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CHAPTER 7

High Conservation Value (HCV) approach in Malaysia

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Abstract: The High Conservation Value (HCV) approach has become an important tool for identifying, managing, and safeguarding areas of critical environmental and social importance within production landscapes. In Malaysia, HCV has been increasingly adopted across sectors such as forestry and oil palm, driven by certification schemes, corporate sustainability commitments, and evolving regulatory and market expectations. This chapter examines how the HCV approach has been applied in the Malaysian context, highlighting its role in conserving biodiversity, maintaining ecosystem services, and protecting areas of social and cultural significance. Drawing on a review of existing literature, policy and certification frameworks, and practical implementation experiences, the chapter assesses the conservation outcomes associated with HCV adoption in Malaysia, including contributions to ecosystem and biodiversity protection. It also reflects on persistent challenges faced, such as variability in implementation quality, limitations in monitoring and management effectiveness, and gaps in alignment with broader landscape-scale conservation objectives and national land-use planning. The analysis is informed by inputs from a range of relevant actors in Malaysia who apply the HCV approach in practice, including practitioners, companies, civil society organisations, and technical experts. These perspectives were consolidated to capture on-the-ground experiences, lessons learned, and emerging priorities. To ensure that the HCV approach continues to deliver meaningful and durable conservation outcomes in Malaysia, the chapter suggests some key pathways to strengthen HCV implementation in Malaysia, including improving governance and enforcement, enhancing technical capacity and data availability, fostering greater alignment with national conservation frameworks, and promoting landscape-level collaboration. Overall, the HCV approach has played a useful role in supporting conservation outcomes in Malaysia's rapidly changing landuse context, with scope for further strengthening to enhance long-term sustainability.

INTRODUCTION

Globally, only 17.6% of the world's land area is within recognised protected areas (UNEP-WCMC and IUCN 2024) leaving vast expanses vulnerable to conversion for commodity and agriculture production (Wilcove and Koh 2010; Giam 2017; Pacheco *et al*. 2021; Feurer *et al.* 2025). These landscapes often contain critical environmental and social conservation values that face significant risk from land-use change (Chellaiah and Yule 2018a; Koh and Wilcove 2008; Shukor *et al.* 2009; Dhandapani 2015; Pin and Tiong 2008). Safeguarding these values outside of legally recognised protected areas is essential to complement traditional conservation strategies, helping to protect crucial ecosystems, species, community livelihood and cultural in regions where production and conservation must coexist (Dudley *et al*. 2018; Styring *et al.* 2022; Jonas *et al*. 2024).

To address the challenge of identifying and managing critical environmental and social values in production landscapes—unprotected areas where economic activities, such as agriculture, livestock grazing, forestry or fishing, are conducted—the HCV approach was first developed in 1997 by the Forest Stewardship Council (FSC) and incorporated into its

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Principles & Criteria (P&Cs) in 1999 (FSC 2006). The HCV approach complements formal conservation mechanisms such as Protected Areas by identifying and safeguarding critical ecological and social values that may occur outside legally designated reserves. Unlike Environmental Impact Assessments (EIA) and Social Impact Assessments (SIA), which primarily evaluate potential impacts of specific projects, the HCV process focuses on proactively identifying areas of high environmental or social importance to guide responsible land-use decisions.

Over the past two decades, the HCV approach has been widely adopted by sustainability certification schemes in forestry, agriculture, and bioenergy sectors, reinforcing global efforts to embed conservation into commodity supply chains. However, implementation quality and consistency vary significantly across regions and sectors. Understanding how the HCV approach has been applied in Malaysia provides valuable insights into balancing economic development with biodiversity conservation and sustainable land management. This chapter explores Malaysia's experience with the HCV approach, highlighting observed outcomes, persistent challenges, and opportunities for scaling credible and effective implementation. The analysis draws on a literature review, the authors' own observations, and consultations with relevant stakeholders, allowing the chapter to reflect diverse perspectives and remain firmly grounded in practical experiences.

WHAT IS THE HCV APPROACH?

The HCV approach is a globally recognised framework designed to integrate biodiversity and social safeguards into land-use planning and production landscapes (Brown and Senior 2014; Areendran *et al.* 2020). Most HCV areas are located in relatively remote production landscapes such as plantations and forest reserves. It recognises six categories of HCVs, that encompass biodiversity, landscape-level ecosystems, rare or threatened habitats, ecosystem services, community livelihoods, and cultural values of outstanding significance.

These categories provide a common language to guide responsible land-use decisions across sectors and jurisdictions (Figure 1). By focusing on the values that are most critical to conserve, the HCV approach helps reconcile production and conservation objectives. It enables companies and land managers to avoid or minimise impacts, maintain essential ecosystem functions such as riparian protection and slope stability, and respect community livelihoods and cultural heritage. As a result, HCV has become an anchor for responsible land-use planning in the forestry, agriculture, and related sectors.

Core process

The HCV approach follows three connected steps (Figure 2):

1. Identification

Desktop review, field surveys, and stakeholder engagement are combined to locate HCVs, determine their attributes, and understand threats and dependencies.

2. Management

Measures are designed to maintain or enhance the identified values. This includes clear objectives, roles, timelines, and integration into operational planning and estate or FMU management systems.

3. Monitoring and Adaptive Management[a]

Indicators are used to track change in the values over time. Results inform iterative adjustments to management so that protection remains effective under evolving ecological and social conditions.

[a] HCV Management and Monitoring typically incorporates buffer zones and, where necessary, additional areas within the HCV Management Area to help maintain HCVs and reduce potential edge effects.

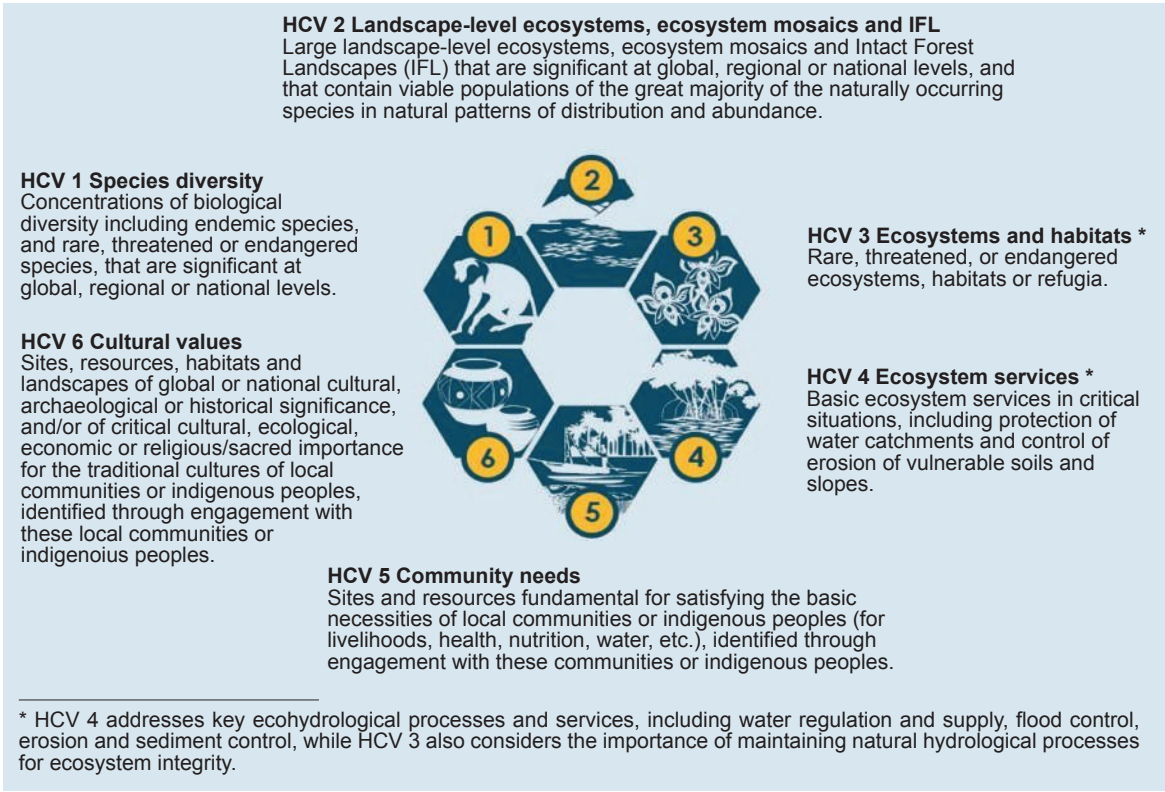

Figure 1. The six High Conservation Values.
(Source: Common guidance for identification of HCV, Brown *et al.* 2013)

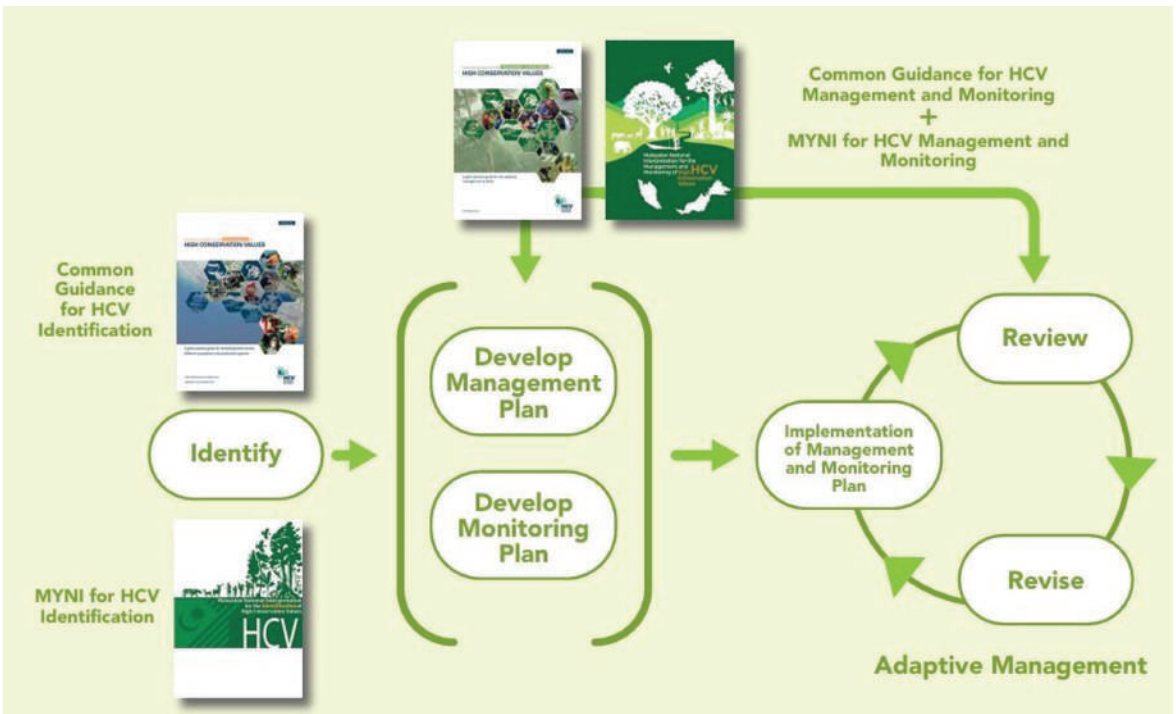

Figure 2. Key steps of the HCV Approach including the relevant guidance documents to be consulted at the various stages of the process. (Source: HCV Malaysia Toolkit Steering Committee 2021, as adapted from Brown and Senior 2014)

People and knowledge
Stakeholder participation is integral throughout the process. The approach brings together scientific data, expert judgement, and local knowledge, including traditional ecological knowledge, to ensure that management reflects real conditions and priorities. Where Indigenous Peoples and local communities are affected, Free, Prior, and Informed Consent (FPIC)[a] principles apply to uphold rights and support legitimate decision-making.

Origins and guidance
The HCV approach was incorporated into a certification for the first time when FSC adopted it as part of the first FSC standards in 1999, making the forestry sector a pioneer of the HCV uptake both globally and in Malaysia. To support consistent implementation, the *HCV Global Toolkit* was developed in 2003 (Jennings *et al.* 2003). In 2006, the HCV Resource Network (now HCV Network, HCVN) was established to promote and expand the adoption of the HCV Approach through a common set of tools, guidance and standards.

In Malaysia, the approach was first adapted for forestry through the High Conservation Value Forest (HCVF) Toolkit (WWF 2009) and later superseded by the Malaysian National Interpretation (MYNI) for HCV Identification (HCV Malaysia Toolkit Steering Committee 2018) and for HCV Management & Monitoring (HCV Malaysia Toolkit Steering Committee 2021). These tools provide guidance to ensure that HCV principles are applied effectively across diverse landscapes.

ADOPTION OF THE HCV APPROACH IN MALAYSIA

The adoption of the HCV approach in Malaysia has evolved over the past two decades through certification systems, national and state policy frameworks, and, more recently, financial sector requirements. These mechanisms have shaped how government agencies, private companies, and land managers integrate HCV identification, management, and monitoring into land-use planning.

Sustainability certification and frameworks
In Malaysia, the adoption of the HCV approach has been strongly influenced by the historical expansion and continued economic importance of the forestry and oil palm sectors (WWF-Malaysia 2009), driven primarily by the uptake of voluntary certification schemes (VCS) that incorporate HCV, particularly those linked to export-oriented commodity markets. Certification requirements incentivise private sector actors to identify, manage and monitor areas of high ecological, social and cultural-significance that are crucial for biodiversity conservation, ecosystem functioning, climate regulation and community wellbeing amid growing land-use pressures.

Pioneering with the early FSC standards, one of the most significant drivers of HCV adoption in Malaysia has been compliance with voluntary and international certification schemes. The Malaysian Timber Certification Scheme (MTCS) and the Roundtable on Sustainable Palm Oil (RSPO) both require companies to identify and manage HCVs before undertaking activities such as converting land for production or replanting and more recently the Malaysian Sustainable Palm Oil (MSPO) as well. In addition, other global voluntary certification schemes across various commodities, including the International Sustainability and Carbon Certification (ISCC), Roundtable for Responsible Soy (RTRS), Roundtable on Sustainable Biomaterials (RSB), Bonsucro, and Rainforest Alliance (RA), require their members to safeguard HCV areas as part of standard due diligence. Together, these certification systems have promoted the protection of HCV areas among private sector actors in Malaysia.

[a] FPIC is a crucial rights-based principle recognising Indigenous Peoples' right to self-determination, allowing them to give or withhold consent for activities affecting their lands, resources, and culture, as outlined in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP).

Government initiatives & policy

The HCV approach has been increasingly adopted and implemented from state-wide and national levels (Table 1). It was first incorporated into Malaysia's Policy on Forestry in 1999, where HCV assessments were made as a requirement for forest management certification under the Malaysian Criteria and Indicators for Forest Management Certification (Natural Forests) (Ministry of Energy and Natural Resources 2021). Later, it was included as Principle 9 in the Malaysia Criteria and Indicators for Forest Management Certification (MC&I), developed by the Malaysian Timber Certification Council (MTCC). The Malaysian Timber Certification Scheme (MTCS) made MC&I standard compliance mandatory ensuring all MTCS-certified forests undergo HCV assessments at the Forest Management Unit (FMU) level.

Table 1. HCV adoption across governing policies across Malaysia.

Year	Action / Adoption	Level	Voluntary/Mandatory
1999	HCV was introduced as a requirement for forest management certification under the Malaysian Criteria and Indicators for Forest Management Certification (Natural Forests).	National	Voluntary requirement for certification under the Malaysian Criteria and Indicators for Forest Management
2002	MC&I 2002 developed by MTCC; Principle 9 includes HCV	National (forestry)	Voluntary (applies if seeking MTCS certification)
2021	MTCS applies MC&I standards across FMUs	National certification (forestry)	Mandatory for MTCS-certified forests
2025	MSPO includes HCV requirements as mandatory compliance	National certification (palm oil)	Mandatory nationwide
2022–2030	NPBD explicitly references HCV as a management tool (Targets 5 & 6)	National policy	Voluntary (policy guidance; not legally enforceable, but encourages adoption across sectors)
Recent / ongoing	Sabah Jurisdictional Certified Sustainable Palm Oil (Sabah JCSPO)[b] in Sabah promotes jurisdictional RSPO certification, HCV/HCS integration	State-level / sectoral implementation	Variable

Note: This table highlights some milestones in the adoption of High Conservation Value (HCV) approaches in Malaysia. It is not exhaustive, and other initiatives, regional programs, or sector-specific applications may exist beyond those listed.

[b] Sabah Jurisdictional Certified Sustainable Palm Oil (Sabah JCSPO) is a Sabah Government commitment with the vision of achieving 100% compliance of sustainability standards for oil palm across the entire state of Sabah to transform Sabah's palm oil production and supply chain, halt deforestation, restore ecosystems and secure livelihoods.

In the palm oil sector, MSPO's certification scheme has made HCV assessments a mandatory nationwide requirement (MSPO 2025) to align with global market expectations. These initiatives have raised local awareness and created a baseline expectation for responsible land management within the forestry and palm oil sector nation-wide including for small and medium-sized producers.

Certification schemes that require HCV assessments vary in their overall approaches, implementation practices, and system structures. Many are further adapted to local contexts, adding additional layers of complexity and variation. Nevertheless, these schemes remain united in their underlying intent for responsible production, all of which are anchored in internationally recognised HCV principles.

Federal-level policy frameworks have also begun to reference the HCV approach more explicitly. The National Policy on Biological Diversity (NPBD) 2022-2030 (Ministry of Natural Resources and Environmental Sustainability 2022) positions HCV as a tool to strengthen forest governance (Target 5) and support sustainable agro-commodities (Target 6). Its inclusion signals formal national recognition of the approach and opens opportunities for wider application across sectors that drive land-use change beyond forestry and palm oil.

At the state level, Sabah and Sarawak have taken the HCV approach further through a state-wide HCV mapping exercise with the intention to support state-wide land use planning (Ng *et al.* 2022). This would support consistent identification and protection of HCV areas across the state, including landscapes beyond the current certified operations. In addition, ongoing HCV-related initiatives in Sabah contribute to broader jurisdictional sustainability efforts under mechanisms such as Sabah JCSPO, helping to inform landscape-level planning and decision-making in a more systematic and coordinated manner.

Influence of financial sector standards

The financial sector is playing an increasingly important role in shaping how the HCV approach is implemented in Malaysia. Banks and investors are beginning to recognise that biodiversity loss and ecosystem degradation pose material risks to business operations, supply chains, and long-term financial stability. This shift is influenced by global frameworks such as the Taskforce on Nature-related Financial Disclosures (TNFD), the Equator Principles, the International Finance Corporation (IFC) Performance Standards, and the Kunming–Montreal Global Biodiversity Framework, all of which emphasise the need for financial institutions to address nature-related risks within their portfolios (UNEP Finance Initiative 2023).

In Malaysia, Bank Negara Malaysia (BNM) has been an early mover in this space. Its joint study with the World Bank (Bank Negara Malaysia and World Bank 2022) highlighted the financial sector's exposure to nature-related risks and positioned biodiversity loss as a factor that could affect national financial resilience. As Malaysia updates its National Biodiversity Strategy and Action Plan, financial regulators are expected to integrate biodiversity considerations more directly into supervisory expectations and guidance for the banking sector (Malaysian Building Society Berhad Bank, n.d.).

In response, several Malaysian banks have begun incorporating HCV safeguards into their lending and investment processes such as CIMB Bank Berhad and Malaysia Building Society Berhad (MBSB) Bank. For example, CIMB's sectoral guidelines for palm oil, forestry, mining and manufacturing explicitly integrate HCV considerations into lending requirement and sustainability due diligence (CIMB 2024). Similarly, MBSB Bank, applies an ESG exclusion framework in its corporate financing that prohibits financing for new estates or projects that convert or degrade of HCV / High Biodiversity (HBV) and High Carbon Stock (HCS) forests, primary forests, forest reserves and peatland.

Overall, the growing integration of nature-related risks within financial systems is strengthening the incentive for companies to adopt the HCV approach and improving the consistency with which HCV safeguards are applied across sectors.

CONSERVATION BENEFITS AND CASE STUDIES IN MALAYSIA

The HCV approach has been reported to be an effective tool for delineating conservation priority areas and help mitigate the extraction of natural resources (Areendran *et al.* 2020). The protection of high value areas such as riparian buffers, forests within oil palm estates, peat domes, and steep-slope forests form a mosaic of protected spaces that helps to maintain ecological connectivity, safeguard species and preserve key ecosystem services (Luke *et al.* 2017; Chellaiah and Yule 2018a, 2018b; Syahza *et al.* 2020). From the information gathered from HCVN, a total of 12,471.94 hectares of high-value areas in Malaysia have been identified and placed under conservation management through HCV Assessor Licensing Scheme (HCV ALS)[c] assessments.

Industrial stakeholders also agree that the adoption of HCV through the voluntary certification schemes (VCS) approach has been largely deemed as successful not only in safeguarding key areas within the production landscapes, in line with their sustainability commitments, but also to safeguard potential reputational risks. Similarly, non-governmental organisations report that through the HCV approach for VCS, companies as well as a growing number of smallholders have greater conservation awareness, promoting more sustainable and inclusive agricultural practices. For example, as of 2024, RSPO-linked HCV assessments have identified 22,087 ha HCV areas managed throughout Malaysia (RSPO 2025). Although these areas are primarily within oil palm landscapes that are often ecologically simplified and supports fewer species, they still harbour key high-value ecological areas that are crucial to ecosystem functioning, climate regulation and community well-being (Chellaiah and Yule 2018b; Styring *et al.* 2022). It provides a stepping stone that enhance connectivity across the wider landscape, further supporting biodiversity and ecosystem services. However, HCV service providers and NGOs have commented that relying mainly on voluntary mechanisms may limit the overall conservation impact and significant conservation efforts are still needed.

The HCV approach emphasises the identification and protection of key ecological, social and cultural values within the landscape, prioritising not only large or contiguous sites but also safeguards critical values that might otherwise be overlooked. Some sites may be relatively small, yet they can be a refugium hosting endemic as well as species or ecosystems features of significant conservation importance. A case in point is *Tomistoma schlegelii* (the false gharial), one of the largest yet least-known crocodilian species assessed to be at risk of extinction in Peninsular Malaysia (Stuebing *et al.* 2006). Unexpectedly, an HCV assessment in an existing (largely mature) oil palm estate in Terengganu, in northeastern Peninsular Malaysia, identified the presence of this crocodilian species within the plantation (PT Hijau Daun 2019). This underscores how HCV assessments can identify and protect values in small or fragmented areas that conventional biodiversity surveys would otherwise miss, perhaps due to difficulty in accessing production areas (which are mostly privately-owned or under long-term concessions) compared to legally constituted conservation areas.

[c] The HCV Assessor Licensing Scheme (HCV ALS) is the quality-assurance system managed by the High Conservation Value Network (HCVN) to ensure that HCV assessments are conducted by licensed assessors and reviewed against global standards. Only assessments recorded by HCVN submitted through the ALS are formally recorded by HCVN.

There is also emerging evidence from site-level documentation (Demies *et al.* 2015; HCV Malaysia Toolkit Steering Committee 2018; Mohd-Azlan *et al.* 2019; Mohd-Azlan and Ahmad Puad 2023) and highlighted case studies (see below), which indicate environmental and social benefits through the implementation of the HCV approach. These case studies from across Malaysia include the key values identified, conservation benefits, potential threats as well as management and monitoring efforts. They demonstrate how the HCV approach, when effectively implemented, offers a practical mechanism for balancing commodity production with biodiversity conservation and community well-being, ensuring also that threat is minimised, managed and monitored.

Additionally, stakeholders also emphasise how the HCV approach provides them with a systematic framework to integrate responsible forest management into larger landscape-level planning and protection efforts. It helps them to strengthen stakeholder trust and relationships, particularly with local communities and relevant stakeholders by demonstrating that ecological, social and cultural values are actively respected and protected. The process also provides valuable opportunities for capacity building and skill development among FMU holders and government officers, enhancing technical competence and supporting more effective implementation of conservation and management measures in production forests, which has strengthened the state's broader conservation objectives.

Case study: Wilmar - Sekar Imej Conservation Area (SICA)

Location: Paitan district, Sabah

Characteristics: Lowland mixed dipterocarp forest, hilly terrains with steep slopes.

Background: HCV areas were first identified as part of RSPO certification requirements. SICA is Wilmar's largest conservation area within its operations in Malaysia, spanning a total of 2,469 ha and approximately 68% of the Sekar Imej estate (Figure 3).

Importance: SICA holds a significant amount of biodiversity with a total of 82 species of fauna listed as protected under Sabah's Wildlife Conservation Enactment 1997, and 20 mammals on the IUCN Red List. SICA remains a sanctuary for many rare, threatened, and endangered (RTE) species including the Sunda pangolin (*Manis javanica*), Sunda clouded leopard (*Neofelis diardi*), North Borneo gibbon (*Hylobates funereus*), sun bear (*Helarctos malayanus*) and more, demonstrating its established role as a key refuge from external anthropogenic pressures. SICA also plays a vital role in controlling soil erosion and providing clean water supply to the surrounding region and local communities.

Identified HCVs:
- HCV 1: High concentrations of RTE species.
- HCV 2: Intact forest landscapes within the SICA area that support viable populations of species in their natural distributions.
- HCV 3: Freshwater swamp, flood plain and riverine ecosystem.
- HCV 4: Riparian buffers, steep slopes and existing dry lowland forest on steep hills.

Threats: Poaching, degazettement of surrounding forest reserves that reduces the overall connectivity to SICA, and expansion of community land use overlapping with HCV-designated areas.

Management & Monitoring: These HCV areas are actively managed and regularly monitored by Wilmar's HCV team, which also consists of honorary wildlife wardens from the local community. They use methods such as camera trapping and patrolling to safeguard and monitor the biodiversity present and maintain compliance with conservation policies. Other efforts include community engagements and programs such as the Wildlife Awareness Outreach Program (WAOP) to enhance conservation knowledge, foster a sense of ownership, and instil responsibility for protecting forests and the environment.

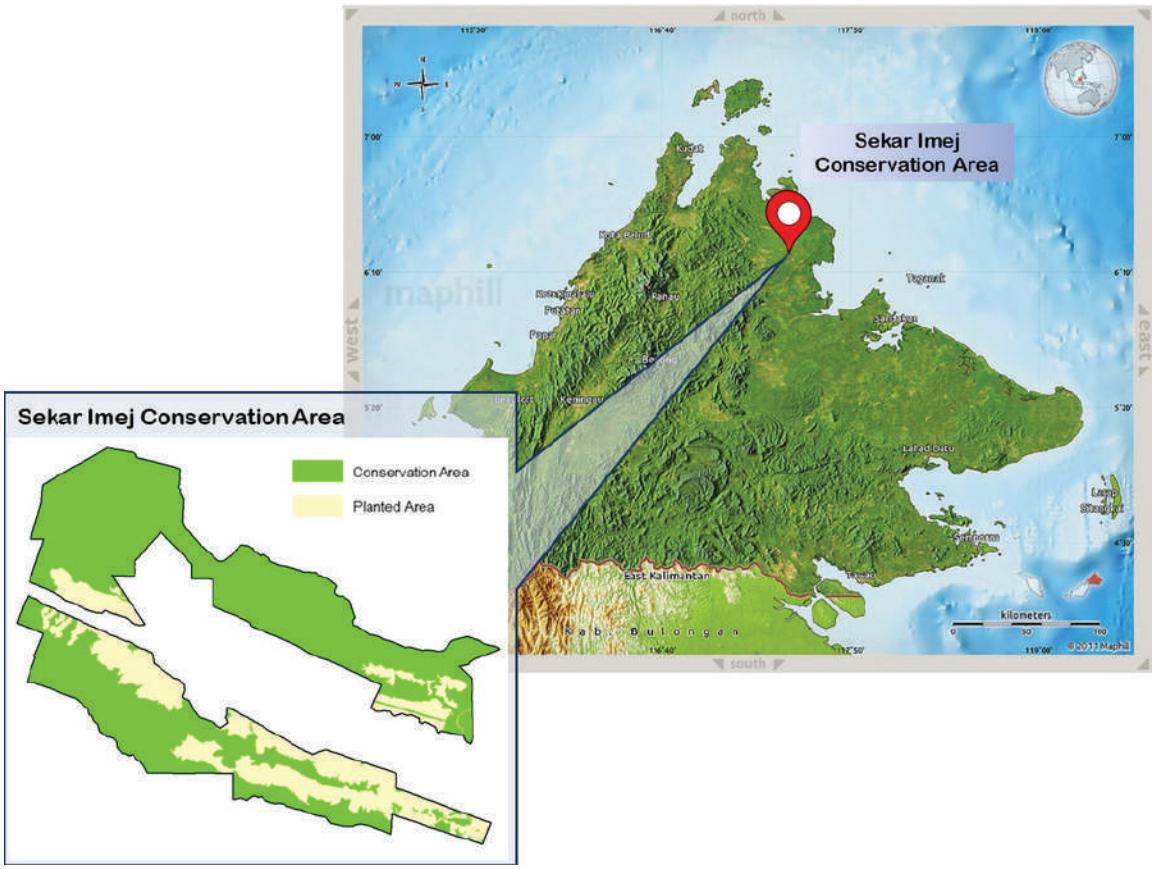

Figure 3. Location of Wilmar's Sekar Imej Conservation Area (Source: sica-vol-01-newsletter.pdf).



Figure 4. SICA rangers patrolling by foot.



Figure 5. Signboard indicating HCV area.



Figure 6. Conservation officer engaging with local communities and explaining the educational materials during the awareness session.

Contributors: Wilmar Plantations Sdn Bhd Management, James Wong and Chua Wan Ji

Case Study: SD Guthrie – Bukit Kiab, Kerdau Estate

Location: Temerloh district, Pahang

Characteristics: Isolated lowland dipterocarp forest; hilly terrains with steep slopes and ravines.

Background: The Kerdau Estate (formerly known as Jentar Estate) contains three main hills (Bukit Pasir, Bukit Angin, and Bukit Kiab) with 160 ha, consisting of >25º slopes and deep ravines. Bukit Kiab (226 m a.s.l.) has a total HCVA area of 59 ha of which 24 ha still contain natural vegetation (forest) that helps stabilise steep slopes and protect the surrounding landscape from erosion.

Importance: This area was financially sponsored by Yayasan Sime Darby (RM 4.1 million) for a tree planting project between 2013 and 2018 to support the restoration of these hills. A total of 126 tree species, mostly from the family Dipterocarpaceae such as *keruing* (*Dipterocarpus* spp.), *meranti* (*Shorea* spp.), *merawan* (*Hopea* spp.) and *resak* (*Vatica* spp.), have been planted and maintained within a 136 ha area, including 35 species that are classified as Critically Endangered (CR), 17 categorised as Endangered (EN), and eight listed as Vulnerable (VU), based on the IUCN Red List of threatened species. Its restoration has become a key focus for partnerships and funding support, strengthening the estate's overall environmental resilience.

Identified HCVs:
- HCV 4: Erosion control, stabilisation of steep slopes, reduction of soil loss across hilly terrain and other indirect ecosystem services.

Threats: Erosion or slope destabilisation (if vegetation cover is disturbed, particularly on steep gradients and ravines), accidental encroachment from estate operations, natural competition and pests impacting the survival and regeneration of planted RTE species, and illegal collection or unauthorised access.

Management & Monitoring: Management and monitoring actions include safeguarding vegetation cover, preventing encroachment, and maintaining the natural condition of the restored and regenerating hills. While earlier phases involved active planting and establishment, the area is now allowed to grow wild, enabling natural processes to

take over and strengthen long-term ecological resilience. The estate team continues to monitor boundaries and sensitive zones. Wildlife monitoring is supported through camera trap deployments. Periodic field inspections, slope observations, and reviews of wildlife data guide adaptive management and reinforce the protection of this hilly ecosystem.

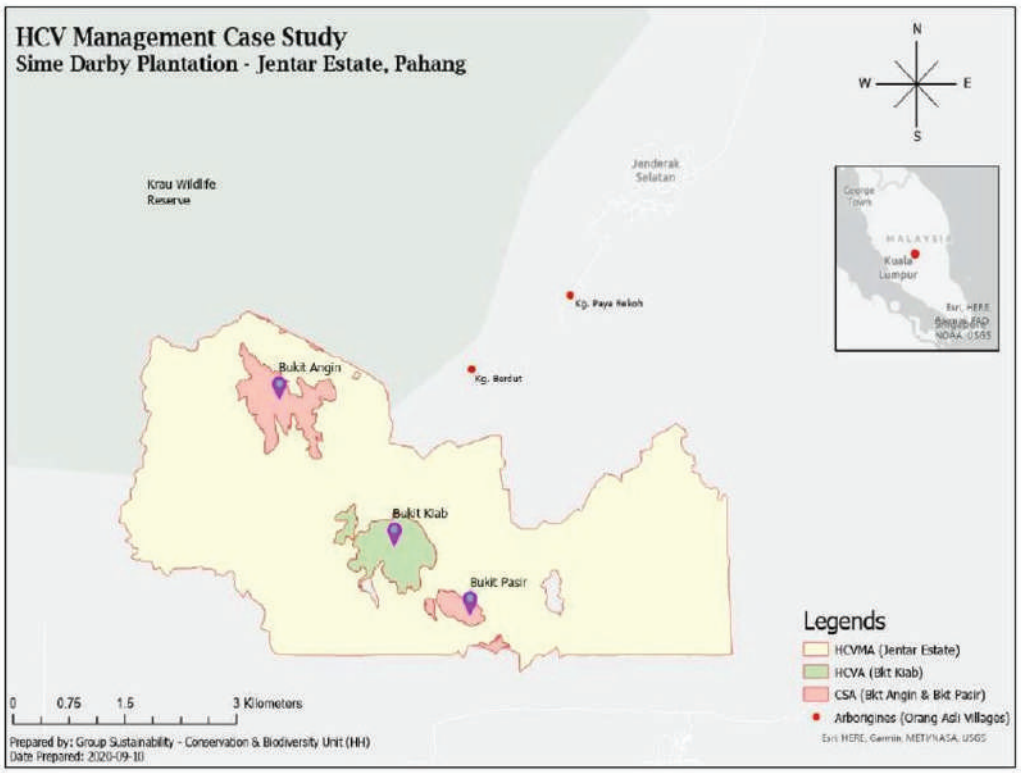

Figure 7. Map of SD Guthrie's Kerdau Estate and Bukit Kiab (HCVA) (Source: late Mohd Hafiz Hishammuddin).



Figure 8. The view of Bukit Kiab (Source: Nur Aida Ab Ghani).



Figure 9. *Merawan Siput Jantan* (*Hopea odorata*), one of the species planted at Bukit Kiab (Source: Nafiz Zainal Abidin).

Contributors: Nur Aida Ab Ghani, SD Guthrie

Case Study: Sabah Forestry Department – Deramakot Forest Reserve (DFR)

Location: Kinabatangan and Tongod districts, Sabah

Characteristics: Lowland dipterocarp forest (including extreme lowland dipterocarp forest), seasonal freshwater swamp, heath forest and ultramafic/ultrabasic forest.

Background: Deramakot Forest Reserve (DFR) is globally recognised as the first natural tropical forest to achieve the Forest Stewardship Council (FSC) Certification in 1997, with HCV areas first identified in 2014. It is a Class II commercial forest reserve that is managed by the Sabah Forestry Department with the whole of DFR (55,507 ha) categorised as HCV areas.

Importance: DFR is ecologically significant as it serves as an ecological corridor linking the Ulu Segama Malua (USM) Forest Reserve, Tangkulap Forest Reserve and surrounding Forest Management Units (FMUs). It is also located within the "Heart of Borneo" (HoB), which is a transboundary rainforest region spanning across Brunei, Indonesia and Malaysia. A total of 435 plant species and 430 faunal species have been recorded in DFR through HCV assessments and previous studies. DFR is home to many IUCN Threatened species and endemic species, e.g. Bornean orangutan (*Pongo pygmaeus*), banteng (*Bos javanicus*), *meranti* tree (*Shorea leptoderma*) and broad-stem pili nut tree (*Canarium latistipulatum*). Additionally, DFR plays a vital role in controlling soil erosion and providing clean water supply, especially to the local communities in the vicinity which utilise the rivers flowing from within DFR to Sg. Kinabatangan. These rivers also serve as essential fishing grounds for the local communities.

Identified HCVs:
- HCV 1: The entire Deramakot Sustainable Forest Management (SFM) Project area is categorised as HCV 1.
- HCV 2: The entire Deramakot SFM Project area is categorised as HCV 2.
- HCV 3: The entire Deramakot Forest Reserve (55,507 ha) is classified as High Conservation Value 3.
- HCV 4: Compartments 52, 108 and 109, as well as 30 m buffer areas on both sides of the permanent waterways within DFR.
- HCV 5: Durian orchard in Compartment 88 and the identified rivers directly feed into the major Kinabatangan River are categorised as HCV 5 in DFR.
- HCV 6: There is no HCV 6 within DFR.

Threats: Across all HCV categories, the main threats are forest fires, encroachment from land clearing, forest simplification, wildlife poaching, and the spread of invasive species.

Management & Monitoring:
i. Research and evidence-based action (establish R&D program to support HCV management, monitoring, enforcement and restoration);
ii. Conduct Landscape-scale Forest Monitoring (combine multi-source remote sensing; conduct systematic ground-truthing and field verifications; implement automated change-detection alerts to prioritise responses);
iii. Conduct RTE/ecosystem monitoring (establish network of plots stratified by ecosystem type and record species composition, DBH, canopy cover, recruitment, mortality to detect structural/floristic shifts; carry out Forest Integrity Assessment audits);

iv. Conduct RTE species monitoring (use appropriate monitoring methods such as camera traps, line-transect surveys, etc.; standardise sampling effort and analysis to estimate abundance, occupancy and habitat use; partner with universities, research institutions and NGOs for studies and capacity building);
v. Ecosystem services monitoring (regular monitoring of river health, above ground biomass (supported by remote sensing/LiDAR where feasible) and NTFP use (via social surveys/structured interviews documenting species use, harvest levels and community dependency));
vi. Undertake cross-cutting actions (adopt standard protocols and a centralised data management system; regular reporting cycles and predefined ecological/social thresholds that trigger management actions; integrate community engagement and staff training; prioritise short-term feasibility studies, then medium-term monitoring to inform adaptive management, enforcement targeting and restoration planning)

These HCV areas are actively managed and regularly monitored by the DFR management team through landscape-scale forest monitoring using satellite imagery, drones, and ground verification; permanent vegetation plots to track forest condition and biomass; and regular Forest Integrity Assessments. Monitoring of RTE species, including banteng and orangutan, is conducted using camera-trap grid systems, line-transect surveys, and standardised monitoring cycles. Ecosystem services are monitored through regular water-quality and sedimentation sampling, community engagement on NTFP use and river dependency, and periodic assessments to inform adaptive management, enforcement, restoration planning, and implementation of Reduced Impact Logging (RIL) v3 during harvesting.

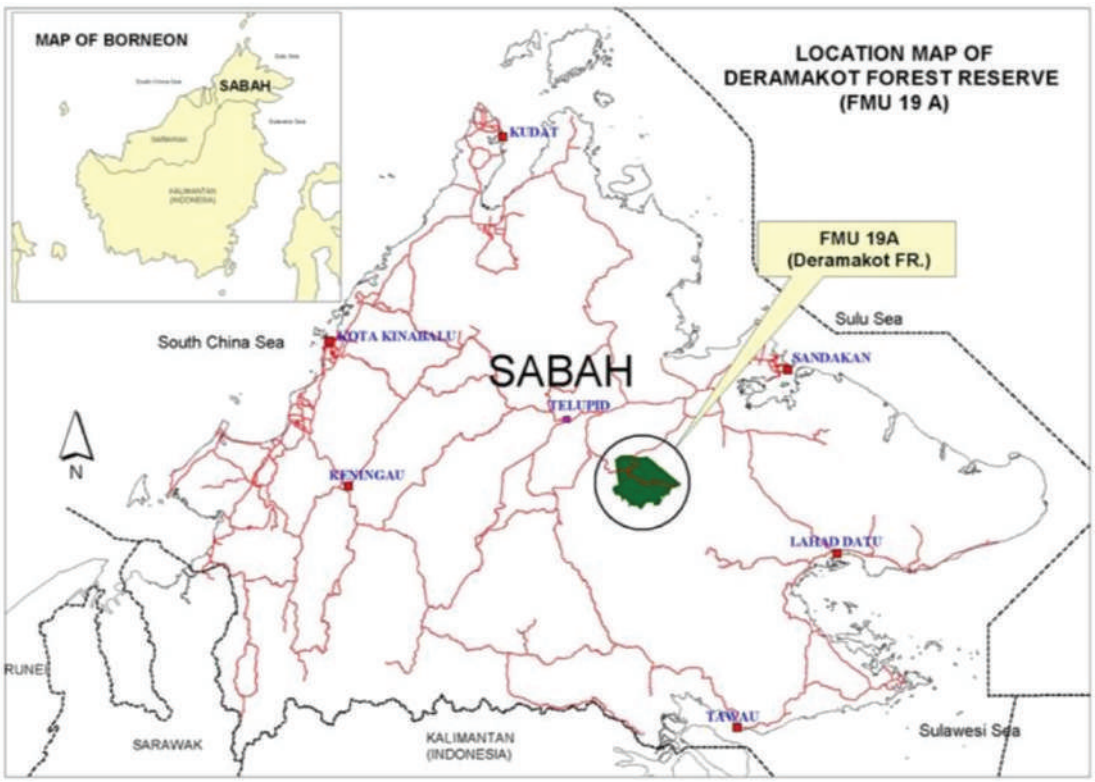

Figure 10. Location of Deramakot Forest Reserve
(Source: Sabah Forestry Department).

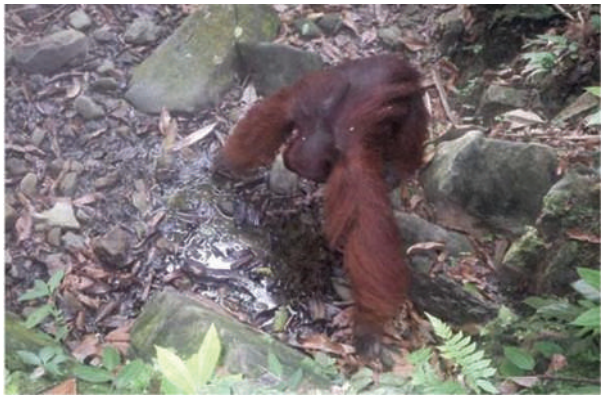

Figure 11. Camera trapped adult-male orangutan at a natural saltlick in DFR (Source: Matsubayashi *et al.* 2006).



Figure 12. NTFP collection (young rattan shoots) by local communities as a food source (Source: Proforest 2025).

Contributors: Sabah Forestry Department and Proforest

CHALLENGES OF THE HCV APPROACH IN MALAYSIA

While the HCV approach is widely recognised as a practical framework for integrating conservation into production landscapes, its implementation in Malaysia continues to face several systemic and operational challenges. These challenges span across governance limitations, uneven uptake across sectors, data and capacity gaps, and coordination barriers that collectively undermine the consistency, quality, and long-term effectiveness of HCV implementation.

Governance and legal mandate gaps

Despite policy signals through the NPBD 2022-2030, implementation remains the core challenge. The NPBD does not specify how HCV approach will be further operationalised, as there are no details of implementation guidelines, timelines, or assignment of statutory responsibilities including the legal recognition of HCV areas. In practice, and as echoed by many stakeholders, HCV uptake is still driven largely by voluntary mechanisms such as certification and industry-led No Deforestation, No Peat, and No Exploitation (NDPE) commitments, with MSPO standing out as the key exception that mandates HCV assessments in the palm oil sector.

In the absence of a formal legal mandate and a comprehensive policy framework to designate, manage, and monitor HCV areas across jurisdictions (including procedures for standardised implementation and remedies for non-compliance), long-term stewardship remains uncertain. This creates a critical protection gap whereby HCV areas are identified and safeguarded mainly where organisations voluntarily participate in sustainability initiatives, rather than through a uniform, nationwide system.

Barriers to sectoral scaling

Stakeholders highlighted that scaling HCV implementation across Malaysia's diverse commodities and land uses remains challenging. At present, uptake is heavily concentrated in the oil palm and timber sectors, largely driven by voluntary certification schemes. Extending the approach to other land-use sectors introduces additional complexity, as many lack established sustainability standards, technical guidance, or institutional familiarity with HCV requirements.

Stakeholders also noted that the HCV assessment and management process is resource-intensive, requiring significant time, technical expertise, and financial investment. These demands pose difficulties for small and medium enterprises (SMEs) and smallholders, who often operate with limited workforce capacity, technical knowledge, and access to external support. Without targeted assistance and practical tools, these constraints can discourage participation, lead to superficial compliance, and make it harder to maintain management and monitoring over time.

Data and information constraints

Stakeholders highlighted that data-related limitations hinder the quality, consistency, and long-term evaluation of HCV implementation in Malaysia. These challenges manifest in two distinct but interconnected ways.

Firstly, there is a lack of accessible, high-quality ecological and social data across Malaysia, which makes it challenging to conduct effective HCV assessments. Community -level data is often undocumented, making it difficult to integrate local perspectives systematically into assessments. These gaps require assessors and subject matter specialists to rely heavily on field surveys, expert judgement, and ad-hoc information sources, contributing to inconsistencies in assessment quality.

Secondly, Malaysia lacks a centralised database for HCV-related information, which significantly limits the ability to evaluate the overall effectiveness and long-term impacts of the HCV approach. At present, most data are held by individual organisations such as HCVN, RSPO, or private companies, with only fragments of information publicly available through certification systems or company disclosures. Stakeholder consultations also highlighted that HCVN maintains only a repository of HCV ALS reports (Table 2) leaving the majority of non-ALS assessments and other implementation data whether generated for certification or conservation initiative undocumented in any national system, resulting in the true extent of conserved HCV areas in Malaysia being under-reported, whether for certification purposes, or conservation initiatives. This fragmentation makes it difficult to determine where HCVs have been identified, how they are being managed, and what outcomes have been achieved. As a result, government agencies, researchers, and civil society are unable to gain a comprehensive picture of the status, performance, or cumulative conservation contributions of HCV implementation across Malaysia.

Table 2. HCV areas identified through HCV ALS assessments for oil palm plantations (Source: HCVN).

Location	Total Conservation area (ha)	HCVs Found	Required by	Year	Reference
Miri, Sarawak	4,717.82	1,4,6	RSPO NPP	2016	a
Tawau, Sabah	5,439.4	1,2,4,5	RSPO	2016	b
Pahang	0.6	4	RSPO NPP	2019	c
Kelantan, Pahang	67.4	1,4, potential 2	RSPO NPP	2018	d
Terengganu	2,246.72	1,2,3,4	MSPO	2019	e

[a] https://www.hcvnetwork.org/reports/felda-global-venture-miri-division-sarawak-state-malaysia
[b] https://www.hcvnetwork.org/reports/ben ta-wawasan-sabah-malaysia
[c] https://www.hcvnetwork.org/reports/hcv -chegar-perah-02-estate-bukit-sagu-08estate-tembangau-05 -estate-selendang03-estate-malaysia
[d] https://www.hcvnetwork.org/reports/hcv-kuala-gris-estate-and-kemasul-estatekuala-lumpur-kepong -berhad-malaysia-2
[e] https://www.hcvnetwork.org/reports/high-conservation-value-full-assessmentladang-rakyat-estate -terengganu-malaysia

The authors also observed that findings from company-commissioned HCV assessments are seldom integrated into scientific research, biodiversity databases, or policy planning exercises. As a result, valuable datasets such as species records, habitat assessments, and connectivity analyses remain under-utilised and largely invisible within broader conservation decision-making. This disconnect reinforces existing data gaps and reduces opportunities to generate landscape-level insights.

Competency and capacity considerations for HCV assessors

A key challenge observed by the authors is the difficulty in translating biodiversity data such as species richness, distribution, and population trends into practical conservation measures within the HCV Management and Monitoring Plan. This is due to limited awareness and technical competency among some HCV assessors and subject matter experts, resulting in inconsistent assessment quality and technical reports that do not adequately translate scientific findings into actionable strategies. Furthermore, stakeholders have also reported that operational teams often struggle to implement these plans due to the disconnect between conservation concepts and field-level practices. Within company conservation departments, limited technical capacity and frequent staff turnover further dampen consistency and the long-term effectiveness of HCV management and monitoring efforts.

Insufficient capacity and systems for long-term HCV monitoring

Stakeholders highlighted that long-term monitoring of HCV areas remains a significant challenge due to limited workforce capacity and the absence of structured monitoring systems. Companies often lack practical tools and clear guidance to establish measurable indicators, develop systematic monitoring procedures, and implement adaptive management strategies. Among smallholders, awareness of the HCV concept remains low, further hindering effective implementation.

In addition to these ecological and technical constraints, stakeholders also noted that limited capacity to manage social and community-related issues has contributed to weak or inconsistent implementation of social HCVs, particularly HCV 5 and HCV 6. These values require continuous engagement with local communities, participatory verification of land use, and management of culturally important sites. Many operators, especially small and medium-sized producers, struggle to maintain the skills, human resources, and systems needed to carry out these responsibilities. In some cases, unresolved community concerns or the inability to meet certification requirements for social safeguards have caused companies to withdraw from voluntary certification schemes rather than invest in building long-term social engagement capacity. These experiences reinforce the importance of strengthening institutional systems for community engagement, conflict resolution, and culturally sensitive monitoring as part of credible long-term HCV implementation.

Collectively, these challenges highlight structural, technical, and institutional gaps that must be addressed to ensure credible and scalable implementation of the HCV approach in Malaysia. The following section discusses potential pathways for strengthening adoption, effectiveness, and long-term impact.

DISCUSSION

The challenges outlined in the previous section show that while the HCV approach has gained traction in Malaysia, its implementation remains uneven and constrained by policy gaps, limited technical capacity, fragmented data, and inconsistent uptake across sectors. This section focuses on seven priority areas: policy integration, standards alignment, capacity building, data architecture and scientific integration, financial incentives and integrity safeguards, inclusive community participation, and landscape-level coordination. Together,

these pathways highlight what is needed to move the HCV approach toward a more coherent, well-supported system capable of safeguarding ecological and socio-cultural values across Malaysia's production landscapes and beyond.

Policy integration and mandate

Stakeholder feedback underscores the need for stronger government direction to shift the HCV approach from optional good practice to standard requirement in land-use decision -making. As land and forest governance falls under state authority, existing state legislation can be enhanced to incorporate HCV approach, including clear provisions for compliance monitoring and enforcement that reflects local contexts. In addition, to achieve broad and consistent uptake, the HCV approach must be formally recognised and embedded within national and state-level policies, legislation, and planning instruments. Importantly, policy integration should extend beyond the agricultural and commodity sectors. Other drivers of land-use change in Malaysia such as infrastructure development, extractive industries, and urban expansion also require safeguards capable of systematically identifying and protecting significant ecological and socio-cultural areas. Positioning the HCV approach as a complementary assessment tool within existing systems (e.g. applying it in environmentally sensitive areas (ESAs) or for any project involving land conversion) would help establish clear and consistent triggers for when HCV assessments are required.

While the NPBD 2022-2030 signals intent, operational detail implementation guidelines, timelines, institutional roles and legal recognition of HCV areas remain limited. Bridging the current gap between policy intent and implementation will require translating the NPBD's high-level commitments into binding regulatory mechanisms. These may include state and federal regulations, land-use planning and zoning rules, concession terms, and licensing or permitting conditions. Clear institutional roles for implementation, compliance monitoring, and enforcement must also be assigned, supported by incentives and/or penalties that make adherence to the HCV approach a standard expectation. Without such measures, the HCV approach will remain dependent on voluntary, sector-specific initiatives, limiting its potential to guide holistic, cross-sectoral land-use planning and long-term conservation outcomes.

HCV standards alignment and sectoral scaling

The recent integration of HCV requirements into the MSPO standard presents a significant opportunity to extend the HCV approach across all oil palm landscapes in Malaysia, including areas not previously covered under RSPO certification. This expansion has the potential to mainstream HCV identification, management, and monitoring across the national palm oil sector, provided the implementation challenges outlined in the previous section are adequately addressed. Stakeholders have noted concerns such as uneven technical capacity, variability in assessment quality, and limited data availability factors that, if unaddressed, could lead to inconsistent or superficial compliance.

The Malaysian National Interpretation (MYNI) can play a key role to ensure consistency in how HCVs are identified and managed across different certification systems: it provides nationally contextualised guidance for HCV identification, management, and monitoring across Malaysia's diverse ecosystems and is already harmonised with the HCV Network's Common Guidance. Ensuring that our local certifications reference and apply the MYNI consistently would improve comparability of assessments and help establish a shared baseline for quality.

Clear, harmonised expectations across certification schemes can reduce confusion among practitioners, prevent duplication of effort, and streamline training and capacity -building efforts across both industry and government. It can also improve the credibility of

HCV implementation by ensuring that assessment methodologies, management prescriptions, and monitoring requirements do not diverge between standards and meet international best practices.

There are recognised variations in implementation scope between certification systems. Even certification systems within a certain commodity, for example palm oil, such as RSPO and MSPO have differences in terms of assessment methodologies, scope, and governance structures. To help government agencies, practitioners, and certification bodies identify where alignment already exists and where greater coherence may be needed, a benchmarking exercise to map key similarities and differences across the schemes would be valuable. This can assist to clarify expectations, highlight opportunities for harmonisation, and support more consistent implementation nationwide.

Data architecture and scientific integration

Stakeholders emphasised that strengthening Malaysia's HCV system will require both a robust data architecture and deeper scientific integration. In order to enhance the quality of future HCV assessments and enable systematic evaluation of implementation effectiveness, stakeholders have proposed that a centralised HCV data-sharing platform should be established.

This platform would serve as a repository for core information on identified HCV areas, their management actions, and monitoring outcomes, and would integrate with existing biodiversity databases, spatial planning systems, and government open-data portals to support transparent and evidence-based decision-making. Regardless of whether the platform is led by a national, state, or delegated agency, it must operate across sectors and commodities, implement clear governance rules, and apply strict safeguards to ensure sensitive ecological or cultural data remain protected through controlled access protocols.

HCV findings are rarely incorporated into traditional scientific or policy decision -making, despite their relevance to land-use planning and biodiversity conservation. Many agencies, researchers, and practitioners remain unaware that substantial HCV datasets even exist. Moreover, the information is often fragmented across private companies, consultancies, state departments, and certification systems. This limited visibility results in valuable ecological and socio-cultural insights such as species occurrences, habitat condition, connectivity features, and community-derived knowledge being under-utilised in conservation science and planning. Stakeholders have suggested that integrating HCV outputs with national biodiversity inventories, habitat maps, and other environmental datasets could reveal landscape-scale patterns and risks that are otherwise overlooked, providing a more holistic basis for evidence-based decision-making.

Meaningful scientific integration will therefore require the adoption of consistent technical standards for HCV datasets, including harmonised indicators, spatial resolutions, taxonomic conventions, and metadata formats. Standardisation would allow HCV results to be compared across regions and over time and support the transition toward outcome -oriented monitoring that tracks measurable ecological and social changes such as species trends, habitat condition, landscape connectivity, and ecosystem-service indicators. Publishing non-sensitive HCV data on national biodiversity platforms and in academic repositories would further promote transparency, stimulate scientific use, and strengthen the relevance of HCV information to conservation policy.

Capacity and availability of tools

Stakeholders agree that building awareness and strengthening capacity are fundamental for effective HCV implementation across all stakeholder groups; government agencies, private sector actors, academia, technical experts, and local communities. Training must be tailored

to the different audiences e.g. for plantation workers and estate teams, guidance should be practical and field-oriented, supported by clear visuals and straightforward instructions; for government, private sector, and academic institutions, efforts should focus on deepening understanding of the HCV concept, its application, and its role in land-use decision-making. Beyond those responsible for day-to-day management and monitoring, stakeholders stressed the importance of building capacity among HCV assessors themselves. Given that the current number of qualified assessors in Malaysia is relatively small, targeted outreach, structured training, and clearer pathways for prospective assessors will be necessary to expand the assessor pool and meet future implementation needs.

Furthermore, stakeholders have highlighted that practical tools and simplified guidance are essential to bridge the gap between technical reports and on-the-ground implementation. This includes developing operational guides and visual checklists for estate managers and field teams, translating technical HCV terminology into actionable steps for day-to-day operations, and creating user-friendly monitoring and reporting tools to reduce complexity. Strengthened documentation processes will further support consistent, high-quality adoption of the HCV approach and enable more effective implementation across diverse landscapes. An example of this in practice is the effort by WWF Malaysia, the Forest Department Sarawak, Sarawak Forestry Corporation, and the Sarawak Timber Association, which, together with inputs from forest managers, have developed practical guides and training modules on HCV processes tailored for Forest Management Units in Sarawak. These materials demonstrate how clear, context-specific tools can help translate HCV guidance into operational practice.

Financial incentives and integrity safeguards

Stakeholders noted that, for the HCV approach to achieve wider uptake particularly among SMEs and smallholders, it must be economically viable and appealing. Financial and market -based mechanisms can help reframe HCV implementation from a compliance cost into a long-term value proposition. Expanding access to voluntary certification schemes (VCS), scaling payment for ecosystem services (PES), and mobilising biodiversity and carbon-related investments can reward land managers for maintaining ecological integrity and attract private capital into conservation efforts (Noza 2020). In addition, leveraging biodiversity conservation funds (e.g., Malaysian Palm Oil Green Climate Fund) and fostering public -private partnerships can help address resource gaps for SMEs and smallholders.

At the same time, the authors recognise that Malaysia's carbon market faces significant challenges, including a limited pipeline of projects, low credit supply on the domestic exchange, and persistent concerns around credit quality, integrity, and risks of greenwashing especially where projects lack strong verification frameworks. These gaps create an opportunity for the HCV approach to serve as a robust safeguard and validation tool. By embedding HCV principles into project screening, baseline design, and monitoring requirements, carbon- and nature-based initiatives can demonstrate stronger environmental and social integrity. In this way, HCV can enhance the credibility of nature-based claims, strengthen due-diligence processes, and support the development of higher quality ecosystem service verification protocols. This dual role making conservation economically attractive while reinforcing methodological rigour positions HCV as a practical mechanism for scaling credible, finance-aligned conservation outcomes in Malaysian landscapes.

Inclusive participation and community data

Stakeholders emphasised that community participation must extend beyond the one-off consultations undertaken during the HCV assessments. Ongoing involvement of Local Communities and Indigenous Peoples (IPLCs) helps build long-term ownership of HCV areas and ensures continuity in monitoring efforts. Participatory HCV monitoring provides a structured and meaningful role for communities to safeguard social and cultural values

while contributing to data collection. When designed as a form of community-based or citizen-science monitoring often in collaboration with NGOs and academic institutions, it can enhance data quality, strengthen local stewardship, and ensure that management decisions reflect on-the-ground realities. From a conflict-prevention perspective, participatory monitoring offers a practical pathway for embedding transparency and co-management into the HCV process. When communities play an ongoing role in documenting changes, identifying threats, or reporting boundary disputes, potential conflicts can be addressed early, rather than escalating due to miscommunication or lack of involvement. This aligns directly with the aforementioned stakeholder concerns regarding overlapping land-use claims and tensions arising when HCV areas are not well understood or locally accepted. Bottom-up approaches of this kind are essential for amplifying community voices and embedding local knowledge into long-term conservation outcomes.

Landscape-level governance and collaboration

As many HCV areas identified within production landscapes are often small and fragmented (e.g., riparian buffers, steep slopes and forest patches), stakeholders have emphasised that landscape-scale planning is essential to maintain connectivity and ecosystem function. These areas have the potential to function as ecological "stepping-stones" connecting larger protected areas and enhancing overall landscape connectivity. Disturbances in nearby conservation areas such as protected zones or other HCV sites can trigger cascading impacts on adjacent HCV areas. Events like fires or pest/disease outbreaks highlight the need for proactive measures; therefore, adaptive management and early mitigation are essential to prevent harm and maintain the integrity of interconnected conservation landscapes.

To operationalise these measures effectively, stakeholders recommend establishing a dedicated HCV Steering Committee to set landscape-level priorities, coordinate risk management, and guide the integration of HCV principles into broader land-use planning (taking into consideration protected areas and conserved areas within the landscape). This steering committee should be established at a landscape-level to allow coordination between companies and local authorities on HCV-related matters. Effective implementation will require robust data sharing and collaborating among the members, including governmental agencies across sectors, private companies, NGOs, academia and technical experts. This multistakeholder approach ensures that decisions are informed and inclusive.

CONCLUSION

Malaysia's experience with the High Conservation Value (HCV) approach demonstrates meaningful progress in integrating conservation within production landscapes, driven largely by voluntary certification schemes, private-sector commitments and lately state-level initiatives. These mechanisms have elevated awareness of ecological, social, and cultural values and contributed to the identification and management of HCV values across forestry and agricultural sectors. Case studies have also highlighted the practical benefits of the approach, including improved protection of rare and threatened species, maintenance of ecosystem functions, and strengthened engagement with local communities. However, despite these advances, implementation remains uneven due to structural and institutional limitations. The absence of a clear legal mandate, fragmented data systems, insufficient assessor capacity, and limited long-term monitoring continue to constrain the consistency and effectiveness of the HCV approach. While the National Policy on Biological Diversity 2022-2030 signals growing policy interest, further action is needed to translate high-level commitments into operational requirements supported by coordinated governance and enforcement mechanisms. Looking forward, several shifts will be essential to strengthen and scale the approach. Enhanced policy integration can provide the regulatory clarity needed for broad-based uptake, while harmonisation of national standards and improved

technical capacity can elevate the quality and credibility of assessments. Establishing a centralised data architecture, supported by scientific integration, will enable better transparency and landscape-level evaluation of conservation outcomes. Financial incentives will be needed to support broader uptake, particularly among SMEs and smallholders. At the same time, embedding HCV safeguards into carbon and biodiversity initiatives can strengthen the environmental and social integrity of nature-based solutions. Finally, sustained community participation and landscape-level collaboration are critical for ensuring long-term stewardship and ecological connectivity. Collectively, these actions will move Malaysia toward a more coherent, science-based, and accountable HCV system, one that supports national conservation goals while enabling responsible and sustainable development across diverse land-use sectors.

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