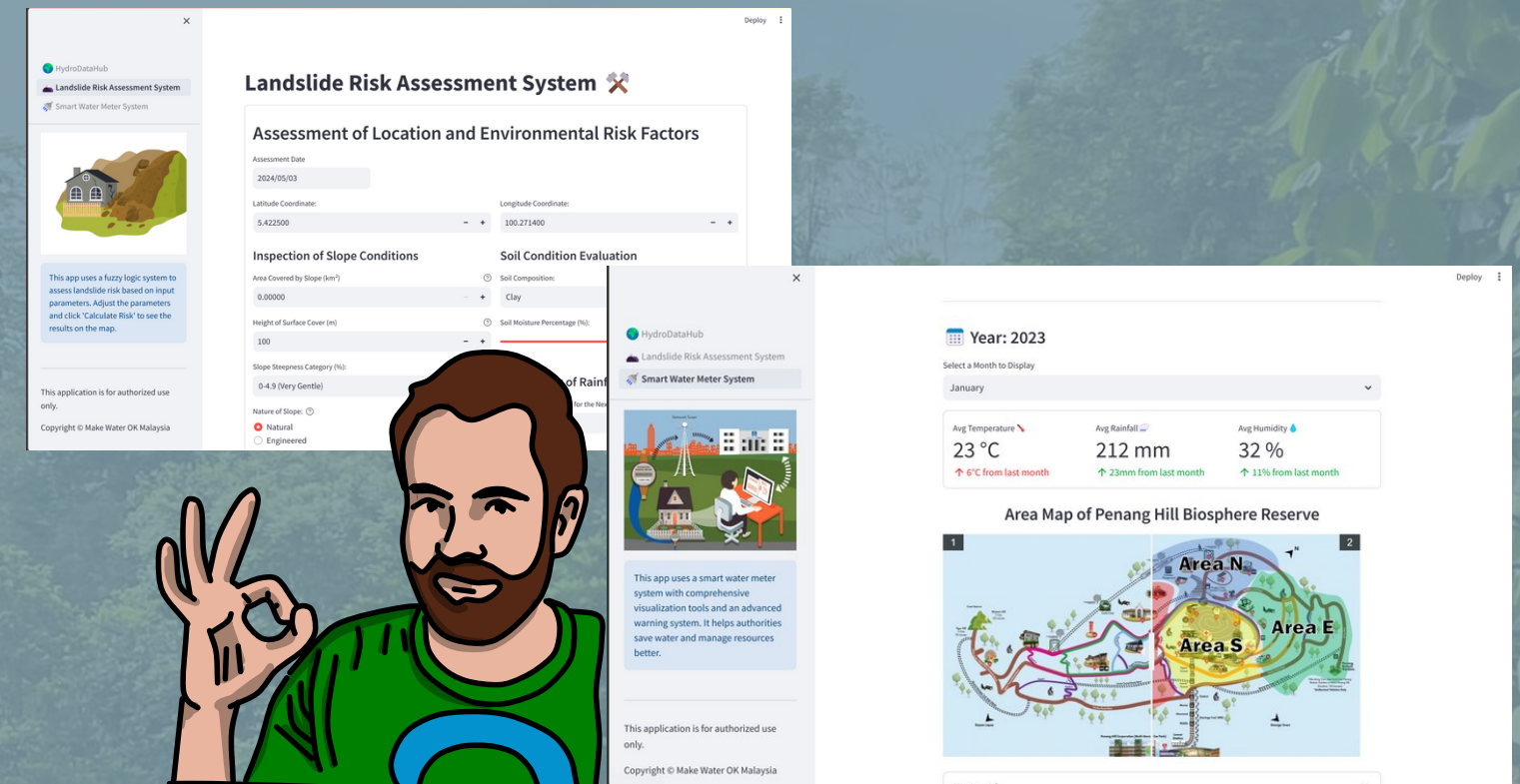
INNOVATIVE
AND
DIGITALIZED



ALWAYS ACCESSIBLE



BUDGET-FRIENDLY



“YOU CAN'T DENY THAT IT LOOKS
NICE”



Project Dissemination



Penang Hill · Follow

3 Apr ·



Welcome 'Team Make Water OK'

The finalist of the UNESCO Water Resilience Challenge 2023, 'Team Make Water OK', visited Penang Hill Corporation today.

The team comprise four talented students namely Tang Peng Tek (Asia Pacific University), Lim Heng Hoe (Asia Pacific University), Peggy Lee Pooi Qi (Universiti Malaysia Terengganu), and Agnes Saul (Universiti Malaysia Terengganu).

Their project in the UNESCO Water Resilience Challenge, aims to create landslide hazard maps for Penang Hill Biosphere Reserve, using a Smart Water Meter (SWM) System and a Landslide Risk Assessment System. The SWM System manages water consumption and detects leaks, while the Landslide Risk Assessment System identifies at-risk areas.

We wish them every success in the final competition.



FACEBOOK POST BY PHBR OFFICIAL PAGE

WE HAVE THE HONOR OF MEETING AND RECEIVING ADVICE FROM
THE GENERAL MANAGER OF PHBR , MR CHEOK LAY LENG.



UNDERSTANDING THE STRUCTURE OF
PENANG HILL WITH THE TOURIST GUIDE



MEETING WITH SENIOR PROJECT OFFICE
OF PHBR , DR. YANG KOK LEE



DR .YANG HAS BEEN SUPPORTIVE FOR OUR PROJECT
ALONG THE JOURNEY

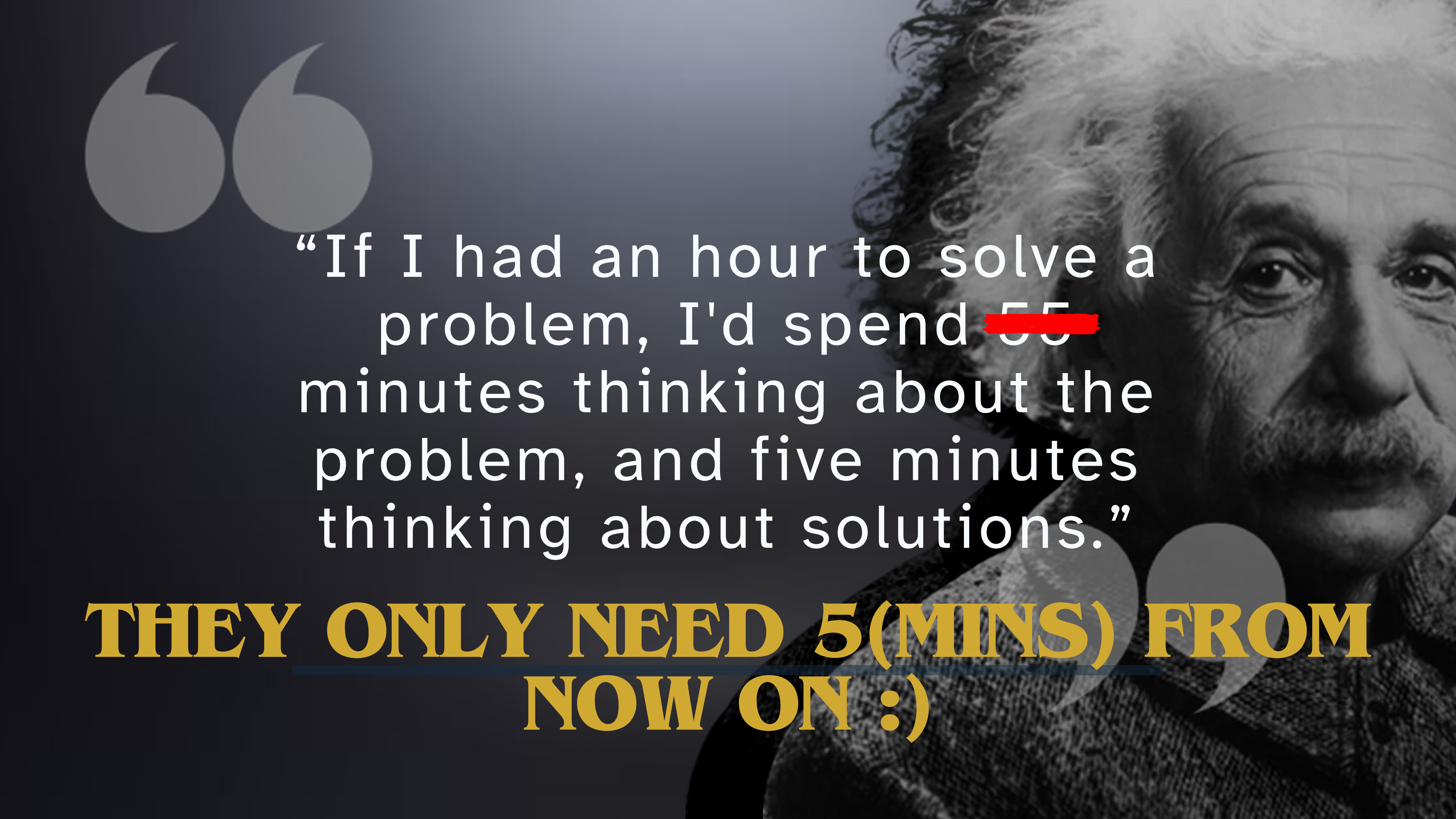


MEETING WITH THE HEAD OF DEPARTMENT ,
MR MAK KOK YUN FROM PBA



We
documented
our site visit on
Youtube!





“If I had an hour to solve a problem, I'd spend ~~55~~ minutes thinking about the problem, and five minutes thinking about solutions.”

**THEY ONLY NEED 5(MINS) FROM
NOW ON :)**



THANK YOU

Presented by:
Team MAKE WATER OK (MALAYSIA)

Hydrodata Hub

