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Epitome of Nature

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SUSTAINABLE BY NATURE: SARAWAK DELTA GEOPARK AS AN EPITOME OF BIODIVERSITY

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Where brackish waters drift slowly and mangrove roots anchor into soft, shifting soil, the Sarawak Delta Geopark (SDGp) rises as a living landscape rich with meaning. It is more than a boundary on a map or a protected site; it is an ecological system that shows how sustainability need not be imposed. Instead, it emerges naturally when human life moves in rhythm with nature.

Spanning over 3,100 square kilometers across Kuching, Bau, and Padawan, the SDGp is defined by a rare convergence of geological, biological, and cultural heritage. Within its embrace lie eleven Totally Protected Areas: six national parks, four nature reserves, and one wildlife sanctuary; each safeguarding ecosystems from mixed dipterocarp and heath forests to peat swamps and mangroves. Within the SDGp, biodiversity flourishes in a delicate yet extraordinary balance. In an age defined by climate change, development pressures, and the duty to safeguard future generations, the delta stands

as a living testament to sustainable biodiversity, sustainable by nature.



Image 1: Carved by wind and waves, Bako's geology in motion
(Source: Author's own collection)

The Delta as a Living System

Deltas are often perceived as marginal spaces, neither fully land nor fully sea. In reality, they are among the most productive ecosystems on Earth. SDGp exemplifies this productivity through its vital ecological functions: water filtration, coastal protection, carbon storage, and the support of both marine and terrestrial food webs. The dense mangrove forests of Kuching Wetlands National Park are far more than scenic backdrops. They act as natural barriers against erosion and storms, serve as breeding and nursery grounds for mud crabs, prawns, and estuarine fish, and provide critical stopover habitats for migratory birds such as the Lesser Adjutant stork and egrets. Every root system and sediment layer tells a story of resilience, adaptation, and ecological continuity. In this sense, the delta is not a passive environment. It is dynamic, responsive, and constantly evolving, yet capable of maintaining the balance necessary for life to persist.

Interconnected Biodiversity

Biodiversity within the SDGp does not exist in isolation. It is the product of intricate relationships among species, habitats, and natural cycles. Small fish find refuge beneath mangrove roots, predators depend on the abundance of prey, and human communities rely on the stability of the entire system for their livelihoods. The flora and fauna of the delta form a vibrant mosaic of life: endemic orchids in Matang Wildlife Sanctuary, proboscis monkeys roaming Bako National Park, Irrawaddy dolphins surfacing in Santubong waters, alongside wetland vegetation, migratory birds, and countless microorganisms. Each element plays a role in sustaining the whole, and the loss of even a single component can trigger cascading effects across the ecosystem. Biodiversity here is not a checklist of species, it is a living network. The SDGp offers a compelling example of how such networks flourish when human intervention is measured, thoughtful, and aligned with nature's rhythms.

Sustainability as Practice, Not Rhetoric

While “sustainable biodiversity” is often discussed in policy circles and academic papers, its true value lies in how it is lived. At the SDGp, sustainability is not a slogan, it is woven into land-use

planning, habitat protection, and community engagement.

The geopark's approach is one of balance. Conservation efforts are carefully aligned with responsible economic activities: eco-tourism in Bako National Park, fisheries in the Santubong estuaries, and environmental education in Kubah National Park. Each initiative is guided by ecological carrying capacity, ensuring that livelihoods and tourism flourish without compromising the health of the ecosystem. Equally important is the recognition of ecological

limits. When these boundaries are respected, nature responds with resilience, offering continuous resources, natural protection, and long-term well-being. In this way, the SDGp demonstrates that sustainability is not abstract policy but a lived reality, grounded in practice and partnership.

Communities as Custodians of the Delta

The SDGp is inseparable from the communities that have long lived along its waterways and coastlines. Their bond with the



Image 2: Along Bako's forest trails, rare pitcher plants quietly thrive (Source: Author's own collection)



Image 3: Orangutans, forest residents whose survival depends on ours
(Source: Author's own collection)

delta has been shaped by generations of experience, traditional knowledge, and adaptation to environmental change.

Rather than viewing local people as threats to biodiversity, the geopark framework embraces them as essential partners in conservation. In the Salak estuary, fisherfolk take part in mangrove replanting, while indigenous communities near Matang share knowledge of medicinal plants and sustainable harvesting practices. These collaborations ensure that stewardship, monitoring, and education are rooted in lived experience. This marks a vital shift in perspective: conservation is no longer about restriction, but about shared investment, an

alliance between nature and society that strengthens both ecological resilience and community well-being.

A Space for Intergenerational Learning

One of the greatest strengths of the SDGp lies in its role as an open learning environment. Beyond the classroom, it offers students, researchers, and young people the chance to engage directly with biodiversity through field observation and hands-on experiences. Encounters with orangutans at Semenggoh Wildlife Centre or migratory shorebirds along the Selabat Mudflats nurture awareness, empathy, and responsibility, values that underpin long-term protection. Environmental education here goes deeper

than scientific facts. It is about cultivating a sense of connection. When younger generations marvel at pitcher plants in Kubah's heath forests or watch flocks of shorebirds at the Kuching Wetlands, they are more likely to become guardians of these ecosystems.

This is where the idea of the "future of generations" becomes tangible.

Sustainability is not passed down through policy documents alone, but through values, knowledge, and attitudes shared across time, ensuring that the legacy of the delta endures.

Reference

