



Global Compact
Network
Malaysia & Brunei

Biodiversity Protection as Climate Infrastructure: Iskandar Investment Berhad's “Conserving Mangroves for a Resilient Future” Initiative

A Case Study of



Knowledge Partner:



Iskandar Investment Berhad

Science-Led Mangrove Conservation To Strengthen Climate Resilience And Community Value



Iskandar Investment Berhad (IIB) is a real estate and investment holding company committed to catalysing the strategic development and delivering sustainable value within Iskandar Malaysia, specifically focusing on Iskandar Puteri (previously known as Nusajaya) or Flagship Zone B. This is in line with IIB's vision of "Building an Inclusive and Sustainable Metropolis of the Future." IIB is a Government-Linked Company (GLC) with its shareholders being Khazanah Nasional Berhad (KNB), Employees Provident Fund (EPF) and Kumpulan Prasarana Rakyat Johor (KPRJ).

This case study highlights IIB's Sungai Melayu Mangrove Enhancement Initiative— "Conserving Mangroves for a Resilient Future"—a science-led,

community-inclusive conservation effort designed to establish ecological baselines, data systems, and governance foundations for long-term biodiversity protection, value creation, and climate resilience. Embedded within IIB's ESG Framework and Net Zero Carbon Roadmap, the initiative translates biodiversity protection into long-term climate resilience, ecosystem conservation, and tangible socio-economic value for surrounding communities. Notably, the initiative established IIB's first scientific biodiversity and carbon baseline for Sungai Melayu, enabling evidence-based conservation planning and long-term climate resilience governance. This directly correlates to the register of IIB's Climate Risk Assessment within the Risk Assessment Report.

Company At A Glance

- Industry: Real Estate & Investment Holdings
- Founded: 2006
- Headquarters: Medini, Johor, Malaysia
- Workforce: 150

The Challenge

Sungai Melayu's mangrove ecosystem plays a critical role in protecting coastal areas from erosion, flooding, and climate-related risks, while supporting biodiversity and local livelihoods. Under its Net Zero Carbon Roadmap, IIB identified mangroves as a strategic natural asset due to their significant carbon sequestration, climate resilience potential, and their importance for the livelihoods of the Kampung Sungai Melayu residents.

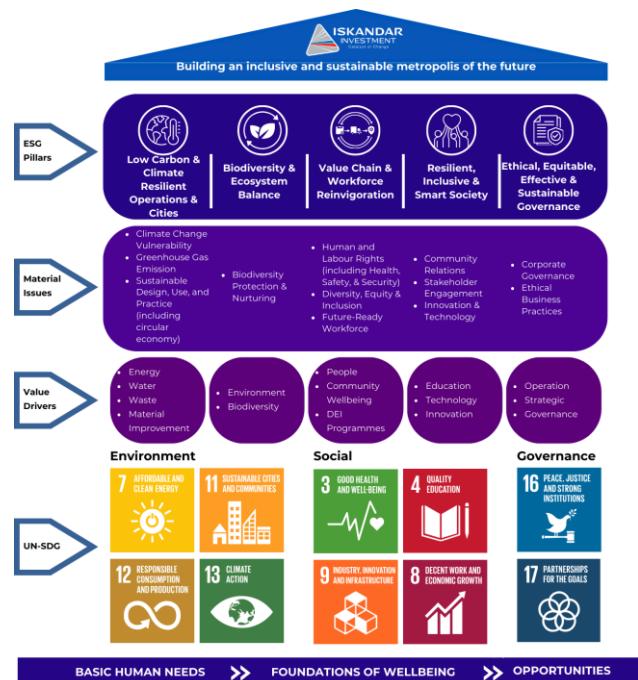
However, the minimal sources of baseline ecological data within IIB's database limited IIB's ability to plan long-term conservation, track impact, and integrate biodiversity considerations into development and land-use decisions. This challenge was reinforced through IIB's 2023 materiality assessment, where biodiversity emerged as one of twelve "high-high" material issues within IIB's 2023 materiality matrix. The assessment signifies the focus among leadership and employees, alongside growing expectations from government and municipal stakeholders to align with national biodiversity priorities, the UN Sustainable Development Goals (SDGs), and Iskandar Malaysia's 2030 conservation targets.

The Action

To lay the scientific, governance, and data foundations for biodiversity protection as a measurable strategic priority, IIB embedded the "Conserving Mangroves for a Resilient Future" initiative into its ESG Framework.

1. Embedding the initiative under its ESG Framework

IIB integrated the initiative into its ESG Framework under Pillar 1 (Low Carbon & Climate Resilient Operations & Cities), Pillar 2 (Biodiversity & Ecosystem Balance) and Pillar 4 (Resilient, Inclusive & Smart Society); aligned with SDG 6 (Clean Water and Sanitation) and SDG 11 (Sustainable Cities and Communities). The initiative contributes to IIB's Net Zero Carbon Roadmap, aiming for Net Zero CBD by 2040 for IIB's own properties, and overall Net Zero by 2050 under the "Land Use, Nature, and Biodiversity" pathway, to preserve and conserve natural resources, including and not limited to water, land, plants, animals, with a guiding principle to preserve long-term climate resilience.



2. Stakeholder Engagement and Planning (Phase 1: February 2024)



IIB partnered with multiple stakeholders in this expedition:

- Non-Governmental Organisation (NGO) - Pertubuhan Akademi Kelab Belia Prihatin Malaysia (KBP)
- Academic experts conducted scientific research:
 - ASSOC. PROF. DR. A. ALDRIE AMIR – Mangrove Ecologist, Universiti Kebangsaan Malaysia
 - ASSOC. PROF. DR. ALISON KIM SHAN WEE – Mangrove Geneticist, Nottingham University Malaysia
 - ASSOC. PROF. DR. NG WEI LUN – Marine Biotechnologist, Xiamen University Malaysia
 - ASSOC. PROF. DR. AMY THEN YEE HUI – Fish Expert, Universiti Malaya
- Governmental Agency - Forest Research Institute Malaysia (FRIM)
 - DR. NADA BADRUDDIN – Head of Fauna Biodiversity Program, FRIM
 - MR. MOHAMMAD SHAHFIZ AZMAN – Head of Zoology Branch, FRIM
- Local residents of Kampung Sungai Melayu

This collaboration included planning, site reconnaissance, and fieldwork. IIB developed a guideline pack outlining objectives, KPIs, risk protocols, waivers, and timelines to ensure, transparency, and accountability.

The panel of biodiversity scientists provided methodological guidance, ensuring scientific standards and phased delivery.

3. Field Research and Onsite Data Collection (Phase 2: March - June 2024)

IIB conducted a structured scientific expedition to establish foundational ecological knowledge of the Sungai Melayu mangrove ecosystem. Activities included biodiversity surveys, preliminary mangrove tree tagging, and ecological data collection such as environmental DNA (eDNA) sampling and firefly habitat studies. These efforts generated primary scientific insights to support conservation planning and were shared through academic channels and the annual IIB's World Environment Month 2024 (IIB WEM24) platform to promote knowledge dissemination.

4. Ecological Data Analysis and Baseline Generation (Phase 3: June – December 2024)

Building on the field research, IIB developed indicative ecological maps highlighting species distribution and biodiversity hotspots within the mangrove area. This resulted in the establishment of IIB's first baseline ecological dataset of Kampung Sungai Melayu, providing a credible reference point for long-term monitoring, informed land-use planning, and future conservation interventions.



5. Governance, Risk, and Quality Assurance

Risk assessments, compliance checks, and quality assurance protocols were applied

throughout. Peer-reviewed scientific methods and systems for KPI tracking, waiver management, and data integrity reinforced governance and accountability.

6. Public Education and Community Benefit (Future Phase)

Exploration of public education and public awareness towards the findings of the expedition includes installing interpretive boards and mangrove tree tagging across the mangrove forest and distributing the Kampung Sungai Melayu Tourist Guidebook to promote ecotourism among other things. CSR activities, such as river cleanups and sustainability forums, are also being explored to deepen community engagement and stewardship, with the incorporation of innovative solutions and digital storytelling.

Enablers For Sustainability Performance And Impact



Leadership & Culture

Leadership emphasises long-term ecological and community impacts, reinforcing accountability and the urgency of embedding biodiversity conservation into the organisation's Sustainability and ESG strategies. IIB's commitment to nurturing and preserving biodiversity is projected through its initiatives and transformative culture.



Strategy

This initiative aligns with IIB's vision of "Building an Inclusive and Sustainable Metropolis of the Future" and was anchored in the organisation's ESG Framework as one of the five pillars, listed in IIB's Materiality Issues, and within the implementation of IIB's Net Zero Carbon Roadmap.



Process

A four-phased structure from stakeholder engagement down to public education guides the initiative. Across the expedition we considered highly of risk assessments, KPI tracking, waiver procedures, and safety briefings. Budget papers and internal review cycles supported timely decision-making.



Governance

IIB's Sustainability and ESG governance is overseen by the Head of Sustainability & ESG under the President/CEOs leadership, with involvement of the IIB ESG Ambassadors. This encompasses representatives from all business and value units of IIB, including this initiative. This ensures clear accountability and alignment with organisational priorities.



Resources

The project is funded under IIB's Sustainability & ESG budget, of which the department was formed to streamline and propel the sustainable initiatives of the company – covering all operational and research logistics. Employees contribute to cleanups, logistics, and community outreach, reflecting internal ownership and commitment.



People

IIB's dedicated ESG Ambassadors participated in the initiative activities, which include biodiversity tagging and awareness sessions, strengthening Sustainability & ESG values and culture across the organisation. Field training and safety briefings ensure readiness and compliance.



ESG Data

A baseline ecological dataset supports long-term monitoring. Findings are published in IIB's Sustainability Reporting, referencing GRI guidelines to support transparency and continuous improvement.



Digital Transformation

Researchers used digital tools such as GPS mapping, data-logging applications, imaging technologies, and software for ecological analysis to enhance data accuracy and efficiency.



Partnerships and Stakeholder Engagement

IIB collaborates with NGOs and academic experts to ensure scientific rigour, and co-leads planning and execution. Kampung Sungai Melayu residents are involved in navigating the expedition site as well as by embedding community priorities such as eco-tourism and livelihoods.



Supply Chain and Procurement

Registered vendors support the initiative under IIB's sustainable procurement practices, in accordance to IIB's internal processes, including logistics and the production of educational materials.

Overcoming Barriers

Implementing a field-based, science-led

conservation initiative within an active mangrove ecosystem required IIB to navigate several operational, coordination, and technical challenges.

1. Navigating Challenging Mangrove Terrain and Safety Risks

Dense vegetation, shallow waterways, tidal changes, and natural hazards made access and safety challenging during on-site activities. To address this, IIB collaborated with expedition members and local residents to implement comprehensive safety protocols, including mandatory briefings, waivers, and house rules, ensuring safe navigation, risk mitigation, and responsible fieldwork. Risk mitigation included planning field routes using tide charts, deploying smaller boats, accessing by foot when necessary.

2. Coordinating Multi-Stakeholder Participation

Aligning schedules and roles among IIB, KBP, biodiversity researchers, and the local community required careful coordination. A phased approach - covering engagement, research, mapping, and knowledge-sharing - allowed flexibility in implementation, with timely adjustments made to maintain momentum and stakeholder alignment.

3. Upholding Scientific Integrity and Data Credibility

Ensuring the reliability of ecological findings required rigorous scientific oversight. A panel of biodiversity researchers guided research methodology and validated outputs, supporting peer-reviewed publications and the development of robust ecological documentation to underpin long-term conservation planning.

Impact and Results

As a foundation-building initiative, the Kampung Sungai Melayu Mangrove Enhancement Initiative has generated enabling outcomes that strengthen IIB's readiness for long-term biodiversity protection, climate resilience, and nature-based solutions, rather than immediate ecological change. The results reflect the establishment of scientific baselines, institutional capacity, and stakeholder alignment required to support future conservation and climate strategies.

1. Advancing IIB's Decarbonisation Milestone and Climate Data Infrastructure

The initiative strengthens IIB's Net Zero Carbon Roadmap milestone by translating biodiversity protection into actionable data and planning inputs that support future nature-based climate strategies.

Key outcomes include:

Climate Data Infrastructure

- Established IIB's first ecological and biodiversity baseline for the Kampung Sungai Melayu mangrove ecosystem
- Enabled long-term monitoring and more informed land-use planning
- Documented mangrove health and firefly zones to support future nature-based solutions planning

Carbon Market Readiness

- Positions IIB to explore future nature-based solutions, blue carbon, and biodiversity-linked mechanisms, subject to applicable requirements
- Baseline datasets support future carbon valuation and ecosystem services modelling

2. Strengthening Biodiversity Baselines and Scientific Knowledge

Through structured fieldwork and expert oversight, the initiative generated credible ecological documentation to support conservation planning and alignment with broader policy and development priorities.

Scientific and research outcomes include:

- Comprehensive flora and fauna surveys, including preliminary mangrove tree tagging and species mapping
- Development of guidebooks and research studies on local plant species and firefly habitats (i.e., Kampung Sungai Melayu Guidebook, FRIM Brief Assessment Report)
- Creation of a centralised ecological dataset for Sungai Melayu



Broader contributions include:

- Strengthened the evidence based on conservation planning and nationally relevant biodiversity documentation
- Integrated scientific rigour with on-ground community participation
- Supported discussions on strengthening mangrove protection
- Contributed to Iskandar Malaysia's ecosystem conservation and low-carbon goals

- In alignment with Polisi Pembangunan Hijau Johor (PPHJ) 2030



3. Delivering Tangible Benefits for Communities and Stakeholders

Beyond baseline-building, the initiative created visible social and economic value through local participation, engagement, and ecosystem stewardship.

Community and livelihood benefits

- Developed a local flora guidebook to support eco-tourism activities
- Enabled income opportunities for local guides and fishermen
- Demonstrated the feasibility of eco-tourism-linked community value within an urban development context

Engagement and participation

- IIB employees took part in clean-up activities and awareness programmes
- Strengthened local stewardship, environmental awareness and heritage pride

Institutional and partner impact

- Through this collaborative work with IIB, KBP showcased their participation in co-managing the expedition and actively spreading awareness through social media impact

- Scientists ensured the effective delivery of credible biodiversity data through rigorous methodologies and validation processes
- IIB increased ESG ownership, morale, and organisational pride
- Internal communications reflected strong employee engagement with biodiversity and climate action

Investor and ecosystem confidence

- Generated external interest for potential co-development, reflecting growing stakeholder confidence in the initiative's direction
- Reinforced the case for integrating conservation considerations into long-term development planning

4. Recognition and External Validation

The initiative received recognition at the state, regional levels, reinforcing credibility and alignment with public-sector sustainability priorities.

- Recognised by the Johor Sustainability Centre (JSC) as among the key biodiversity conservation ecosystem and green transition partners at the *Majlis Pelancaran Agenda Polisi Pembangunan Hijau Johor (PPHJ) 2030*
- Awarded Gold for Biodiversity Conservation at the ESG Positive Impact Awards 2024
- Received Silver distinction for Biodiversity Conservation at the Asia ESG Positive Impact Awards 2024



- Presented to Kebawah Duli Yang Maha Mulia Seri Paduka Baginda Raja Permaisuri Agong Raja Zarith Sofiah during the *Majlis Pelancaran Agenda Polisi Pembangunan Hijau Johor (PPHJ) 2030*
- Featured during the Johor-Singapore site visit by the CEO Action Network – a coalition network of corporate leaders in Malaysia that consists of more than 40 members
- Covered positively by government and ministry media channels

Key Lessons Learned

1. Make Biodiversity a Strategic Priority

Embedding biodiversity into IIB's ESG Framework and Net Zero Carbon Roadmap ensured long-term integration into land-use planning and township development. Treating biodiversity as a strategic asset, not merely CSR, to ensure sustainable developments moving forward.

2. Establish Governance Upfront

Risk assessments, waiver forms, KPI tracking, NDAs, and emergency protocols were implemented before fieldwork began. Early governance reduces risk, ensures transparency, and enables smooth execution.

3. The Quadruple Helix Collaboration

Early engagement with Kampung Sungai Melayu residents, KBP, the biodiversity researchers, and the governmental agency - FRIM, shaped the initiative around eco-tourism and livelihoods, while biodiversity researchers ensured scientific rigour. Co-creation builds trust, relevance, momentum, and pushes for innovative solutions through the four key societal spheres - academia, industry, government, and civil society.



4. Secure Funding with Budget Discipline

Dedicated IIB's Sustainability & ESG funding covered logistics, documentation, and awareness tools. Clear budget papers and contingency planning support delivery and future recognition opportunities.

5. Let Data Drive Decisions

The project produced an ecological baseline for Kampung Sungai Melayu, guiding development boundaries and sustainability & ESG reporting. Validated data turns conservation into actionable insight.

6. Partner for Scale and Credibility

Collaboration with UN Global Compact Network Malaysia & Brunei (UNGCMYB) enabled global visibility and benchmarking through impact case studies and awards. Strategic partners amplify outcomes.

7. Communicate Through Education

Guidebooks and publications translated technical findings into accessible tools for eco-tourism and public awareness. Outputs included - directly or indirectly - Birds of Medini, Kampung Sungai Melayu Guidebook, and a FRIM firefly habitat report.

8. Go Beyond the Physical Site

Printed materials were effective, but reach was limited. Future efforts should include digital learning tools - such as videos, interactive maps, or virtual experiences - to scale awareness and engagement.

Iskandar Investment Berhad (IIB) became an official participant of the United Nations Global Compact (UNG) in 2023.



- As part of the Forward Faster initiative, IIB participated in the Forward Faster Sustainability Awards 2024 organised by UNGCMYB and won:
 - Forward Faster CEO Award 2024
 - Sustainability Awareness and Employee Engagement Recognition
- Participated in UNGCMYB Programmes:
 - Young Executive Sustainability Summit 2023 (#YESS2023)
 - Forward Faster Symposium 2025

- SDG Innovation Accelerator for Young Professionals
 - UNGC SDG Innovation Accelerator Programme 2025, IIB enrolled six young professionals (IIB ESG Ambassadors) in a global programme designed to embed the SDGs into business innovation
 - In parallel, IIB explored a strategic collaboration with UNGCMYB to accelerate sustainable development in Iskandar Puteri, reinforcing the value of the UNGC platform in advancing collective action, knowledge exchange, and ESG leadership
- Alliance Bank: Sustainability Impact Programme (SIP)
 - IIB participated in sustainability-focused knowledge-sharing sessions organised by Alliance Bank in collaboration with UNGCMYB. These platforms provided exposure to regional economic, policy, and sustainability insights, reinforcing the value of cross-sector partnerships in advancing responsible business practices

UNGCMYB played a vital role as IIB's strategic sustainability partner, providing guidance, alignment with global frameworks, and stakeholder engagement to advance the initiative's impact.



“ Sustainability, as we believe, goes far beyond climate action. It is about building a regenerative metropolis where environmental stewardship, economic vibrancy, and social well-being coexist in harmony. It is about planetary health, balanced ecosystems, and the wellness of the society we serve.

This expedition and biodiversity initiative demonstrates IIB's ESG commitment by advancing biodiversity conservation, supporting Iskandar Malaysia's 2030 forest and wetland goals and the UN SDGs, while reinforcing the importance of nature to ecological balance and human well-being.

As we move forward, we remain committed to amplifying IIB's positive impact, strengthening our initiatives, practices, and aligning our ambitions with national and global sustainability targets. With sincerity and purpose, we will continue to transform vision into value - for our organisation, our city and the generations to come.

**Diyana Mohd Amin,
SVP (Head) of Sustainability & ESG, IIB**

THE TEN PRINCIPLES OF THE UNITED NATIONS GLOBAL COMPACT



HUMAN RIGHTS

- 1 Businesses should support and respect the protection of internationally proclaimed human rights; and
- 2 make sure that they are not complicit in human rights abuses.



LABOUR

- 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- 4 the elimination of all forms of forced and compulsory labour;
- 5 the effective abolition of child labour; and
- 6 the elimination of discrimination in respect of employment and occupation.



ENVIRONMENT

- 7 Businesses should support a precautionary approach to environmental challenges;
- 8 undertake initiatives to promote greater environmental responsibility; and
- 9 encourage the development and diffusion of environmentally friendly technologies.



ANTI-CORRUPTION

- 10 Businesses should work against corruption in all its forms, including extortion and bribery.

The Ten Principles of the United Nations Global Compact are derived from: the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.

ABOUT UN GLOBAL COMPACT NETWORK MALAYSIA & BRUNEI

United Nations Global Compact (UNGCG) is a strategic policy initiative for businesses that are committed to take actions to advance broader societal goals. UN Global Compact Network Malaysia & Brunei (UNGCMYB), the official country network of UNGC, is the leading advocate for business sustainability action in Malaysia and Brunei. We empower both corporates and SMEs through value-creating initiatives across learning, connections, and enablers to Forward Faster a collective sustainable future. We support Malaysian and Bruneian companies in aligning with the Ten Principles and contributing meaningfully to the Sustainable Development Goals (SDGs), while providing access to partnerships, tools and knowledge sharing to advance responsible business practices.

Talk to us about joining us or visit our website at www.ungcmyb.org



Global Compact
Network
Malaysia & Brunei

📍 B-8-3A, Block B West, PJ8
Office Tower, Jalan Barat, Pjs 8,
46050 Petaling Jaya, Selangor

📞 03-2935 9051
✉️ info@ungcmalaysia.org

Johor Office

📍 No. 51B, Jalan Impian Emas 5/1,
Taman Impian Emas,
81300 Johor Bahru, Johor

📞 07-571 2016
✉️ info@ungcmalaysia.org