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AND DRAINAGE MALAYSIA

PROCEEDINGS OF MAINSTREAMING BIODIVERSITY CONSERVATION INTO RIVER MANAGEMENT IN MALAYSIA SYMPOSIUM

29 March 2022

The Everly Putrajaya



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Centre

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OF MAINSTREAMING
BIODIVERSITY CONSERVATION
INTO RIVER MANAGEMENT
IN MALAYSIA
SYMPOSIUM
2022**

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Guest of Honour for the Symposium Official Opening Ceremony

- YBhg. Dato’ Ir. Dr. Md Nasir bin Md Noh, Director General, DID Malaysia

Keynote Speaker

- Ms. Manon Bernier, UNDP Deputy Resident Representative for Malaysia, Singapore and Brunei Darussalam

Plenary Speakers

- Dato’ Ir. Haji Jamil bin Shaari, Director of River Basin Management Division, DID Malaysia
- Dr. K. Kalithasan Kailasam, Manager, River Care Programme, GEC
- Tuan Mohd. Khardzir bin Husain, Deputy Director II, DID Perak
- Mr. Sathis Venkitasamy, Senior Programme Officer, GEC
- Mr. Miklin Ationg, Assistant Director, DID Sabah
- Ms. Febe Fiona Soliun, Project Coordinator, Forever Sabah
- Dr. Gopinath Nagaraj, Consultant, RBM Engineering Consultant
- Dr. Hari Ramalu Ragavan, Consultant, RBM Engineering Consultant

Symposium emcees

- Ms. Adelaine Tan, GEC
- Ms. Norafzan binti Mat Ghani, DID Malaysia

Exhibitors

- Global Environment Centre (GEC)
- Kampung Pawong Orang Asli Community
- Persatuan Penduduk Taman Rekreasi Kampung Taman Warisan
- RIVER Ranger Kampung Sungai Pinang Bandar Klang
- Forever Sabah and ICCA Segama
- RBM Engineering Consultant

Organising Committee and Secretariat (refer to Page 29)

Rapporteurs

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- Carys Wong Ching Hui, WWF-Malaysia
- Nurul Afiqah Jamaludin, WWF-Malaysia
- Norlaili Ismail, WWF-Malaysia
- Devakumaran Devanesan, WWF-Malaysia

Symposium Participants

(refer to Pages 29)

ABBREVIATION

JKKK	<i>Jawatankuasa Kemajuan Dan Keselamatan Kampung</i> (Village Security And Development Committee)	KeTSA	<i>Kementerian Tenaga Dan Sumber Asli</i> (Ministry of Energy And Natural Resources)
BMP	Best Management Practices	Kg	<i>Kampung</i> (Village)
CEPA	Communication, Education And Public Awareness	LUAS	<i>Lembaga Urus Air Selangor</i> (Selangor Water Management Authority)
CSO	Civil Society Organisation	MoU	Memorandum of Understanding
CSR	Corporate Social Responsibility	MSPO	Malaysian Sustainable Palm Oil
DBKL	<i>Dewan Bandaraya Kuala Lumpur</i> (City Council of Kuala Lumpur)	My-CDNet	Malaysian Capacity Development Network For Sustainable Water Management
DCMC	District Catchment Management Committee	MyWP	Malaysian Water Partnership
DID	Department of Irrigation And Drainage	NBC	National Biodiversity Council
DoA	Department of Agriculture	NbS	Nature-Based Solutions
DoF	Department of Fisheries	NGO	Non-Governmental Organisation
EPD	Environment Protection Department	NPBD	National Policy on Biological Diversity
FoKRB	Friends of Klang River Basin	PPP	Public-Private Partnership
FPIC	Free, Prior And Informed Consent	PWG	Project Working Group
FRIM	Forest Research Institute Malaysia	Q&A	Questions And Answers
FTKL	Federal Territory of Kuala Lumpur	RSPO	Roundtable on Sustainable Palm Oil
GEC	Global Environment Centre	Sg	<i>Sungai</i> (River)
GEF	Global Environment Facility	SWOT	Strengths, Weaknesses, Opportunities, Threats
HCV	High Conservation Value	SWT	Subhanahu Wa Ta'ala (The Most Glorified, The Most High)
IAS	Invasive Alien Species	TOT	Training of Trainers
IRBM	Integrated River Basin Management	UKB	Upper Kinta Basin
JKKK	<i>Jawatankuasa Kemajuan Dan Keselamatan Kampung</i> (Village Security And Development Committee)	UNDP	United Nations Development Programme
KASA	<i>Kementerian Alam Sekitar Dan Air</i> (Ministry of Environment And Water)	UTHM	Universiti Tun Hussein Onn Malaysia
		WBT	Warahmatullahi Wabarakatuh (God's Mercy And Blessings)
		WFM	Watershed Financing Mechanism

PREAMBLE

The Symposium Proceedings

The Proceedings serves as a documentation of the summarised key highlights and takeaways including recommendations on the way forward from the Symposium on ‘Mainstreaming Biodiversity into River Management in Malaysia’ held on 29 March 2022. The content of this Proceeding Report is derived, synthesised and consolidated by the appointed rapporteur team based on the speeches, presentations and deliberations made during the Symposium.

The Symposium on ‘Mainstreaming Biodiversity into River Management in Malaysia’

The Symposium on “Mainstreaming Biodiversity into River Management in Malaysia”, organised by the Department of Irrigation and Drainage (DID) Malaysia in collaboration with the Global Environment Centre (GEC), was held on 29 March 2022 in Putrajaya, Malaysia.

The Symposium was conducted as part of the key deliverables of the ‘Mainstreaming Biodiversity into River Management in Malaysia’ Project particularly focusing on Component 2 of the project related to best management practices (BMP) for critical riverine habitats to enhance biodiversity conservation and reduce threats. The primary objectives of the Symposium are as follows:

- to disseminate the information and knowledge, best management practices (BMPs), findings from the three pilot locations as well as the proposed framework for mainstreaming biodiversity into river management in Malaysia generated through the project;
- to contribute towards better management of rivers in Malaysia that integrates biodiversity conservation and restoration for the benefit of people, nature and the country.

The total physical attendees at the Symposium was approximately 80 participants comprising government agencies (Federal ministries, state and local levels), environmental NGOs, social NGOs, community groups, academia and private sector (with strict adherence to COVID-19 standard operating procedures (SOPs) throughout the Symposium to ensure safety of all participants). To enhance the reach and enable wider information dissemination to the target stakeholders, the Symposium was live-streamed on DID Malaysia’s official Facebook as well as cross-posted on GEC’s Facebook.

SECTION 1	<ul style="list-style-type: none">• Keynote Speech• Presentation on the introduction to the ‘Mainstreaming Biodiversity Conservation into River Management’ project• Presentations of case studies on Best Management Practices (BMP) and Lessons Learnt in three pilot sites: Klang River Basin in Selangor, Upper Kinta Basin in Perak, and Segama River in Sabah
SECTION 2	<ul style="list-style-type: none">• Symposium Opening Ceremony
SECTION 3	<ul style="list-style-type: none">• Presentation on Training Module for Mainstreaming Riverine Biodiversity Conservation in Malaysia• Symposium synthesis and conclusion

BACKGROUND

Mainstreaming of Biodiversity Conservation into River Management in Malaysia Project was designed in 2015 and approved by the Global Environment Facility (GEF) in 2016. Project was implemented by Department of Irrigation and Drainage Malaysia and Ministry of Water and Environment with Global Environment Centre, Forever Sabah and RBM Engineering Consultant as implementation partner and consultant from November 2016 until May 2022. The project's goal is to contribute to the conservation and sustainable use of globally significant biodiversity in Malaysia. The objective is to be achieved by mainstreaming biodiversity conservation into riverine landscapes through improved river planning and management practices in Malaysia with two components:

Component 1: An operational institutional framework and capacity are established for strengthened management of riverine biodiversity in production landscapes.

Component 1 is to address the need for an operational institutional framework and capacity for strengthened management of riverine biodiversity in production landscapes. The task was assigned to RBM Engineering Consultant by DID Malaysia.

Component 2: Best management practices for critical riverine habitats are demonstrated, enhancing biodiversity conservation status and reducing threats.

Component 2 focused on demonstrating the best management practices (BMPs) for critical riverine habitats in three (3) different situations and geographic locations including a water supply reservoir catchment area, an urban river, and a rural river impacted by plantation development and smallholder land uses. The implementation of **Component 2** was assigned to local NGOs; Global Environment Centre (GEC) for the Klang and Kinta River Basin and Forever Sabah (FS) for the Segama River Basin. The focus is to enhance biodiversity conservation status and reduce threats through the BMPs implementation with the following four (4) outputs, which are:

Output 2.1: Pilot demonstration of water reservoir catchment in Upper Kinta Basin improves status of riverine biodiversity through strengthened watershed management

Output 2.2: Pilot demonstration of urban river in Klang River Basin on integrating riverine biodiversity into planning and implementation

Output 2.3: Pilot demonstration in habitat protected and enhancing partnership with private and local communities in Segama River Basin

Output 2.4: Four community involvement at the demonstration sites provides socio-economic benefits to local communities and proactively engages women in the communities

The project received support and cooperation from several committees, policies and legislation related to biodiversity in Malaysia such as:

- National Biodiversity Council (NBN)
- Biodiversity Technical Committee of the National Biotechnology
- National Policy on Biological Diversity (NPBD 2016-2025)
- Access to Biological Resources and Benefit Sharing Act (2017)
- Access to Biological Resources and Benefit Sharing Regulations 2020

BIOGRAPHY OF THE SPEAKERS



Ms. Manon Bernier, Deputy Resident Representative for United Nations Development Programme (UNDP). With over 17 years of work experience with UNDP and United Nations Volunteers (UNV) serving in Latin America, Europe and Asia, she joined the UNDP Malaysia Management Team in September 2020, supporting national stakeholders in the implementation of the 2030 agenda for sustainable development. She leads the development of innovative programmes and partnerships to accelerate structural transformation for sustainable development and build evidence for informed policy design and implementation. Prior to that, she established the first United Nations Volunteers (UNV) Regional Office for Asia and the Pacific based in Bangkok. In the context of South-South Cooperation, she developed ground-breaking cooperation with China, Thailand and Brazil as well as steered innovative partnerships with the engagement of the private sector. In Latin America, she managed portfolios of projects on decentralisation, local governance, and women's economic empowerment.



Dato' Ir. Haji Jamil Bin Shaari, Director for River Basin Management in Department of Irrigation and Drainage (DID) Malaysia, holds a Master Degree in Water Management from Universiti Putra Malaysia. He was a civil engineer with the Ministry of Agriculture and Agro-based Industry in 2008 and in time rose through the ranks to assume the role of DID Director of Pahang in 2019. He went on to become the director of Storm Water Management division later that year. In April last year he assumed his current role.



Dr Kalithasan Kailasam, is the Manager, River Care Programme with the Global Environment Centre (GEC). Recognised for leading community-based river care rehabilitation initiatives in Malaysia, he has over 20 years of experience in Integrated River Basin Management, pollution management, stakeholder consultation, community participation, environmental education, river restoration and rehabilitation in Malaysia. He also developed more than 20 projects related to river management pioneered in community participation in river management in Malaysia. Today, Dr Kali as he is fondly known is a sought-after thought leader for speaking engagements on various platforms nationwide and by the media.



Tuan Mohd Khardzir bin Husain is the Deputy Director II for DID, Perak. Upon graduating with a civil engineering degree from Universiti Sains Malaysia (Tronoh) in the year 2000, he began his career as a civil engineer with DID Malaysia. His first involvement in water management was at the Agricultural Irrigation and Drainage Division, which was particularly significant since 67% of water resources in the country is used in the agricultural sector. In 2008, he went on to study water resource engineering at Heriot-Watt University, in the UK. Upon completion, he continued to serve in DID Malaysia's Water Resources and Hydrology Division before assuming his current role at DID Perak in January 2022.



Mr Sathis Venkitasamy, Senior Programme Officer of GEC has led programmes on river, water and solid waste management as well as environmental education initiatives. He has sound knowledge on technical and non-technical approaches especially on Nature Based Solutions. Some of his pioneering work include water auditing calculator for schools, RIVER Ranger Index (RRI), wetland cell projects, watershed management strategy, financing mechanism and soil bioengineering initiative on slope. He is active in Citizen Science Programmes and engages government agencies, local communities, education institutions, business communities and youths in monitoring ecosystem changes particularly on river health. A firm believer in practical environmentalism, he takes on speaking engagements at training sessions, seminars and media interviews. Since 2016, he has been on the judging panel for the 'Selangor Beach and River Adoption Competition' organised by Selangor Water Management Authority (LUAS) and last year was appointed on the panel of judges for Universiti Pertanian Malaysia's KPS Sustainability Challenge 2021.



Born and raised in Sabah, **Mr Miklin Ationg**, who is currently an Assistant Director in DID Sabah, holds a Bachelor in Civil Engineering from University of Malaya. He is responsible for assisting the Director of DID Sabah who was also appointed as Sabah's Director of Water Resources in managing the state's water resources which include management of water catchments, management of river reserves, management of water activities, water bodies and aquatic environment. With more than two decades of experience in DID Sabah, he has been involved in various study projects carried out by the department across the state including Capacity Building and Human Resources Development for Integrated Catchment Planning in DID in 2001, the Pre-Feasibility Study for Potential Water Supply Dam Sites on the Bandau and Bongon Rivers (2012) and the development of Draft Sabah State Water Activities Management Policy and Guidelines Study (2015).



Ms Febe Fiona Soliun, Project Coordinator of Forever Segama was born in Keningau, Sabah and raised in the state. She has read law and also studied commerce. Her work as a Legal Editor with LexisNexis Malaysia provided an opportunity to take part in LexisNexis's Rule of Law initiative, where she had the opportunity to collaborate with an NGO and some government bodies in Sabah, focussing mainly on statelessness in Sabah. That sparked her interest in exploring various issues affecting the state eventually led her to Forever Sabah. Currently, she spearheads the Forever Segama project.



Dr. Gopinath Nagaraj is a fisheries and aquatic environmental specialist with over three decades of experience in the sustainable development and management of living aquatic resources within Malaysian fisheries and aquatic environmental industry. His first degree in Aquatic Biology and Fisheries Management from Universiti Sains Malaysia followed by subsequent degrees at University of Philippines and Auburn University in United States and University of Nottingham, UK. He assumed several senior positions in the Department of Fisheries, Malaysia, before becoming the Managing Director of Syndel Asia Sdn Bhd, the Asian branch of a leading global distributor of aquatic pharmaceuticals, and as the Principal Consultant of FanLi Marine and Consultancy Sdn Bhd, a Malaysian-based fisheries and aquaculture consultancy company in 1997. He is concurrently Chief Technical Officer with the newly formed FanLi Eco Labs Sdn Bhd. As a private consultant, his portfolio covers nearly 200 projects over 20 years.



Dr. Hari Ramalu Ragavan, has 25 years of experience in environmental management and policy in Malaysia and the Asia Pacific, including Southeast Asia, Papua New Guinea and Sri Lanka. Now, the Principal Consultant at AKAR-ASIA Consulting, his previous work experience includes Programme Manager at UNDP Malaysia Country Office from 2004 till 2015. With work and study experience in Sweden and the United Kingdom, he went on to provide advisory services to UNDP, World Bank, United States Agency for International Development, United Nations Industrial Development Organisation, United Nations Environmental Programme and Asian Development in the area of climate change and ecosystems management involving communities, private sector and local governments. He also consults on institutional strengthening and capacity building for a range of climate change, biodiversity and ecosystems management programmes and trains on Responsible Consumption and Production - Sustainable Development Goal Number 12 and is a Board Member of Asia Pacific Roundtable for Sustainable Consumption and Production, a Council Member of the Environmental Management and Research Association of Malaysia, and a Committee Member of Malaysian Evaluation Society.

SECTION 1: KEYNOTE SPEECH

By Ms. Manon Bernier

United Nations Development Programme (UNDP)

Deputy Resident Representative for Malaysia, Singapore and Brunei Darussalam

Summary of the Keynote Speech

Ms. Manon Bernier set the scene by firstly emphasising the big picture perspectives of the climate crisis and challenges faced in river and water resource management on global and national scales.

“We need to get water smart and manage our water resources to an integrated view and solutions on water, nature and environmental flows, to devise sustainable river management that will allow us to decelerate climate change, protect us from extremes and adapt to the unavoidable at the same time,” she said.

She highlighted the importance of the project, which is a collaborative endeavour between UNDP and the Malaysian Government, supported by the Global Environment Facility (GEF). The project’s aim is to improve current river management through nature-based solutions rather than traditional hard engineering approaches. Ms Bernier stated that the successful pilot projects carried out in Malaysia have immense potential to be replicated across the country and region.

These efforts are in line with the sustainability agenda and aspiration of the 12th Malaysia Plan, the National Policy on Biological Diversity 2021-2030 and the UNDP New Country Programme 2022-2025. She concluded by reiterating UNDP’s commitment as a strategic partner to the Government of Malaysia and expressed their readiness to continue collaboration for success.

We need to get water smart and manage our water resources to an integrated view and solutions on water, nature and environmental flows, to devise sustainable river management that will allow us to decelerate climate change, protect us from extremes and adapt to the unavoidable at the same time.

Manon Bernier

SECTION 1: INTRODUCTION TO THE PROJECT ON 'MAINSTREAMING BIODIVERSITY CONSERVATION INTO RIVER MANAGEMENT IN MALAYSIA'

Presented by Dato' Ir. Haji Jamil Bin Shaari

Director of River Basin Management Division, DID Malaysia

Summary and Key Highlights

The Project on 'Mainstreaming Biodiversity into River Management in Malaysia' is implemented by the Department of Irrigation and Drainage (DID) Malaysia through the Ministry of Environment and Water (KASA) with the support of UNDP and Global Environment Facility (GEF) 5. This 18-month project overarching objective is to contribute to the conservation and sustainable use of the country's biodiversity by mainstreaming biodiversity conservation into riverine landscapes through improved river planning and management practices in Malaysia.

The importance and relevance of the study are on the basis that Malaysia has more than 150 river systems, with riverine biodiversity forming a major part of the nation's biodiversity in addition to providing vital ecosystem services that benefits rural communities and urban societies, as well as a wide range of sectors from water supply, agriculture, fisheries to recreation and tourism that supports the country's overall economy. However, Malaysia's rivers are increasingly facing various pressures that threaten their biodiversity and ecological balance, which compromise their ability to continuously and effectively provide the critical ecosystem services and socio-economic benefits.

This project comprises two inter-related components:

Component 1 – to establish an operational institutional framework and capacity for strengthening management of riverine biodiversity;

Component 2 – to demonstrate best management practices (BMP) for critical riverine habitats for enhancing biodiversity conservation and reducing threats. The three selected demonstration sites are Klang River Basin, Upper Kinta Basin and Segama River Basin.

RBM Engineering Consultant was appointed by DID Malaysia to undertake Component 1 of the project, while the appointed project partners for Component 2 are Global Environment Centre (GEC) (for the Klang River Basin and Upper Kinta Basin) and Forever Sabah (for the Segama River Basin).

SECTION 1: CASE STUDY IN KLANG BASIN, SELANGOR: BEST MANAGEMENT PRACTICES (BMP) AND LESSONS LEARNT

Presented by Dr. Kalithasan Kailasam

Manager of River Care Programme, Global Environment Centre (GEC)

Summary and Key Highlights

The project of 'Mainstreaming Biodiversity Conservation into River Management in Malaysia' at the demonstration site in the Klang River Basin was initiated by DID Malaysia and funded by GEF in three phases beginning in 2020. Completed in April 2022, this project was implemented by GEC with DID Selangor and DID Federal Territory Kuala Lumpur as the basin is shared between two different management entities. The expected output is the integration of riverine biodiversity and habitat management into planning and implementation of urban river management programmes in the Klang River Basin (Selangor/KL). The project implementation also positioned people as the driver to mainstream biodiversity into river management and biodiversity improvement. The project site faces a few extensive issues such as channelised and concreted river banks; unsustainable garbage dump; pollutants from residential and commercial premises, sewerage and industrial effluents and stormwater runoff; as well as loss of biodiversity and lack of biodiversity connectivity.

Dr. Kalithasan Kailasam in his presentation explained that a project working group (PWG) was established in 2020 with roles to oversee the overall project implementation; provide technical, manpower and in-kind support as well as approvals for proposed initiatives such as the Invasive Alien Species (IAS) Awareness Programme. To date, four PWG meetings have been held in 2020 and 2021 chaired by DID Selangor. This working group consists of agencies from the DID, Department of Fisheries (DoF), Department of Agriculture (DoA), Selangor Water Management Authority (LUAS), United Nations Development Programme (UNDP), City Council from Ampang Jaya (MPAJ) and Klang (MPK), Dewan Bandaraya Kuala Lumpur (DBKL) and Global Environment Centre (GEC). The identified pilot areas are Kampung Taman Warisan/Taman Melawati, Rumah Pangsa AU2 Taman Keramat and Taman Pengkalan Kampar located in Selangor as well as Perumahan Awam Seri Terengganu and Taman Rimba Bukit Kiara in Kuala Lumpur.

Several key outputs were listed across the five pilot sites (One established under the project while the other four are enhanced from the existing sites/FoKRB Network). A total of 33 community groups were trained and more than 200 community representatives are actively involved in the programmes undertaken. For the Home River BioBlitz & City Nature Challenge, 33 members of Friends of Klang River Basin (FoKRB) from 12 locations along the Klang River participated in the event, recording a total 490 observations through the citizen science approach. The initiative developed a Herbal Plants Guidebook which compiled 64 types of herbaceous tree species found in all the five community gardens along the Klang river basin. The project also successfully developed 25 awareness and educational materials in the form of posters, signboards and video clips. Meanwhile, the community shared 50 monitoring observations on the FoKRB platform, where 14 virtual training and sharing sessions were carried out.

Dr. Kalithasan shared several outcomes which have been achieved. The project's citizen scientist initiative provides a continuous data in the iNaturalist App for local and global audiences. The data were used to develop community-based reference materials such as guidebooks and posters. Behaviour changes are observed through community-driven initiatives and collaborations among agencies. Through the public-private partnership (PPP) initiative, more private and corporate sector players proactively participate in supporting corporate social responsibility (CSR) and volunteering initiatives.

In addition the local communities also reap the socio-economic and health benefits of the project, as it promotes unity, a healthy lifestyle as well as alternative income and food security through home farming and gardening. Interested individuals or groups are and were connected through the FoKRB network to ensure the project's sustainability and continuous approach, while co-financiers and supporters are recognised and valued for their support and contributions.

It is proposed to mainstream biodiversity into community-based river care programmes from the outcome of the project to develop common methods for community engagement and participation. The project can also be accomplished with the help of citizen scientists (both qualitative and quantitative); integrating biodiversity conservation initiatives with social-economic components; integrating biodiversity with food security; promoting a sense of ownership amongst the communities to care for, monitor, and protect their riverbanks as well as making biodiversity as a beneficiary in the PPP concept.

Throughout the two-year project, some of the PWG's lessons learned is realising the importance of urban biodiversity, water quality and riverine biodiversity, smart partnership and capacity-building through social media and the FoKRB network. Dr. Kalithasan emphasised continuous empowerment and technical support through formal platforms, which can also contribute towards mainstreaming biodiversity conservation into river management.

Dr. Kalithasan with his vast experience in river care management also shared some recommendations to strategise for the project's success. These recommendations include developing a strategic biodiversity framework; establishing the project or programme based on corporate partnerships (PPP), building the capacity of targeted government agencies; promoting programme ownership among the communities and providing support for the FoKRB network. Other than that, establishment of a community-based river care fund, resources and continuity efforts should also be applied.

Moving ahead, it is crucial to streamline, coordinate and manage the programmes and activities to ensure the effective management of cross-agency involvements and support, towards impactful and sustainable results. It is also vital to adopt an integrated approach (linking structural or 'hard' and non-structural or 'soft' measures) in building or maintaining relationships and trust with the government, private sector and community stakeholders; as all of this requires significant time and an intimate approach. Through empowerment, the right platform and proactive roles, community members can be the main drivers in navigating the project. Effective communication and partnership with the stakeholders are also important to ensure the continuity of the project even beyond its set or agreed duration.

Q&A session

Mr. Mohammad Hakim Hasnul of DID Malaysia raised a question on the possibility of producing a community that is 100% recycle-friendly through a government initiative on circular economy.

Dr. Kalithasan emphasised that it is indeed possible. However, it depends on whether or not there is a (political) willingness by both the government and the Malaysian public to take risks or pay the price (of implementing such initiatives). Mr. Hakim also asked whether it is possible to establish a club or community in every school where they can focus on caring for the environment and its biodiversity. Dr. Kalithasan said every school has its own environmental clubs or Kelab Alam Sekitar but not all of them are active. The biggest stumbling block is not the schools or children he said, but the parents, some of whom are not willing to allow their children to be involved in environmental activities. It is important to first get the consent of the parents and also their readiness to implement such activities. Ms Azuraina binti Mohd Nordin from DID Selangor (who joined Dr. Kalithasan on stage for the Q&A session) suggested that parents need to get involved with the activities so that both children and parents can be educated together.

Mr. Miklin Ationg of DID Sabah asked if the smart partnership established during the project was operating on an ad-hoc basis or on a formal operating procedure. Dr. Kalithasan explained that the partnership was realised through a sense of ownership and responsibility, not undue pressure, whereby everyone is treated equally. Potential partners and targeted agencies should be approached and invited on the ground to work together in achieving targets. It must be done in a two-way communication and collectively through the 'give and take' approach.

Dr. Susan Pudis of the Environment Protection Department Sabah posed a question to seek some insights about how the project implementer or coordinator encouraged the communities to participate and to continue to be involved in citizen science. Dr. Kalithasan described that it is the art of handling people, and the intention must be clear. The communities need to understand that we are there to help and work together with them, not just to implement the project. It is vital to get multiple perspectives from the community, where we identify the problems together so that they are more involved. Ms. Azuraina further added that the awareness of the environmental issues is more important to spur action among local communities. Only when they are able to see for themselves the severity of the problems that they would not just leave it to the local agencies or authorities to solve them and help improve the environment.

SECTION 1: CASE STUDY IN UPPER KINTA BASIN, PERAK: BEST MANAGEMENT PRACTICES (BMP) AND LESSONS LEARNT

Presented by Mr. Mohd Khardzir bin Hj Husain

Deputy Director II, DID Perak

and Mr. Sathis Venkitasamy

Senior River Care Programme Officer, GEC

Summary and Key Highlights

The project at Upper Kinta Basin (UKB) began in March 2020 in three phases and wrapped up in April 2022. The project's specific objectives were to enhance institutional and technical capacity for riverine biodiversity conservation among key stakeholders and establish pilot and demonstration sites to promote the integration of riverine biodiversity conservation into river management. Mr. Mohd Khardzir bin Hj Husain, Assistant Director 2 of DID Perak shared that the expected project output is a pilot slope bio-engineering initiative in UKB catchment area, which can be upscaled and replicated in other parts of the UKB, especially along the Simpang-Pulai Highway; this is to reduce erosion impacts towards water supply and aquatic biodiversity.

Meanwhile, the expected outcome is strengthened biodiversity management through improved water reservoir catchment management in the UKB through stakeholder participation and nature-based solutions. The UKB faces several challenges or issues such as serious slope erosion along Cameron Highlands Highway, siltation of Sg Penoh, Sg Kinta and Sultan Azlan Shah Reservoir; loss of riverine biodiversity and Orang Asli livelihood and welfare. The basin also lacks access and facilities for visitors as well as an integrated catchment management.

Mr. Sathis Venkitasamy, GEC's Senior River Care Programme Officer, highlighted that the bio-engineering initiative successfully demonstrated an effective combination of plant attributions and composition designs as a way forward in slope restoration in highland areas.

The project also produced a UKB riverine biodiversity study which found the source of Sg Kinta in Gunung Pass and recorded 101 families and 567 species of flora; 8 families and 18 species of fish; 8 families and 24 species of dragonflies; 46 families and 132 species of birds; and 12 species of mammals including Malayan Tiger and Black Panther.

The project published a document titled 'Upper Kinta Basin Management Strategy' in December 2020 and carried out the Kinta River Open Classroom initiative. It also worked on initiatives for the empowerment and alternative livelihood of the Orang Asli community at Kg Pawong, the nearest beneficiary and custodian of Kinta River Source who possess interest and valuable traditional knowledge especially on soil bio-engineering. The project also conducted various training (for stakeholders and communities), outreach (through social media, website and technical visit/river walks) and visibility (printed materials and signboards) activities. Lastly, it demonstrated a successful partnership and garnered support through co-financing.

The project was not executed without challenges. It was met with frequent changes in the State government but fortunately, all the state government-of-the-day personnel provided full support to the project implementation. Then Covid-19 pandemic prompted overhauls in the way the project operated and engaged; the working group had to conduct empowerment and engagement activities through small-scale, localised and online events.

Additionally, the communication process with the Orang Asli community was challenging due to unstable internet and phone line coverage in the villages as well as the community's high illiteracy rate. To overcome these issues, the project enlisted local leaders to assist the process, and used Orang Asli language as well as the 'Heart' approach in their communications. There was no common platform however, such as the Friends of Rivers network to bring them together. There is also no legal platform for the state-level committee to oversee the project implementation, but a working group has been established with the Perak State Exco for Environment as an advisor.

The insights gained and lessons learned through this project had been tremendous. Mr Sathis pointed out that for such a project to succeed, water catchment management must be seen in a holistic manner, while technical expertise and smart partnership are very vital. The other contributing factors include plant species, planting approach, bioengineering techniques, drainage management and continuous monitoring as well as regular maintenance.

Also vital is local community involvement to sustain the initiative, especially in undertaking nature-based solutions through traditional knowledge; they can support continuous monitoring through citizen science. Capacity-building activities for the local community can be carried out informally (onsite learning). The UKB project showed that continuously consulting and engaging key stakeholders can promote as well as expand soil bioengineering at other sites. Furthermore, ecosystem services can be converted into monetary values to boost more investment and preservation.

Moving forward, Mr Sathis recommended the protection of the river source and emphasised the adoption of nature-based solutions for rehabilitation/conservation. It is also advisable to develop a state-level biodiversity framework and extend or operationalise the current project working group to the state-level committee. The UKB Management Strategy and the UKB WFM financing mechanism can be promoted or a similar model can be adopted at a larger scale. Apart from promoting and extending soil bioengineering initiatives, he also suggested the establishment of the project based on a public-private partnership, river health targets and monitoring plans as well as a Friends of River Basin network. Capacity-building programmes for targeted government agencies as well as alternative livelihood initiatives for the local community are also equally essential.

Q&A session

Mr. Kennedy Michael of Alliance of River Three asked if soil bioengineering would be available for use in the Klang Valley as a potential solution for remediation given the high incidences of landslides in the two states. Mr. Sathis stated that the method is more suitable for areas with low-to moderate risks. To determine this, the degree and gradient of the slope as well as soil condition must first be assessed. From there, we can decide whether to solve the problem using soil bioengineering or hard engineering methods. Mr. Sathis also responded to a question about adopting bioengineering for recreational and tourism development purposes. He said in such a scenario, riverine ecosystem services must be maintained in good condition; and nature-based solutions and recreational activities should be explored based on these services. If areas are opened and developed but not maintained by the local community, then the project would face problems.

SECTION 1: CASE STUDY IN SEGAMA RIVER BASIN, SABAH: BEST MANAGEMENT PRACTICES (BMP) AND LESSONS LEARNT

Presented by: Mr Miklin Ationg

Deputy Director (Water Resources Management), DID Sabah

and Ms Febe Soliun

Project Coordinator, Forever Segama

Summary and Key Highlights

The project at Segama River Basin commenced in early 2020 and the element of sustainability and involvement from different stakeholders (e.g.: community, government sector and private sector) were emphasised in the project. Mr. Miklin Ationg, Deputy Director of DID Sabah shared that the palm oil industry is a main income generator for the Sabah state and oil palm plantations are spread all over Segama River Basin. Hence, highlighting the importance of involving all relevant stakeholders in the Segama Action Plan.

In her presentation, Ms. Febe Soliun of Forever Sabah explained about the BMPs identified in the project and their interventions for continuous project development after project closure. The seven BMPs shared are as follows:

1. Landscape analysis and identification of riparian conservation priority areas

Despite Covid-19 challenges and the imposition of the Movement Control Order during the start of the project, the team managed to undertake a landscape analysis through spatial mapping to examine land uses within the landscape and identify areas without riparian zones. This analysis enabled them to identify conservation priority sites within the catchment and appropriate interventions to address the issues, with participation from stakeholders. The data collected was validated through ground-truthing exercises when the travel restrictions were lifted.

2. Multi-stakeholder platform for dialogue to promote inclusivity

Ms. Febe pointed out that the fragmentation of stakeholders was among the issues identified in this project. Establishing a multi-stakeholder platform will promote dialogues among the stakeholders to discuss their needs, goals, actions and learnings from the project. Such a move will ease the process of garnering stakeholders' support and address the issues or barriers that arise from each departmental jurisdiction such as resource constraints. The first stakeholder meeting of this project was held at Lahad Datu's district office participated by different stakeholders representing the communities, the government and the private sector. Ms. Febe emphasised that the involvement of all stakeholders in the activities including ground works (e.g. citizen science in water quality monitoring and the enhancement of riparian habitat) is imperative in forging systemic and behaviour changes.

3. Engagement of primary stakeholders (Indigenous and local communities along Segama River)

The presenter, Neville shared two approaches applied in the project during the engagement with primary stakeholders, mainly comprising indigenous and local communities along the Segama River. The approaches - Free, prior and informed consent (FPIC) and community-facilitated participatory process (citizen science), helped to ensure long term sustainability of the project as well as promoting the shared responsibility among stakeholders in river management. They are consistent with the international policy which recognises the role and collective rights of indigenous and local communities in biodiversity conservation and sustainable livelihood efforts.

Taking the Tagal System as an example, which was developed to address river management issues. Apart from the scientific data collected, local communities have a wealth of traditional knowledge and historical memory that will aid better understanding of the targeted rivers and inform policy-making in the future. Local communities were involved and contributed to the projects through participatory initiatives such as ground-truthing surveys, assessment of riparian forest and wildlife, water quality sampling, inventory of alien and invasive species and capacity-building workshops.

Among the community level, the team engaged the different groups in their own different ways. For instance, gender equality was taken into consideration and they formed the Ulu-Segama Women's Organisation. Ms. Febe shared that the men in the village were not too involved in the project as they needed to focus on making a living for their households. Women on the other hand, showed high commitment in taking care of their families and errands, which was initially a challenge in involving them in the beginning.

Nevertheless, the team changed their mind-set to view this as an opportunity to educate both women and their children, by addressing their needs in the activities organised. The projects continue to support capacity training and community organising skills among women and promote their involvement in conservation. They also targeted their engagement with the community leaders, village heads and Village Security and Development Committees (JKKK) through participatory process such as drafting MoUs to obtain their support in this project.

4. Industry and Smallholder Palm Oil Players for Riparian Protection and Restoration

As mentioned earlier, palm oil players were part of the major stakeholders identified in this project. Sabah is striving to achieve 100 percent RSPO certified sustainable palm oil by 2025 and this includes all large players and smallholders within the industry. This project has provided an opportunity to engage with both stakeholder groups. Their engagement and collaboration with the large players from palm oil estates in Segama catchment such as IOI Plantations and Hap Seng Plantations helped in pooling resources to support riparian restoration activities and connecting smallholders to large companies to integrate supply chains. Some of the large palm oil companies have been supportive and in fact, they already had their own tree replanting and restoration activities in the pipeline.

The team proposed a working mechanism to address the gaps for replantation areas which are not covered within the boundaries of the palm oil companies. On the other hand, the engagement with the smallholders have facilitated their understanding of the practices, gaps and readiness in achieving MSPO and RSPO standards, as well as adopting BMPs for riparian management to ensure their sustainable livelihood. Training was provided to the smallholders in identifying their obstacles to obtain the certifications and in collecting baseline data through the deployment of Open Data Tool Kits (Kobocollect).

5. Collective engagement with Government agencies

The government's role was highlighted as one of the keys towards the implementation of BMPs in the project. Collaboration with the enforcement agencies and partners such as the Environment Protection Department Sabah (EPD), Sabah Wildlife Department and Lands and Surveys Department Sabah have contributed valuable impacts and taken this project to the next level. Engagement with the government sector through landscape has facilitated connectivity and process between different agencies and addressed the fragmentation issues.

6. Continuity of the work

Ms. Febe stated that the team had considered the long term results and project sustainability from the initial stage. It is imperative to gain the commitment of the stakeholders and an MoU could be an important vehicle in building a common understanding and trust among the government, private sector and community stakeholders.

7. Identifying potential solutions in the landscape to enhance biodiversity conservation

Four intervention zones were identified through the landscape analysis, categorised into (A) HCV 1 Species Conservation Zone, (B) Oil Palm Estate Restoration Zone, (C) Community Restoration Zone and (D) Forest Reserve Extension Zone. The presenter shared a number of mammal species found in the HCV zones such as proboscis monkey, Bornean Orangutan, Sunda pangolin and Bornean elephant based on ground-truthing surveys and past studies.

Since the State Cabinet approved the proposal for the state to produce 100 percent certified sustainable palm oil by 2025, companies are required to identify whether the converted forest areas are HCV forest or not as a part of the certification process. Companies are obliged to pay for RSPO compensation and remediation process if the HCV forest is converted and the compensation may be in the form of reforestation efforts either by the company itself or funding a third-party. The presenter also demonstrated the restoration areas needed based on compliance to four future scenarios using existing legal frameworks and the RSPO standards. The findings showed that significant areas of reforestation are required to implement any of the scenarios and heavy investment on human capital and solid strategies are necessary to enable such large scale reforestation.

Post Project Continuity Initiatives

The Forever Segama Action Plan will continue to facilitate an inter-sectoral platform for collaboration and communication between the communities, the government and the private sector. Moving forward:

Dialogue will be created with the District Office (Lahad Datu and Kinabatangan) involving relevant government agencies, private sector actors and community leaders to facilitate the partnerships. This agenda will be brought into the established District Catchment Management Committee (DCMC) of Lahad Datu and Kinabatangan, chaired by respective District Officers, whereas DID at the district level will act as the secretariat.

The scenario mapping developed for Segama River catchment, which shows current trajectory, the impact of proposed interventions and results after their completion will be used to communicate the project vision and outcomes with stakeholders, DID, UNDP and other potential partners. It will also be used as a basis for DID to develop the Segama River Integrated Catchment Plan, to be tabled and endorsed by the DCMC for future implementation and monitoring.

Q&A session

Ms Syuen Toh from Alliance of River Three asked if the data collected and presented in this Symposium were taken from Kobo Data Collection Tool and whether the data collected from the tool can be easily extracted for analysis. Ms. Febe explained that the data collected from Kobo Tool was not shared in the presentation but was included in the report. At this point, there was not much data available because the community just started to learn and use the tool. In terms of data extraction for analysis purposes, Ms. Febe stated that Kobo Tool is very user-friendly. She also added on its advantages such as data can be saved even when there is no reception line and the saved coordinate points can be extracted out into a map.

SECTION 2: WELCOMING SPEECH

By Dato' Ir. Haji Jamil Bin Shaari

Director of River Basin Management, Department of Irrigation and Drainage (DID) Malaysia

Assalamualaikum wbt and Salam Sejahtera,

Alhamdulillah, we are grateful to Allah SWT because with His bounty and permission, we get to gather today in this Symposium for the project on 'Mainstreaming of Biodiversity Conservation into River Management in Malaysia'.

On this occasion, I would like to express my deepest appreciation and gratitude to all participants for taking the time to join today's symposium. Congratulations to the symposium secretariat, in particular the River Basin Management Division and the Corporate Division of DID Malaysia, the United Nations Development Programme (UNDP) and the project consultant, Global Environment Centre (GEC) on the organisation of this symposium.

For your information, the "Mainstreaming of Biodiversity Conservation into River Management in Malaysia" is a project implemented by the Department of Irrigation and Drainage (DID) Malaysia through the Ministry of Environment and Water (KASA) with the support of UNDP and Global Environment Facility (GEF) 5 since 2016. The project's main goal is to enhance the implementation of mainstreaming biodiversity conservation in river basin management in Malaysia through improvements in planning and management practices.

This project focuses on addressing the causes of and barriers to the conservation and preservation of river biodiversity through the development of strategies and the promotion of best management practices, as well as capacity building for stakeholders. These are all in line with the objectives of the project which are:

Firstly, to enhance institutional and technical capacity to mainstream biodiversity conservation in river management among key stakeholders.

Secondly, to demonstrate Best Management Practices (BMPs) for the identified demonstration sites through the improvement of conservation status and reduction of biodiversity threats.

Ladies and gentlemen,

The project implementation for the first objective was led by DID Malaysia while the consultant team appointed was RBM Engineering Consultant Sdn. Bhd. Meanwhile, for the second objective 3 states as pilot sites namely:

- I. Klang River, led by DID Selangor
- II. Kinta River, led by DID Perak and
- III. Segama River, led by DID Sabah

GEC which has been involved since the development of the project is DID's implementing partner for Klang River, Selangor and Kinta River, Perak. Meanwhile, Forever Sabah is an implementing partner in Segama River, Sabah. Demonstration projects in these three different landscapes had begun since 2020 and still continue to this day, especially by the respective local communities.

Therefore, I would like to take the opportunity to convey my heartiest congratulations to all parties involved including DID Selangor, DID Federal Territory of Kuala Lumpur, DID Perak and DID Sabah as well as all stakeholders, especially the local community and our partners who have successfully implemented this project for 2 years. Various initiatives have been undertaken throughout the project implementation period.

Ladies and gentlemen,

Today's symposium was organised with the objective to share the information and knowledge, best management practices (BMPs), project findings for the three pilot locations as well as the proposed framework for mainstreaming biodiversity into river management in Malaysia. The main target groups of this symposium are DID officials at the federal level and all 14 states, members of the Project Management Unit, Project Working Group at the state level, the community as well as the private sector, universities and selected NGOs. The number of physical attendees today is estimated to be around 80 participants while the rest joined the event via Facebook live on DID Malaysia's official Facebook account.

Lastly, it is important that the country's heritage is preserved and managed sustainably not only by government agencies and NGOs, but also our society who should be educated well to play a role in conserving these biological resources. Therefore, I wish to call on all participants to play a vital role in mainstreaming biodiversity in river management in Malaysia.

Thank you.

Note: This speech has been translated to English from the original text which was in Bahasa Malaysia.

SECTION 2: OPENING ADDRESS

By Ybhg. Dato' Ir. Dr. Md Nasir Bin Md Noh

Director General, DID Malaysia

Assalamualaikum wbt and Salam Sejahtera.

Alhamdulillah, all praises and gratitude to Allah S.W.T because with His bounty and grace, we could gather here today for the 'Mainstreaming of Biodiversity Conservation into River Management in Malaysia' Symposium.

Rivers play various significant roles which are important for the country's economic resources and ecological assets. Rivers are also the pulse of living systems that must be given attention. River management must emphasise the needs of biodiversity in order to adapt and thrive according to environmental changes. However, biodiversity in Malaysia is under threat. Land exploration and development activities are being carried out so rapidly due to population increase and the need to expand agricultural areas. Apart from that, we also face a very worrying problem of river pollution at the moment.

All parties at various levels, including the government, the private sector as well as the local community or society must have knowledge and awareness of the biodiversity around them. We should play a part and collaborate in conserving biodiversity resources in our respective areas so that they are managed holistically and sustainably.

Ladies and Gentlemen.

The Department of Irrigation and Drainage (DID) Malaysia through the Ministry of Environment and Water (KASA) plays an important role in incorporating biodiversity considerations in the Integrated River Basin Management (IRBM), which is a coordination mechanism in conserving, managing and developing water, land and related resources across various sectors to preserve river basins. The purpose of IRBM is to sustainably maximise the socio-economic benefits of water resources, while simultaneously preserving and restoring the natural ecosystem of water resources. The four main objectives of IRBM are to ensure adequate water, clean water, reduce flood risks and subsequently improve the environment.

Therefore, sustainable construction strategies that are environmentally friendly are necessary for the development of water resources infrastructure projects. The preservation of natural features will be achieved through the use of environmentally friendly construction methods and materials. By applying this strategy, water resources related projects will be driven towards infrastructure construction that is synergistic with natural water flow. In this way, our projects will not only avoid unwarranted problems or hinder the potential utilisation of land and natural resources, but also reduce water-related disasters and at the same time, benefit from the wealth of natural biological resources.

Furthermore, DID has also developed several initiatives in supporting the implementation of IRBM through the Communication, Education and Public Awareness Programme (CEPA). Among the activities that have been implemented include the 'Love Our River Campaign' in 1993 and the 'One State One River Programme' in 2006. Subsequently, in 2011, the 'River of Life' project was launched. The latest programme is the 'National River Trail', launched in 2020 which targets the involvement of local communities and NGOs.

Ladies and Gentlemen.

I would like to take this opportunity to express my gratitude to the GEF through UNDP for entrusting DID Malaysia to implement the 'Mainstreaming Biodiversity Conservation into River Management in Malaysia' project since 2016.

I am very pleased that this project has also received support and cooperation from several biodiversity-related committees, policies and legislation in Malaysia including the National Biodiversity Council (NBC) and the Biodiversity Technical Committee of the National Biotechnology. In addition, support is also obtained from the National Policy on Biological Diversity (NPBD 2016-2025) as well as the Access to Biological Resources and Benefit Sharing Act (2017) and the Access to Biological Resources and Benefit Sharing Regulations 2020.

Apart from that, I am delighted to share that one of DID's achievements in the biodiversity field after 90 years of its establishment, is collaborating with local universities in applying the concept of biodiversity conservation through the Ecohydrology subject at Universiti Tun Hussein Onn Malaysia (UTHM). For everyone's information, UTHM has successfully introduced the subject in the 2021/2022 session for the Master of Water Resources and Bachelor of Civil Engineering programmes.

With that, I have high hopes that the 'Mainstreaming of Biodiversity Conservation into River Management in Malaysia' project can achieve its objectives and goals. Well done and congratulations to the secretariat for all your efforts in organising this Symposium. With the noble phrase of Bismillahirrahmanirrahim, I hereby officiate the 'Mainstreaming Symposium of Biodiversity Conservation into River Management in Malaysia' Symposium.

Wabillahi al-Taufik Walhidayah, Wassalamualaikum Warahmatullahi Wabarakatuh. Thank you.

Note: This speech has been translated to English from the original text which was in Bahasa Malaysia.

SECTION 3: TRAINING MODULE ON MAINSTREAMING RIVERINE BIODIVERSITY CONSERVATION IN MALAYSIA

Presented by: Dr Gopinath Nagaraj and Dr Hari Ramalu Ragavan

RBM Engineering Consultants

Summary and Key Highlights

Dr Gopinath's presentation looked at the enabling environment for the project to be carried out at other river systems and to ensure that future initiatives can work on a common platform like the small localised projects towards achieving long-term rehabilitation of our rivers. Another perspective that Dr Gopinath presented was how to get riverine communities involved. To this end, DID Malaysia with UNDP came out with a particular study on the Mainstreaming of Biodiversity Conservation into Riverine Management, which took a broader approach and looked into the issues pertaining to the implementation of biodiversity conservation in river management in a national context. He said the study addressed the need for a more integrated and holistic approach to river management; and an operational national and institutional framework and capacity that takes riverine biodiversity into account. The study framed riverine biodiversity as an intrinsic and valuable national heritage, a means to rural food supply through fishing and aquaculture, and an important component of the health of riparian zones which are essential for productive and habitable rivers.

Dr Gopinath zeroed in on the study approach which considered biodiversity in its entire form. This includes looking at biodiversity values as a whole including the utilisation of riverine biodiversity by humans; the legal and institutional environment surrounding the current riverine management and its relation to DID's existing management regimes; the existing capacities of the relevant institutions and the financing regimes that would defray implementation costs. Meanwhile, Dr Hari focused on the importance of capacity building programmes in mainstreaming biodiversity into riverine management by way of training, recruiting specialised experts and expanding the scope of staff job descriptions.

Output: SWOT Analysis

A Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis was carried out to scrutinise Malaysia's capacity in river management. The strengths identified are that individual agencies have good functional capacity, where the Department of Fisheries and Department of Irrigation and Drainage are seen as specialists, and communities and NGOs are rich with local knowledge. On the other hand, the weaknesses are a lack of budget, personnel, training, awareness, and inadequacy of data and knowledge. The opportunities that have been found are the existing guidelines on environmental flows, interagency programmes are being developed and the institutionalisation of IRBM. The main threats to the collective capacity is that there is no leadership on riverine biodiversity management, jurisdictional overlaps and miscommunication, as well as an over reliance on NGOs due to a widening capacity gap.

Outcome: Thrust Areas

The project outcome was the identification of three thrust areas that should underpin biodiversity training for all levels of stakeholders. The stakeholders referred to are communities, NGOs, and institutions. The first thrust area is "Understanding the scope and extent of riverine biodiversity". This thrust area aims to provide and share information on conservation and sustainable use of riverine biodiversity. Said information includes the nature of biodiversity, coding, taxonomy, laws and databases. Training content created by stakeholders should include fundamental aspects of riverine biodiversity provided by NGOs, water resource agencies and government departments such as FRIM, Fisheries, and Wildlife Departments.

The second thrust area is “Management of riverine biodiversity”. This area comprises all aspects of sustainable biodiversity management including the conservation, use, maintenance and safeguarding of biodiversity resources. Stakeholders may obtain support for capacity development content from government departments or agencies and NGOs. The third thrust area is “Restoration of riverine biodiversity”, which aims to prevent continued degradation of riverine biodiversity and instead restore it to a predetermined reasonable condition. Restoration needs to be carried out in all areas – whether urban, rural, downstream or upstream – where environmental flow has been degraded.

The key participants for this thrust to succeed are NGOs, and indigenous and local communities. Meanwhile, key institutions such as DID and local authorities must be equipped with the capacity to engage and empower local communities. The four main NGOs that provide training and capacity-building activities for river and riverine biodiversity management that were identified are GEC, Forever Sabah, Malaysian Water Partnership (MyWP) and Malaysian Capacity Development Network for Sustainable Water Management (MyCDNet).

Way Forward: Training Suggestions

Dr Hari suggested the implementation of training programmes to focus on functional and technical capacity. Functional capacity relates to skills in resource mobilisation, fundraising, partnerships, intersectoral networking and communications, information sharing and management, and policy or legislation development and enforcement. Meanwhile, technical capacity delves into the sustainable use of biodiversity, the integration of the value of biodiversity ecosystem services, communications, education and public awareness (CEPA), ecosystem restoration, and biodiversity assessments and analyses.

He pointed out that capacity must initially be built within the inner circle of stakeholders which includes DID, State water resource agencies and local authorities. This is because these stakeholders are decision makers and planners in the areas of preserving water resources and conserving biodiversity and ecosystems with the support of KASA and KeTSA. DID’s existing Biodiversity Unit needs to be strengthened to support other divisions namely floods, irrigation and coastal management.

Dr Hari proposed two programmes namely (1) Training Programme on Riverine Biodiversity Conservation; and (2) Training of Trainers and Pilot Training. He recommended for various agencies and water operators to pool resources to establish one-stop training centres at national and state levels. These centres could offer integrated modules as well as communications and training packages targeting all groups; in collaboration with national and international water research and training institutes.

One of proposed programmes is a three-day full-time course on environmental flows in riverine biodiversity management which comprises six modules: (1) Environmental Flows and river Management, (2) The Significance of Different Flows, (3) Methods for Quantifying/Assessing Environmental Flows, (4) Environmental Flows in the Decision Making Process, (5) Implementation and monitor and reporting, (6) Case Studies. The target group for this programme is professionals active in water resource management, environmental conservation and/or research, who typically belong in government institutions, research outfits and NGOs as well as civil society organisations (CSOs). These people are positioned to introduce these learned concepts into policy, planning and management. Training providers shall be recruited experts from universities or influential environmental institutions.

Another programme is a two-day Training of Trainers (TOT) course which focuses on interagency coordination and decision-making, comprising four modules: (1) Taxonomy, (2) Legislation and policy, (3) Institutional Capacity, (4) Financing. This programme is targeted at representatives from various stakeholders involved with the management of riverine biodiversity such as government departments, research institutes, NGOs and CSOs. This course could also address a number of possible training topics/areas that could strengthen the knowledge and capacity for conservation and sustainable utilisation of riverine biodiversity within core agencies.

Q&A session

Dr. Susan Pudín of the Environment Protection Department Sabah requested for her organisation to be included as one of the trainees in the TOT programme. Ms. Febe Soliun of Forever Sabah asked about the possibility of cross sharing and human resource knowledge exchange between NGOs, communities, government and academia; and how these parties could be involved in all processes including groundwork. Dr. Hari responded by stating these kinds of sharing can be introduced into the training programme at a later stage. However, dialogue and consultation between all parties should occur throughout the implementation of groundwork.

SECTION 3: SYNTHESIS, CONCLUSION AND RECOMMENDATIONS ON THE WAY FORWARD

by Dr. Kalithasan Kailasam

Manager of River Care Programme, GEC

Malaysia is at an important juncture of transforming how communities, government agencies and private sectors view rivers and their management; each stakeholder's role is becoming increasingly important and this means we must all act together for the improvement of river management in the country. The highlighted take-home messages are as follows:

1. Manage and protect our rivers and the environment not solely for the benefits of human beings, but for the flora and fauna as well. There is a need to shift the paradigm in our thinking. We need not wait for a proper proposal to be outlined or substantial budgets to mainstream biodiversity conservation into river management. Small steps matter and it is crucial for us to start immediately to infuse what we have been doing to contribute towards the shared goals. Lessons learnt and BMPs shared in this Symposium should be a reference point and a stepping stone to scale up the works in mainstreaming riverine biodiversity conservation.
2. People are the main drivers of conservation efforts. More investments are required for human capital and capacity building to truly mainstream biodiversity conservation in river management, and ensure the sustainability of the efforts and endeavours. Training programmes such as Environmental Flow training module and Training of Trainers (TOT) course on Mainstreaming Biodiversity Conservation into River Management targeting the inner circle stakeholders are necessary to be implemented. Additionally, the wealth of traditional and historical knowledge and skills from indigenous people and local communities should also be leveraged during their involvement in the conservation activities. More efforts are needed to promote and support the sustainable livelihoods of the local communities in the project as this will help strengthen their interest in and ownership of the environmental conservation projects.
3. Smart Partnership is one of the keys to success as demonstrated in the pilot projects. Building the trust of and continuous collaboration with all stakeholders, including from the government sector, private sector and local communities will contribute towards efficient use of resources, reduce overlaps in jurisdiction and materialise the shared goals.
4. A platform or communication framework needs to be established to address the gaps in the fragmentation of stakeholder as shown in Malaysia's context, due to multiculturalism and different jurisdictions under different government agencies and authorities. Such a platform or framework will facilitate coordination and communication among stakeholders, while ensuring the effectiveness of the overall project.
5. There is a growing consensus that working with nature helps to address the pressing interlinked climate and biodiversity challenges. The uptake of Nature-based Solutions (NbS) such as the bioengineering initiatives demonstrated in Kinta River should be promoted, enhanced, upscaled and replicated.

SECTION 3: CLOSING REMARKS

by Ir. Ahmad Fauzan bin Mohd Sabri

*Senior Principal Director of River Basin Management Division,
DID Malaysia (Project Focal Point)*

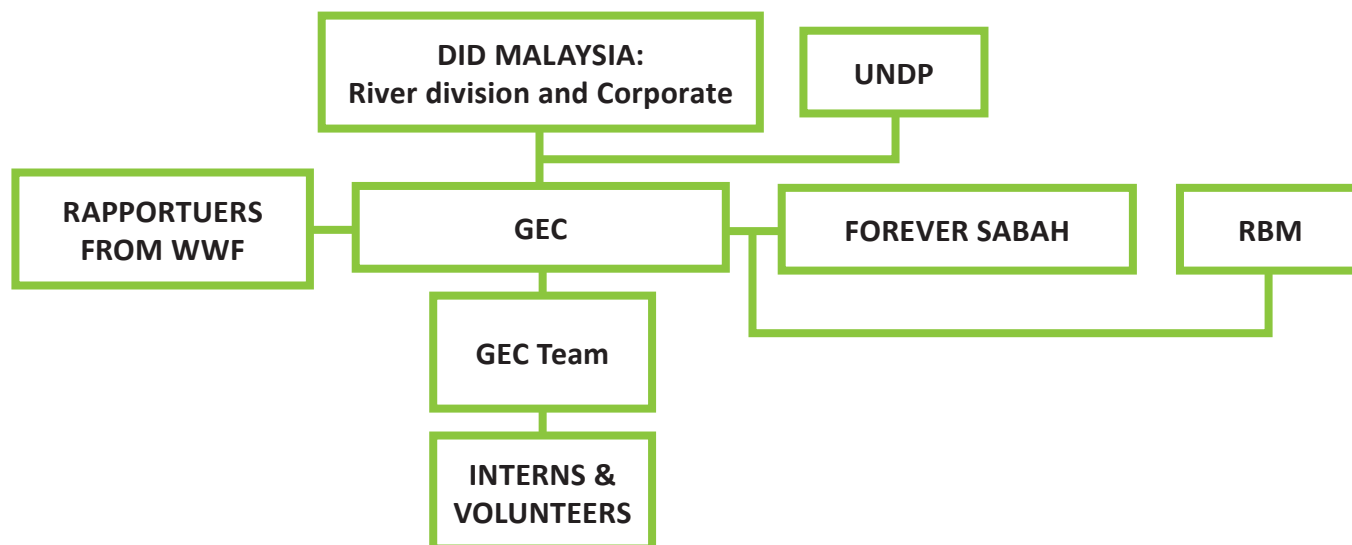
Ir. Ahmad Fauzan Mohd Sabri expressed his gratitude to all participants for their valuable cooperation and time in attending the 1-day symposium and he hoped that all participants can benefit from the sessions, especially in supporting better management of rivers in Malaysia. He also conveyed his heartfelt appreciation to all speakers for their valuable knowledge sharing with participants in this symposium.

He also mentioned that all presentation slides, videos and materials used during the symposium will be compiled and shared with the participants through pen-drives, which will be distributed by the secretariat. Meanwhile, the project guidelines and symposium proceedings will be compiled and shared by GEC or DID within the next three weeks. Additionally, Ir Ahmad Fauzan informed that all DID state representatives will be receiving posters produced under the Mainstreaming Biodiversity Conservation into River Management project for distribution to stakeholders while interested individuals can reach out to the secretariats to get the posters as well. Finally, Ir. Ahmad Fauzan congratulated the secretariat for successfully organising the symposium.

APPENDIX 1: SYMPOSIUM AGENDA

TIME	ACTIVITY
8.30 am	Registration
SECTION 1: INFORMAL SESSION COORDINATED BY GEC	
9.00 am	Welcoming by Emcee
9.10 am	Video 01: The Natural Characteristic of Our Rivers
9.15 am	Keynote Speech by Deputy Resident Representative for Malaysia, Singapore and Brunei Darussalam: Ms Manon Bernier
9.30 am	Project Introduction by Director of River Basin Management Division, Department of Irrigation and Drainage (DID) Malaysia: Dato' Ir. Haji Jamil Bin Shaari
9.45 am	Session 1: BMP and Lessons Learnt in Klang River Basin by GEC
	Video 02: Community Engagement at Sungai Klang Basin
	Q & A Session
10.45 am	Morning Break
11.00 am	Session 2: BMP and Lessons Learnt in Upper Kinta Basin by DID Perak and GEC
	Video 03: Soil Bioengineering at Simpang Pulai/Cameron Highland Highway
	Q & A Session
12.00am	Session 3: BMP and Lessons Learnt in Segama River by Forever Sabah and DID Sabah
	Video 04: Alien Invasive Species in Kampung Dagat
	Q & A Session
1.00 pm	Lunch
SECTION 2: OPENING CEREMONY BY DID MALAYSIA	
2.25 pm	Video 05: Mainstreaming Biodiversity into River Management
2.30 pm	<i>Doa</i> Recitation
2.45 pm	Welcoming Speech by Director, River Management Division, Department of Irrigation and Drainage (DID) Malaysia: Dato' Ir. Haji Jamil Bin Shaari
3.00 pm	Opening Speech by Director General, DID Malaysia: YBhg Dato' Ir. Dr. Haji Md. Nasir bin Md. Noh
	Opening Gimmick
3.15 pm	Visit to the Exhibition Booths by the VIPs
3.30 pm	Tea Break
SECTION 3: INFORMAL SESSION COORDINATED BY GEC	
	Video 06: Mainstreaming Biodiversity into River Management: Riverine and Aquatic Plants
3.45 pm	Session 4: Module on Mainstreaming Riverine Biodiversity in Malaysia by RBM Engineering Consultant/DID Malaysia
	Q & A Session
	Video 07: Mainstreaming Biodiversity into River Management: Aquatic Macroinvertebrates and Fishes
4.45 pm	Wrap-up by GEC: Dr. Kalithasan Kailasam
4.55 pm	Conclusion by DID Malaysia: Ir. Fauzan bin Mohd Sabri
5.00 pm	End
5.05 pm	Video 08: Mainstreaming Biodiversity into River Management: Small Mammals and Birds

APPENDIX 2: SYMPOSIUM ORGANISING COMMITTEE



APPENDIX 3: PARTICIPANTS LIST

No	Name/Organisation	No	Name/Organisation
1.	Mr Muhammad Zulhusni bin Che Razali <i>Department of Irrigation and Drainage Putrajaya</i>	9.	Mr Miklin Ationg <i>Department of Irrigation and Drainage Sabah</i>
2.	Ms Nooraida binti Mokhtar <i>Department of Irrigation and Drainage Sembilan</i>	10.	Mr Zaidin bin Matsin <i>Department of Irrigation and Drainage Malaysia</i>
3.	Mr Khalilurrahman bin Abd Aziz <i>Department of Irrigation and Drainage Terengganu</i>	11.	Ir. Dr. Wong Chee Loong <i>Department of Irrigation and Drainage Malaysia</i>
4.	Ir. Mohamad Suaimi bin Ramli <i>Department of Irrigation and Drainage Kedah</i>	12.	Mr Khairulnizam bin Md Yasin <i>Department of Irrigation and Drainage Malaysia</i>
5.	Ir. Sheela Charlene A/P Nadison <i>Department of Irrigation and Drainage Sarawak</i>	13.	Mr Munir bin Abd Rani <i>Department of Irrigation and Drainage Malaysia</i>
6.	Ir. Sasitharan A/L Manikam <i>Department of Irrigation and Drainage Perak</i>	14.	Ir. Dr. Norlida binti Mohd Dom <i>Department of Irrigation and Drainage Malaysia</i>
7.	Mr Muhamad Rozalami bin Rani <i>Department of Irrigation and Drainage FTKL</i>	15.	Ir. Rozman bin Mohamad <i>Department of Irrigation and Drainage Malaysia</i>
8.	Ms Azuraina binti Mohd Nordin <i>Department of Irrigation and Drainage Selangor</i>		

No	Name/Organisation	No	Name/Organisation
16.	Ir. Wan Hasitinaziah binti Mohd Hassan <i>Department of Irrigation and Drainage Malaysia</i>	29.	Mr Saiful Rizan bin Sanusi <i>Department of Irrigation and Drainage Malaysia</i>
17.	Ms Nur Iryani binti Mohd Noor <i>Department of Irrigation and Drainage Malaysia</i>	30.	Ir. Che Shamsiah binti Omar <i>Department of Irrigation and Drainage Malaysia</i>
18.	Ir. Mahidi bin Mahamood <i>Department of Irrigation and Drainage Malaysia</i>	31.	Ir Mazhazuan bin Harun <i>Selangor Water Management Authority</i>
19.	Mr Muhammad Fairus bin Hamdan <i>Department of Irrigation and Drainage Malaysia</i>	32.	Mr Mohd Azhar bin Mohd Yusoff <i>Selangor Water Management Authority</i>
20.	Ms Izzatul 'Ain binti Azman <i>Department of Irrigation and Drainage Malaysia</i>	33.	Mr Sahrol Fahmi bin Termizi <i>Public Works Department Malaysia</i>
21.	Ms Zaliza Mohamad Ibrahim <i>Department of Irrigation and Drainage Malaysia</i>	34.	Ir. Kaniah binti Ambak <i>Public Works Department Malaysia</i>
22.	Mr Mohammad Hakim Hasnul <i>Department of Irrigation and Drainage Malaysia</i>	35.	Mr Mohamad Yusof bin Che Sulaiman <i>Public Works Department FTKL</i>
23.	Ir. Larry Charles bin Jamim <i>Department of Irrigation and Drainage Malaysia</i>	36.	Ms Nurfarhana Hizan binti Hijas <i>Forest Research Institute Malaysia</i>
24.	Ir. Lee Chong Lean <i>Department of Irrigation and Drainage Malaysia</i>	37.	Mr Muhammad Afiq bin Suhaimi <i>Ministry of Environment and Water</i>
25.	Mr Mohd Noor Azam bin Akbarruddin <i>Department of Irrigation and Drainage Malaysia</i>	38.	Mr Quek Yew Aun <i>Ministry of Energy and Natural Resources</i>
26.	Mr Hasmiezan bin Talib <i>Department of Irrigation and Drainage Malaysia</i>	39.	Mr Muhammad Syazwan bin Mohd Amir <i>Ministry of Energy and Natural Resources</i>
27.	Ms Masfirah binti Mansor <i>Department of Irrigation and Drainage Malaysia</i>	40.	Ms Zuhainim binti Abd. Ghafar <i>Department of Environment Putrajaya</i>
28.	Mr Adjwaz bin Roslan <i>Department of Irrigation and Drainage Malaysia</i>	41.	Mr Jamal Affendy bin Shahar <i>Department of Environment Putrajaya</i>
		42.	Ms Rosla binti Zamzuri <i>Department of Environment FTKL</i>
		43.	Mr Mohd Zamzani bin Ibrahim <i>Department of Environment Perak</i>
		44.	Ms Mastawa binti Haji Zainudin <i>Department of Environment Putrajaya</i>
		45.	Dr. Susan Pudín <i>Environment Protection Department Sabah</i>

No	Name/Organisation	No	Name/Organisation
46.	Ms Nur Atirah binti Md Anuar <i>Perak Water Board</i>	63.	Mr Zaini Yahya
47.	Ms Wan Zunaidah binti Wan Ibrahim <i>Lembaga Air Perak</i>	64.	Mr Shreevidya Anandan <i>Yayasan Hasanah</i>
48.	Mr A'zman bin Mohd Harun <i>Ipoh City Council</i>	65.	Mr Sumasnie John <i>Indigenous Community Conserved Areas (ICCA) Segama</i>
49.	Mr Mohd Sukhaile bin Mustafa <i>Ipoh City Council</i>	66.	Mr Michael Samirei <i>Indigenous Community Conserved Areas (ICCA) Segama</i>
50.	Ms Ruzaana binti Abdul Rahman <i>Klang Municipal Council</i>	67.	Mr Jamanli Guramoi <i>Indigenous Community Conserved Areas (ICCA) Segama</i>
51.	Mr Mohd Haslin bin Ramlan <i>Department of Orang Asli Development Perak and Kedah</i>	68.	Mr Ismail bin Balah <i>Kampung Orang Asli Pawong</i>
52.	Mr Muhammad Redzuan bin Abdullah <i>Department of Orang Asli Development Perak and Kedah</i>	69.	Mr Roslan / Mr Ayok <i>Kampung Orang Asli Pawong</i>
53.	Mr Muhd Khairulazry bin Abdul Rahman <i>Department of Orang Asli Development Perak and Kedah</i>	70.	Mr Peter Leong <i>Friends of Klang River Basin (FoKRB)</i>
54.	Dr. Diana Emang <i>Universiti Putra Malaysia</i>	71.	Mr Troy Hessler Paul <i>Forever Sabah</i>
55.	Ts. Dr. The Hee Min <i>Universiti Teknologi Petronas</i>	72.	Mr Mazelan bin Jamaludin <i>Persatuan Penduduk Taman Rekreasi Kg Taman Warisan</i>
56.	Ms Khadijah Tahirah binti Norhasanin <i>Sunway University</i>	73.	Mr Kennedy Michael <i>Alliance of River Three</i>
57.	Ms Nurul Ashikin binti Mohamed Hassan <i>Indah Water Konsortium Sdn. Bhd.</i>	74.	Ms Syuen Toh <i>Alliance of River Three</i>
58.	Mr Muzammil bin Ngatiman <i>Roundtable of Sustainable Palm Oil</i>	75.	Ms Radziah binti Mat Ali <i>River Ranger Kg Sungai Pinang Bandar Klang</i>
59.	Ms Izzati binti Mohamad Noor <i>Roundtable of Sustainable Palm Oil</i>	76.	Mr Hamdan bin Yusof <i>River Ranger Kg Sungai Pinang Bandar Klang</i>
60.	Ms Puvanes Sandera S. <i>RBM Engineering Consultant</i>	77.	Ms Ratnamalar Rajasingam <i>Academy of Sciences Malaysia</i>
61.	Mr Ahmad Sharmy bin Jaafar <i>RBM Engineering Consultant</i>	78.	Dato' Ir. Haji Hanapi bin Mohamad Noor <i>Malaysian Water Partnership</i>
62.	Ms Gan Pek Chuan <i>United Nations Development Programme</i>	79.	Dr. Kalithasan Kailasam <i>Global Environment Centre</i>

No Name/Organisation

80. Adelaine Tan
 Global Environment Centre
81. Jagedeswari Marriappan
 Global Environment Centre
82. Sathis Venkitasamy
 Global Environment Centre
83. Norazrin Mamat
 Global Environment Centre
84. Sharifah Nur Zulaikha
 Global Environment Centre
85. Yap Ni Yan
 Global Environment Centre
86. Linda Archibald
 Global Environment Centre

No Name/Organisation

87. Kenaidy Adan
 Global Environment Centre's Intern
88. Liz Chai Yee Theng
 Global Environment Centre's Intern
89. Chook Kay Yi
 Global Environment Centre's Volunteer
90. Sim Leng Choo
 Global Environment Centre's Volunteer
91. Sivanessha Kalithasan
 Global Environment Centre's Volunteer
92. Priscilla Chua
 Global Environment Centre's Volunteer

APPENDIX 4.1: FULL TEXT SPEECHES

Welcoming Speech from Dato' Ir. Haji Jamil Bin Shaari, Director of River Basin Management, DID Malaysia

Terima kasih saudara Pengacara Majlis,

Assalamualaikum w.b.t dan Salam Sejahtera.

YBhg. Dato' Ir. Hj Md. Nasir bin Md. Noh

Ketua Pengarah JPS Malaysia

YBhg. Dato' Ir. Sabri bin Abdul Mulok

Timbalan Ketua Pengarah (Sektor Bisnes) JPS Malaysia

YBhg. Ms. Gan Pek Chuan

Wakil United Nations Development Program

YBrs. Dr. Kalithasan Kailasam

Pengurus Program Penjagaan Sungai, Global Environment Centre (GEC)

Pengarah-pengarah JPS Bahagian dan Negeri, wakil-wakil daripada Kementerian KASA, Jabatan dan Agensi-agensi Persekutuan dan Negeri, Badan Berkanun, Kerajaan Tempatan, Universiti, Pertubuhan Bukan Kerajaan, Tuan-tuan dan puan-puan sidang hadirin yang saya hormati sekalian.



Alhamdulillah, bersyukur kita ke hadrat Allah S.W.T. kerana dengan limpah kurnia dan izin-Nya, dapatlah kita bersama-sama pada hari ini bagi menjayakan Simposium projek 'Mainstreaming of Biodiversity Conservation into River Management In Malaysia'.

Di kesempatan ini juga, saya merakamkan setinggi-tinggi penghargaan dan ucapan terima kasih kepada semua peserta kerana dapat meluangkan masa untuk menyertai simposium pada hari ini, dan tahniah diucapkan kepada sekretariat simposium, khususnya Bahagian Pengurusan Lembangan Sungai dan Bahagian Korporat JPS Malaysia, UNDP dan perunding GEC di atas penganjuran simposium ini pada kali ini.

YBhg Dato'- Dato', Tuan-tuan, Puan-puan dan sidang hadirin sekalian,

Untuk pengetahuan semua, Projek Mainstreaming of Biodiversity Conservation into River Management In Malaysia ini merupakan projek yang dilaksanakan oleh Jabatan Pengairan dan Saliran Malaysia melalui Kementerian Alam Sekitar dan Air (KASA) selaku agensi pelaksana dengan sokongan daripada UNDP dan GEF 5 sejak tahun 2016. Matlamat utama projek ini adalah meningkatkan pelaksanaan kepada mengarusperdanakan pemuliharaan kepelbagaian biologi dalam pengurusan lembangan sungai di Malaysia melalui penambahbaikan dalam praktis perancangan dan pengurusan.

Projek ini memberi fokus kepada usaha menangani punca dan halangan terhadap pemuliharaan dan pemeliharaan biodiversiti sungai melalui pembangunan strategi dan promosi amalan-amalan pengurusan terbaik dan pembinaan kapasiti untuk pihak-pihak berkepentingan, selaras dengan objektif program iaitu;

Pertama: Meningkatkan keupayaan institusi dan teknikal untuk mengarusperdanakan pemuliharaan kepelbagaian biologi dalam pengurusan sungai di antara pihak berkepentingan utama.

Kedua: Mendemonstrasi amalan pengurusan terbaik (BMPs) bagi lokasi tapak demonstrasi melalui peningkatan status pemuliharaan dan pengurangan ancaman biodiversiti.

Hadirin sekalian,

Pelaksanaan projek bagi objektif pertama diketuai oleh JPS Malaysia manakala perunding yang dilantik adalah RBM Engineering Consultant Sdn Bhd.

Manakala, bagi objektif kedua, 3 negeri telah terpilih sebagai tapak perintis iaitu ;

- i. Sg Klang, diketuai oleh JPS Selangor
- ii. Sg Kinta, diketuai oleh JPS Perak dan
- iii. Sg Segama, diketuai oleh JPS Sabah

Global Environment Centre yang terlibat sejak pembangunan projek merupakan rakan pelaksana JPS bagi Sg Klang, Selangor dan Sg Kinta, Perak. Manakala Forever Sabah merupakan rakan pelaksana di Sg Segama, Sabah. Projek demonstrasi di tiga lanskap yang berbeza ini telah pun bermula sejak tahun 2020 dan masih diteruskan sehingga kini terutamanya oleh komuniti masing-masing.

Sehubungan itu, saya ingin mengambil kesempatan pada petang ini untuk merakamkan setinggi-tinggi tahniah kepada semua pihak yang terlibat termasuklah JPS Selangor, JPS Wilayah Persekutuan Kuala Lumpur, JPS Perak dan JPS Sabah serta semua pihak berkepentingan terutamanya komuniti setempat dan rakan pelaksana yang telah berjaya melaksanakan projek ini selama 2 tahun. Pelbagai inisiatif telah dijalankan sepanjang pelaksanaan projek.

Sidang hadirin,

Simposium hari ini dianjurkan dengan objektif untuk berkongsi segala informasi dan pengetahuan serta amalan pengurusan terbaik (BMP), hasil dapatan projek bagi tiga lokasi rintis iaitu di Sungai Ulu Kinta (Perak), Sungai Klang (Selangor), dan Sungai Segama (Sabah) serta berkongsi rangka kerja yang dicadangkan untuk mengarusperdanakan biodiversiti ke dalam pengurusan sungai di Malaysia. Kumpulan sasaran utama simposium ini adalah pegawai-pegawai JPS di peringkat persekutuan dan kesemua 14 buah negeri, ahli-ahli Project Management Unit, Project Working Group di peringkat negeri, komuniti serta sektor swasta, universiti dan NGO yang terpilih. Dianggarkan jumlah kehadiran secara fizikal untuk hari ini melebihi 100 peserta manakala yang selebihnya mengikuti simposium ini melalui siaran FB live melalui FB rasmi JPS Malaysia.

Akhir kata, adalah penting agar warisan khazanah negara ini dipelihara dan ditadbir uruskan secara lestari bukan sahaja oleh Agensi Kerajaan dan Badan Bukan Kerajaan, malah masyarakat seharusnya dididik untuk memainkan peranan dalam memelihara sumber biologi ini.

Izinkan saya untuk menyeru semua peserta untuk sama-sama memainkan peranan penting bagi mengarusperdanakan biodiversiti dalam pengurusan sungai di Malaysia.

Oleh itu, Saya serahkan kepada pengacara majlis untuk meneruskan program kita pada hari ini. Terima kasih.

APPENDIX 4.2: FULL TEXT SPEECHES

Opening Speech from YBhg Dato' Ir. Dr. Hj. Md. Nasir bin Md. Noh, *Director General DID Malaysia*

Terima kasih saudara Pengacara Majlis,

YBhg. Dato' Ir. Sabri bin Abdul Mulok

Timbalan Ketua Pengarah (Sektor Bisnes), JPS Malaysia

YBhg. Dato' Ir. Hj. Jamil bin Shaari

Pengarah Bahagian Pengurusan Lembangan Sungai, JPS Malaysia

YBr. Ms. Gan Pek Chuan

Wakil United Nations Development Program

YBr. Dr. Kalithasan Kailasam

Pengurus Program Penjagaan Sungai, Global Environment Centre (GEC)

Pengarah-pengarah JPS Bahagian dan Negeri

Wakil-wakil daripada Kementerian Alam Sekitar dan Air (KASA), Jabatan dan Agensi-agensi Persekutuan dan Negeri, Badan Berkanun, Kerajaan Tempatan, Universiti, Pertubuhan Bukan Kerajaan, Tuan-tuan dan puan-puan peserta simposium yang dihormati sekalian.



Assalamualaikum W.B.T. dan Salam Sejahtera.

Alhamdulillah, segala puji dan syukur dipanjatkan ke hadrat Allah S.W.T kerana dengan limpah kurnia dan inayah-Nya, maka dapat kita bersama-sama pada petang ini menghadiri Majlis Perasmian Simposium projek 'Mainstreaming of Biodiversity Conservation into River Management in Malaysia'.

YBhg. Dato'- Dato', Tuan-tuan dan Puan-puan sekalian.

Sungai mempunyai pelbagai peranan signifikan yang merupakan sumber ekonomi dan aset ekologi negara. Sungai juga merupakan nadi kepada komponen sistem kehidupan atau living systems yang harus diberi perhatian. Pengurusan sungai perlulah menitik-beratkan keperluan biodiversiti agar dapat menyesuaikan diri dan berkembang mengikut perubahan alam sekitar.

Namun, biodiversiti di Malaysia sedang mengalami ancaman. Aktiviti penerokaan tanah dan pembangunan begitu pesat dilaksanakan akibat pertambahan populasi dan keperluan perluasan kawasan pertanian. Selain daripada itu, kita juga menghadapi masalah pencemaran air sungai yang begitu membimbangkan pada masa ini.

Semua pihak di pelbagai peringkat termasuklah kerajaan, swasta mahupun komuniti atau masyarakat setempat perlulah mempunyai ilmu dan kesedaran tentang biodiversiti di sekeliling mereka. Kita seharusnya bekerjasama dan memainkan peranan dalam memelihara sumber biodiversiti di kawasan masing-masing agar ianya diuruskan secara holistik, mampan dan lestari.

YBhg. Dato'- Dato', Tuan-tuan dan Puan-puan sekalian.

Jabatan Pengairan dan Saliran (JPS) Malaysia melalui Kementerian Alam Sekitar dan Air (KASA) memainkan peranan yang penting mengintegrasikan pertimbangan kepelbagaian biologi dalam Pengurusan Sungai Secara Bersepadu atau Integrated River Basin Management (IRBM).

IRBM adalah suatu mekanisme penyelarasan dalam melihara, mengurus dan membangunkan sumber air, tanah serta sumber-sumber berkaitan merentasi pelbagai sektor untuk melestarikan sesebuah lembangan sungai. Tujuan IRBM adalah untuk memaksimumkan faedah sosio-ekonomi sumber air secara mampan, pada masa yang sama memelihara dan mengembalikan semula ekosistem semulajadi sumber air. Empat objektif utama IRBM adalah memastikan air yang mencukupi, air yang bersih, mengurangkan risiko banjir dan seterusnya meningkatkan persekitaran.

Oleh itu, strategi mampan pembinaan yang mesra alam perlu untuk projek pembangunan infrastruktur sumber air. Pengekalan ciri alam semulajadi akan dicapai dengan kaedah pembinaan dan penggunaan bahan yang mesra alam. Melalui penerapan strategi ini, projek-projek berkaitan sumber air akan dipacu ke arah pembinaan infrastruktur yang bersinergi dengan saliran air semulajadi. Dengan cara ini, projek-projek kita bukan sahaja dapat mengelakkan masalah, menghalang potensi tanah dan sumber semulajadi, malah bencana berkaitan air dapat dikurangkan dan pada masa yang sama, memperoleh manfaat daripada kekayaan sumber biologi semulajadi.

Seterusnya, JPS juga telah membangunkan beberapa inisiatif dalam menyokong pelaksanaan IRBM melalui Program Komunikasi, Pendidikan dan Kesedaran Awam atau lebih dikenali sebagai Communication, Education and Public Awareness (CEPA). Antara aktiviti yang telah dilaksanakan termasuklah Kempen Cintai Sungai Kita pada tahun 1993 dan Program Satu Negeri Satu Sungai pada tahun 2006. Seterusnya pada tahun 2011 projek River of Life dilancarkan. Terbaharu, adalah Denai Sungai Kebangsaan dilancarkan pada tahun 2020 yang mensasarkan penglibatan komuniti setempat dan NGO.

YBhg. Dato'- Dato', Tuan-tuan dan Puan-puan sekalian.

Saya ingin mengambil peluang ini untuk menzahirkan rasa berbesar hati kepada Global Environment Facilities (GEF) melalui United Nations Development Programme (UNDP) kerana telah meluluskan Projek Mainstreaming of Biodiversity Conservation into River Management in Malaysia kepada JPS Malaysia sejak tahun 2016 lagi.

Saya juga begitu berbesar hati apabila projek ini juga telah mendapat sokongan serta kerjasama daripada beberapa jawatankuasa, dasar dan perundangan berkaitan biodiversiti di Malaysia termasuklah Majlis Biodiversiti Negara (MBN) dan Biodiversity Technical Committee of the National Biotechnology. Selain itu, sokongan juga diperoleh daripada Dasar Kepelbagaian Biologi Kebangsaan atau National Policy on Biological Diversity (NPBD 2016-2025) selain Akta Akses kepada Sumber Biologi dan Perkongsian Faedah (2017) serta Peraturan-peraturan Akses kepada Sumber Biologi dan Perkongsian Faedah 2020.

Selain itu, suka saya maklumkan, salah satu kejayaan JPS dalam bidang biodiversity setelah 90 tahun ditubuhkan adalah kerjasama Bersama dengan pihak universiti tempatan dalam menerapkan konsep biodiversity conservation menerusi subjek Ekohidrologi di Universiti Tun Hussein Onn Malaysia (UTHM). Sebagai makluman semua, UTHM telah berjaya memperkenalkan subjek di dalam bidang tersebut pada sesi 2021/2022 untuk Peringkat Sarjana Sumber Air dan Sarjana Muda Kejuruteraan Awam.

Dengan itu, besar harapan saya agar projek Mainstreaming of Biodiversity Conservation into River Management in Malaysia dapat mencapai objektif dan matlamatnya. Syabas dan tahniah saya ucapkan kepada pihak sekretariat di atas usaha menganjurkan simposium ini. Dengan lafaz yang mulia Bismillahirrahmanirrahim, saya dengan ini merasmikan Simposium Mainstreaming of Biodiversity Conservation into River Management in Malaysia.

Sekian, Wabillahi al-Taufik Walhidayah, Wassalamualaikum Warahmatullahi Wabarakatuh. Terima kasih.

APPENDIX 5: PRESENTATION SLIDES



Scan this QR code to download presentation slides.

All presentation slides can be found here:

<http://www.riverranger.my/RiverineBioD/index.cfm?&menuid=52&parentid=92>

APPENDIX 6: SYMPOSIUM VIDEO



PART 1



PART 2

Scan this QR codes to view event videos.

Event video can be viewed online at:

Part 1: <https://fb.watch/c555Mxyhum/>

Part 2: <https://fb.watch/c3tyLHffUW/>

APPENDIX 7: PHOTOS



Figure 1. The emcee, Ms. Adelaine Tan of GEC welcoming participants. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 2. Ms. Manon Bernier of UNDP, delivering her Keynote Speech. (Photo credit to @wwfmalaysia)



Figure 3. Dato Ir. Haji Jamil Shaari of DID Malaysia, delivering the project introduction. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 4. Dr. Kalithasan Kailasam of GEC, delivering Case Study 1. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 5. Dr. Kalithasan Kailasam, GEC and Ms. Azuraina Mohd Nordin, DID Selangor responding to questions in Q&A Session 1. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 6. Mr. Mohammad Hakim Hasnul of DID Malaysia, asking a question during Q&A Session 1. (Photo credit to @wwfmalaysia)



Figure 7. Dr. Susan Pudim of the Environment Protection Department Sabah during Q&A Session 1. (Photo credit to @wwfmalaysia)



Figure 8. Mr. Miklin Ationg of DID Sabah during Q&A Session 1. (Photo credit to @wwfmalaysia)



Figure 9. Mr. Mohd Khardzir Haji Husain of DID Perak, delivering Case Study 2. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 10. Mr Sathis Venkitasamy of GEC, presenting Case Study 2. (Photo credit to @wwfmalaysia)



Figure 11. Mr. Mohd Khardzir Haji Husain and Mr Sathis Venkitasamy responding to questions in Q&A Session 2. (Photo credit to @wwfmalaysia)



Figure 12. Mr. Kennedy Michael of Alliance of River Three during Q&A Session 2. (Photo credit to @wwfmalaysia)



Figure 13. Mr. Miklin Ationg, Deputy Director of DID Sabah delivering Case Study 3. (Photo credit to @wwfmalaysia)



Figure 14. Ms. Febe Fiona Soliun of Forever Sabah presenting Case Study 3. (Photo credit to @wwfmalaysia)



Figure 15. Ms. Syuen Toh asking a question during Q&A Session 3. (Photo credit to @wwfmalaysia)



Figure 16. The emcee, Ms. Norafzan binti Mat Ghani announcing the arrival of VIPs during the Symposium Opening Ceremony. (Photo credit to @wwfmalaysia)



Figure 17. En. Khairul Azhaar Mohd leading the prayer of officiation. (Photo credit to @wwfmalaysia)



Figure 18. VIPs observing the prayer during the Symposium Opening Ceremony. (Photo credit to @wwfmalaysia)



Figure 19. Dato Ir. Haji Jamil Shaari of DID Malaysia, delivering his welcoming speech. (Photo credit to @wwfmalaysia)



Figure 20. Dato' Ir. Dr. Hj. Md. Nasir Md. Noh, Director General of DID Malaysia, delivering his Opening Speech. (Photo credit to @wwfmalaysia)



Figure 21. Dato' Ir. Dr. Hj. Md. Nasir Md. Noh, Director General of DID Malaysia, launching the Mainstreaming Biodiversity Conservation into River Management Guideline. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 22. VIPs posing for the Officiating Gimmick. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 23. VIPs visiting the one of the local community's exhibition booth. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 24. VIPs visiting the project main booth by GEC. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 25: VIP visiting the Upper Kinta Basin Community booth. (Photo credit to @wwfmalaysia)



Figure 26. VIPs visiting the booth set up by Klang River Basin Project. (Photo credit to @wwfmalaysia)



Figure 27. VIPs at Segama River Project booth. (Photo credit to DID Malaysia, UNDP and GEC)



Figure 28. VIPs visiting the booth set up by RBM Engineering Consultants. (Photo credit to @wwfmalaysia)



Figure 29. Dr Gopinath Nagaraj of RBM Engineering Consultants, presenting the topic on training module. (Photo credit to @wwfmalaysia)



Figure 30. Dr Hari Ramalu Ragavan of RBM Engineering, presenting the topic on training module. (Photo credit to @wwfmalaysia)



Figure 31. Dr Hari Ramalu Ragavan and Dr Gopinath Nagaraj responding to questions during the Q&A Session. (Photo credit to @wwfmalaysia)



Figure 32. Mr Kenaidy Adan of GEC, asking a question during Q&A session to Dr. Hari Ramalu Ragavan and Dr. Gopinath Nagaraj. (Photo credit to @wwfmalaysia)



Figure 33. Ms Febe Fiona Soliun of Forever Sabah, asking a question during Q&A session. (Photo credit to @wwfmalaysia)



Figure 34. Dr Kalithasan Kailasam of GEC, delivering the Wrap-Up presentation. (Photo credit to @wwfmalaysia)



Figure 35. Ir. Ahmad Fauzan bin Mohd Sabri, DID Malaysia delivering the closing remarks. (Photo credit to @wwfmalaysia)

