

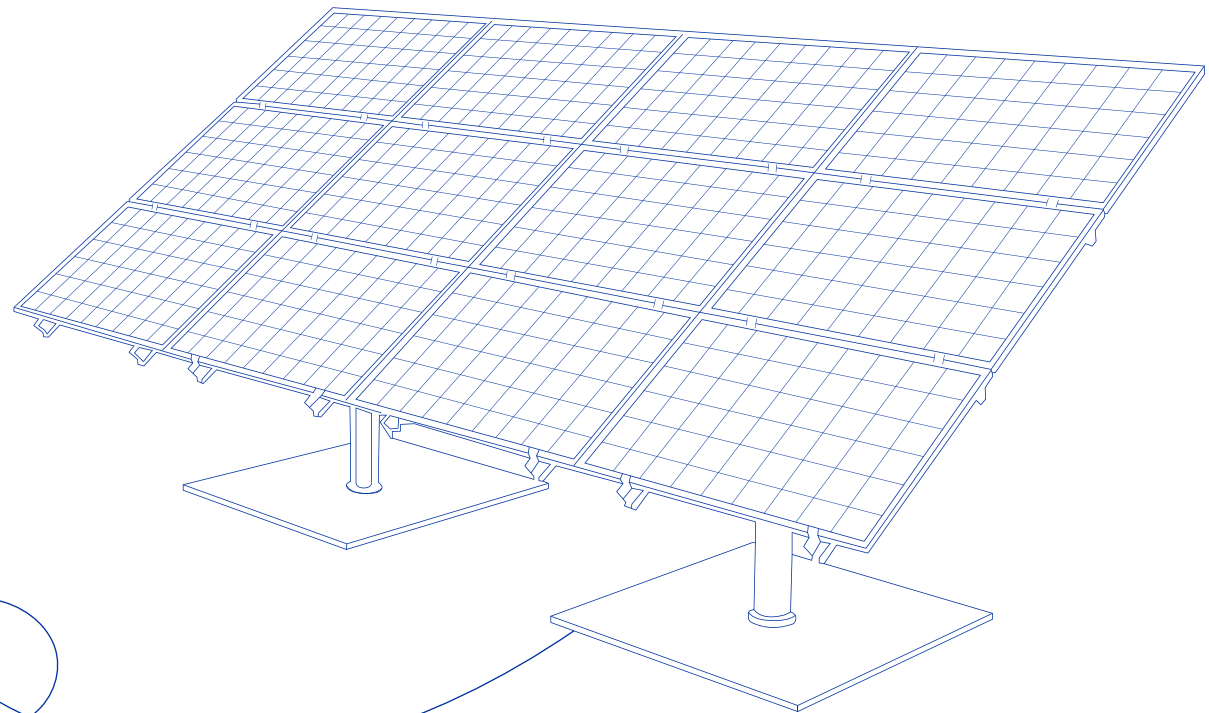
Cypark Resources Berhad



Enviromental And Social Pre-Assessment 2025

(Version 1)

Kenyir Hybrid
Hydro Floating
Solar Project



Executive Summary



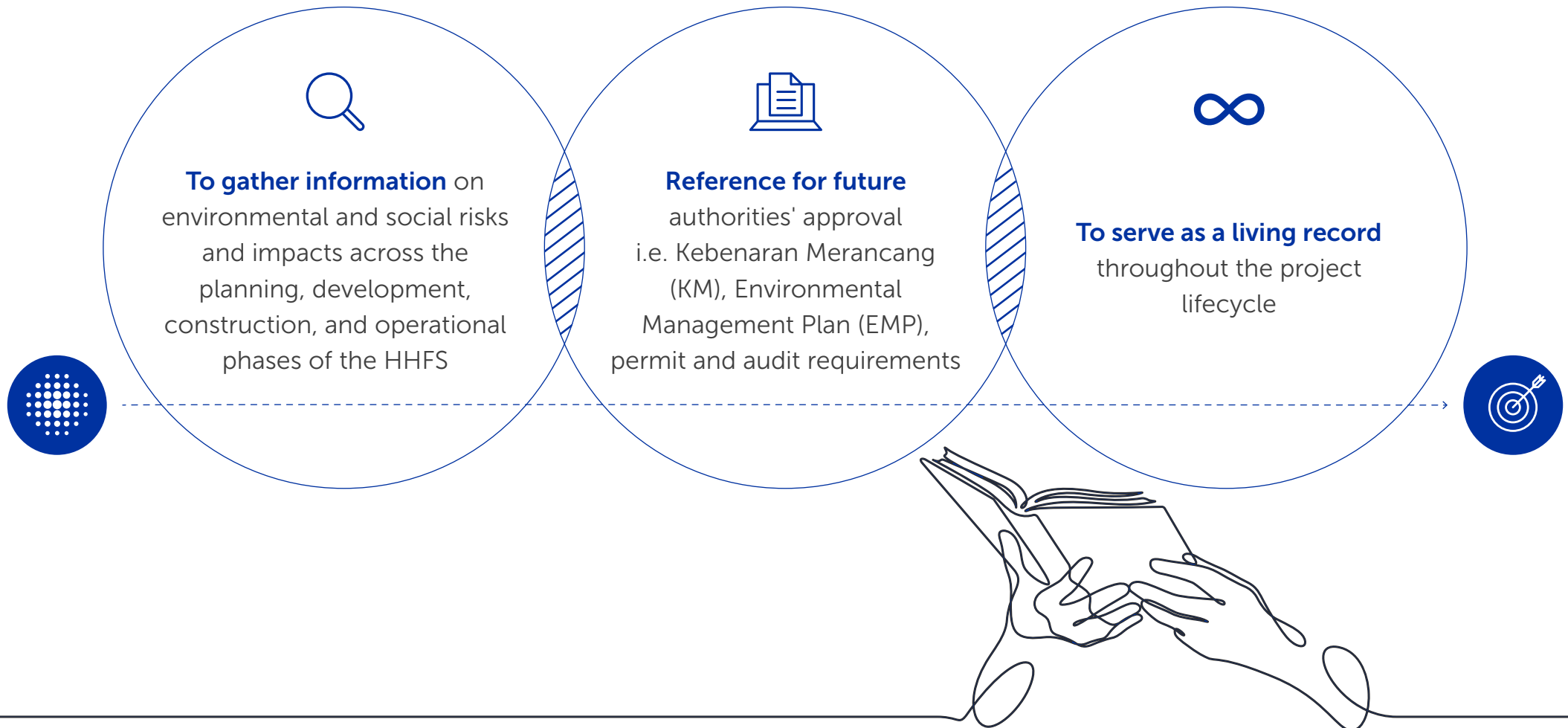
500MW Kenyir Hybrid Hydro Floating Solar (HHFS)

Tasik Kenyir

The 500MW Kenyir Hybrid Hydro Floating Solar (HHFS) Project is a large-scale renewable energy initiative to be deployed at Tasik Kenyir, jointly developed by TNB Power Generation Sdn Bhd (TNB Genco) in partnership with Terengganu Inc and Cypark Resources Berhad (CRB). Currently in its advanced planning and pre-construction phase, the project forms part of Malaysia's National Energy Transition Roadmap (NETR) and is aligned with the Pelan Induk Terengganu Sejahtera (PITAS 2030).



Purpose of This Handbook





Project Background

Malaysia's unique topography and water resources make floating solar a viable alternative to land-based systems, with Tasik Kenyir providing an ideal site for renewable energy generation.

Activities of Environmental & Social Pre-Assessment include:



Regulatory verification

Ensuring compliance with national and state-level regulations, including environmental approvals, licensing, and safety standards, to secure all required permits and audits before project commencement.



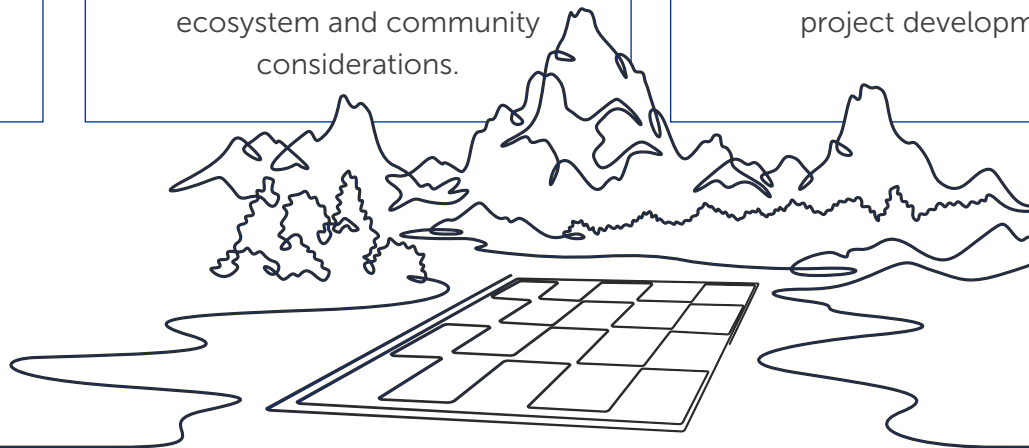
Design Development

Conducting technical studies and site assessments to create integrated engineering and environmental designs that balance energy generation efficiency with environmental ecosystem and community considerations.



Stakeholder Engagements

Engaging local communities, government agencies, and other stakeholders through consultations and dialogue sessions to build trust, address concerns, and ensure inclusive project development.





Pre-Assessment

Objective

To proactively identify and mitigate environmental and social risks while ensuring sustainable development practices are integrated, particularly in the ecologically sensitive protected forest and water catchment area.

Applicable Laws and Regulations Includes key environmental, biodiversity, and forest protection laws such as:

Environmental
Quality Act 1974
(Act 127)

Fishery Act 1985

National Policy
on Biological
Diversity
2016–2025

Wildlife
Conservation
Act 2010 (Act 716)

Terengganu
Water Enactment
1932

Aboriginal
People
Act 1954 (Act 134)

Access to Biological
Head, Green Assets
Resources
Act 2017 (Act 795)

Forestry Act 1984



Key Stakeholders

- TNB Genco
- Terengganu Inc
- UPEN Terengganu
- Local district and state authorities PERHILITAN
- Department of Forestry Terengganu
- Department of Environment
- Department of Fisheries Terengganu
- Kenyir Research Centre
- NGOs i.e. Kenyir For Life
- Orang Asli representatives
- Local communities



Pre-Assessment

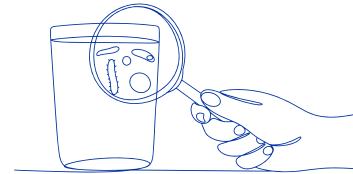
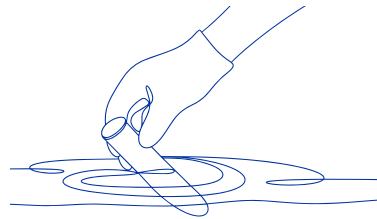
Biodiversity,Wildlife & Deforestation Risk	Kenyir is ranked Environmentally Sensitive Area (ESA) Rank 1 under the National Physical Plan (NPP) and the Terengganu State Structure Plan. The ESAs hold high ecological, hydrological and cultural importance and is a host to protected flora and fauna including elephants, hornbills, tapirs, and endemic plants.
Risks Improper land clearing will increase sedimentation by intensifying erosion, which may affect water quality and local community livelihoods. There have been sighting of elephants recorded. Construction work may impact elephant by fragmenting their habitats and acting as barriers to their movement. Placement of solar panels on water may affect elephant drinking and bathing habits. - Noise/light disturbances and vegetation clearance disrupting fauna - Sediment loading near the dam due to erosion-prone soils and slope	Mitigation ✓ Minimise land disturbance by restricting it only to essential area. ✓ Install early warning systems such as motion- detection sensors or camera traps for early detection of wildlife movements. ✓ Provide worker training in coordination with relevant authorities and ensure site design maintains safe water access points for elephants, reducing stress and minimising human–wildlife conflict.



Pre-Assessment

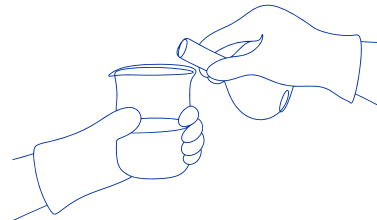
Water Quality Monitoring

Baseline sampling for water quality.



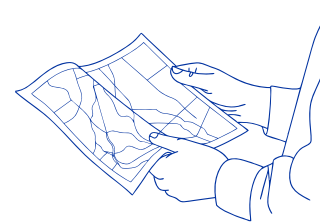
Long-term tracking of algae growth, biofouling, and bird droppings.

Avoidance of eutrophication (excessive enrichment of water bodies with nutrients, leading to rapid algae growth).



Assess forest and aquatic ecosystems before construction, with continued monitoring during road works, platform setup, and floaters installation.

Risk includes changes to lake hydrology due to anchoring which requires mitigation through technical assessments and low-impact design.



Design measures to prevent runoff during construction.



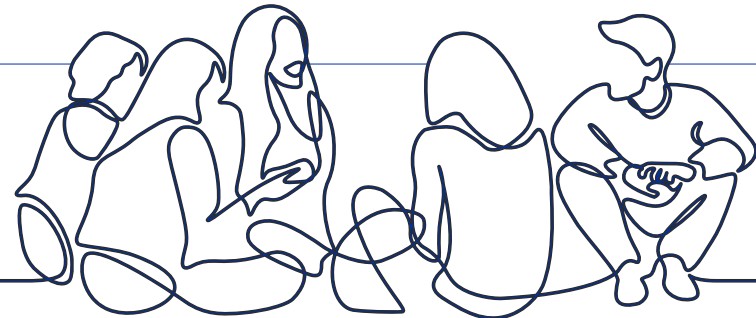
Pre-Assessment

Community Engagement

Local Livelihoods and Economic Activities

The project area supports diverse local economies that must be considered during planning and engagement:

- Aquaculture: Kenyir's fish farms are known for producing high-quality Tilapia, Pangasius, Baung (Bagridae), Jelawat (*Leptobarbus hoevenii*), and other native species.
- Tourism: Key attractions include the national parks, waterfalls, Terengganu Inc Convention Centre, hotels, houseboats, and a houseboat-building yard, which rely on the lake's accessibility and environmental quality.
- Forest-Based Livelihoods: Orang Asal communities engage in gaharu harvesting, petai & honey collection, medicinal plant gathering, and traditional fishing, all of which are tied to seasonal access and forest resource sustainability.





Pre-Assessment

Community Concerns

Orang Asal (Semaq Beri, Kampung Orang Asli Sungai Berua) - Highly dependent on forest products and traditional fishing for livelihoods

- Concerned about land rights (Act 134) and access to roaming areas
 - Cited past displacement during 1985 dam construction
- Fear of losing access to lake resources for traditional fishing and aquaculture

Engagement carried out with Penghulu and 10 Ketua Kampung from the following villages:

- Kampung Kuala Ping
- Kampung Tok Lawit
- Kampung Pasir Sipol
- Kampung Chapu
- Kampung Kuala Jeneris
- Kampung Teris
- Kampung Gerdong
- Kampung Basong
- Kampung Pasir Dula
- Kampung Tengawang

Concerns raised

- Emphasised the need to prioritise local hiring and provide timely updates on job vacancies.
- Wildlife intrusion (elephants, wild boars, monkeys) has damaged farmland and food sources, with over 18 elephants entering villages daily, requiring Basong Rangers patrols.
- Asked for clarity on future community programs and safety protocols
- Concerns about pollution, dust, noise, and traffic hazards during construction
- Fear of inadequate emergency responses (fires, floods, accidents) that will affect their area and well-being
- Increase in wildlife intrusion (elephants, wild boars, monkeys) into farmland due to habitat disruption
- Concerns about safety risks from elephants crossing into villages more frequently



Waste Management



Worker & Community Waste (Domestic)

Each worker generates an estimated 1 kg of waste daily, totaling 1,500 kg for 1,500 workers

Types of Waste:

Food waste: (canteen, kitchen, workers' quarters).

General trash: (packaging, plastics, paper, bottles).

Sanitary waste: (toiletries, PPE).

Recyclables: (aluminium cans, plastics, glass).

Worker & Community Waste (Domestic) Solutions

Segregated bins:

- Compost bins (for food waste - later use as fertilizer in community/agriculture support).
- Recycling bins (plastic, glass, aluminum).
- General landfill bins (non-recyclables).

On-site composting unit:

- Small-scale, can handle 200–300 kg/day of food scraps from 1,500 workers. Output compost can be donated to local farms or landscaping.

Scheduled collection:

- Appoint licensed contractors for weekly removal to approved landfills/recycling centers.



Project & Construction Waste

Types of Waste:

Solar-related: Packaging from 1.2M panels (wooden pallets, plastic wrap, cardboard).

Floater containers: Damaged floaters, scrap plastic, steel banding.

Hazardous: Oil, lubricants, solvents, paint cans, used PPE, chemical containers.

Bulk waste: Broken timber, construction debris.

Project & Construction Waste Solutions

Dedicated laydown waste zones:

- Separate areas for recyclables, hazardous, and general construction waste.

Pallet & packaging recovery program:

- Return/reuse wood pallets, sell scrap materials to recyclers.

Hazardous waste storage:

- Temporary bunded (spill-proof) area until collected by licensed hazardous waste contractors by DOE.

Plastic floater recycling:

- Set up MoU with polymer recyclers to take damaged floaters (important since 4,000 containers = significant plastic bulk).



Waste Management



Sanitation & Sewage

Workers' housing sanitation:

- Proper septic tanks or modular sewage treatment plants (STP) sized for 1,500 workers. Effluent should meet DOE standards prior to discharge.

Portable toilets at work zones

- To avoid contamination of lake water.

Greywater reuse

- (If possible) For non-potable uses like dust suppression.



Water Quality & Sillage Impact

Sillage (Wastewater from housing and daily activities)

- Can pollute the lake by increasing organic matter. This raises Chemical Oxygen Demand (COD) and Biological Oxygen Demand (BOD) levels, which lowers water quality and reduces the amount of oxygen available for fish and other aquatic life.



Monitoring & Governance

Appoint a Waste Management Contractor (WMC):

- To handle collection, transport, disposal, documentation, and reporting.

Daily housekeeping teams:

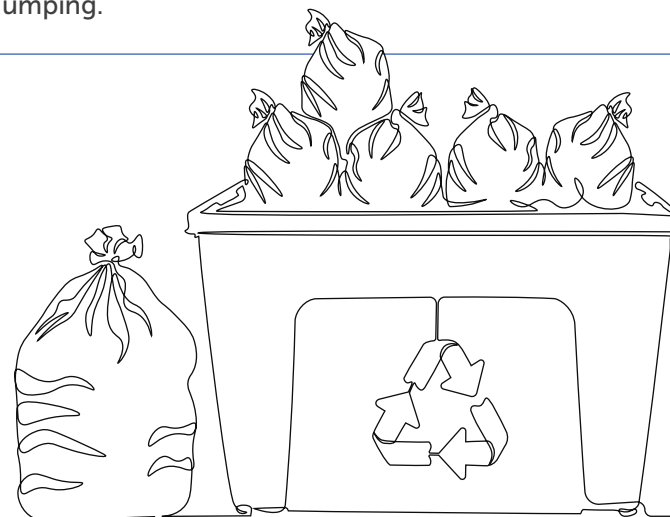
- To manage on-site cleanliness.

Reporting system:

- Monthly reporting to project management on waste volumes, recycling rates, and compliance.

Awareness programs:

- Worker briefings/posters on waste segregation and penalties for illegal dumping.





Health, Safety, Security & Environment





Next Steps



An Environmental Impact Assessment (EIA)

was conducted by TNB Genco, while Cypark, as a company with a long-standing commitment to environmental stewardship, is complementing this with additional Environmental & Social Pre-Assessment, technical reviews, and continuous stakeholder engagement as part of our standard practice to ensure responsible project delivery.

Upholding to environmental and social safeguards, engagement with NGOs and community will be conducted transparently.



Key priorities:

Clear communication of potential risks and active management of public perception.

Post-site visit action tracking

In the year ahead, the project will finalise its design, secure permits, prepare procurement, mobilise on site, and begin construction.

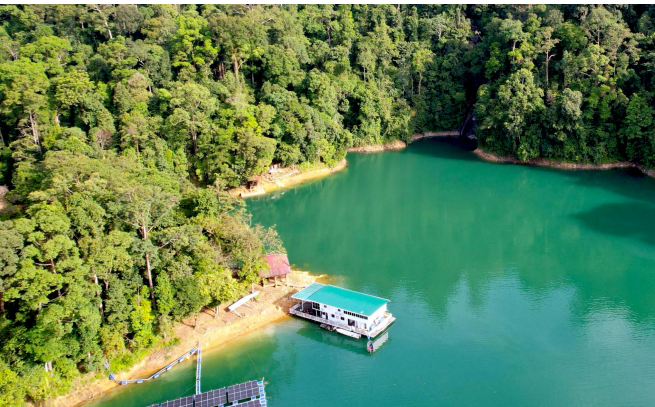
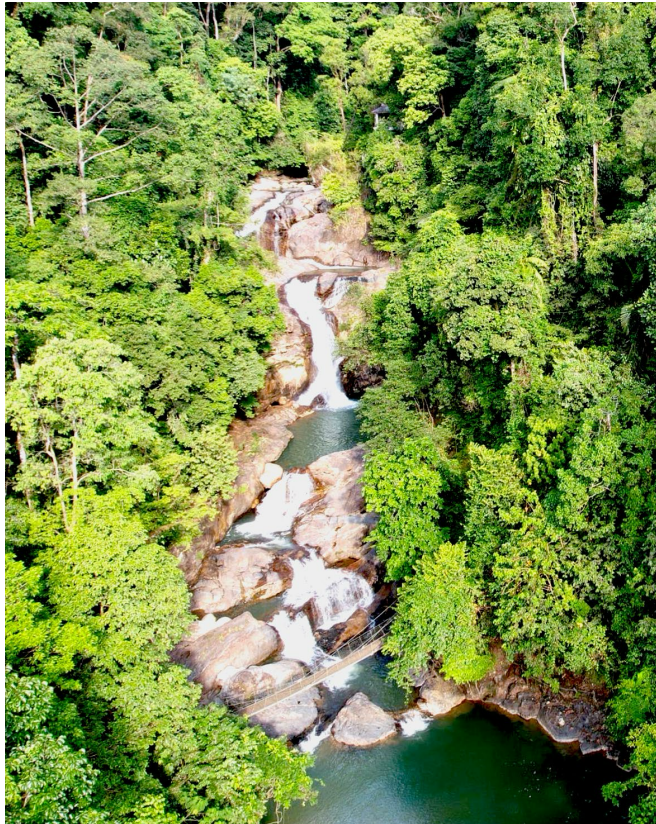


Kenyir Gallery



Pre-Assessment

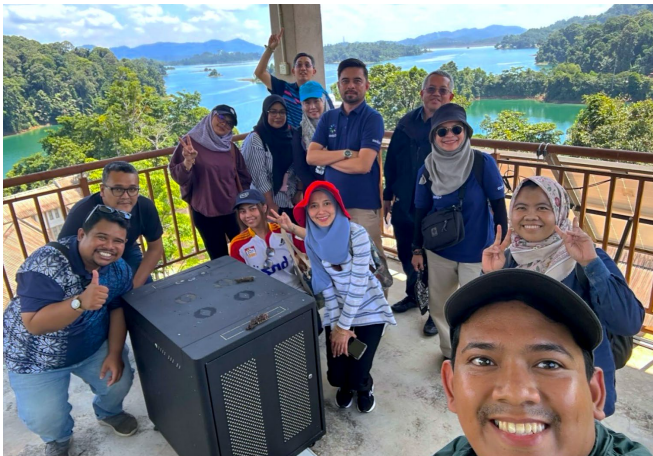
Pengkalan Gawi to Lasir Waterfall





Pre-Assessment

Kenyir Research Institute Tour & Briefing





Pre-Assessment

Engagement with *Penghulu and Pengerusi JPKK*





Pre-Assessment

Kenyir Elephant Conservation Village





Pre-Assessment

Engagement with *Tok Batin Kampung Orang Asli Sungai Berua*





Biodiversity in Focus: Species to Watch

All of Malaysia's terrestrial large mammals can be found in the Kenyir watershed, a true wildlife haven!

16 threatened species listed on the IUCN Red List call Kenyir home, including:

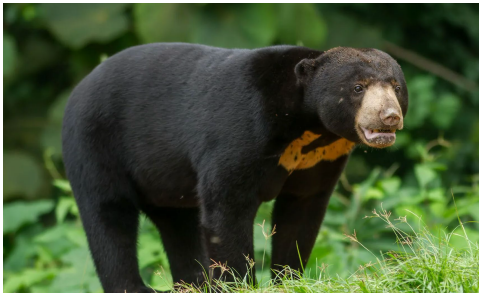
Clouded Leopard



Tapir



Large Flying Fox



Malayan Sun Bear



Asian Elephant



Malayan Tiger



Biodiversity in Focus: Species to Watch

All of Malaysia's terrestrial large mammals can be found in the Kenyir watershed, a true wildlife haven!

Kenyir is also a birder's paradise with 316+ species of birds:

Pacific Golden-Plover



Ashy Minivets



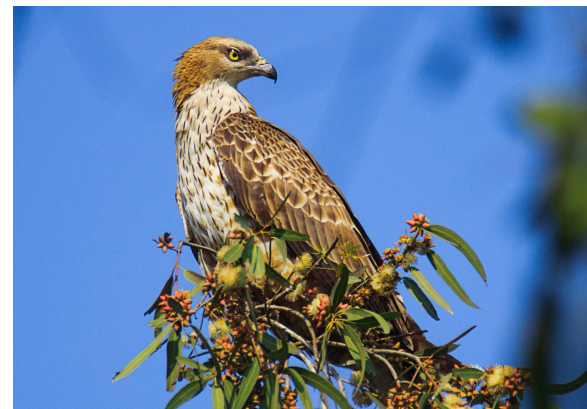
Ospreys



Wheateared Hornbill



Common Kingfisher



Oriental Honey Buzzards



Biodiversity in Focus: Species to Watch

All of Malaysia's terrestrial large mammals can be found in the Kenyir watershed, a true wildlife haven!

Freshwater fishes
(Actinopterygii) of
Kenyir Reservoir,
Peninsular
Malaysia

Homaloptera ogilviei



Acanthopsoides molobrion



Pseudohomaloptera leonardi



Cyclocheilichthys armatus



Glyptothorax schmidti



Clarias leiacanthus



Towards a Clean Planet