

MTCP 2026

RESILIENCE LIVING LAB HULU LANGAT

“Strategic Disaster Management and Response for Middle Managers”



ACADEMIC VISIT - DELEGATE HANDBOOK

27 June 2026 · Hulu Langat, Selangor, Malaysia

Hosted by:



Organised under the Malaysian Technical Cooperation Programme (MTCP),
Ministry of Foreign Affairs, Malaysia

WELCOME

On behalf of MERCY Malaysia, the National Disaster Management Agency (NADMA) and the Disaster Preparedness and Prevention Centre (DPPC) at Universiti Teknologi Malaysia, it is our pleasure to welcome you to the Resilience Living Lab in Hulu Langat.

Over the course of today, you will see at first-hand how an at-risk community has worked alongside engineers, scientists, government agencies and humanitarian practitioners to rebuild after the December 2021 floods and to build genuine, lived resilience across water, infrastructure, shelter, early warning and livelihoods. We hope you leave not only with ideas, but with connections you will carry back to your own countries.

Dr. Khamarrul Azahari Razak

EXCO, MERCY Malaysia · Disaster Preparedness and Prevention Centre (DPPC), MJIT, Universiti Teknologi Malaysia

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ABOUT THE PROGRAMME AND THE RESILIENCE LIVING LAB

The National Disaster Management Agency (NADMA) is hosting the international course “Strategic Disaster Management and Response for Middle Managers” under the Malaysian Technical Cooperation Programme (MTCP), from 21 to 27 June 2026 in Kuala Lumpur. Sponsored by the MTCP under the Ministry of Foreign Affairs, the programme brings together 20 participants from developing countries for exposure to Malaysia’s approaches in disaster management, disaster risk reduction (DRR), community preparedness, and the Humanitarian-Development Nexus (HDN).

MERCY Malaysia strengthens community resilience through the Resilience Living Lab (RLL) approach, developed with Universiti Teknologi Malaysia (UTM) in Hulu Langat, Selangor. Established around five years ago following the major flood and flash-flood incidents in Hulu Langat, the RLL serves as a platform for field-based learning, community capacity development, and the demonstration of community-based disaster risk reduction. Its framework emphasises preparedness, adaptation, community engagement, and collaborative resilience-building among government agencies, academia, and local communities.

In MERCY Malaysia’s words, the RLL is a place-based, experiential-learning, knowledge-driven, innovation and people-centred approach to local disaster risk reduction, grounded in adaptive and resilient recovery. It applies a four-way (“quadruple-helix”) partnership local communities, government, NGOs and civil society, and knowledge institutions such as universities co-creating and co-owning solutions.

Its design centres on four community-prioritised themes: experiential-learning facilities; community-based learning and activities; livelihood support and development; and nature-based solutions for disaster risk reduction. The ten checkpoints on today’s visit put these themes into practice across six practical resilience areas.

Objectives of the visit

1. Provide participants with comprehensive exposure to Malaysia’s approach to developing disaster-resilient communities.
2. Introduce the Resilience Living Lab (RLL) as a platform for learning, research, and community engagement in disaster risk reduction.
3. Share the experience and best practices of MERCY Malaysia and UTM across the DRR Education Hub; Resilient Infrastructure; Nature-based Solutions (NbS) for DRR; Resilient Resettlement & Shelter; WASH Community; Early Warning Systems (EWS) and mitigation strategies; and Post-Disaster Livelihood & Economic Stability.
4. Strengthen international collaborative networks in disaster management and community development.

As the field-learning component of the MTCP programme, MERCY Malaysia and UTM will conduct a field briefing and academic visit to the RLL site in Hulu Langat on 27 June 2026 (Saturday), from 8:00 a.m. to 2:00 p.m.

The lab’s design is grounded in a comprehensive 2025 community study by MERCY Malaysia (funded by Yayasan Hasanah), combining desk research, interviews with village heads (Ketua Kampung) and JAKOA, focus group discussions, and a survey of 200 residents across six flood- and landslide-prone localities.

HULU LANGAT AND THE DECEMBER 2021 FLOODS

Hulu Langat is the fifth-largest district in Selangor (about 840 km²) and the second most populous, with a population of roughly 1,400,461 (2020 Census) and a density of around 1,688 people per km². Most of its administrative areas fall under the Kajang Municipal Council (MPKj). It sits in the south-eastern corner of the state, bordering Kuala Lumpur, Pahang and Negeri Sembilan.

The district's position adjacent to Pahang and Negeri Sembilan makes it vulnerable to transboundary risk and cascading impacts. In December 2021, Typhoon Rai's outflow stalled a tropical depression over the region a driver that triggered catastrophic flooding and massive economic losses.

Chronology of the disaster

DATE	WHAT HAPPENED
17-18 Dec 2021	Heavy rain, cumulative precipitation around 160 mm
18 Dec 2021	Heavy rain, recorded rainfall of 269.5 mm
19 Dec 2021	Sungai Langat basin surpassed 321.0 mm
20 Dec 2021	Recovery begins, except Kg. Sg. Lui and Serai
21 Dec 2021	Floodwaters in all affected localities completely receded

From relief to a living lab: the five-year journey (2021-2026)

Driven by MERCY Malaysia and Yayasan Hasanah, the Humanitarian-Development Nexus (HDN) for Hulu Langat unites immediate disaster relief with long-term, community-led development. Over five years, the lab has evolved from identifying local vulnerabilities to co-developing solutions and embedding disaster risk reduction into local planning.

Year	Milestones
2021	Immediate disaster relief; the On-site Coordination Centre (OSCC) established; Post-Disaster Needs Assessment (PDNA) conducted
2022	Post-disaster recovery; Build Back Better (BBB) initiatives; adoption of Nature-based Solutions (NbS)
2023	Officiation of the Resilience Living Lab (29 May 2023); inclusion of vulnerable communities; international exposure
2024	International Humanitarian Conference; place-based learning; experiential pilot testing with communities and agencies
2025-2026	Place-based learning with local councils and postgraduate students; RLL reporting funded by Yayasan Hasanah; community-farming initiatives

UNDERSTANDING THE CORRIDOR AND ITS COMMUNITIES

Today's visit centres on the Sungai Lui corridor, running from Batu 18 to Batu 21 in the eastern part of Hulu Langat. It is a riverine, semi-rural landscape close to the Langat and Semenyih reservoirs both vital to Selangor's water supply where hilly terrain, dense vegetation and scattered settlements heighten exposure to floods and landslides. Batu 18 sits at a low-lying river confluence and is the most flood-prone: runoff from the higher ground at Batu 20 and Batu 21 converges there, causing repeated flash floods, while landslides recur in upland areas such as Sungai Gabai, Genting Peras and Pangsun.

Two communities

Residents fall into two broad groups. Orang Kampung are the local, largely Malay villagers of the Batu 18–21 settlements. Orang Asli, the Indigenous peoples of Peninsular Malaysia live in three villages along the corridor: Paya Lebar, Sungai Gabai and Genting Peras. Orang Asli affairs are supported by JAKOA (the Department of Orang Asli Development), and each community is led by a Tok Batin, within the wider authority of the village head (Ketua Kampung).

An inclusive focus

The 2025 study found marked differences between the two groups in education, livelihoods and disaster preparedness, with Orang Asli households facing greater structural disadvantage. The Resilience Living Lab therefore places particular emphasis on including vulnerable groups Orang Asli households, low-income (B40) families, women-headed households and elderly residents so that resilience-building reflects the priorities of those most exposed. Many of the interventions you will see today were shaped directly by community voices gathered through this study.

YOUR VISIT AT A GLANCE

Date	: 27 June 2026 (Saturday)
Time	: 08:00 – 14:00
Location	: Resilience Living Lab (RLL), Hulu Langat, Selangor
Assembly point	: Resilience Living Lab Centre (RLLC) @ Mrs. Rohana’s House
Format	: Plenary briefing, then a site visit in four concurrent groups, followed by a reflection session

Getting there:
[View the assembly point on Google Maps](#)
Please remain with your assigned group and vehicle throughout the visit.

PROGRAMME AGENDA

Date : 27 June 2026 (Saturday)

Location : Resilience Living Lab (RLL), Hulu Langat, Selangor

Time	Duration	Activity
08:00 – 09:00	1 hour	Gathering, registration and breakfast – Assembly: RLLC @ Mrs. Rohana’s House
09:00 – 09:30	30 min	Programme Briefing – Dr. Khamarrul Azahari Razak (EXCO, MERCY Malaysia; DPPC-MJIIT, UTM)
09:30 – 09:35	5 min	Photo Session
09:35 – 12:35	3 hours	Site visit to 10 checkpoints, in 4 concurrent groups
12:35 – 13:25	50 min	Reflection Session
13:25 – 13:30	5 min	Closing Ceremony – National Disaster Management Agency (NADMA)
13:30 – 14:00	30 min	Lunch and dismissal

THE TEN CHECKPOINTS

During the site visit, all four groups depart and run concurrently from the assembly hub, each in an assigned vehicle along its own route, before returning for the reflection session. The ten checkpoints sit under six themes of community resilience. Use this section to understand what you are seeing and why it matters; your specific route is on the next pages.

The hub — DRR Education Hub (RLLC @ Mrs. Rohana's House)

The Resilience Living Lab Centre (RLLC) is the physical Disaster Risk Reduction (DRR) education hub, located at the flood-destroyed, 53-year-old Mrs. Rohana's home. It is envisioned as a "One-Stop Community Disaster Resource Hub" integrating education, training, research, emergency coordination, community engagement and knowledge sharing, in line with the Sendai Framework. It is today's assembly, briefing and presentation point.

1.1 Strengthening River and Road Access

After the 2021 disaster, JKR (Public Works), JPS (Irrigation and Drainage) and army personnel strengthened river and road access repairing roads and rebuilding the collapsed Batu 20 bridge that had isolated 14 homes. The rapid reconstruction included a modular, prefabricated Bailey bridge, restoring connectivity and protecting lives.

[Location: Google Maps](#)

1.2 Retaining Wall, Genting Peras

Critical slope mitigation using soil nails, shotcrete and engineered drainage stabilised steep terrain against landslides, ensuring long-term community safety. The project showcases evidence-based engineering and community-informed design.

[Location: Google Maps](#)

2.1 WASH — Horizontal Collector Well (HCW)

An innovative Water, Sanitation and Hygiene (WASH) initiative providing sustainable, clean water after the 2021 floods. Corrosion-resistant Houston V-Notch screens (60% open surface area) are embedded about four metres into the riverbed to draw naturally pre-filtered groundwater from the alluvial aquifer, which is then refined through automatic sand, carbon and chlorine treatment. The system currently pumps and treats about 2,000 gallons per hour, with capacity for up to 15,000 gallons per hour. It forms part of MERCY Malaysia's wider WASH work in the area, which also includes gravity-fed water systems serving Orang Asli settlements such as Sungai Pagar and Sungai Jenarek.

[Location: Google Maps](#)

2.2 Nature-based Solution (NbS) — Mr. Tahir's House

Following the UNDRR principle of working with nature to protect, restore and sustainably manage ecosystems, bamboo growing naturally along the riverbank acted as a non-structural barrier absorbing floodwater energy and shielding Mr. Tahir's house from severe damage in 2021. Native species such as Buluh Aur (*Bambusa vulgaris*) and Buluh Betong (*Dendrocalamus asper*) are especially effective: their dense, deep roots bind the soil, slow runoff and resist prolonged inundation. It is one of the clearest local examples of how an NbS model can be replicated in other hazard-exposed areas.

[Location: Google Maps](#)

3.1 Shelter and Resettlement Resilience — Mr. Zaki's House

Resilient resettlement goes beyond relocation by integrating safe infrastructure, essential services, sustainable livelihoods and inclusive governance. Mr. Zaki's permanent house about 775 square feet, costing roughly RM80,000 was built around eight feet above ground in preparation for floods. Through the PDNA, 59 flood-damaged houses were identified for repair, and a key access bridge to Puan Mira's house was restored with support from the Department of Irrigation and Drainage.

[Location: Google Maps](#)

3.2 Indigenous Community Settlements — Paya Lebar Orang Asli Village

Two homes in the Paya Lebar Orang Asli (Indigenous) Village were destroyed when prolonged rains caused the river to overflow and submerge residential, agricultural and livestock areas. To maintain life and provide shelter, MERCY Malaysia built two temporary wooden houses (each with one bedroom and one bathroom, at about RM21,600), with a way forward prioritising community-led relocation, hazard-mapped zoning and climate-adapted designs.

[Location: Google Maps](#)

4.1 Early Warning System (EWS) @ Institut Kemahiran Belia Negara Dusun Tua

An integrated, real-time flood monitor triggers a siren alarm across a 1-2 km radius, enabling local communities and responders to accelerate disaster response. There are around 20 EWS stations in Hulu Langat, installed by the Department of Irrigation and Drainage (JPS). The approach connects to the global Early Warning for All (EW4All, 2022-2027) initiative and Malaysia's national flood forecasting and warning framework, with public data available via the JPS Infobanjir portal.

[Location: Google Maps](#)

4.2 Community Farming @ Sri Nanding

A social innovation for livelihood continuity and food security transforming recovery sites into productive spaces that foster self-help, cooperation and environmental stewardship, including a decoupled Recirculating Aquaculture System (RAS) aquaponic setup. In Kampung Nanding, MERCY Malaysia runs this as an Eco-DRR (ecosystem-based disaster risk reduction) programme with The Habitat Foundation, pairing community kitchen gardens and edible landscaping with riverbank and slope rehabilitation. These sites also act as informal centres for knowledge exchange.

[Location: Google Maps](#)

5.1 On-site Command Centre (OSCC) — Batu 18 Mosque & Bahulu Classiq

An OSCC is a centralised, on-scene hub for monitoring, coordinating and managing operations in real time the "nerve centre" for decision-making. During the 2021 tragedy, Kampung Jawa Batu 18 became the OSCC: the Masjid Qariah coordinated aid collection, the Bahulu Classiq Café served as a mobile clinic, and a nearby house became the operation's headquarters. The model now integrates Post-Disaster Needs Assessment (PDNA) teams.

[Location: Google Maps](#)

6.1 Business Continuity Livelihood — Pak Tam's Stall

Under the livelihood principle, MERCY Malaysia assisted in rebuilding a roadside stall (Pak Tam's) that had been swept away by the 2021 floodwaters. The reconstruction used clay bricks two to three times stronger than sand bricks at a cost of about RM35,000, producing a larger, sturdier stall that reportedly lifted the owner's monthly income from around RM1,500 to RM3,500 a clear demonstration of swift, durable business-continuity recovery.

[Location: Google Maps](#)



Universiti Teknologi Malaysia
(UTM)

RESILIENCE LIVING LAB (RLL)



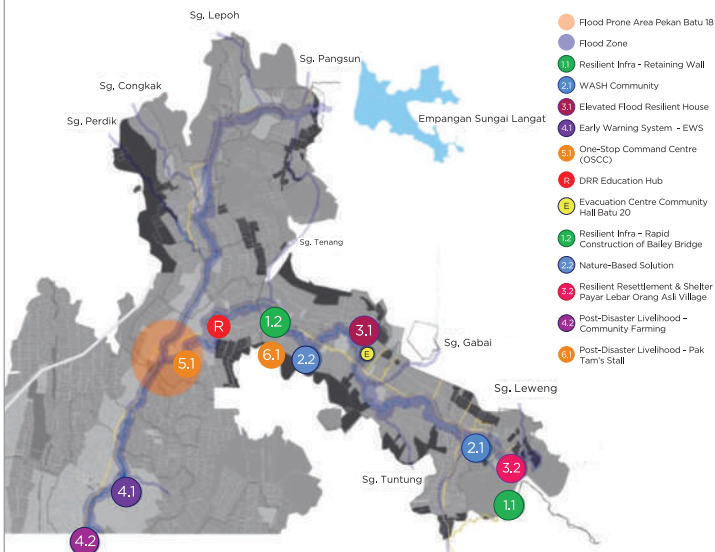
COMMUNITY-LED DRR INITIATIVE

A new place-based experiential learning, knowledge-driven, innovation, and people-centred for local disaster risk reduction (DRR) action. It is grounded in adaptive- and resilient recovery.

COMMUNITY-LED DRR INITIATIVE

- ⑤ RLL provides new insights into knowledge exploration and building resilience culture through on-site experiential learning and local DRR action
- ⑤ It supports continuous applied research, smart innovation & education across sectors, and humanitarian-development nexus (HDN) challenges.

COMPONENTS IN RLL



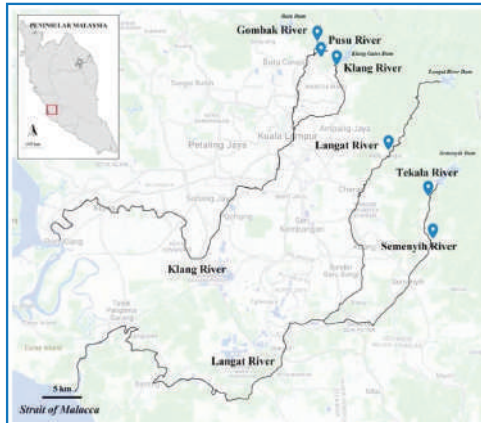
Source: MERCY Malaysia, 2026

UNDERSTANDING TRANSBOUNDARY RISK



Transboundary risk, extreme climate and emerging hazards induced by Typhoon Rai in December 2021 triggered many large-scale, compounding & urban disasters with significant economic losses in Selangor State and its vicinity.

RIVER BASIN IN SELANGOR

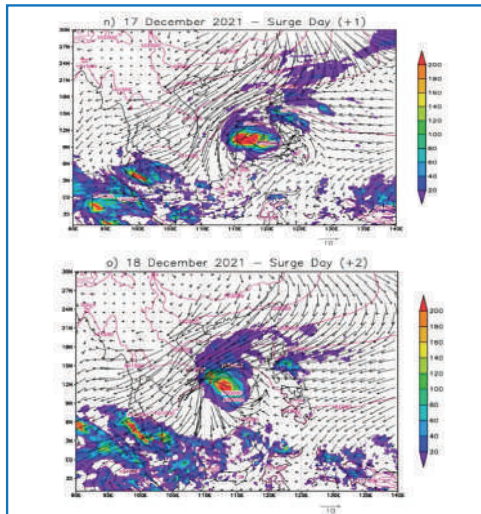


Located in Hulu Langat District (Selangor), the impacted area lies adjacent to Pahang and Negeri Sembilan resulted in many sediment-related disaster & cascading impacts

CHRONOLOGY & DISASTER IMPACTS

- DEC 17-18, 2021** Heavy rain with cumulative precipitation of 160mm
- DEC 18, 2021** Heavy rain with recorded rainfall 269.5mm
- DEC 19, 2021** Sg Langat Basin surpass 321.0mm
- DEC 20, 2021** Recovery begins except Kg Sg Lui & Serai
- DEC 21, 2021** Floodwaters in all affected localities completely receded

TYPHOON RAI



DURING DISASTER

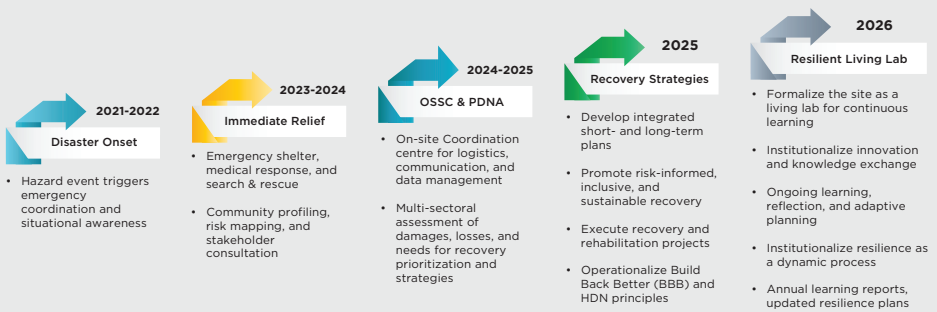
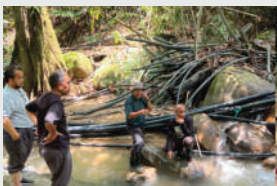
The tragedy has caused RM6.1 billion in economic loss, equivalent to 0.40% of nation's GDP (DOSM, 2022)



HUMANITARIAN DEVELOPMENT NEXUS (HDN) 2021 - 2026



The Resilience Living Lab promotes the Humanitarian-Development Nexus (HDN) agenda led by MERCY Malaysia and its strategic partners. The large-scale disaster unites immediate disaster relief, with long-term, risk-informed development action. Spanning 2021-2026, this multi-scale efforts support disaster resilient ecosystems, multi-risk adaptation, and promote a transdisciplinary approach for building resilience culture.



Lab custodians and participants are involved in the development process through co-creation & co-ownership

Public actors in close consultation with other actors co-create outputs of the Lab, allowing improvements in policy and decision-making process

The Lab aims at developing new ideas, knowledge and product to find new solutions to existing & future problems



The Lab conducts its activities in real-life use of context, with direct inputs from local communities & collaborators

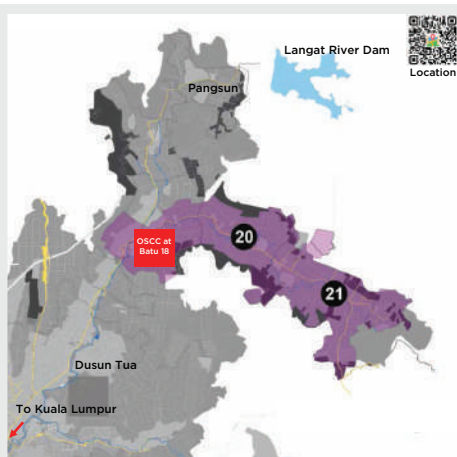
The quadruple helix collaboration model drives the Lab - forging partnerships between the public-NGO-private-local communities and knowledge institutions

The Lab encourages iterative process, implying findings, knowledge and solutions are regularly evaluated for continuous improvement and life-long learning

ON-SITE COMMAND CENTRE (OSCC)



Generally, OSCC is a localized, centralized workspace established at a specific facility or incident location to monitor, control, and manage operations in real-time. It serves as the “nerve center” where decision-makers gather critical data to coordinate responses and maintain situational awareness. The OSCC was setup by MERCY Malaysia in Kg Jawa (Batu 18). Moreover, the Masjid Qariah Kampung Jawa Batu 18 served as a local centre for collecting and coordinating aid, the BahuLu Classiq Cafe turned into a local mobile clinic.



OSCC was established for coordination work by volunteers



Mobile clinic is opened in front of the cafe by MERCY Malaysia

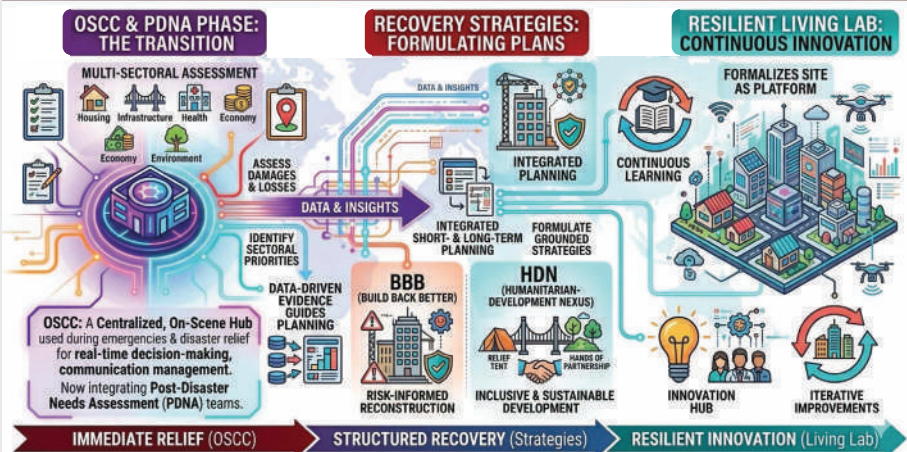


Mosque serves as temporary evacuation center and aid collection / coordination



BahuLu Classiq Cafe conditions on a normal day

THE RECOVERY JOURNEY: FROM CRISIS TO RESILIENCE



DISASTER RISK REDUCTION (DRR) EDUCATION HUB



The Resilience Living Lab Centre (RLLC) serves as a physical Disaster Risk Reduction (DRR) education hub in Hulu Langat. Situated at the destroyed 53-year-old Mrs Rohana's home, this collaborative initiative should function as a "One-Stop Community Disaster Resource Hub" integrating, education, training, research, emergency coordination, community space and knowledge sharing as aligned with the Sendai Framework.



BEFORE/DURING DISASTER



AFTER DISASTER



Location

OUTDOOR PLAZA

Refers to central open areas with (1). amphitheater and (2) monument plaza and covers the entrance, interactive learning corner and community notice board.

LIVING LAB CENTRE

Refers to (3) Living Lab Centre which acts as primary hub for public reception, education and active administration e.g. reception, lobby and multipurpose training.

ANCILLARY BUILDING

Refers to (4) next to main centre, suited for documentation and archive room, local resources space, meeting room, prayer room, and toilet.

PROPOSED RESILIENCE LIVING LAB CENTRE (RLLC)



EXISTING CABIN HOUSE

Refers to (5) Existing Cabin House and (6) Parking areas which serve perfectly as security/operations cabin, overnight caretaker quarter or a storage facility for disaster simulation gear.



RESILIENT INFRASTRUCTURE



Following the 2021 Hulu Langat disaster, building resilient infrastructure became vital to prevent community isolation, protect lives, and withstand future climate shocks. After the tragedy, the government strengthened river and road access by repairing roads, strengthening slopes and rebuilding the collapsed bridges that isolated many homes. Moreover, landslide mitigation and slope rehabilitation using various control measures and nature-based approach for landslide risk reduction strategies, ensuring long-term community safety.



DURING DISASTER



Extensive debris accumulation and structural failure along riverbanks caused high-velocity floodwaters and uprooted trees



The debris flow impact and resilient infrastructure intervention strengthens adaptive capacity against climate-induced hazards

AFTER DISASTER



Rapid reconstruction effort through the installation of a Bailey bridge - a modular, pre-fabricated steel structure implemented collaboratively by government agencies and community volunteers



This project aligns with RLL framework showcased evidence-based engineering and locally-led nature-based contributed to long-term road safety, connectivity and sustainable resilience

NATURE-BASED SOLUTION (NbS) FOR DRR



HARNESSING ECOSYSTEMS, STRENGTHENING LOCAL RESILIENCE

UNDRR defined NbS as the working with nature to protect, restore and sustainably manage ecosystems. As actions that protect, sustainably manage and restore natural or modified ecosystems, NbS address many societal challenges while providing human well-being and biodiversity benefits.

As an example, we showcase the Bamboo trees growing naturally on riverbanks serve as an effective non-structural mitigation measure. They indirectly became a major barrier against damage when torrential waters hit Mr. Tahir's house. Nature works perfectly with high return and co-benefits.

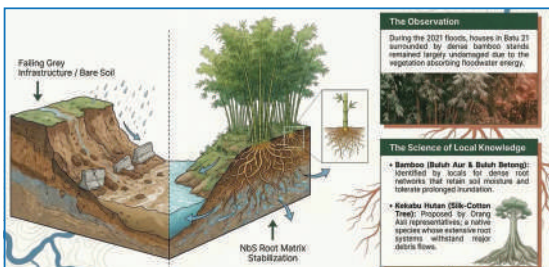
BAMBOO PLANTING PROJECT LOCATION



Ironically, the bamboo trees, which act as retaining walls against the floodwaters, have prevented the house from being severely damaged. This proves that natural solutions are the best for areas with highly vulnerable. NbS should be mainstreamed into development planning, disaster risk reduction, and climate adaptation strategies. Practically, NbS strengthens community resilience, enhances biodiversity, improves livelihoods, and delivers long-term social, economic, and environmental benefits.



NbS CONCEPT ILLUSTRATION



RESILIENT RESETTLEMENT & SHELTER



REBUILDING BACK BETTER, REBOUNCING FASTER

Resilient resettlement is a transformative approach to post-disaster recovery strategies that goes beyond mere relocation by integrating safe infrastructure, essential services, sustainable livelihoods, and inclusive governance. It is co-designed to strengthen vulnerable communities, ensuring long-term safety, liveability, and resilience against future emerging hazards and systemic risks (Ab Samah et al., 2025).

Through the Post-Disaster Needs Assessment (PDNA), 59 houses are identified that need to be repaired after disaster. The permanent house project Mr. Zaki's house was selected to showcase the resilient recovery. The house (775 square feet) was built with cost of RM80,000. It was built eight feet high to cope future floods. Pn Mira's house was another selected house. In addition, a bridge that is the main access to Puan Mira's house has been repaired and restored with the assistance of the Department of Irrigation and Drainage. **These are few examples of promoting Build-Back-Better as aligned to Humanitarian-Development Nexus (HDN).**

DURING DISASTER



Paya Lebar Orang Asli Village.



Paya Lebar Orang Asli Village.

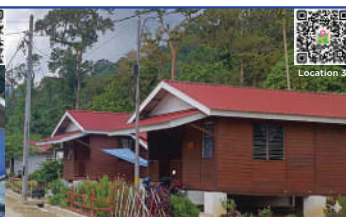
In addition, 2 houses were destroyed due to flooding in the Paya Lebar Orang Asli Village. Heavy and prolonged rains caused water to overflow and the rapid flow of the river submerged residential, agricultural and livestock areas, public facilities and infrastructure. To help maintain life and provide shelter, MERCY Malaysia has built 2 temporary wooden houses in the Paya Lebar Orang Asli Village, where each house has 1 bedroom and 1 bathroom. The cost of building this house is RM21,600.



Mr. Zaki's house



Pn Mira's house area



Paya Lebar Orang Asli Village

The condition of the house after repairs using stronger building materials and resilient designs. A way forward prioritizes community-led relocation, hazard-mapped zoning, and modular, climate-adapted housing designs.

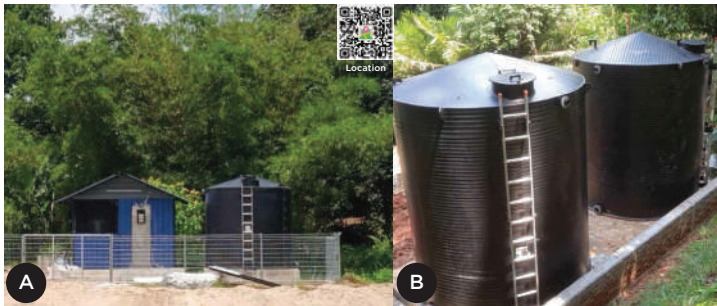
WATER, SANITATION & HYGIENE (WASH) COMMUNITY



SUSTAINABLE- AND CLEAN WATER ACCESS

Horizontal Collector Well (HCW) project is an innovative Water, Sanitation, and Hygiene (WASH) initiative co-designed to ensure sustainable and clean water access following the 2021 tragedy. By utilising advanced engineering, including a Riverbed Infiltration system and Houston V-Notch Screen technology, the system effectively taps into groundwater to meet the village's water demands. While the system is currently configured to pump and treat 2,000 gallons per hour, its robust infrastructure is capable of yielding up to 15,000 gallons per hour. This system benefits more than 140 families, with low maintenance.

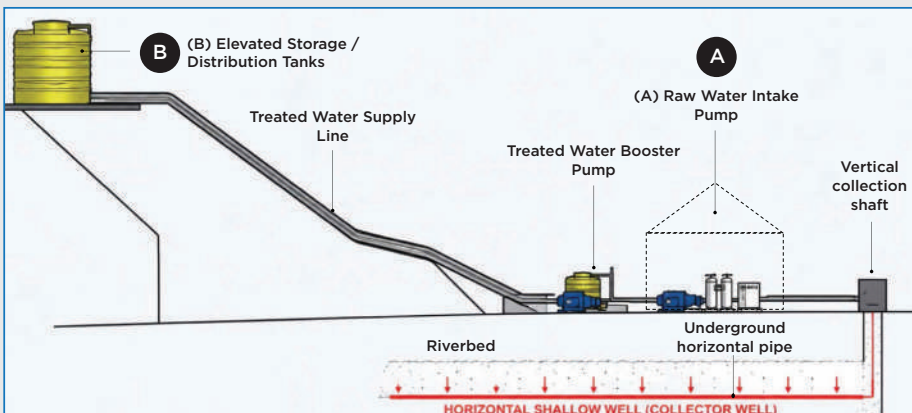
This system utilises corrosion-resistant Houston V-Notch Screens with a 60% open surface area embedded four meters into the Sungai Lui riverbed to draw naturally pre-filtered groundwater from the alluvial aquifer, which is then refined through an automatic sand, carbon, and chlorine treatment system to ensure clean, high-flow water.



- Enhancing infrastructure resilience and disaster preparedness through better planning, on-site training and capacity building.
- Promoting local innovation empowered by nature-based & local resources & knowledge coupled with environmental preservation

AFTER DISASTER

Now the local infrastructure is operating successfully and maintained by trained communities & local champions



EARLY WARNING SYSTEM (EWS)



COMMUNITY-BASED EWS

An integrated real-time flood monitor activates a 1–2 km radius siren alarm. This immediate alert enables local communities and emergency responders to accelerate disaster response, saving lives and safeguarding property. Currently, 20 EWS stations are installed in Hulu Langat by Department of Irrigation and Drainage Malaysia (JPS). CEWS empower communities to improve their disaster preparedness and to evacuate themselves to a safer place.

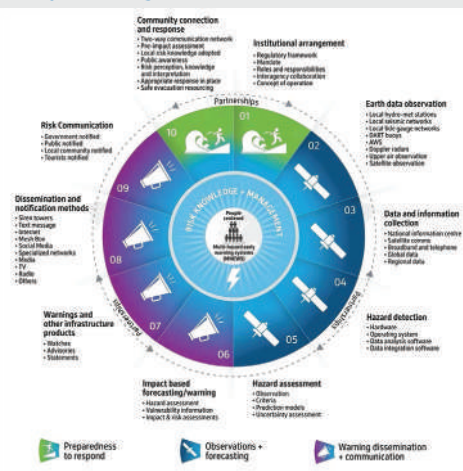


COMMUNITY-BASED EWS

This component ensures that critical flood warnings and water level data reach both local disaster managers, emergency responders and vulnerable communities:

- ③ **Siren Telemetry Systems:** Localized warning sirens (often utilized solar-powered) are triggered when rivers reach specific "Alert" or "Danger" thresholds, broadcasting audio alerts that can carry up to 2 km.
- ③ **Public Announcements:** Sirens are integrated with Public Address (PA) speakers that allow authority to broadcast evacuation orders or specific instructions.
- ③ **Public Portals:** Real-time water levels and rainfall distributions are publicly disseminated via the JPS Public Infobanjir portal.

Early Warning For All (EW4All) 2023-2027



EW4All is a global initiative launched in 2022 to ensure that all people are protected by early warning systems by 2027. It aims to reduce the impact of disasters and the vulnerability of populations through four pillars:

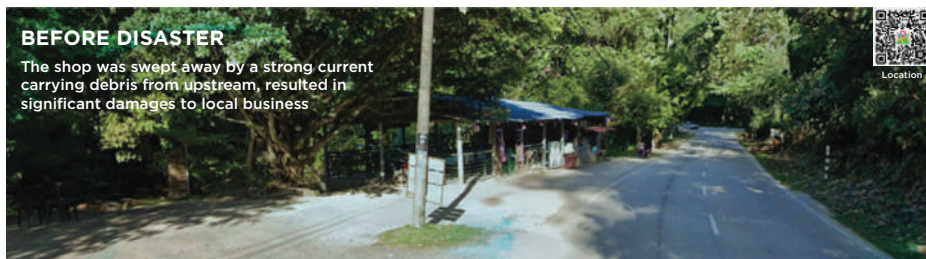
1. Disaster risk knowledge (led by UNDRR);
2. Detection, observations, monitoring, analysis and forecasting of hazards (led by the World Meteorological Organization);
3. Warning dissemination and communication (led by the International Telecommunication Union); and
4. Community preparedness and response capabilities (led by the International Federation of Red Cross and Red Crescent Societies).

POST-DISASTER LIVELIHOOD & BUSINESS CONTINUITY



RESTORING HOPE, REBUILDING NEW OPPORTUNITY

Post-disaster livelihood provides an insight into the state of economic activity and the subsequent recovery efforts required after a disaster has caused extensive disruption to a community's ability to earn a living. Resilient recovery strategies are mutually needed to enhance the livelihood/business continuity covering critical infrastructure, assets, financial systems, communication services, and supply chains.

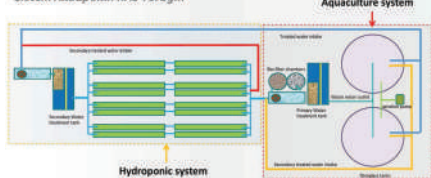


BEFORE DISASTER

The shop was swept away by a strong current carrying debris from upstream, resulted in significant damages to local business

Under the initiative livelihood principle, the rebuilding of local businesses that had been impacted. For example, the reconstruction of the shop used clay bricks, which are two to three times stronger than sand bricks. The cost of providing the materials and rebuilding the PakTam's shop was RM35,000.

DECOUPLED RAS AQUAPONIC SYSTEM Sistem Akuaponik RAS Teragih



Community Farming: A social innovation for livelihood continuity and food security, transforming recovery sites into productive spaces that foster self-help, cooperation, and environmental stewardship. It also serves as informal centers for knowledge exchange, and socio-economic cycles.



A resilient way forward integrates micro-grants, flexible digital microfinancing, and localized supply chain backups into community re-development planning. Practically, this keeps local economies afloat immediately after a crisis. It prevents systemic poverty traps, ensuring families retain self-sufficiency while businesses adapt swiftly in a sub-urban region.

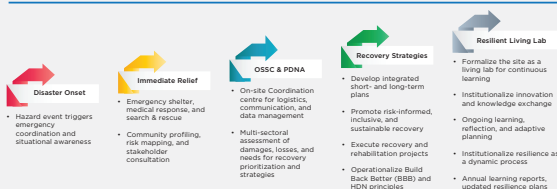
5-YEARS TRANSFORMATION OF RESILIENCE LIVING LAB @ HULU LANGAT (RLL-HL)



Over five years, the RLL-HL has evolved from identifying local vulnerabilities and building community capacity to co-developing innovative solutions, strengthening partnerships, and embedding disaster risk reduction practices into local planning processes.

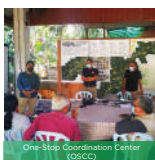
Through **continuous engagement** among communities, government agencies, researchers, and stakeholders, RLL-HL demonstrates how a Living Lab approach can support long-term resilience, adaptive capacity, and risk-informed sustainable development.

PROCESS FLOW FOR ESTABLISHING THE RESILIENCE LIVING LAB



2021

- Immediate disaster relief
- Establishing the One Stop Coordination Center (OSCC)
- Conducting Post-Disaster Needs Assessment (PDNA) & Rapid Intervention missions



2022

- Post-disaster recovery process & monitoring
- Built-Back-Better (BBB) initiatives
- Adapting Nature-based Solutions (NbS) for DRR



2023

- Post-disaster recovery process & monitoring
- Built-Back-Better (BBB) initiatives
- Adapting Nature-based Solutions (NbS) for DRR



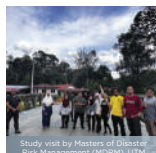
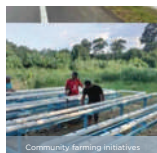
2024

- International humanitarian conference
- Place-based learning
- Experiential pilot testing with local communities and agencies



2025-2026

- Place-based learning program with local councils and post-graduate students (MDRM-UTM)
- RLL-HL reporting funded by Yayasan Hasanah
- Multi-scale RLL-HL co-implementation



WAY FORWARD: ASEAN RESILIENCE LIVING LAB



STRENGTHENING RESILIENCE LIVING LAB @HULU LANGAT

EXPERIENTIAL LEARNING LIVING LAB FACILITIES

- Multifunctional facilities for disaster preparedness & education, knowledge sharing, community empowerment & local leadership
- Locally-led & youth-focused activities to promote co-ownership and community participation.
- Flood-resilient infrastructure, adaptable design and multi-scale resilience culture building.

COMMUNITY-BASED LEARNING AND ACTIVITIES

- Regular community disaster drills and preparedness trainings.
- Community-based early warning system (CBEWS), evacuation, and safe assembly points.
- Collective knowledge transfer (storytelling, social media, school resilience programs).
- Coordinated and inclusive disaster response and recovery.

LIVELIHOOD SUPPORT AND DEVELOPMENT

- Small businesses capacity building (business management, sales and marketing, cooperative models).
- Women's livelihood centres for economic empowerment, & skills development at a family-level
- Community-based ecotourism (CBET) program with environmental safeguards and proper waste management.

NATURE-BASED SOLUTIONS (NbS) FOR DRR

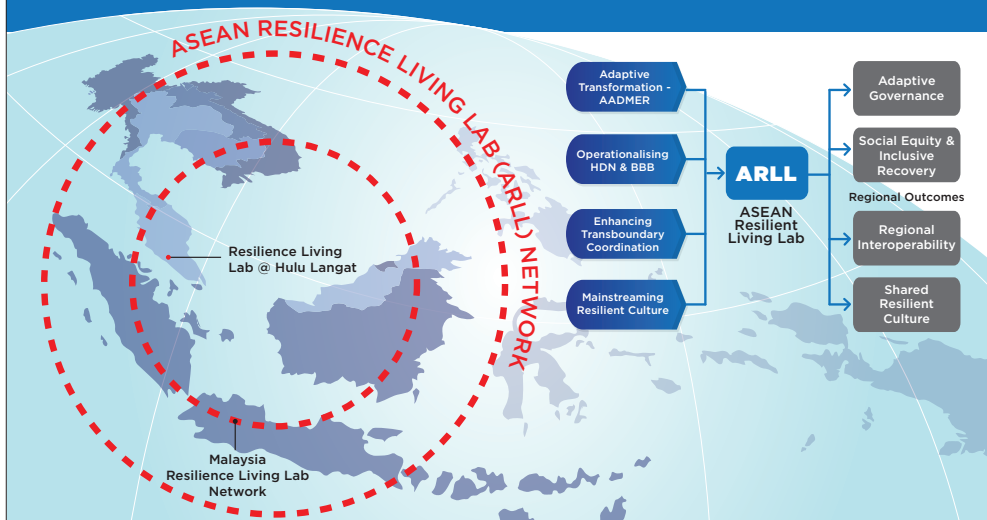
- Bamboo and native vegetation planting along riverbanks and slope rehabilitation.
- Community-led implementation, self-monitoring, & local impacts
- Integration of scientific guidance with local knowledge.
- Policy and regulatory support for environmental management and systemic risk reduction.

A future-ready ASEAN where every disaster & crisis strengthens - not weakens - collective resilience; where communities are co-creators of recovery; and where resilience culture becomes the cornerstone of a risk-informed, united, and sustainable region.

ASEAN Agreement on Disaster Management and Emergency Response (AADMER) Work Programme 2026-2030

The Resilience Living Lab (RLL) approach aligns with **Priority Programme 4 (PP4)** on **Resilient Recovery** by strengthening community-based recovery planning, disaster recovery needs assessment, and multi-stakeholder collaboration towards **build back better** outcomes. Scaling RLL into an ASEAN Resilience Living Lab can provide a practical platform for inclusive and sustainable recovery practices across Southeast Asia and vicinity region.

Under **Priority Programme 5 (PP5)** on **Global Leadership**, the ASEAN Resilience Living Lab can support regional knowledge sharing, innovation, capacity building, and disaster management professionalisation. It can strengthen ASEAN's disaster resilience leadership by contributing to knowledge hubs, technology utilisation, and the implementation of the **Sendai Framework for Disaster Risk Reduction 2015-2030**.



YOUR GROUP, VEHICLE AND ROUTE

Each delegate is assigned to one of four groups, led by a fellow delegate as Group Leader. Each group travels in its own vehicle with a dedicated panel of facilitators and subject-matter experts, following the route shown below. All groups run concurrently from 09:35 to 12:35.

GROUP 1 • Car 1 — Resilient Infrastructure

Group Leader: Georgi Krastanov (Bulgaria)

Delegates	Facilitators & subject-matter experts
Georgi Krastanov — Bulgaria	Dato' Zakaria Mohamad
Claudine Ramarinjahanary — Madagascar	Pgeol. Rasid Abd Jaapar
Denis Efremov — Russian Federation	Ir. Razali Idris
Bonane Rwagatare — Rwanda	Mr. Muhammad Fauzie Ismail
Evangelito Crissanto Oliveria — Timor-Leste	Ms. Liyana Hayatun Syamila Ramlee (<i>Rapporteur</i>)
	Ms. Nur Syaq Wanah Mohd Razali (<i>Photographer</i>)
Route 1.1 Strengthening River and Road Access (map) 1.2 Retaining Wall, Genting Peras (map) 2.1 WASH — Horizontal Collector Well (map)	

GROUP 2 • Car 2 — WASH & Nature-based Solutions

Group Leader: Slobodanka Novakovic (Serbia)

Delegates	Facilitators & subject-matter experts
Slobodanka Novakovic — Serbia	Dr. Dzulkarnaen Ismail
Aleddin Elmiladi — Libya	Ir. Hasman Ibrahim
Bilguun Baasanjav — Mongolia	Ir. Mohamed Hanafi Ramli
Christian Odoh — Nigeria	Mr. Ezrein Faizal Ahmad
Mauday Nabie Turay — Sierra Leone	Mr. Mohd Zaki Bahrudin (<i>Videographer</i>)
	Ms. Wan Anis Afeeqa Wan Mohammad Azhar (<i>Rapporteur</i>)
Route 1. 2.1 WASH — Horizontal Collector Well (map) 2. 2.2 Nature-based Solution — Mr. Tahir's House (map) 3. 3.1 Shelter & Resettlement — Mr. Zaki's House (map)	

GROUP 3 • Car 3 — Resilient Settlement & Shelter

Group Leader: Nino Machavariani (Georgia)

Delegates	Facilitators & subject-matter experts
Nino Machavariani — Georgia	Ar. Azman Zainonabidin
Phindile Nokuphiwa Mahlalela — Eswatini	Ts. Mohd Nasurudin Hasbullah
Ali Mistarehi — Jordan	Mr. Tajul Edrus Nordin
Safeenaaz Hassan — Maldives	Ms. Norfarahhani Mohamad Kamal (Videographer)
Nekesa Winny Akullo — Uganda	Ms. Isabella Lim Saiful Lim (Rapporteur)

Route

- 3.1 Shelter & Resettlement — Mr. Zaki's House [\(map\)](#)
- 3.2 Indigenous Community Settlements [\(map\)](#)
- 6.1 Business Continuity — Pak Tam's Stall [\(map\)](#)

GROUP 4 • Car 4 — Early Warning System & Community Farming

Group Leader: Justus Kauatjirue (Namibia)

Delegates	Facilitators & subject-matter experts
Justus Kauatjirue — Namibia	Dr. Khamarrul Azahari Razak
Rza Mammadli — Azerbaijan	Dr. Norazam Ab Samah
Victor Marchezini — Brazil	Assoc. Prof. Dr. Wan Nurul Mardiah Wan Mohd Rani
Nuwan Sampath Weerasingha Madudurage — Sri Lanka	Mr. Ahmad Nasir Che Rosli
Pamelaa Sachirarwe — Zimbabwe	Ms. Siow Yuet Mei (Rapporteur) Ms. Atiqah Alias (Videographer)

Route

- 4.1 Early Warning System @ IKBK Dusun Tua [\(map\)](#)
- 4.2 Community Farming @ Sri Nanding [\(map\)](#)
- 5.1 On-site Command Centre (OSCC) [\(map\)](#)

DELEGATE DIRECTORY

The 20 participants represent national disaster-management, emergency, hydrological and public-administration agencies from across the world.

#	Name	Position	Agency	Country
1	Georgi Krastanov	Head of Disaster Risk Management Unit	Directorate General Fire Safety and Civil Protection, Ministry of Interior	Bulgaria
2	Claudine Ramarinjahanary	Research Officer	Ministry of Transport and Meteorology	Madagascar
3	Denis Efremov	Rescuer	Siberian SAR, EMERCOM	Russian Federation
4	Bonane Rwagatare	Police Senior Officer / Intervention Coordination Specialist	Ministry of Emergency Management	Rwanda
5	Evangelito Crissanto Oliveria	National Engineer	Ministry of Public Works	Timor-Leste
6	Slobodanka Novakovic	Deputy Head of the Cabinet	Ministry of the Interior	Serbia
7	Aleddin Elmiladi	Senior Expert	National Centre for Emergency, Crisis and Disaster Management	Libya
8	Bilguun Baasanjav	Senior Specialist	National Emergency Management Authority	Mongolia
9	Christian Odoh	Senior Hydrologist	Nigeria Hydrological Services Agency	Nigeria
10	Mauday Nabie Turay	Principal Officer	National Disaster Management Agency	Sierra Leone
11	Nino Machavariani	Head of Policy Development, Civil Protection	Emergency Management Service, Ministry of International Affairs	Georgia
12	Phindile Nokuphiwa Mahlalela	Principal Disaster Officer	Deputy Prime Minister's Office	Eswatini
13	Ali Mistarehi	Crisis Management Officer	National Center for Security and Crises Management	Jordan
14	Safeenaaz Hassan	Secretary-General	National Disaster Management Authority	Maldives
15	Nekesa Winny Akullo	Records and Registry Manager	National Social Security Fund	Uganda

#	Name	Position	Agency	Country
16	Justus Kauatjirue	Chief Administrative Officer (Planning and Operations)	Office of the Prime Minister: Directorate Disaster Risk Management	Namibia
17	Rza Mammadli	Senior Officer	Ministry of Emergency Situations	Azerbaijan
18	Victor Marchezini	Researcher	National Center for Monitoring and Early Warning of Natural Disasters (CEMADEN)	Brazil
19	Nuwan Sampath Weerasingha Madudurage	Divisional Secretary	Ratnapura Administrative District	Sri Lanka
20	Pamelaa Sachirarwe	Principal Administrative Officer	Ministry of Local Government	Zimbabwe

ORGANISING TEAM AND KEY CONTACTS

Programme briefing

Dr. Khamarrul Azahari Razak — DPPC-MJIIT, Universiti Teknologi Malaysia

Secretariat & logistics

Role	Name	Contact
Secretariat	Ms. Atiqah Alias (MERCY Malaysia)	+60 19-313 0998 atiqah.alias@mercy.org.my
Secretariat	Mr. Shahril Idris (MERCY Malaysia)	+60 19-290 1400 shahril.idris@mercy.org.my
Secretariat	Mr. Muhammad Akmal Hakim (DPPC-MJIIT, UTM)	+60 16-814 7505 kimxhshm@gmail.com
Logistics	Mr. Faisal Azhar Badly	via Secretariat
Logistics	Mr. Muhammad Zahin Muhaimin Zaidi	via Secretariat
Logistics	Mr. Jasni Ramlee Yusof	via Secretariat

Emergency (Malaysia): 999 • On-site contact: Ms. Atiqah Alias, +60 19-313 0998
Secretariat numbers are reachable by call or WhatsApp.

Participating organisations and personnel

The visit is supported by the organisations and personnel below, in addition to the 20 MTCP delegates listed in the Delegate Directory.

Malaysian Medical Relief Society (MERCY Malaysia)

Hj. Hakim Hj. Hamzah	Dr. Hj. Norazam Ab Samah
Atiqah Alias	Shahril Idris
Nur Syaq Wanah Mohd Razali	Faisal Azhar Badly
Jasni Ramlee Yusof	Ar. Azman Zainonabidin
Ts. Dr. Dzulkarnaen Ismail	Tajul Edrus Nordin
Kamarudin Ibrahim	Ir. Razali Idris
Ir. Mohamed Hanafi Ramli	Ir. Hasman Ibrahim
Ts. Mohd Nasurudin Hasbullah	Ahmad Nasir Che Rosli
Wan Anis Afeeqa Wan Mohammad Azhar	Muhammad Zahin Muhaimin Zaidi
Isabella Lim Saiful Lim	

Disaster Preparedness and Prevention Centre (DPPC), MJIIT, UTM

Dr. Khamarrul Azahari Razak	Dato' Zakaria Mohamad
Pgeol. Abd Rasid Jaapar	Assoc. Prof. Dr. Wan Nurul Mardiah Wan Mohd Rani
Mr. Muhammad Fauzie Ismail	Mr. Ezrein Faizal Ahmad (PLANMalaysia)
Siow Yuet Mei	Muhammad Akmal Hakim
Mohd Zaki Bahrudin	Norfarahhane Mohamad Kamal
Liyana Hayatun Syamila Ramlee	

National Disaster Management Agency (NADMA)

Datuk Hj. Hussain bin Moh — Deputy Director-General, NADMA
Mr. Jefny bin Muhammad — Director, SPKS
Mr. Wan Muhammad Rumaizi bin Wan Hussin — Director, MYCEDM
Dr. Mohd Hafizzuddin bin Dato' Dr. Hj. Md Damiri
Madam Maisarah binti Mat Isa
Mr. Abdul Aziz bin Mahamad Zabidin
Mohamed Azriza bin Abdul Karim
Mr. Zaim Aiman bin Ibrahim
Mr. Muhammad Azam bin Zakuan
Nur Jumatul Asyikin binti Junaidi

Local Authorities and Community Stakeholders, Hulu Langat

YBhg. Dato' Haji Jusni bin Hashim, D.S.I.S — District Officer & Land Administrator, Hulu Langat
Chief Headman, Hulu Langat (Ketua Penghulu)
Mukim Headman, Hulu Langat (Penghulu Mukim)
Village Heads (Ketua Kampung) — Batu 18, 19, 20, 21 & 23, Sg. Gabai
Mr. Muhammad Sherhan Nizam bin Abd Aziz — Chairman, Taman Sri Nanding Residents' Association
YBrs. Tuan Mohd Azhar bin Mohd Daud — State Disaster Management Unit (UPBN), Selangor

PRACTICAL INFORMATION

Dress code

Modest, comfortable field clothing suitable for the outdoors and uneven ground. Sturdy, covered walking shoes are recommended; lightweight long sleeves help with sun and insects.

Weather

Late June in Hulu Langat is typically hot and humid (around 25–33°C), with possible afternoon showers. A cap, light rain cover and sun protection are advisable.

What to bring

- Refillable water bottle, sunscreen and insect repellent
- Any personal medication, plus a notebook and pen
- A fully charged phone (for maps, photos and group contact)

Facilities

A prayer space (surau) and washrooms are available at the assembly hub.

Meals and dietary needs

Breakfast and lunch are provided, and meals are halal. Please inform the secretariat in advance of any dietary requirements or allergies.

Connectivity

Mobile coverage may be limited at some checkpoints within the valley. Download any maps you need in advance.

Health and safety

Some checkpoints involve walking on natural terrain and near water. Please stay with your assigned group and vehicle throughout, and follow your facilitators' guidance on uneven ground. In a medical emergency, dial 999 and alert your facilitator immediately.

Local customs and conduct

The route passes through Orang Asli (Indigenous) settlements and includes a mosque. Please dress modestly, behave respectfully at religious and community sites, and follow the guidance of your facilitators and the local Tok Batin (community leader). Kindly ask permission before photographing residents or entering private property.

Language

The programme is conducted in English and Bahasa Malaysia. Facilitators are available throughout to assist and interpret.

GLOSSARY OF TERMS

Term	Meaning
BBB	Build Back Better
B40	Bottom 40% – Malaysia's lower-income household category
CBEWS	Community-Based Early Warning System
CEMADEN	National Centre for Monitoring and Early Warning of Natural Disasters (Brazil)
DPPC	Disaster Preparedness and Prevention Centre
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
Eco-DRR	Ecosystem-based Disaster Risk Reduction
EW4All	Early Warning for All (global initiative, 2022-2027)
EWS	Early Warning System
FGD	Focus Group Discussion
HCW	Horizontal Collector Well
HDN	Humanitarian-Development Nexus
IKBN	Institut Kemahiran Belia Negara (National Youth Skills Institute)
JAKOA	Jabatan Kemajuan Orang Asli (Department of Orang Asli Development)
JKR	Jabatan Kerja Raya (Public Works Department)
JPS	Jabatan Pengairan dan Saliran (Department of Irrigation and Drainage)
Ketua Kampung	Village head
MERCY	Malaysian Medical Relief Society (MERCY Malaysia)
MJIIT	Malaysia-Japan International Institute of Technology
MTCP	Malaysian Technical Cooperation Programme
NADMA	National Disaster Management Agency
NbS	Nature-based Solutions
Orang Asli	Indigenous peoples of Peninsular Malaysia
Orang Kampung	Local (largely Malay) village residents
OSCC	On-site Command Centre / On-site Coordination Centre
PPS	Pusat Pemindahan Sementara (Temporary Evacuation Centre)
PDNA	Post-Disaster Needs Assessment
PRABN	National Flood Forecasting and Warning Centre
RAS	Recirculating Aquaculture System
RLL	Resilience Living Lab
RLLC	Resilience Living Lab Centre
SFDRR	Sendai Framework for Disaster Risk Reduction
SME	Subject-Matter Expert
Tok Batin	Traditional leader of an Orang Asli community
UTM	Universiti Teknologi Malaysia
WASH	Water, Sanitation and Hygiene

EXPLORE FURTHER: DIGITAL RESOURCES & RESEARCH



Scan to Access Your Visit Documents

MTCP 2026 · Resilience Living Lab Academic Visit
27 June 2026 · Hulu Langat, Selangor

SCAN ME



Open your phone's camera and point it at the code — then tap the link.

↓ What you can download

- Academic Visit Agenda**
Full programme & timings for 27 June
- Delegate Handbook**
Logistics, site details & participant information
- Hulu Langat Research Publication**
Resilience Living Lab community study report
- Site Posters (×10)**
One poster for each location on the visit route

How to download — in 4 simple steps

1 Scan the QR code

Open your phone's **Camera** and point it at the QR code above. Tap the link that pops up.



2 Open the website

The **MERCY Malaysia** site opens. If a notice pops up, tap the **x** to close it.



3 Go to Publications 2026

Scroll down to **PUBLICATIONS** and make sure the year selector shows **2026**.



4 Download your files

Tap the red **Download** button on each item to save it to your phone.



Everything for the visit sits in one place. Under **Publications** → **2026** you'll find the agenda, delegate handbook, the Hulu Langat research report and all **10 site posters** — tap **Download** on each item you need before the day.

NOTES

NOTES

PARTNERS



Organised under the Malaysian Technical Cooperation Programme (MTCP) — Ministry of Foreign Affairs, Malaysia.

Hosted by the National Disaster Management Agency (NADMA), MERCY Malaysia, and the Disaster Preparedness and Prevention Centre (DPPC) — MJIT, Universiti Teknologi Malaysia.



“Strategic Disaster Management and Response for Middle Managers”