Malaysian National Interpretation for the Identification of High Conservation Values

Draft 2

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The HCV Malaysia Toolkit Steering Committee comprises FSC Malaysia, the Malaysian Palm Oil Association (MPOA), the Malaysian Palm Oil Certification Council (MPOCC), the Malaysian Timber Certification Council (MTCC), the Roundtable for Sustainable Palm Oil (RSPO), the Roundtable for Sustainable Biomaterials (RSB) and WWF-Malaysia.

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List of Acronyms and Abbreviations

ALS	Assessor Licensing Scheme of the HCVRN
AZE	Alliance for Zero Extinction
CCB	Climate, Community & Biodiversity
CFS	Central Forest Spine (Peninsular Malaysia)
CITES	Convention on the International Trade in Endangered Species of Wild Fauna & Flora
CR	Critically Endangered
DD	Data Deficient
DWNP	Department of Wildlife and National Parks (Peninsular Malaysia)
EN	Endangered
ERA	Environmental Risk Assessment
FMU	Forest Management Unit
FPIC	Free, Prior and Informed Consent
FSC	Forest Stewardship Council
FRIM	Forest Research Institute Malaysia
GFS	Gravity-fed system
HCV	High Conservation Value
HCVA	High Conservation Value Area
HCVMA	High Conservation Value Management Area
HCVRN	High Conservation Value Resource Network
HOB	Heart of Borneo
IBA	Important Bird Area
IPA	Important Plant Area
IUCN	International Union for the Conservation of Nature
KBA	Key Biodiversity Area
MPOA	Malaysian Palm Oil Association
MPOCC	Malaysian Palm Oil Certification Council
MTCC	Malaysian Timber Certification Council
NCZPP	National Coastal Zone Physical Plan
NECAP	National Elephant Conservation Action Plan
NI	National Interpretation
NPBD	National Policy on Biological Diversity
NRE	Ministry of Natural Resources & Environment
NSPSF	North Selangor Peat Swamp Forest
NT	Near Threatened
NTCAP	National Tiger Conservation Action Plan
NTFP	Non-timber forest product
P&C	Principles & Criteria
RSB	Roundtable on Sustainable Biomaterials
RSPO	Roundtable on Sustainable Palm Oil
RTE	Rare, threatened and endangered
SFMLA	Sustainable Forest Management Licensed Area

TEK	Traditional Ecological Knowledge
VCS	Verified Carbon Standards
VU	Vulnerable

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Introduction of this document

The High Conservation Value (HCV) approach has been used to in conjunction with sustainability certification schemes for forestry and agricultural commodities since 1997, starting with the Forest Stewardship Council (FSC). The first set of HCV guidance documents were produced in 2003 by Proforest. The HCV Resource Network (HCVRN) was established in 2005 and in the subsequent years the HCVRN and FSC worked together to revise the HCV definitions.

Since 2012, there has been a consultative process to develop a new set of practical user manuals for HCV practitioners. The first of document produced under this initiative is the Common Guidance for the Identification of HCVs produced in 2013, followed by the Common Guidance on the Management and Monitoring of HCVs.

HCV national interpretations (HCVNIs) are documents that adapt the general definitions of the six HCV categories to a country context. HCVNIs are important for two reasons:

1. Generic values include terms like significant, critical and concentration, which need to be qualified according to the local context.
2. Appropriate management of a HCV depends on the level of threat to the value, which can vary dramatically between countries.

This document is the Malaysian national interpretation of the HCV Common Guidance on the Identification of High Conservation Values.

How to Use this document

This National Interpretation (NI) document should be used together with the Common Guidance on Identification of HCVs and not as a standalone document. Where there is lack of guidance on any particular item, please refer to the relevant section(s) in the Common Guidance. Where there is a conflict or discrepancy, the global HCV guidance and definitions take precedence over national interpretations.

This NI document is intended primarily for HCV assessors, resource managers, and auditors. It is to be used in conjunction with the HCVRN's Common Guidance on the Identification of High Conservation Values which provides guidance on the interpretation of the HCV definitions and their identification in practice, to achieve standardisation in use of the HCV approach.

It is not a binding document, but rather a guide to "best practice" which must be followed according to different criteria including: scale, intensity and risk of the project, budget and technical capacity, etc. This NI should be followed in a consistent manner, particularly where certain approaches are to be used in providing justifications for the HCV findings. Further details on requirements relating to HCVs should be sought from the relevant certification scheme.

The introduction sections of this document provide the context for how the HCV approach should be used, including advice on HCV assessments. The main sections provide detailed guidance on national interpretation of the six HCV categories, particularly the interpretation of key terms and concepts related to each value; potential data sources and indicators for HCVs; and illustrative case studies and examples for each HCV category.

This guidance is mainly aimed at **larger commodity producers** who are striving to achieve and or maintain certification status for a range of commodities (including timber and palm oil). While it is

well-acknowledged that a significant proportion of agricultural commodities is produced by smallholders, they do not have access to the same level of technical expertise and financial resources as large companies. Therefore, some of the guidance in this document will be beyond the reach of many small producers. The HCVRN is currently producing additional guidance documents for smallholders and the national interpretations for these documents may be produced in future.

This document focuses on identification of HCVs, and therefore the management and monitoring of HCVs are only briefly touched upon in this document. The next phase in the development of the HCV Malaysia Toolkit will result in one or more national interpretations of the HCVRN Common Guidance for the Management and Monitoring of HCVs document.

1. Introduction

The High Conservation Value (HCV) approach was first developed in 1997 and in incorporated in the Principles & Criteria (P&Cs) of the Forest Stewardship Council (FSC) in 1998 for identifying and managing environmental and social values in forest landscapes. A three-part High Conservation Value Toolkit (the 'Global Toolkit') was produced in 2003. In order to promote a ***common interpretation of the HCV definitions*** and thus a more consistent application across different natural resource sectors or geographies, the global HCV definitions were amended as part of the revision of the FSC P&C (2012). In the intervening years, the HCV approach had evolved with greater emphasis given to values rather than areas, and expanded beyond forests ecosystems. Subsequently, the High Conservation Value Resource Network (HCVRN) produced the Common Guidance on the Identification of High Conservation Values in 2013 to clarify the use of HCV to other ecosystems and to provide guidance on the updated HCV definitions, as well as examples from practical field experience. At the global level, HCV is now widely used in certification standards (forestry and agriculture systems) and more generally for resource use and conservation planning.

In Malaysia, a guidance document called "High Conservation Value Forest (HCVF) Toolkit for Malaysia: A national guide for identifying, managing and monitoring High Conservation Value Forests" was published in 2009 based on the Global Toolkit in an initiative led by WWF-Malaysia. As its name suggests, the toolkit was mainly aimed for use by the forestry sector and for forest ecosystems. Since then, there has been a tremendous surge in palm oil certification in the country under the RSPO scheme to the extent that there is a much higher demand for the application of the HCV approach within the palm oil context compared to forestry. Significant developments have also happened at the national level with regard to laws and policies related to natural resources management such as the formulation of the National Physical Plan, the Central Forest Spine Master Plan, the replacement of the Protection of Wild Life Act 1972 with the Wildlife Conservation Act 2010, and more recently the launch of the National Policy on Biological Diversity 2016-2025 and the Sabah Structure Plan 2016-2033.

As such, there was an urgent need to develop a new HCV toolkit which is applicable to various terrestrial ecosystems in Malaysia, and aligned to the HCV Common Guidance.

A Steering Committee (SC) for the HCV Malaysia Toolkit development was formed in April 2015 comprising the Forest Stewardship Council (FSC) Malaysia, Malaysian Timber Certification Council (MTCC), Roundtable on Sustainable Palm Oil (RSPO), Roundtable on Sustainable Biomaterials (RSB), WWF-Malaysia, and the Malaysian Palm Oil Association (MPOA). The SC consists of custodians of certification schemes active in Malaysia at that time (i.e. FSC Malaysia, MTCC, RSPO, RSB), as well as key initiators of the HCV Malaysia Toolkit process (WWF-Malaysia and MPOA). The Malaysian Palm Oil Certification Council (MPOCC), which was established in 2016, joined the SC soon after.

The SC then formed the Technical Working Group (TWG) which is a group of subject matter specialists to provide advice and technical inputs for the development of the HCV Malaysia toolkit. The TWG is structured in accordance with the three geographical regions in Malaysia namely Sabah, Sarawak and Peninsular Malaysia as these three regions vary substantially in legal frameworks, pace of economic development and environmental conditions. In each geographic region efforts were made towards ensuring adequate representation from the different key stakeholder groups.

The HCV Malaysia Toolkit is envisaged to comprise at least two documents: (i) a national interpretation of a HCVRN Common Guidance on HCV Identification; and (ii) a national interpretation of the Common Guidance on the Management and Monitoring of HCVs.

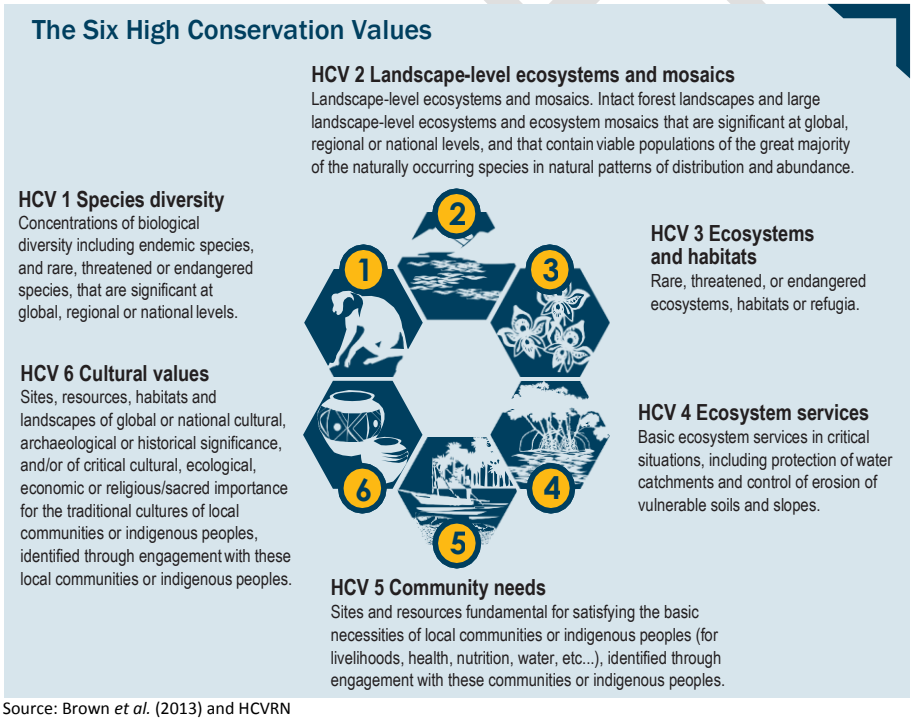
The national interpretation on HCV Identification is not meant to be commodity- or sector-specific, as the HCV definitions are universal. However, the proposed national interpretation on management and monitoring of HCVs will be targeted at specific commodities or sectors given that the management and monitoring measures needed to maintain and/or enhance HCVs would vary from one commodity to another. As such, it is expected that there will be one national interpretation document for the management and monitoring of HCVs related to the palm oil sector, another national interpretation for the management and monitoring of HCVs related to the forestry sector and so on.

This document is the first component of the HCV Malaysia Toolkit, i.e. the national interpretation for the identification of HCVs.

As the development of this toolkit involved a multi-stakeholder consultation process, the outputs are not meant to belong to any individual party and should be freely available to all relevant users of the HCV approach.

1.1 The Six High Conservation Value

An HCV is a biological, ecological, social or cultural value of outstanding significance or critical importance. The six categories of HCVs are:



Source: Brown *et al.* (2013) and HCVRN

The HCVs are elaborated further in the Common Guidance on the Identification of HCVs and the national interpretation of key terms and concepts related to the different values can be found further below in this document.

1.2 The High Conservation Value Approach

The three key steps in implementing the HCV approach are:

- **Identify** the HCVs through assessments and stakeholder consultation
- **Manage** the HCVs by implementing appropriate measures and
- **Monitor** the implementation and effectiveness of these management measures

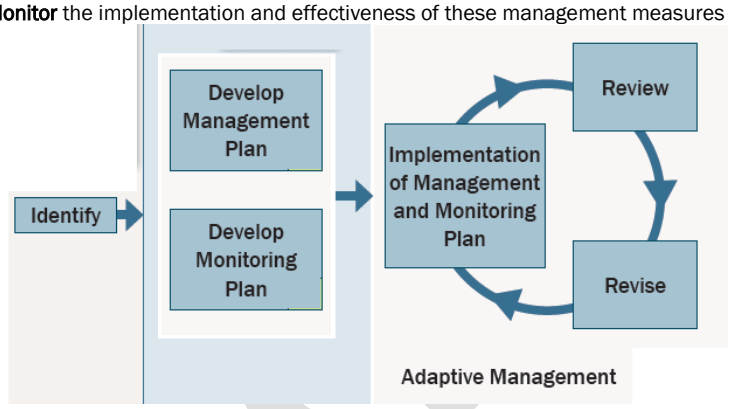


Fig.1: A brief schematic outline of the HCV approach

1.2.1 Identification

Identification involves interpreting what the six HCV definitions mean in the local or national context and assessing which HCVs are present in the area of interest or proposed development area.[1] It also involves assessing which HCVs in the wider landscape may be negatively impacted by project activities (e.g. impacts on water or wetland HCVs may occur well beyond the proposed development area).

Identification of HCVs is done through an HCV assessment which consists of information exchange and gathering, stakeholder consultation, scoping study and environmental and social fieldwork. HCV assessments should result in a clear report on the presence or absence of values, their location, status and condition, and as far as possible should provide information on areas of habitat, key resources, and critical areas that support the values. This will be used to develop management recommendations to ensure that HCVs are maintained and/or enhanced.

1.2.2 Management

An area where one or more HCVs are present is a HCV Area or HCVA while an area within the development area or in the wider landscape for which appropriate management decisions must be taken and implemented in order to maintain or enhance an HCV is called a HCV Management Area or HCVMA.

The HCVA is usually designated as a conservation area within the proposed development site, while within the HCVMA production activities may occur, provided that they do not cause any deterioration

[1] The area of interest or development area (whether proposed or existing) may also be referred to as management unit, plantation, concession, etc. For simplicity, "development area" will be used throughout this document.

of the HCV(s). The size of the HCVMA is usually larger than the HCVA. See Box 1 for an example illustrating the difference between HCV and HCVMA.

Box 1: HCVA and HCVMA

One example is a natural freshwater lake within a logging concession area, which is a rare ecosystem type (HCV3) and is important for providing livelihoods to local community who depend on the lake for their fish supply (HCV5). The lake is therefore an HCVA. A major source of water for the lake is a river that originates in a forested area upstream of the development area and runs through a large proportion of the development area before entering the lake. In order to maintain the water quantity and quality needed for sustaining the aquatic life in the lake, the river buffer zone (the width of which depends on local regulations and certification requirements) throughout the river course needs to be designated as an HCVMA.

In order to designing a management system for HCVs, an assessment of the existing and potential threats to the HCVs should be conducted. These threats include:

- threats from proposed management activities, such as logging operations or plantation establishment
- threats from external activities such as hunting, illegal logging or construction of a new road or dam

The management requirements needed for maintaining and enhancing HCVs include demarcating areas that need total protection and areas that can be used for production. Within the production areas, activities must be consistent with maintaining or enhancing HCVs (e.g. anti-poaching controls or fire management policies).

1.2.3 Monitoring

A monitoring system should be established to ensure that management practices effectively maintain and/or enhance the HCVs over time. Appropriate indicators must be chosen for the monitoring of the HCV status, and thresholds should be determined for deciding when appropriate actions are required to ensure that the HCVs are maintained or enhanced. Indicators and thresholds for action are likely to be site and/or country-specific.

1.3 Common guidance: using HCV across different ecosystems and land uses

The identification of HCVs as elaborated in this document and the Common Guidance can be applied to different ecosystems, different commodities (with a focus on forestry and agriculture) and across different geographies.

Malaysia is a federation of 13 states of which 11 are located in Peninsular Malaysia while two states, namely Sabah and Sarawak, are located on the Borneo island. Due to historical reasons, Sabah and Sarawak have considerable more autonomy of their natural resources compared to the Peninsular Malaysia states. As the HCV approach is focused mainly on biodiversity and land resources, regional differences in terms of socio-cultural context and also the applicable laws and policies need to be taken into account when identifying HCVs.

Throughout this document, due recognition is given on these regional differences and where relevant it is stated clearly what are the laws, policies, data sources, etc. that are specific to each region.

The Common Guidance on the Identification of HCVs provide explanations of how HCVs are relevant in different ecosystems, how the HCV concept is used in commodity production schemes and how

HCV national interpretations are useful for adapting the general definitions to a country context. The following section mirrors this but focuses on information that is relevant to the national context.

1.3.1 HCV in different ecosystems

In contrast to the earlier HCVF Toolkit for Malaysia, this document is applicable for both forested and non-forested natural ecosystems. Non-forested natural ecosystems in Malaysia encompasses vegetation on limestone, quartz ridges and at higher elevations on mountains, heath vegetation well as some wetland types. When conducting a HCV assessment, non-forested areas within the development area or in the wider landscape should not be overlooked or assumed to be lacking in HCVs. This is because the non-forested natural ecosystems (terrestrial or aquatic) as briefly listed above also harbour significant values and the HCV process is used as a safeguard against the destruction of critical values that could occur, directly or indirectly, through forestry operations or conversion of natural vegetation to plantation forestry or agriculture.

Freshwater ecosystems in particular are impacted by changes to water quality, quantity and loss of riparian vegetation. Threats to the integrity of freshwater ecosystems include fragmentation due to the building of roads and other infrastructure such as the construction of hydraulic structures (resulting in the blocking of natural waterways), water abstraction and overplanting into river buffer areas. Therefore, if there are freshwater ecosystems present within the development area or in the wider landscape, there should be an assessment of potential HCVs. It is important that for any freshwater HCV assessment, the geographical scope of analysis (or hydrogeographical scope) should be defined before identifying HCVs or the areas required for their maintenance. This may be best accomplished through a scoping study.

Section 3.3 of this document provides examples and guidance for major ecosystem types in Malaysia both forested and non-forested.

1.3.2 Different land uses: Commodity production

Certification schemes

In Malaysia, the HCV concept was first used in forest certification specifically with the introduction of FSC into Malaysia in the mid-to-late 1990s followed by the Malaysian Timber Certification Scheme (MTCS) whose Malaysian Criteria & Indicators (MC&I) 2002 incorporated the concept of HCV Forests. When the RSPO's Principles & Criteria for the Production of Responsible Palm Oil was first launched in 2005 it also incorporated the HCV approach. Subsequently, other commodity certification standards incorporating the HCV or related concepts were introduced in Malaysia.

Table 1 below provides a summary of the different commodity certification standards operational in Malaysia and their main principles related of the HCV or similar approaches, and other supporting principles which complement HCVs or provide additional safeguards related to environmental and social values.

Table 1: The HCV approach in different sustainability certification schemes operational in Malaysia

Certification Standard	Use of ''HCV''	Supporting Principles
Forest Stewardship Council (FSC)	**Principle 9** High Conservation Values	**Principle 3** Indigenous People's Rights **Principle 4** Community Relations **Principle 6** Environmental values and impacts
Malaysian Timber Certification Council	**Principle 9** Maintenance of High Conservation Value Forest	**Principle 3** Indigenous People's Rights **Principle 5** Benefits from the forest **Principle 6** Environmental Impact
Roundtable on Responsible Palm Oil (RSPO)	**Principle 5** Environmental responsibility and conservation of natural resources and biodiversity **Principle 7** Responsible development of new plantings (respecting local people's land and conserving primary forest and peat lands)	**Principle 1** Commitment to transparency **Principle 2** Just land acquisition **Principle 6** Responsible consideration of employees and of individuals and communities affected by growers and mills
Roundtable on Sustainable Biomaterials	**Principle 7** Conservation: Operations avoid negative impacts on biodiversity, ecosystems, and conservation values.	**Principle 5** Rural and social development **Principle 6** Local food security **Principle 8** Soil **Principle 9** Water **Principle 12** Land Rights

This guidance document is applicable across certification schemes, but HCV assessors should consult the relevant standards for requirements on HCV reporting and assessor credentials.

Investors and companies

In addition to the certification standards mentioned above, international financial institutions including commercial banks (e.g. HSBC) and development banks have developed lending policies that may refer to HCVs or similar approaches. For example, the International Finance Corporation (IFC) has developed a set of Performance Standards (PS) that cover a range of environmental and social topics of importance to investors. The IFC PS are used, either explicitly or implicitly, by many national development banks and commercial banks. Companies who receive funding from such financial institutions need to comply with environmental and social guidelines in their lending policy. In addition to access to finance, some multinational and national private sector companies are also including HCV assessments in their due diligence activities and in their social and environmental management systems.

2. HCV Assessments

This section is not aimed at repeating information that is already available in other guidance documents but instead is intended to provide local context or Malaysia-specific guidance where relevant.

An HCV assessment is the process by which HCVs are evaluated and identified in practice and is usually part of a certification scheme or a land use planning exercise. In carrying out an HCV assessment, its purpose should be made clear regardless of its scope, duration, cost and reporting requirements. The presence or absence of **all six** categories of HCVs should always be assessed in a way that is consistent with the HCVRN Common Guidance as well as this national interpretation.

Further guidance on how to conduct an HCV assessment is provided in the Common Guidance on the Identification of HCVs as well as other relevant guidance documents by the HCVRN including the HCV Assessment Manual for its Assessor Licensing Scheme (2014).

In summary, the key considerations when conducting an HCV assessment are:

- Using the **precautionary approach**[2]
- Scale, intensity and risk[3]
- Adherence to the HCVRN Charter – including compliance with all applicable national and local laws and international treaties and agreements (as ratified by the Malaysian Government); secure tenure, customary rights and consent; the legal or customary rights of indigenous peoples, local communities or other users; consideration of the impacts of conversion
- Wider landscape considerations
- Stakeholder consultation
- Recognising significant value

2.1 Scale and intensity

The Common Guidance on Identification of HCVs has provided definitions for scale and intensity (see Box 5, pg. 13 of the Common Guidance).

Table 2 below provides examples of smaller and larger scale and intensity of possible activities in a particular development area.

[2] Principle 15 of the Rio Declaration on Environment and Development, adopted by the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, 1992, states that:
"*In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation*."
In the preamble of the Convention on Biological Diversity it is noted that:
"*Where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat*."
See also section 2.6.2 in the HCVRN Common Guidance on Identification of HCVs

[3] See section 2.1 in the HCVRN Common Guidance on Identification of HCVs

Table 2: Examples of the scale and intensity of activities

LIKELY THAT LESS INTENSIVE HCV ASSESSMENT IS NEEDED	*LIKELY THAT MORE INTENSIVE HCV ASSESSMENT IS NEEDED*
SCALE OF ACTIVITIES	
Smaller Scale	**Larger Scale**
• Small-scale (≤50 ha) operations with small producers • Inputs (e.g. chemical) are relatively low and affect a small proportion of the total area • There are few, if any, buildings all of which are small in scale and mostly made of non-permanent materials.	• Large scale (≥ 50 ha) conversion of natural vegetation • Permanent roads exist in most areas of the management area • Pesticides are regularly used in the majority (≥ 50%) of the management area • Activities include development of infrastructure such large permanent buildings, electrical and water supply systems etc.
Lower Intensity	**Higher Intensity**
• Planted areas are mostly mixtures of native species • Products are extracted to roadside by cable, by hand or by animals • Hunting, trapping and fishing occur rarely or in only a few restricted places • Grazing or browsing by domestic animals occurs rarely or only in on individual / private land • All or most of the natural ecosystems are designated as conservation areas, while intensive activities are limited to abandoned agricultural areas and shifting cultivation area.	• Planted areas are mostly mono-specific and/or exotic species • Products are extracted to roadside with heavy machinery • Much of the area contains permanent roads and is visited by vehicles regularly • Hunting or trapping occur in most of the management area • Grazing or browsing by domestic animals occurs in most of the management area • Substantial abstraction of water and/or modification of downstream hydrologic flows • Modification of lateral or longitudinal hydrologic connectivity (e.g. levee construction, impoundments).

Source: adapted from the Common Guidance on Identification of HCVs based on inputs from the NI process

2.2 Assessing risk

Assessing existing and potential risks to HCVs is an important step in a given HCV assessment as the output of the risk assessment would inform the scale and intensity needed for the HCV assessment.

Essentially, if the risk is higher, more resources are required for the HCV assessment and conversely if the risk is low, the scale and intensity of the HCV assessment can be reduced. The rationale is that if more information is gathered there will be a higher degree of confidence that HCVs are fully and accurately identified.

There are methodologies available for assessing risks such as the "Environmental Risk Assessment (ERA) for FSC certification in Tropical Forests" method which is recommended by the HCVRN. Risk assessments can potentially be an elaborate exercise but at the very least simple checklists can be used to indicate the approximate level of risk found in individual development areas.

Box 2 below is a sample checklist of potential vulnerabilities/risks in tropical forests that have been adapted to the Malaysian context.

Box 2: Example checklist of potential vulnerabilities or risks to HCVs in Malaysia

- Harvested trees have inadequate natural regeneration rates.
- NTFP species (such as rattan and medicinal plants) are being over-harvested.
- Hunted animals include "keystone" seed-dispersers of some harvested trees like fruit bats and Hornbills.
- The development area contains threatened species, dependent on primary and/or undisturbed forest.
- The development area contains animals requiring large territories for foraging or breeding.
- The development area contains animals which depend on abundant fruiting seasons, affected by changes caused by logging or silvicultural treatments.
- Some sites are crucial for the breeding, roosting etc. of threatened species.
- Designated conservation areas are threatened by fires, hunting etc.
- Forests in the region have already been fragmented.
- Water bodies are liable to obstruction or contamination from rubbish, chemicals.
- Soils in harvested or cleared areas readily become saturated or waterlogged.
- There is encroachment of the development area by local communities and others
- There is soil erosion occurring in the development area leading to sedimentation and deterioration of water quality and negative impacts on aquatic life

Source: adapted from the Common Guidance on Identification of HCVs based on inputs from the NI process

2.3 Stakeholder consultation

The HCV approach is still an unfamiliar concept to most people in Malaysia, and therefore assessors should strive to make stakeholder consultations accessible and participatory process. The HCV Common Guidance on Identification of HCVs and the HCV Assessment Manual provide generic guidance on how public stakeholder consultation process needs to take place in order for it to be effective, independent and neutral.

As described in the Common Guidance, potential stakeholders must first be identified before the stakeholder consultation is carried out. This is done by considering the nature and vulnerability of the potential HCVs, and the risks and threats they face.

The list of relevant stakeholders can be divided into the following broad categories according to the Common Guidance for Identification of HCVs[4]:

- **Local communities** who use ecosystem products or services
- **Organisations and institutions** that represent these communities
- **Industry organisations/associations**
- Those whose **legitimate commercial use** of the natural resources will be altered by development activities
- **Environmental and social organisations,** that represent the wider public and/or have an interest in the way the ecosystems are managed
- **Federal and state government bodies** as the information source, natural resource manager and the need for them to be kept informed of discussions even if they are not directly affected
- **Academics and researchers**

2.4 Recognising significant value

In the Common Guidance for Identification of HCVs, significant values are defined as "*those recognised as being either unique, or outstanding relative to other examples in the same region, because of their size, number, frequency, quality, density or socio-economic importance, on the basis of existing priority frameworks, data or maps, or through field studies and consultations undertaken during the HCV assessment*."

Decisions on HCV status (present, potentially present, absent) will come from a sound interpretation of assessment findings, based on the agreed national interpretation of HCV definitions and the appropriate use of available sources of information. Within the HCV approach, development or even conversion of natural vegetation is possible but not when it involves the irreplaceable loss of significant values.

Table 3 below provides a summary of limitations, challenges and opportunities in interpreting significant value in the Malaysian context.

Table 3: Limitations, challenges & opportunities related to significant value

HCV	Opportunities for determining presence of significance values	Limitations/Challenges
HCV 1	• International – Key Biodiversity Areas e.g. World Heritage Sites (natural), Ramsar Sites, ASEAN Heritage Parks • National - protected areas included in the national protected area master list assumed to have significant value • RTE species identified through a combination of international assessments of threatened status (IUCN Red List) and	• Some subjectivity with regard to identification of rare and endemic species as there are no equivalent readily-available reference lists to consult, as in the case of the Red Lists for threatened status. As such expert opinion is needed what level of rarity or endemicity for a given species is considered to be

[4] see Box 9, pg. 19.

	national Red Lists	significant. • In most cases, not feasible to conduct a scientifically robust study to determine the population of a given RTE species. Therefore, the best available data or expert opinion, including Traditional Ecological Knowledge (TEK), will have to be relied on.
HCV 2	• International – any area which is part of an Intact Forest Landscape • Peninsular Malaysia – any area which is part of a Primary Linkage (PL) or Secondary Linkage (SL) as defined in the Central Forest Spine (CFS) Master Plan • Sabah – any area which is part of the Kinabatangan Corridor of Life, the Ecolinc corridor connecting Crocker Range Park with Kinabalu Park, ecological linkages between Maliau Basin, Danum Valley and Imbak Canyon, and along the Kinabatangan river which provides a critical "ridge to reef" linkage in the Eastern part of Sabah. • Sarawak – any area which is part of the Heart of Borneo area within the state, roughly corresponding to the areas surrounding the Sarawak-Kalimantan border.	• In the case of Sabah and Sarawak, the boundaries of some of the priority areas are not very clearly defined.
HCV 3	• National – critical or rare ecosystem types that are under-represented in the existing national protected area system, based on existing ecosystem assessments.	• No single reference document – need to keep updated with latest developments.
HCV 4	• National – natural watershed areas of reservoirs connected to the public drinking water supply system • Local – natural watershed areas of village-level drinking water supply e.g. gravity-fed water supply system • Local – steep and erosion-prone slopes that need to be maintained in order to avoid landslides that directly impact on local communities in the surrounding area.	• No single reference document – need to keep updated with latest developments. • At the local level, need to interpret maps (topography, hydrology etc.) in order to deduce whether significant values are present.
HCV 5	Local – NTFPs/natural resources that are fundamental for satisfying basic needs	• Some subjectivity in determining what is critical for basic needs • Dependent on the scope and quality of stakeholder consultations conducted.

HCV 6	• International – areas/cultural practices with World Heritage status • National – areas/cultural practices with national or state heritage values • Local – areas/cultural practices of significant values that are determined by the local communities themselves	• Some subjectivity in determining what is cultural value. • Dependent on the scope and quality of stakeholder consultations conducted.

Level of significance tend to move down the scale from international/national significance to locally-significant from HCV 1 to HCV 6. Also, for HCV 5 and HCV 6 it is difficult to have a more specific or standardised interpretation/description of significant value.

3. National Interpretation of HCVs

3.1 HCV 1 Species diversity

Words in **bold** in each HCV definition are treated in more detail in each section under key terms and concepts.

> **Concentrations of biological diversity** including **endemic species,** and **rare, threatened or endangered (RTE) species** that are **significant** at global, regional or national levels.

3.1.1 Key terms and concept

Concentrations of biological diversity

In the Malaysian context, there was a consensus that for a very select list of RTE species, even the occurrence of a single individual will confirm the presence of HCV1 in a particular area. This list has been agreed upon after much deliberation as its main intention is to avoid any potential negative impact on the most threatened and charismatic Malaysian species such as the Malayan tiger (*Panthera tigris tigris*), the Borneon orangutan (*Pongo pygmaeus*) and Asian elephant (*Elephas maximus*)[5].

For other RTE species, only species with a conservation status of Vulnerable (VU) and above in either the IUCN Red List or the national red lists are considered to be threatened. The best available scientific data and expert opinion, including TEK, should be used to determine whether the particular area harbours a significant population of a RTE species, or a significant enough mix of different RTE species to qualify as having a nationally significant concentration of biological diversity.

As stated in the Common Guidance of Identification of HCVs, under the precautionary approach, a protected area (as defined by IUCN or national governments) are proxies for significant concentrations of biological diversity, and in the absence of information indicating otherwise, are assumed to contain HCV1. Other global conservation priority sites such as Key Biodiversity Areas (including Important Biodiversity Areas, Important Plant Areas, AZE sites, priority areas as identified in government action plans for individual species conservation[6] etc.) are strong indicators of the potential presence of HCV 1.

Rare, Threatened and Endangered (RTE) Species

According to the Common Guidance on Identification of HCVs, RTE species can include species listed as VU and above in the IUCN Red List[7], or whose trade is regulated under international agreements (e.g. CITES), as well as nationally protected species.

In determining the conservation status of species, the IUCN Red Lists should be referred to as well as national red lists where available. There are only two Malaysian red lists available at the moment, i.e.

[5] Initially, it was proposed that all CR species should be conferred this "automatic" status as HCV 1 but this approach was considered to be impractical as some CR species, e.g. the Sunda pangolin (*Manis javanicus*) is very widespread and can also be found in modified landscapes (e.g. plantations).

[6] Currently, government action plans for single species are available for the Malayan tiger (*Panthera tigris tigris*) and the Asian elepant *(Elephas maximus*) in Peninsular Malaysia; Bornean orangutan (*Pongo pygmaeus*), Asian elephant, and Sumatran rhinoceros (*Dicerorhinus sumatrensis*) in Sabah.

[7] The Malaysian stakeholders note that there is an overlap in "Rare, Threatened and Endangered" species in that Endangered (EN) is a more severe level of Threatened status under the IUCN Red List framework.

the Red List of Mammals for Peninsular Malaysia (DWNP, 2010) and the Malaysia Plan Red List: Peninsular Malaysian Dipterocarpaceae (Chua *et al*., 2010), both of which are applicable to Peninsular Malaysia only. Based on expert opinion gathered during the stakeholder consultations held in developing this National Interpretation, there was a consensus that these two Malaysian red lists of threatened species should be given precedence over the IUCN Red List. These two Malaysian red lists were produced through a vigorous assessment involving local and international experts and more specific in scope on the conservation status of the relevant species within Peninsular Malaysia, as compared to the IUCN Red List which has a global perspective.

There are species listed as Protected or Totally Protected under the Widllife Conservation Act 2010 for Peninsular Malaysia, the Sabah Wildlife Enactment 1997 and Wild Life Protection Ordinance 1998. A Totally Protected status is an indication that the species is an RTE species but this must be corroborated with other indicators above (rarity, threatened status, endemism) as the protection status alone is not enough. This is because some of the species that are Protected or Totally Protected under Malaysian laws may be common or have a lower threat status within the IUCN or local Red Lists.

The inclusion of a given species in CITES[8] Appendix I means that the species is at high risk of extinction due to international trade. The definition of CITES Appendix I species are similar in spirit and content to IUCN's criteria for threatened species and therefore CITES Appendix 1 species may also be considered as potential HCV1 species. To a lesser degree, CITES Appendices II and III may also be used as indicators for RTE species.

Rare species

Rarity is scale dependent and includes species that are

- Naturally rare, existing only in a few localities in low density, or
- Rare because their population size has been impacted by human activities e.g. habitat destruction, overhunting, climate change
- At the limit of their natural distribution (even if they are common elsewhere) (outside of Malaysia)

Rarity is a subjective issue and it should be noted that a species does not to be endemic to be rare as it may be found (or even common) outside of Malaysia but rare within the country. Given that rarity is usually not well defined or documented, HCV 1 presence based on the consideration of rarity alone should only be accepted if there is strong evidence that the species is very rare, based on best available science and expert opinion, including TEK.

Endemic species

Endemic species are plants and animals that exist only in one geographic region. Species can be endemic to the whole country or to a particular region of the country, or even to a single limestone outcrop or forest patch. A single threshold in terms of the size of the geographical range of endemic

[8] The Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES) is an international treaty which came into force in 1975 and is aimed at ensuring that international trade in specimens of wild animals and plants does not threaten their survival. There three CITES appendices: Appendix I is for species threatened with extinction and trade in specimens of these species is permitted only in exceptional circumstances; Appendix II includes species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilisation incompatible with their survival; Appendix III contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

species is not a practical approach and therefore each endemic species needs to be assessed individually. For example, *Hopea sublanceolata* (merawan jeruai) is endemic to Peninsular Malaysia but its conservation status in the Malaysian Red List of dipterocarps is only Near Threatened (NT), although it is assessed as CR in the IUCN Red List.

Endemism in the HCV context needs to be linked to some level of rarity or threat status that compensates and corrects for the scale factor. In other words, a species needs to be both endemic and rare, or endemic and threatened (VU and above) AND be present in nationally significant concentrations for it to be considered as a HCV1 species. However, an exception to this is made in the case of hyper-endemism (see below).

Hyper-endemism is when a particular species has a very restricted distribution, usually in only one or a few isolated locations e.g. on a single limestone hill or mountain top. This is a very special form of endemism for which there is a high risk that the entire global population of a particular species can be wiped out. There is no standard definition of hyper-endemism and in the context of the HCV assessments in Malaysia, a practical approach is to consider a species to be hyper-endemic when the known distribution of the species is restricted to the proposed development area only. The presence of a hyper-endemic species following this definition is a strong indicator of the presence of HCV 1 in the development area.

Commented [SS1]: Another option is to say that hyper-endemism is when the species is restricted to the proposed development area as well as 2 other sites outside the proposed development area.

Spatial and temporal concentration of species

Many wild animal species use a variety of habitats at different times of the year or at different stages in their life-history including seasonal breeding sites, migration routes or corridors (latitudinal as well as altitudinal). In the tropics, the time of greatest use may depend more on the ecology of the species concerned. Seasonal and ecological refuges and resources which provide temporary breeding, roosting, hibernation, migration sites or habitats essential for RTE species qualify for HCV 1, even when the habitat is only used in extreme years. These resources include mineral saltlicks which are essential for the survival of herbivorous mammals (see Case Study on HCV 1).

Plants are not able to migrate as quickly as animals but their population sizes may fluctuate with, for example, changes in local weather patterns and availability of pollinators and dispersal agents. Areas where a particular plant species still persist even in the most unfavourable climatic conditions are essentially refuges and may qualify as HCV 1 or HCV 3.

3.1.2 Indicators and data source

Indicators

Indicators of a potential presence of HCV 1 include:

- The presence of even one individual of species in the list for automatic inclusion as HCV 1 species.
- The presence of a hyper-endemic species as defined above.
- The presence of a protected area which is listed in the Master List of Protected Areas in Malaysia[9]

[9] The Draft Interim Master List of Protected areas dated 2014 is available upon request from the Ministry of Natural Resources and Environment and the finalised document is expected to be available publicly by early 2018.

- The presence of a biodiversity priority area recognised by reputable international bodies specifically Ramsar sites, UNESCO World Heritage sites, UNESCO Man and Biosphere Reserves, Key Biodiversity Areas[10] and ASEAN Heritage Parks and priority areas as identified in National Action Plan
- Areas **proposed** for any of the above designations is a strong indicator of the presence of HCV 1. e.g. sites in the tentative list of World Heritage Sites
- HCV 2 and HCV 3 areas are also indicators of the presence of HCV 1.
- Areas confirmed to harbour a combination of nationally-significant populations of species with a conservation status of VU, CR or EN (according to IUCN and Malaysian red lists, with precedence given to Malaysian red lists), rare and endemic species, based on information gathered through at least one of the following methods:
  i. Field surveys aimed at determining the population of targeted species within the proposed development area and surrounding areas (where applicable)
  ii. species distribution maps published by the relevant wildlife authorities or in peer-reviewed scientific journals (i.e. best available scientific data)
- consultation with credible subject matter experts.
- Presence of natural mineral saltlicks

Data Sources

A list of data sources for assessing HCV 1 in Malaysia is provided in Annex 1

3.1.3 Case study

HCV1 case study: Mineral salt licks

Location of case study: Belum-Temengor, Perak

Ecosystem: Lowland/Hill dipterocarp forest

Saltlicks are naturally-occurring springs or ground that contains a high concentration of minerals, which herbivores ingest as a supplement to their nutrient-poor plant diet (Matsubayashi *et al*., 2006; Robbins, 1993). In Peninsular Malaysia, saltlicks are utilised by most of the main tiger prey species like sambar deer, gaur, barking deer and wild boar. In general, natural saltlicks are neither widespread nor commonly-found, and are mainly distributed in lowland dipterocarp/hill dipterocarp forests less than 1,000 m in elevation – areas which are most vulnerable to development or logging. It is thought that insufficient effort is put into identifying saltlicks and even if they are identified and acknowledged as important areas for conservation, there are no existing guidelines as to how large an area around saltlicks should be protected. This conservation gap is precisely where science-based recommendations should come on board.

WWF-Malaysia's ecological study in Belum-Temengor has shown that a minimum no-disturbance buffer zone of two kilometres around saltlicks is needed for sambar deer, the main tiger prey species, to have a high probability of utilising it (Rayan *et al*., 2013). Prior to this, there had not been any proper study in relation to defining protection buffers around such resources. Using a precautionary principle approach, ideally this science-based recommendation should be applied to all other saltlicks in our forests to ensure adequate protection is afforded for this critical resource that many herbivores depend on. Thus, saltlicks would fit well within the description of High Conservation Value 1.

[10] KBAs are seen as an 'umbrella' designation, which includes globally important sites for different taxa and realms, such as Important Bird and Biodiversity Areas (IBAs), Important Plant Areas (IPAs), Important Sites for Freshwater Biodiversity, and Alliance for Zero Extinction (AZE) sites. See: http://www.biodiversitya-z.org/content/key-biodiversity-areas-kba

The following attributes of saltlicks conform with indicators of the presence of HCV 1 as prescribed by the HCVRN:

- Populations of multiple RTE species
- Important populations or a great abundance of individual endemic or RTE species, representing a substantial proportion of the regional, national or global population which are needed to maintain viable populations either:
  - Year-round (e.g. key habitat for a specific species) or,
  - Seasonally, including migratory corridors, sites for breeding, roosting or hibernation, or refuges from disturbance

For example, saltlicks are frequented by RTE species such as tapir, sambar deer, elephant and gaur. The 2-kilometre buffer around saltlicks will act to provide refuge sites and key habitats for some of these species. In fact, their viability may also be dependent on securing and protecting these areas because the properties of saltlicks not only provide such a critical resource for their diet but the surrounding buffered area may also act as refuges from disturbances. This is especially important as saltlicks are not only potentially degraded or destroyed by development or logging but are also exploited by poachers that hunt ungulates. Thus, the two kilometer buffered area around saltlicks is ideal to be recognized as a HCV1.

Commented [SS2]: Feedback from HCVRN is for the saltlick to be a HCV 1 area while the buffered area is an HCVMA.

References:

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Rayan, D. M., S. Mohamad, C. Wong, E.S. Siwan, C.F. Lau, M. Hamirul, M. & A. Mohamed. 2013. Conservation status of tigers and their prey in the Belum-Temengor Forest Complex. WWF-Malaysia report, Selangor, Malaysia.

Robbins, G. T. 1993. Wildlife feeding and nutrition. Academic Press, San Diego, California.

Text: Christopher Wong & Mark Rayan, WWF-Malaysia

HCV 1 Case Study: Applying the precautionary principle for *Betta chini*

Location of case study: Beaufort, Sabah

Ecosystem: Peat swamp

Location of Beaufort in Sabah

The presence of HCV 1 species is to a certain extent dependent on its IUCN conservation status. For threatened species, its habitat can potentially be considered under HCV1 or HCV3. However, since Malaysia is located in the mega-biodiversity Sundaic region where many species remain undiscovered, the IUCN Red List cannot be expected to assess the conservation status accurately for every species. An indication of this is the prevalence of species categorised as Not Evaluated (NE) and Data Deficient (DD) or given a lower threat status than expected (VU, NT or LC).

Betta chini is an endemic species and it is currently only known from Beaufort, Sabah (Ng, 1993). Its current status in the IUCN Red List is VU. However, prevailing economic land use pressures in the Beaufort region has resulted in the severe fragmentation of *B. chini*'s habitat. It is not easy to encounter or capture this fish due to its obscure behaviour and rarity, and therefore it is difficult to estimate its population. This situation is not unique to *B. chini*. In the case of Sabah alone, Ng *et al.* (2017) reported that 68.6% and 7.3% of native freshwater fish species are identified as "not available" and DD respectively by IUCN Redlist.

Betta chini

In early 2017, a field researcher conducting a traditional ecological knowledge (TEK) interview with the local indigenous Bisaya community in Beaufort found out that some village elders had seen *B. chini*. They were familiar with the species and referred to it by its vernacular name *tingkang.* Apparently, back in the 60s, this fish species was abundant and was nicknamed *ikan bilis* (anchovy) as it was caught for food. According to locals, it is now exceptionally rare but occasionally an individual may be caught together with other small fishes in fine mesh traps set up by local children in the peat swamps.

The lesson learnt from this case study is that collecting information from the local communities need not be confined to meeting the requirements for HCVs 5 and 6. Local or indigenous communities should also be consulted for inputs on RTE species and habitats. TEK is very valuable and this approach is already widely applied around the world for collecting data (Gadgil *et al*., 1993; Berkes *et al*., 2000; Turnhout *et al*., 2012). References

Berkes, F., J. Colding, & C. Folke. 2000. Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications* 10: 1251-1262.

Gadgil, M., F. Berkes, & C. Folke. 1993. Indigenous knowledge for biodiversity conservation. *Ambio* 22:151-156.

Ng, P.K.L. 1993. On a new species of *Betta* (Teleostei: Belontiidae) from peat swamps in Sabah, East Malaysia, Borneo. *Ichthyological Exploration of Freshwaters* 4(4):289-294.

Ng, C.K.C., F. Abdullah, H. Biun, M.K. Ibrahim, S. Mustapha, S. & A. Sade. 2017. Review: A working checklist of the freshwater fish diversity for habitat management and conservation work in Sabah, Malaysia, North Borneo. *Biodiversitas* 18: 560-574.

Turnhout, E., B. Bloomfield, M. Hulme. J. Vogel & B. Wynne, B. 2012. Conservation policy: Listen to the voices of experience. *Nature* 488:454–455.

Text & photo: Casey Ng

3.2 HCV 2 Landscape-level ecosystems and mosaics

Landscape-level ecosystems and mosaics. Intact forest landscapes and large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain **viable populations** of the **great majority of the naturally occurring species** in **natural patterns of distribution and abundance.**

3.2.1 Key terms and concept

Large, landscape level ecosystems and ecosystem mosaics

HCV 2 includes ecosystems and ecosystem mosaics that are sufficiently large and relatively undisturbed enough to support viable populations of the great majority of the naturally occurring species and (implicitly) the great majority of other environmental values occurring in such ecosystems. In principle, threshold size for HCV 2 should be related to the area needed to maintain viable populations, especially of large or wide-ranging species. The Intact Forest Landscape (IFL)[11] concept (see Box 3 below) uses a threshold value of 500km^2 or 50,000ha (and a minimal width of 10km) and this has been widely used as a guideline for various conservation initiatives. This threshold figure was reaffirmed through the HCV National Interpretations process[12].

Box 3: Intact Forest Landscape (IFL)

An IFL is an unbroken expanse of natural ecosystems within the zone of current forest extent, showing no signs of significant human activity and large enough that all native biodiversity, including viable populations of wide-ranging species, could be maintained. Although all IFL are within the forest zone, some may contain extensive naturally tree-less areas, including grasslands, wetlands and lakes.

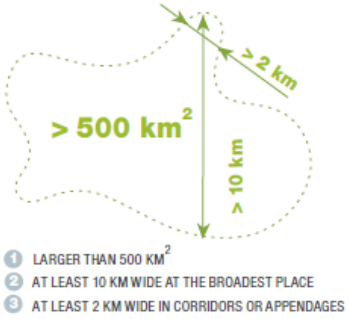
Technically, an **Intact Forest Landscape (IFL)** is defined as a territory within today's global extent of forest cover which contains forest and non-forest ecosystems minimally influenced by human economic activity, with an area of at least 500 km^2(50,000 ha) and a minimal width of 10 km (measured as the diameter of a circle that is entirely inscribed within the boundaries of the territory).

Areas with evidence of certain types of human influence are considered disturbed and consequently not eligible for inclusion in an IFL:

[11] For further information see: http://www.intactforests.org/

[12] During the National Interpretation consultation process, it was pointed out that for tigers, 500km^2 isn't considered large enough as it can't hold a significant population of tigers which occur at low densities. At very best, an area this size might be able to hold some 10-15 tigers. At densities of 1 tiger/100sqkm, a minimum of 8,000km^2 is needed but that assumes that enough prey is available and the enough protection is afforded. This is very much not the case in most forest habitats in Malaysia. The ideal tiger conservation landscapes are large tracts of forest (>10,000 km^2) which are protected from poaching and that are linked via functioning corridors.

- Settlements (including a buffer zone of 1 km);
- Infrastructure used for transportation between settlements or for industrial development of natural resources, including roads (except unpaved trails), railways, navigable waterways (including seashore), pipelines, and power transmission lines (including in all cases a buffer zone of 1 km on either side);
- Agriculture and timber production;
- Industrial activities during the last 30-70 years, such as logging, mining, oil and gas exploration and extraction, peat extraction, etc.



Areas with evidence of low-intensity and old disturbances are treated as subject to "background" influence and are eligible for inclusion in an IFL. Sources of background influence include local shifting cultivation activities, diffuse grazing by domestic animals, low-intensity selective logging, and hunting.

Source: Adapted from http://www.intactforests.org/concept.html

Ecological linkages between large forest complexes are critical areas needed to maintain viable populations. Within the Peninsular Malaysia context, it can be assumed that HCV 2 exist in areas within ecological linkages (Primary and Secondary linkages) as identified in the Central Forest Spine Masterplans. For Sabah, priority ecological linkage areas are those within the Ecolinc corridor connecting Crocker Range Park with Kinabalu Park, ecological linkages between Maliau Basin, Danum Valley and Imbak Canyon, the Ulu Padas area and along the Kinabatangan river which provides a critical "ridge to reef" linkage in the Eastern part of Sabah[13]. In the case of Sarawak, priority ecological linkages are the Heart of Borneo area within the state, roughly corresponding to the areas surrounding the Sarawak-Kalimantan border.

The objective of the HCV assessment is to determine whether there is HCV 2 present within or in the vicinity of the development area. Within the project area, management prescriptions can be provided but within the larger landscape there will be other stakeholders involved. In some cases there are areas that are already within protected areas for which legal provisions for protection and management are in place. Having HCV 2 management and monitoring practices within the development area would complement conservation efforts by other stakeholders.

Viable populations of the great majority of species

Most large landscapes, which have not been affected by clearance, heavy logging, over-hunting, damming or straightening of waterways, or other major anthropogenic disturbances for several decades, probably contain viable populations of the great majority of the naturally occurring species. To qualify for HCV 2, it is not necessary that the area is totally undisturbed or pristine. Some species may be locally extirpated or missing, including large, keystone or iconic species. HCV 2 often includes ecosystems that contain important sub-populations of wide-ranging species (e.g. tiger and elephant) even though the sub-populations themselves may not be viable in the long term.

Areas with great majority of the naturally occurring species in Peninsular Malaysia include Intact Forest Landscapes and the Central Forest Spine.

Natural patterns of distribution and abundance

Relatively intact ecosystems, where ecological processes and functions are wholly or relatively unaffected by human activities have special ecological importance. Even a large ecosystem may not qualify for HCV 2 status if it has lost many of the species typical of such ecosystems in their natural state, or been so heavily disturbed that there is reason to believe that the spatial distribution of species and their relative abundance and regeneration has been seriously and permanently altered. HCV 2 does not include man-made, converted, heavily degraded or fragmented ecosystems, extensively modified, by human activity, especially land clearance and farming. HCV 2 is also ruled out in ecosystems with features such as dominance or significant presence of invasive species, disrupted age/size class distributions of populations, and a loss of significant ecosystem processes (e.g. fruit masting, dispersal of key species).

3.2.2 Indicators and data sources

Indicators

Areas recognised as Intact Forest Landscapes as shown in the relevant IFL and WRI websites are required by HCVRN to be accepted as having HCV 2 present.

Indicators of a potential HCV 2 presence include:

- Areas in Peninsular Malaysia identified as CFS areas and ecological linkages (both Primary and Secondary Linkages)[14] under the Central Forest Spine Masterplans I and II.
- Areas in Sarawak included within the boundary of the Heart of Borneo
- Areas in Sabah included within the Ecolinc Corridor, Ulu Padas area, ecological corridors/linkages between Maliau Basin, Danum Valley and Imbak Canyon and the Kinabatangan Corridor of Life

Data sources

A list of data sources for assessing HCV 2 in Malaysia is provided in Annex 2

3.2.3 Case study

HCV 2 Case Study: Heart of Borneo

Location of case study: Heart of Borneo comprising parts of three countries namely Brunei Darussalam, the Malaysian states of Sabah and Sarawak, and t five Indonesian provinces in Kalimantan

Ecosystem: Tropical rainforest

[14] It is noted that ecological linkage areas identified in the CFS Master plans comprise Permanent Reserved Forests (PRFs), stateland and private land (alienated land). In a given HCV assessment, the assessor will need to take note of HCV2 within development area and within the wider landscape (but outside the development area). For areas within the development area, it can be assumed that the project proponent will have considerable rights to determine what happens within that area and must therefore ensure that the intended activity would not lead to the loss or degradation of the HCV2 value. Within the wider landscape, the project proponent will not be directly responsible for the management and monitoring of the HCV2 but should make sure that there is no spill-over/downstream effect from the project activity that can impact on the HCV2 value outside of the development area.

Assessment context: HCV Assessment for forest management certification

Size of area: c.22,000,000 ha

The Heart of Borneo (HoB) is the last expanse of intact tropical forests in the centre of Borneo. At 22 million ha, it is one of the largest transboundary rainforests remaining in the world, crossing the borders of three countries. The HoB covers a wide variation of biophysical attributes that range from lowland to highland and steep mountainous areas that are the source of major riverine systems of Borneo.

In Sarawak, many protected areas are located within the HoB, including the Batang Ai National Park (24,040 ha), Lanjak Entimau Wildlife Sanctuary (182,983 ha), Gunung Mulu National Park (85,671 ha) and Pulong Tau National Park (69,817 ha). Outside of these protected areas, there are other resource utilisation regimes that, when managed in a sustainable manner, provide large habitats for a diversity of wildlife. The HoB harbour unique ecosystems with Bornean endemic species. There are 62 forest bird species that are restricted to the montane region (Wells, 1985) of which 26 of them are Bornean endemics (Smythies, 2004). Montane mammals that are endemic to Borneo include the mountain treeshrew, smooth-tailed treeshrew, Whitehead's pygmy squirrel, Kinabalu rat, Mountain ground squirrel and Hose's civet (Phillipps & Phillipps, 2016). Outside the protected area network, much of the forest has been licensed out to industrial scale logging, oil palm and tree plantation companies. Arising from these large scale industrial operations, the impact is forest degradation and deforestation, and eventual loss of biodiversity and ecosystem services.

A view of the highlands in HOB

To address this, the governments of Brunei Darussalam, Indonesia and Malaysia signed the Heart of Borneo Declaration in 2007 to provide a cohesive framework that promote sustainable natural resource management that transcends different land use regimes.

One forest management unit (FMU) in Sarawak located near the international boundaries with Sabah and Kalimantan engaged a third party to conduct an HCV assessment. One of the findings is that HCV 2 was present in the FMU. Two factors contributed to the presence of HCV 2:

i. The FMU is located between the Gunung Mulu National Park at the north and Pulong Tau National Park at the south, which in turn are connected to forests in Brunei and to the 1.3 million ha Kayan Mentarang National Park in Kalimantan respectively. This strategic location makes the FMU a critical ecological and wildlife corridor for seed dispersal and wildlife migration.
ii. The FMU is located adjacent to the HOB.

Recognising the importance of the FMU as a HCV 2, and its links to the HOB and the surrounding protected areas, the FMU manager concurred with the assessors' recommendation to adopt Reduced Impact Logging (RIL) guidelines in the harvesting of timber resources. The FMU also agreed to implement wildlife corridors linking protected areas, and set aside riparian buffer zones with a width of 50m along the major rivers. For monitoring, aerial survey using satellite imagery and ground surveys would be periodically undertaken to ensure adherence of management prescriptions. Equally important are floristic surveys to monitor changes in the diversity and health of forest ecosystem.

References

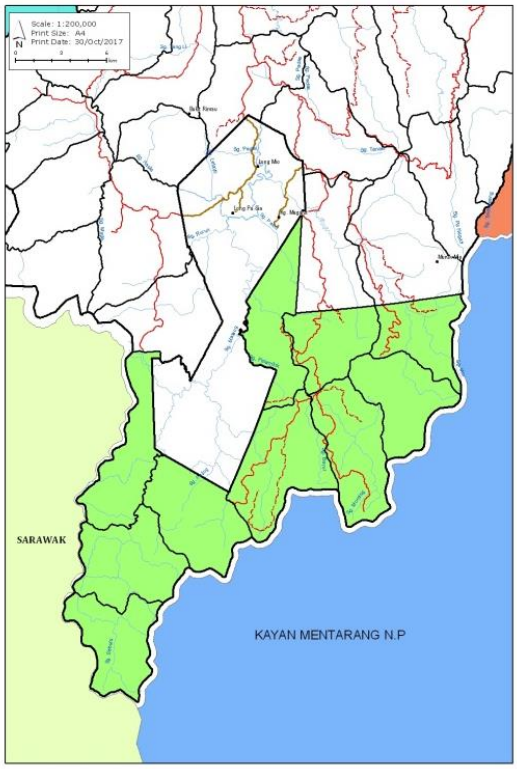
HCV 2 Case Study: Ulu Padas

Location of case study: Ulu Padas Forest Reserve, Sipitang, Sabah

Ecosystem: Lower montane forest

Assessment context: HCV Assessment for FSC Certification

Size of area: 31,000 ha



Location of Ulu Padas

The Ulu Padas Forest Reserve covering c. 31,000 hectares is located in the southwest corner of Sabah. The area is an integral part in the Heart of Borneo as it connects the forest in Sarawak and the Kayan Mentarang National Park in Indonesia to the rest of the forest in Sabah. Part of the area has undergone some timber harvesting, but the entire forest reserve stills forms an intact, landscape-level forest. The area is licensed by the Sabah State Government to a private company under a long term Sustainable Forest Management agreement. It is managed primarily for the production of high value timber while maintaining the ecosystem services and environmental values of the area. A reduced impact logging (RIL) system is employed to minimise negative environmental impacts. Establishment of wildlife corridors and river buffers linking the Crocker Range Park (in Sabah) in the north to the Kayan Mentarang National Park and forest in Sarawak in the south ensures that forest connectivity, and the natural distribution and wide diversity of wildlife within the Heart of Borneo are maintained and enhanced.

Text: Joan George, Sabah Forest Industries

3.3 HCV 3 Ecosystems and habitats

Rare, threatened, or endangered ecosystems, habitats or refugia.

3.3.1 Key terms and concept

HCV 3 includes ecosystems, habitats or refugia of special importance because of their rarity or the level of threat that they face or their rare or unique species composition or other characteristics.

Ecosystems are a "dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit". A practical approach is to use vegetation classifications which are easily recognisable in the field as well as satellite images, aerial photographs and other remote sensing imagery. The main vegetation types in Malaysia are summarised in Table 4 below.

Table 4: Vegetation/ecosystem types in Malaysia and their distribution in Peninsular Malaysia, Sabah and Sarawak

Vegetation type	Distribution		
	Pen. Malaysia	Sabah	Sarawak
Lowland dipterocarp forest	✓		
Hill dipterocarp forest	✓		
Mixed dipterocarp forest		✓	✓
Mixed dipterocarp forest on ultisols		✓	✓
Forest on ultramafic rocks		✓	✓
Semi-evergreen rainforest	✓		
Lower montane forest (montane oak-laurel forest)	✓	✓	✓
Upper montane forest (montane ericaceous forest)	✓	✓	✓
Heath vegetation/kerangas	✓	✓	✓
Limestone forest	✓	✓	✓
Beach vegetation	✓	✓	✓
Marine alluvial (mangrove) swamp forest	✓	✓	✓
Brackish water vegetation	✓	✓	✓
Peat swamp forest	✓	✓	✓
Freshwater swamp forest	✓	✓	✓
Riparian vegetation	✓	✓	✓
Quartzite vegetation	✓		

Disturbed vegetation and regenerated forests	✓	✓	✓

Source: Kiew *et al*. (2010), Soepadmo & Wong (1995)

Focusing on Peninsular Malaysia only, an analysis of the threatened status of ecosystem types was conducted as part of a collaborative project between the Malaysian Ministry of Natural Resources & Environment and the Danish International Development Assistance (DANIDA) on biodiversity mainstreaming which ended around 2010. The main results of the analysis are reproduced as Annex 7 below which provides the percentage of the original extent of each ecosystem type which is within protected areas (and therefore assumed to be protected). An arbitrary threshold value of 5% was used to determine which of the ecosystem types are considered to be critically endangered (CR).

These CR ecosystem types (highlighted in yellow in Annex 7) are:

- Mangrove forest
- Beach vegetation
- Peat swamp forest
- Limestone vegetation
- Vegetation on ultrabasic soil
- Heath vegetation

The presence of these CR ecosystems in the proposed development area or within the surround landscape is a strong indicator of HCV3 presence.

While there may have been similar ecosystem assessments done for Sabah and Sarawak the results are not readily available. It is recommended that assessors contact relevant state agencies in order to get information on the conservation status of ecosystems found in those states.

It is noted that this method differs from that prescribed by the IUCN Red List of Ecosystems[15] which is a relatively new initiative. The IUCN Red List of Ecosystems uses thresholds for reduction in geographic distribution of ecosystem area over the past 50 years, i.e. CR ≥ 80%; EN ≥ 50% and VU ≥ 30%, without taking into account the protection status of the remaining ecosystem areas. An assessment of ecosystems in Malaysia using the IUCN Red List of Ecosystems approach has yet to be conducted and assuming that such an assessment will be conducted in future, the results could be incorporated into further versions of the Malaysia HCV toolkit.

The assessment of ecosystem types in Malaysia needs to be refined as more data becomes available (especially for Sabah and Sarawak) and assessment methods improve. As such, other supporting information from published sources and expert opinion should be obtained in considering ecosystems, other than those identified as CR above, as potential HCV 3. For example, the National Policy on Biological Diversity 2016-2025, identified lowland dipterocarp forests and wetlands as being especially vulnerable ecosystems in Malaysia (NRE, 2016).

[15] The IUCN Red List of Ecosystems Categories and Criteria is a global standard for how we assess the conservation status of ecosystems, applicable at local, national, regional and global levels. The Red List of Ecosystems evaluates whether ecosystems have reached the final stage of degradation (a state of Collapse), whether they are threatened at Critically Endangered, Endangered or Vulnerable levels, or if they are not currently facing significant risk of collapse (Least Concern). For more information see: https://iucnrle.org/ and https://portals.iucn.org/library/node/45794

Habitat is an ecological or environmental area that is inhabited by a particular species of animal, plant, or other type of organism. The term typically refers to the zone in which the organism lives and where it can find food, shelter, protection and mates for reproduction. It is the natural environment in which an organism lives, or the physical environment that surrounds a species population. Habitats may be synonymous with ecosystems as defined above, or be defined at a smaller scale – e.g. some rocky outcrops are key habitat for rare or localised plants within a forest ecosystem. It should be noted that for habitats there is an overlap between HCV 3 and HCV 1 in that some habitats contain significant concentrations of biodiversity, which is an indicator for HCV 1.

Refugia: There are two types of refugia (or refuges) which may be considered a HCV (in addition to seasonal refuges considered under HCV 1):

- Ecological refugia: Isolated areas which are sheltered from current changes (e.g. human threats or climatic events), and where plants and animals typical of a region may survive; and
- Evolutionary refugia: areas where certain types or suites of organisms persisted during a period when climatic events (e.g. glaciations) greatly reduced habitable areas elsewhere. Such refugia often support high overall species richness and significant numbers of endemic species.

3.3.2 Indicators and data sources

Indicators

For Peninsular Malaysia only, the occurrence of CR ecosystem/habitat types (as described above) in the proposed development area confirms the presence of HCV 3.

Indicators of a potential HCV 3 include:

- Any natural ecosystem/habitat type may be considered to be RTE ecosystems and further supporting evidence (e.g. scientific data or expert opinion indicating the importance of the ecosystem type in the regional or national context) is needed before HCV 3 presence can be confirmed.
- Where ecosystem/habitat proxies (e.g. vegetation maps) strongly indicate the presence of CR ecosystems, even if these are inaccessible or have not been confirmed on the ground. In cases where detailed vegetation maps are not available, GIS modelling (based on soil type, elevation and climate) can be done to give suitable proxies for vegetation units.
- Any habitat type considered to contain RTE species
- For all of the above, even modified natural areas may be considered if the extent of degradation has not led to ecosystem collapse as defined by IUCN (Bland, 2017).

Data sources

A list of data sources for assessing HCV 3 in Malaysia is provided in Annex 3.

3.3.3 Case study

HCV 3 Case Study: Peat swamp forests
Location of case study: 3 districts in Selangor – Kuala Selangor, Hulu Selangor & Sabak Bernam
Ecosystem: Peat swamp forest
Size of area: 81,304ha

Location of the North Selangor Peat swamp forest

Peat swamp forest is listed as vulnerable[16] ecosystem (under wetland) in the National Policy on Biological Diversity (2016-2025). Peat swamp forest covers about 8% of the total land mass in Malaysia, and its extent had been heavily impacted by development especially conversion to oil palm. Remaining peat swamp forests are rarely in pristine conditions; most had undergone various intensities of disturbance, most notably logging, often with canals either for transportation or drainage.

The North Selangor Peat Swamp Forest or NSPSF is located on a flat coastal plain in the northern part of Selangor. It consists of four forest reserves i.e. Raja Musa Forest Reserve, Sungai Karang Forest Reserves and Bukit Belata Extension Forest Reserve (partial) and Sungai Dusun Forest Reserve/ Sungai Dusun Wildlife Reserve with a combined total of 81,304ha. Approximately 95% of the total area is found on peat.

This area was extensively logged in the 1980s prior to the gazzettal as forest Reserves in 1991, and the existing forest stand is highly depleted. Nonetheless, this logged-over forest still harbours many fauna and flora species that are worth protecting:

- 77 tree species have been recorded from the area, with one species categorised as VU and two

[16] "Vulnerable" in the context of the National Policy on Biological Diversity (NPBD) is different from how it is used in the IUCN Red List of Ecosystems. In the NPBD "vulnerable" is used in a generic sense and is not an indication of the level of threatened status.

as EN.

- 92 bird species have been recorded, with 14 NT species.
- 69 fish species have been recorded with two VU species, two NT species and two EN species.
- 46 species of mammals have been recorded with one VU species and two EN species.

Text: Julia Lo, GEC

3.4 HCV 4 Ecosystem services

Basic ecosystem services in **critical situations** including **protection of water catchments** and **control of erosion of vulnerable soils and slopes.**

3.4.1 Key terms and concepts

Basic ecosystem services

Ecosystem services are the benefits people obtain from ecosystems, including:

- provisioning services such as food and water
- regulating services such as regulation of floods, drought, land degradation, and disease;
- cultural services such as recreational, spiritual, religious and other nonmaterial benefits;
- supporting services such as soil formation and nutrient cycling;

HCV 4 is essentially about supporting and regulating services while provisioning and cultural ecosystem services overlap more directly with HCV 5 and 6 which are discussed in more detail in later sections. Relevant supporting and regulating services are flood regulation, water purification, climate regulation, disease regulation, genetic resources, soil formation, nutrient cycling and primary production. See also Table 2 (pg. 37) in the Common Guidance on Identification of HCVs.

Such basic services become HCV 4 in critical situations (see below).

Basic ecosystem services are essential to the safety and health of local communities. The term "ecosystem services" is used in the National Policy on Biological Diversity and the 11th Malaysia Plan, however both these documents have not defined the term and rely on the common interpretation of "ecosystem services". It can be concluded that the key Malaysian environmental policies have mainstreamed the term "ecosystem services" and generally agree with the HCVRN Common Guidance definition.

Critical situations

An ecosystem service is critical where a disruption of that service poses a threat of severe, catastrophic or cumulative negative impacts on the welfare, health or survival of local communities, on the functioning of important infrastructure (roads, dams, reservoirs, hydroelectric schemes, irrigation systems, buildings, etc.), or on other HCVs.

Protection of water catchments and control of erosion of vulnerable soils and slopes

An area may be considered HCV 4 if the vegetation cover in the area provides a function in regulating the flow of water within a catchment. This service may be considered critical in the following situations:

- when people are dependent on the water for drinking or irrigation
- where the regulation of water flow guarantees the existence of fishing grounds or agricultural land on which the local people are dependent.
- where there are no viable or readily available alternatives.

HCV 4 also occurs in areas that contain natural vegetation types (e.g. forest) in good condition that help to prevent erosion and landslip where such events would have a critical impact on people or the environment. Such impacts might be catastrophic (landslides) or difficult to reverse (gradual loss of soil fertility and land productivity). Surface erosion causes the loss of top-soil, which leads to decreasing land productivity. Landslides and ravines reduce the area of productive lands, damage infrastructure, endanger human lives, change a watershed's hydrology characteristics, and increase sediment loads, which causes siltation of water bodies and irrigation channels. This is particularly important for farming and fishing communities, and for freshwater or coastal biodiversity.

In Peninsular Malaysia, protection of water catchments and control of erosion of vulnerable soils and slopes are ecosystem services usually provided by Permanent Reserved Forests (PRFs) classified under section 10(1) of the National Forestry Act 1984[17] as protection forests for water catchment, and soil protection. . There are provisions for water and soil protection under the Sabah Forest Enactment 1968 although there are no PRF protection classes specific to water and soil. There are also other state laws that allow for protection of water catchment areas e.g. the Selangor Waters Management Authority (LUAS) Enactment 1999 (LUAS), the Johor Water Enactment 1921 Johor, the Sabah Water Resources Enactment 1998 and the Sarawak Water Ordinance 1994.

However, not all sites providing these basic ecosystem services have been legally gazetted including water catchment areas of some reservoirs that are part of the public drinking water supply systems in various parts of the country. Thus, identification of areas providing these basic ecosystem services must also consider other national and state policy documents including the National Physical Plan as well as relevant structure and local plans.

If the ecosystem services provided by water catchment or soil protection area is of critical importance for communities within the proposed development area or downstream of it, HCV presence is assumed in line with the precautionary approach. In other words, these critical areas shall be considered to be HCV 4 areas whether or not they have legal protection status.

3.4.2 Indicators and data sources

Indicators

Indicators of a potential HCV 4 include:

- Protection PRFs gazetted for soil and/or water protection under the National Forestry Act 1984 for Peninsular Malaysia and the Sabah Forestry Enactment 1984
- Water catchment areas gazetted under relevant state laws including (but not limited to) the Selangor Waters Management Authority (LUAS) Enactment 1999 (LUAS), the Johor Water Enactment 1921 Johor, the Sabah Water Resources Enactment 1998 and the Sarawak Water Ordinance 1994.
- Areas indicated in the National Physical Plan (for Peninsular Malaysia) as being within dam (reservoir) catchment areas for public drinking water supply, whether or not legally gazetted

[17] Despite its name the National Forestry Act 1984 applies only to Peninsular Malaysia

as such.

- Results of analysis of topography and hydrological maps showing that a particular area is the catchment area of a local community water supply system, whether or not the area is gazetted as a protection forest.
- Areas upstream of and important for maintaining the ecosystem health of extensive or important wetlands, fish nurseries and spawning grounds, or sensitive coastal ecosystems (e.g. mangrove forests, coral reefs etc.)
- Wetland areas important for regulating and supporting services related to water filtration, prevention of seawater intrusion, prevention of abrasion.
- Steep or mountainous areas, or areas of high rainfall, where the risk of catastrophic erosion is high
- Where there is naturally low soil fertility, especially on sandy, peaty or fragile soils, where land clearance, drainage, use of heavy machinery or other intensive land use might affect soil structure and fertility.

Data sources

A list of data sources for assessing HCV 4 in Malaysia is provided in HCV 4.

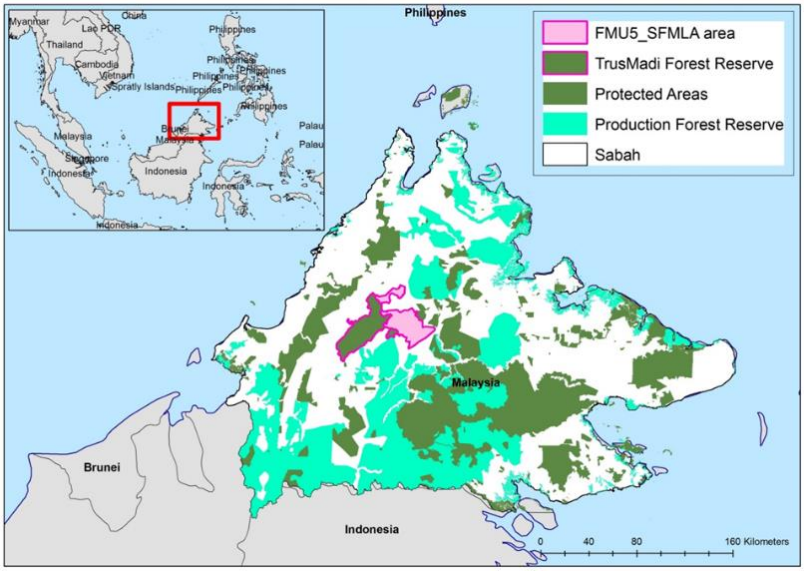
3.4.3 Case study

HCV 4 Case Study: Watersheds of gravity-fed water systems in Trusmadi Forest Reserve in Sabah

Location of case study: Trusmadi Forest Reserve, Ranau and Tongod districts, Sabah

Ecosystem: Mixed dipterocarp forests and lower montane forest.

Assessment context: HCV assessment for FSC or MTCC certification; also expected to undergo VCS and CCB certification for a carbon offset project



Location of Trusmadi

In Sabah, most rural communities in hilly, forested landscapes depend on Gravity Feed System (GFS) water supply for their drinking water needs. The GFS intake points are often located in the headwaters, on steep slopes with forest cover. Forests in the GFS watersheds are sometimes actively protected when located in protected areas or in community managed land. However, often they are unprotected but persist due to their location on steep slopes, rarely suitable for other landuses. In agricultural and forestry production frontiers, forest persistence in GFS watersheds is becoming increasingly precarious, thus threatening a crucial aspect of low-carbon living of rural communities.

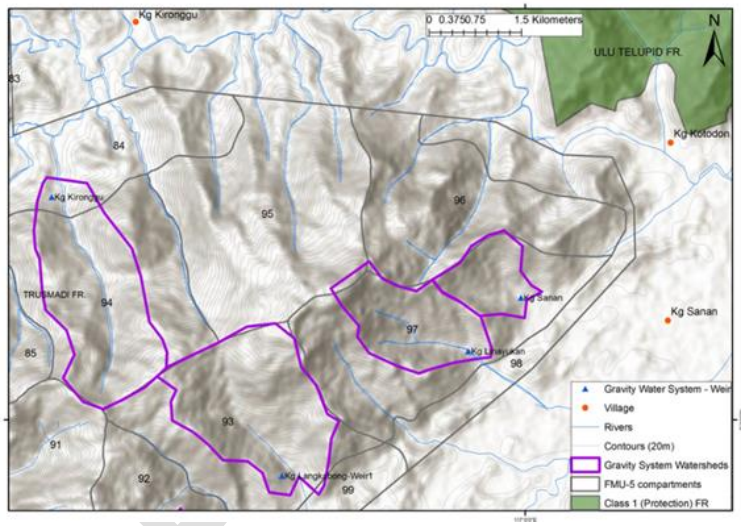
Sabah has kept about half of the state's land area (or about 3.7 million ha) as 'permanent forest estate', allocated for forest protection and forestry production. Most of the production areas have been given on a 100-year sustainable forest management license agreement (SFMLA) to private companies. Production activities include logging and tree plantations, and to a small extent, oil palm plantations. The production activities of each SFMLA area is guided by a 10-year forest management plan that is subjected to approval and monitoring by the Sabah Forestry Department.

Out of the SFMLA licensed areas, 88,920 ha in Trusmadi Forest Reserve has been licensed to a company in 1997. The area receives 2,500-3,500 mm of annual rainfall, consists of mountainous

terrain, and is well covered by forests, largely of the upland dipterocarp forest type. A new forest management plan was developed in 2017 with significant inputs from environmental NGOs.

To support the forest management planning, an HCV assessment focusing on watersheds of GFS water supply to local communities living in and around the licensed area was conducted by Forever Sabah. This SFMLA area is expected to undergo forest management certification under the FSC or MTCC standards. A carbon offset project is being developed in the area and it is also expected to undergo Verified Carbon Standards (VCS) and Climate, Community, and Biodiversity (CCB) certification.

A survey of the villages located in and around the licensed area was conducted in June 2017 to assess the dependence of local communities on GFS water supply and to collect geographical coordinates of the GFS weir/intake locations. 15 out of 19 surveyed villages were found to have GFS water supplied from the SFMLA area, and for most households, the GFS supply was the only source of drinking water. The GFS supply was thus identified as fundamental to meet the basic needs of the local communities and hence an HCV 5 value. The GFS weir locations and the watershed extents draining into each weir were mapped using topographical contour maps, drainage maps, and digital elevation model data available from NASA.



GFS watersheds in Trusmadi

The mapped watersheds were then delineated as the HCV Areas; a 100-m buffer was proposed around each watershed to make them HCV Management Areas (HCVMA). Since logging and tree plantation activities within these HCVMAs will adversely impact the water quality due to soil erosion and sedimentation, Forever Sabah has made a management recommendation to protect the HCVMAs from these disturbances. This would ensure that the SFMLA area maintains clean water provision to meet a basic need of the local human communities.

Text: Forever Sabah

3.5 HCV 5 Community needs

Sites and resources **fundamental for satisfying the basic necessities** of local communities or indigenous peoples (for example for livelihoods, health, nutrition, water), **identified through engagement with these communities or indigenous peoples.**

3.5.1 Key terms and concepts

As explained in Table 2 (pg. 37) of the Common Guidance on Identification of HCVs, provisioning services contribute to human wellbeing and livelihoods (HCV 5). It is noted that there are significant overlaps between some regulating services e.g. water flow regulation and purification (HCV 4) and drinking water provision (HCV 5). Provisioning ecosystem services in the context of HCV 5 include food, freshwater, wood, fibre, fuel, medicine, fodder for livestock and non-fibre NTFPs (illipe nut, resin dammar) needed for income generation.

Fundamental for satisfying basic necessities

A site or resource is fundamental for satisfying basic necessities if the services it provides are irreplaceable (i.e. if alternatives are not readily accessible or affordable), and if its loss or damage would cause suffering or prejudice to affected stakeholders. Basic necessities in the context of HCV 5 may cover any or all of the provisioning services of the environment including tangible materials that can be consumed, exchanged or used directly in manufacture, and which form the basis of daily life.

HCV 5 may occur where water supplies for rivers, streams and other natural water bodies are critical for human uses including drinking water, cooking, washing and irrigation and, fishing, and there are no viable or readily available alternatives.

Where there are natural resources being collected to fulfill basic human needs, and there are no viable or readily available alternatives, HCV 4 is likely to be present. These natural resources may be in the form of edible plants, wildlife, wood and other fibre and fuel.

Identified through engagement with…communities or indigenous peoples

Local communities and/or indigenous peoples should play a key role in proposing and identifying potential HCVs through a participative process. When evaluating sites and resources as HCV 5 it is necessary to consult widely and ensure that participatory mapping and social surveys include representatives from minority, vulnerable and marginalised groups, including women. Local communities need to be involved in a consultative process and agree to decisions concerning the identification, management and monitoring of HCVs through a FPIC process. This means that any decision or consent derived should be made without coercion or intimidation, with all relevant information provided and prior to commencement of any damaging activities or operations. In addition to local consultation, experts, local authorities and NGOs can provide helpful information and context.

Indigenous people (*Orang Asal*) and other marginalised communities in all regions to Malaysia deserve special attention. The basic necessities of many Orang Asal communities are dependent on natural resources, including reliance on rivers for water consumption, and there is a heavy dependence of subsistence crops to meet nutritional requirements.

In the case of Indigenous communities, there is a very strong attachment to customary land (and waters) from which many of their basic necessities are sourced. Some of the customary lands are recognised by the government while some are not.

Therefore, the HCV assessor should take note of any existing claims (whether legally contested or otherwise) on the use or ownership of natural resources in the area, even if the development company has the legal ownership over the land area. This would help to avoid further conflicts or even legal cases.

There are various terms used for customary lands including *pemakai menua* and *pulau galau* (natural community conserved area), *tagal* in Sabah and *kawasan rayau* in Peninsular Malaysia.

3.5.2 Indicators and data source

Indicators of a potential HCV 5 include:

- Presence of Orang Asli area/*kawasan rayau*[18] in Peninsular Malaysia, *pemakai menua* and *pulau galau* in Sarawak, and *tagal* in Sabah, and Native Customary Rights lands in Sabah and Sarawak.
- Remote and/or poor rural areas where people rely directly on rivers and streams for their water supply and natural resources for their basic needs. Access to health centres or hospitals is difficult
- Most houses are built from (not just the main structural material but also materials for roofing etc.), and household tools made from, locally available traditional/ natural materials
- There is little or no water and electricity infrastructure
- People have a low capacity to accumulate wealth (living "day to day")
- Farming (food crops) and livestock raising are done on a small or subsistence scale or critical for generating income for acquiring basic necessities
- Indigenous hunter-gatherers including nomadic communities are present
- Hunting and/or fishing is an important source of protein and income
- A wild food resource constitutes a significant part of the diet, either throughout the year or only during critical seasons
- There is a significant use of traditional medicine sourced from natural resources
- There is a significant reliance on NTFPs for livestock fodder for livestock
- There is a significant reliance on NTFPs for income generation such as Illipe nut, resin, dammar, etc.

Data sources

A list of data sources for assessing HCV 5 in Malaysia is provided in Annex 5.

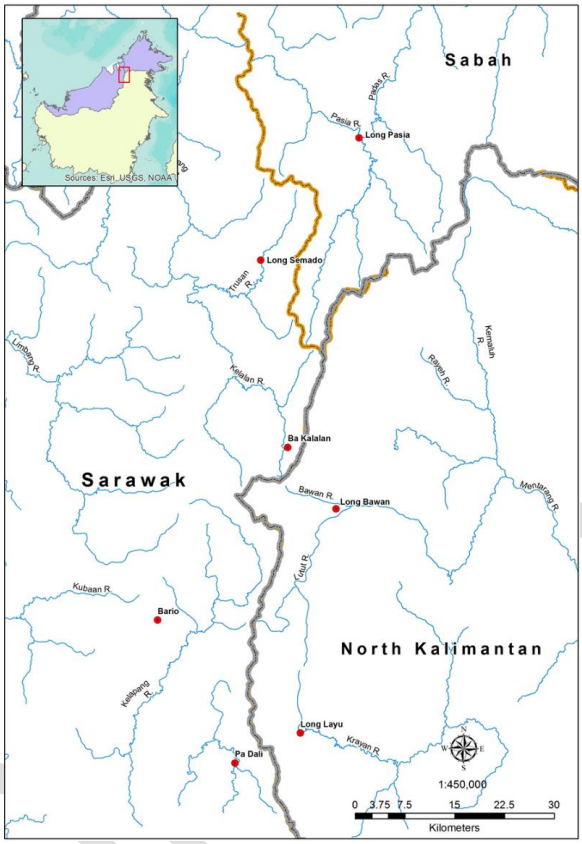
3.5.3 Case study

HCV 4, 5 & 6 Case Study: Lati'ba': Highland Wet Rice Cultivation

Location of case study: Bario of the Kelabit Highlands, Ba Kelalan along the Kelalan River, and Long Semado in northernmost part of Sarawak

[18] In Peninsular Malaysia The Aboriginal Peoples Act does not mention specifically that *kawasan rayau* is for basic necessities. Some *kawasan rayau* or Orang Asli Areas have been gazetted under the Act.

Ecosystem: Submontane forest



Location of Bario and Ba Kelalan

The traditional lati'ba' (highland wet rice cultivation) practice of the Kelabit and Lun Bawang of Sarawak, and Lundayeh of Sabah and North Kalimantan, encompasses more than one High Conservation Value.

Settlements in Bario of the Kelabit Highlands, Ba Kelalan along the Kelalan River (a tributary of the Batang Trusan); Long Semado and Long Lopeng along the Batang Trusan, Sarawak (WWF 2009); Long Pasia and Long Miou, Ulu Padas, Sabah; and those in the Krayan Highlands in North Kalimantan, are known for *lati'ba'* agriculture practices, which produce high quality black, red and white Adan rice (Padoch 1981; Langub 1984; Crain & Pearson-Rounds 1999).

Lati'ba' is intricately bound to their lives (Padoch 1981; Langub 1984; Crain & Pearson-Rounds 1999) to the extent that the some Lundayeh communities were known as '*lun nan ba'* or the people of the wet rice fields' (ed. Topp & Eghenter 2006:115). Permanent terraced *lati'ba'* fields surround their settlements and cover the gently sloping river flood plains and plateaus. Once established, the farmers, men and/or women, have an efficient agricultural system, and are generally ensured of ample harvest both for consumption and sale.

Location for fields is based on the flatness of the area, slope, availability of clear water (tea-coloured waters that are nutrient poor and acidic are avoided) and soil type (Padoch 1981; Crain & Pearson-Rounds 1999). The fields are not isolated from each and the farmers work together to develop them (Langub 1984). The distribution of clean, clear water, which contributes nutrient to the relatively infertile soils, is the key to the system's success (ed. Topp & Eghenter 2006), may be linked or separate, depending topography and source (Padoch 1981; Langub 1984).

A patchwork of harvested and fields ready to be harvested in Ba Kelalan

The agricultural cycle begins after harvest. Water buffaloes, an economically-important commodity, are released into the fallow fields to graze. This contributes nutrients, works the soil, and helps to prepare the field for the next crop. Bunds surrounding each plot are repaired, and then water is released into the terraced fields (Padoch 1981; ed. Topp & Eghenter 2006) submerging the vegetation. Next foot-high seedlings are transplanted. The fields are weeded when needed. In about six months the rice fields turn from a deep green to a golden yellow. The harvesting season can begin in late December in Long Semado, but this varies according to the place.

The success of the indigenous *lati'ba'*, agriculture method is tied to the supply of high quality clean clear water (Padoch 1981; ed. Topp & Eghenter 2006) whichoriginates from the forested mountains.

The HCVs linked to l*ati'ba'* are: HCV4 because the forested area upstream of the rice cultivation area is critical for the regulatory environmental service of water catchment protection; HCV5 because the supply of clean clear nutrient-filled water for rice cultivation is a provisioning ecosystem service; rice cultivation and HCV 6 because *lati'ba'* itself is a cultural value which is fundamental to the Kelabit, Lun Bawang and Lundayeh people.

References

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Topp, L. & C. Eghenter, C. (eds.). 2006. Kayan Mentarang National Park: In the heart of Borneo. WWF Denmark, Jakarta, Indonesia.

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Text: Ann Armstrong, Malaysian Nature Society Kuching Branch

Photo: Noboru Ishikaya

3.6 HCV 6 Cultural values

Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples.

3.6.1 Key terms and concepts

The definition of HCV 6 is extremely broad and it is useful to divide it into two different categories: cultural values of global or national significance, and values critical for local people at the site scale.

Values of global or national…significance

Sites, resources, habitats or landscapes which are significant at the global or national level are likely to have widely recognised historical, religious or spiritual importance and in many cases will have an official designation by national government (i.e. gazetted as a National Heritage Site under the National Heritage Act) or an international agency such as UNESCO (see Box 14, pg. 48 in the Common Guidance on Identification of HCVs) below. Occasionally, new sites or resources of extraordinary cultural significance may be discovered through exploration of sites for development (e.g. ancient burial sites or prehistoric cave art); these can qualify as HCV 6 based on expert and stakeholder opinion, without an official designation.

Critical importance for the traditional cultures of local communities or indigenous peoples

HCV 6 represents areas of cultural significance that have traditional importance to local or indigenous people. These may be religious or sacred sites, burial grounds or sites at which traditional ceremonies take place. These are frequently well known by the local people, and some national laws require them to be identified and protected.

In the Malaysian context, HCV 6 also encompasses traditional cultures of local communities or indigenous peoples (as acknowledged by relevant authorities), identified through engagement with these local communities or indigenous peoples.

In the Malaysian context, the customary land (and waters) of indigenous communities is very localised and site-specific, it is not surprising that this specific ecological niche invariably becomes the basis of the community's subsistence, spirituality, culture, history and identity (Human Rights Commission of Malaysia (SUHAKAM), 2013).

3.6.2 Indicators and data source

Indicators

- Presence of World Heritage, National Heritage or State Heritage sites.
- Presence of physical features/landmarks (e.g. megaliths, burial sites etc.) related to cultural and historical events
- Presence of Orang Asli area or kawasan rayau in Peninsular Malaysia, pemakai menua and "pulau galau" in Sarawak, and tagal in Sabah, and Native Customary Rights lands in Sabah and Sarawak.
- Strong traditional practices being retained by local communities
- **All claims need to supported by strong evidence like verification from ketua Kaum / museum department, photograph where applicable,

Data sources

A list of data sources for assessing HCV 5 in Malaysia is provided in Annex 5.

3.6.3 Case study

A case study on the MahMeri community at Carey island in Selangor has been suggested.

5. References

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ANNEXES

Annex 1: List of Data Sources for HCV 1

Commented [SS3]: Lists in the Annexes will be cleaned up

Reference	Application
Checklist of Birds of Malaysia (MNS)	Malaysia
CITES Appendices	Malaysia
Common Vision on Biodiversity (NRE)	Malaysia
Conservation priority schemes– http://www.biodiversitya-z.org/	Malaysia
Directory of Important Bird Areas in Malaysia (MNS & Birdlife International)	Malaysia
Global IUCN Red List of threatened species – http://www.iucnredlist.org	Malaysia
International Trade in Endangered Species Act 2008 Malaysia (INTESA)	Malaysia
Malaysia Biodiversity Information System (MyBIS)	Malaysia
Ministry of Natural Resources and Environment. 2014. The Draft Interim Master List of Protected Areas in Malaysia – A Tool for National Biodiversity Conservation Management and Planning. Ministry of Natural Resources and Environment, Putrajaya, Malaysia.	Malaysia
Protected Area Masterlist	Malaysia
Ramsar Sites: The List of Wetlands of International Importance	Malaysia
Species information sheets by DWNP	Malaysia
Wildlife Conservation Act 2010	Malaysia
Chua, L.S.L., M. Suhaida, M. Hamidah & L.G. Saw. 2010. Malaysia Plant Red List: Peninsular Malaysian Dipterocarpaceae. FRIM Research Pamphlet No. 129. Forest Research Institute Malaysia (FRIM), Selangor and the Ministry of Natural Resources & Environment (NRE), Putrajaya.	Peninsular Malaysia
Current Status of Asian Elephants in Peninsular Malaysia	Peninsular Malaysia
Conservation of some rare and endangered plants from Peninsular Malaysia (Kew Bulletin)	Peninsular Malaysia
DWNP. 2010. Red list Of Mammals For Peninsular Malaysia. Department of Wildlife and National Parks Peninsular Malaysia (DWNP), Kuala Lumpur, Malaysia.	Peninsular Malaysia

Endemic Trees of the Malay Peninsula (FRIM - Ng et al., 1990)	Peninsular Malaysia
FDPM List of Protected Trees for Wildlife	Peninsular Malaysia
Malaysia Plant Red List Peninsular Malaysia Dipterocarpaceae	Peninsular Malaysia
National Coastal Zone Physical Plan (NCZPP) – includes KSASSP i.e. Kawasan Sensitif Alam Sekitar Persekitaran Pantai (Coastal Zone Environmentally Sensitive Areas)	Peninsular Malaysia
National Elephant Conservation Plan (NECAP)	Peninsular Malaysia
National Physical Plan	Peninsular Malysia
National Tiger Conservation Action Plan (NTCAP)	Peninsular Malaysia
Redlist of Mammals in Peninsular Malaysia	Peninsular Malaysia
Saaban, S., N. B. Othman, M.N. Yasak, B.M. Nor, A. Zafir, & A. Campos-Arceiz. 2011. Current Status of Asian Elephants in Peninsular Malaysia. Gajah. Available from http://www.asesg.org/PDFfiles/2012/35-67-Saaban.pdfSaw, L. G., L.S. Chua, M. Suhaida, W.S. Yong, A.M. Hamidah. 2010. Conservation of some rare and endangered plants from Peninsular Malaysia. Kew Bulletin 65: 681-689. Peninsular Malaysia	Peninsular Malaysia
Saw, L. G., L.S. Chua, M. Suhaida, W.S. Yong, A.M. Hamidah. 2010. Conservation of some rare and endangered plants from Peninsular Malaysia. Kew Bulletin 65: 681-689.	Peninsular Malaysia
Zuraidah & Suksuwan (2014)	Peninsular Malaysia
Sabah Wildlife Conservation Enactment 1997	Sabah
A masterplan for Wildlife in Sarawak 1997	Sarawak
Sarawak Forest Ordinance 2015	Sarawak
Sarawak Wild Life Protection Ordinance 1998 (Cap. 26)	Sarawak

Annex 2: List of data sources for HCV 2

Reference	Application
Consultation with conservation experts on specific priority landscape	Malaysia
Field measurements (e.g. tree size, density, age classes, canopy pattern, vegetation cover in arid lands, signs of erosion, water quality, etc.) to understand ecological patterns.	Malaysia
Geographic Information Systems (GIS) and land cover analysis (e.g. data sets on forest blocks and intact watersheds and catchments), remote sensing, satellite imagery	Malaysia
Global Forest Watch	Malaysia
Intact Forest Landscape (IFL): http://www.intactforests.org/world.map.html	Malaysia
Measures of human presence: interviews with local communities, signs of trapping, hunting, clearance etc.	Malaysia
Central Forest Spine Master Plans I & Peninsular Malaysia	Peninsular Malaysia
National Physical Plan (NPP) 1, 2 & 3	Peninsular Malaysia
Heart of Borneo documents	Sabah and Sarawak
Ecolinc Corridor documents	Sabah
Kinabatangan Corridor of Life documents	Sarawak

Annex 3: List of data sources for HCV 3

Reference	Application
Bland, L.M., D.A. Keith, R.M. Miller, N.J. Murray, N.J. & J.P. Rodríguez (eds.). 2017. Guidelines for the application of IUCN Red List of Ecosystems Categories and Criteria, Version 1.1. Gland, Switzerland.	Malaysia
Suksuwan, S. & Siti Zuraidah Abidin. 2014. Taking stock: how are we doing at conserving our natural ecosystems and biodiversity heritage. Presentation at the National Protected Areas Managers Conference, Taman Negara National Park, Pahang, Malaysia, 11 June 2014.	Malaysia
WWF Ecoregions	Malaysia
CFS II Masterplan	Peninsular Malaysia
Foresters Manual of Dipterocarps - Malayan Forest Record, 2nd ed. (Symington, 2004)	Peninsular Malaysia
Kiew, R., R.C.K. Chung, L.G. Saw, E. Soepadmo & P.C. Boyce (eds.). 2010. Flora of Peninsular Malaysia Series II: Seed Plants, Vol. 1. Malayan Forest Records no. 49. Forest Research Institute Malaysia (FRIM), Selangor, and Ministry of Natural Resources & Environment, Putrajaya.	Peninsular Malaysia
Landscape maps for priority conservation areas (PCAs) PERHILITAN Ecological Model (2004)	Peninsular Malaysia
Manual of Malayan Silviculture for Inland Forest Volume 1 & 2, Malayan Forest Records No. 23 (Wyatt-Smith, 1995)	Peninsular Malaysia
National Coastal Zone Physical Plan	Peninsular Malaysia
National Forest Inventories Malaysia	Peninsular Malaysia
National Physical Plan (NPP) 1, 2 & 3	Peninsular Malaysia
National Water Resource Study Review 2000-2050	Peninsular Malaysia
Soepadmo, E. & K.M. Wong (eds.). Tree Flora of Sabah and Sarawak Vol.1. Sabah Forestry Department, Forest Research Institute Malaysia & Sarawak Forestry Department, Malaysia.	Sabah and Sarawak

Annex 4: List of data sources for HCV 4

Reference	Application
Anthropological works on diet and subsistence activities	Malaysia
Consultations with local stakeholders who may be directly affected	Malaysia
Consultations with relevant organisations working on community development with the communities in question (or other similar communities in the area).	Malaysia
Information from DID and water companies (e.g. location of dams, infrastructure, abstraction rates)	Malaysia
Information on vector-borne diseases which have increased due to loss of forest habitat	Malaysia
Landslide Risk Assessment Maps	Malaysia
Malaysian Meteorological Department Fire Danger Rating System	Malaysia
Maps of human habitations and infrastructure (such as major transport routes, reservoirs, hydroelectric dams etc.)	Malaysia
Natural Capital Project http://www.naturalcapitalproject.org/about.html	Malaysia
NRE Managing Biodiversity in the Riparian Zone: http://www.nre.gov.my/ms-my/Biodiversiti/BioD%20Knowledge/RiparianGuideline.pdf	Malaysia
Relevant legislations are already outlined under HCV 4 of the 2009 High Conservation Value Forest (HCVF) Toolkit for Malaysia (these will be added here later).	Malaysia
Relevant Structure and Local Plans	Malaysia
RSPO FPIC guidance	Malaysia
Specialist information, including local authorities, geographers and hydrologists	Malaysia
Socio-economic assessments carried out in the area	Malaysia
Soil maps with erosion risk indicators	Malaysia
Studies on natural resource use and livelihoods by conservation and development NGOs, local or national agencies etc.	Malaysia
Surveys of the relevant communities, to determine their interactions with the assessment area and the ecosystem products and services they use	Malaysia
Topography and hydrological maps	Malaysia
DID guidelines on riparian areas and river reserves	Malaysia
Environmental Quality Act 1974	Peninsular Malaysia
Location of water abstraction points (in the appendices of the Environment Act 1976)	Peninsular Malaysia
Maps of Permanent Reserved Forests particularly those that have been classified for soil and water protection	Peninsular Malaysia
National Coastal Zone Physical Plan	Peninsular Malaysia
National Forestry Act 1984	Peninsular Malaysia
National Forestry Policy 1978	Peninsular Malaysia

National Physical Plan	Peninsular Malaysia
National Water Resources Study Review 2000-2050	Peninsular Malaysia
Environment Protection Enactment 2002	Sabah
Sabah Fire Risk map	Sabah
Sabah Forest Enactment 1968	Sabah
Sabah Structural Plan 2023	Sabah
Sabah Water Resources Enactment 1998	Sabah
Sarawak Water Ordinance 1994	Sarawak

To add relevant legislations listed under HCV 4 of the 2009 High Conservation Value Forest (HCVF) Toolkit for Malaysia

Appendix 5: List of data sources for HCV 5

Reference	Application
Aboriginal People Act 1954:	Malaysia
Anthropological works on diet and subsistence activities.	Malaysia
Consultations with relevant organisations working on community development with the communities in question (or other similar communities in the area).	Malaysia
Maps of human habitations and infrastructure especially those related to remote communities	Malaysia
Map/list of villages	Malaysia
RSPO FPIC HCV 5 & 6 Guidance documents	Malaysia
Socio-economic assessments carried out in the area.	Malaysia
Surveys of the relevant communities, to determine their interactions with the assessment area and the ecosystem products and services they use.	Malaysia
Studies on natural resource use and livelihoods by conservation and development NGOs, local or national agencies etc.	Malaysia
National Forestry Policy 1978	Peninsular Malaysia
Orang Asli in Peninsular Malaysia: Population, Spatial Distribution and Socio-Economic Condition (Masron T., Masami f., Ismail N.) (2007)	Peninsular Malaysia
Orang Asli Population Statistics in Peninsular Malaysia from JAKOA	Peninsular Malaysia
Data from Sabah Council of Elders (refer to KDCA)	Sabah
Land Ordinance 1930 (Sabah Cap. 68)	Sabah
Maps from Native Customs Council, Resident's Office or PACOS Trust, KDCA & other cultural associations	Sabah
Sabah FPIC: Steering Committee Guidance	Sabah
Data from Native Customs Council Sarawak	Sarawak
Landscape Outcome Assessment Methodology (LOAM) (Aldrich & Sayer, 2007)	Sarawak
Sarawak River Ordinance1993	Sarawak
Sarawak Land code	Sarawak
The natural resources and Environment Ordinance	Sarawak

Annex 6: List of data sources for HCV 6

Reference	Application
Consultation with anthropologists, historians, archaeologists, museums and databases for identification of "sites of global or national significance"	Malaysia
List of National Heritage sites	Malaysia
List of UNESCO World Heritage sites	Malaysia
Museums, heritage lists, national data sets, authorities and any organizations which specialize in particular geographic areas or cultures	Malaysia
Outputs of community mapping exercises	
National directives concerning archaeological sites and resources	Malaysia
National Heritage Sites	Malaysia
National Ecotourism Plan	Malaysia
National Heritage Act 2005	Peninsular Malaysia
Mapping of ethnic groups from Sabah	Sabah
Sabah Land Ordinance – provisions on native/village reserves	Sabah
1954 map (based on aerial survey) of customary lands	Sarawak
Native Customs (Declaration) Ordinance 1996	Sarawak
Native Courts Ordinance 1992	Sarawak
Sarawak Cultural Heritage Ordinance 1993	Sarawak

Annex 7: Ecosystem respresentation within protected areas in Peninsular Malaysia

Ecosystem types	Original extent (1,000ha)	Current Extent (2006) (1,000ha)	% current vs original extent	Total in PA (1,000ha)	% in PA (of original extent)
Lowland less than 300 m					
Mangrove	118.6	88.3	74.5	2.30	1.9
Beach vegetation	0.3	0.1	33.3	0.01	3.3
Freshwater swamp	42.5	25.1	59.0	6.60	15.5
Peat swamp	701.5	338.5	48.3	15.10	2.2
Lowland dipterocarp	9,101.9	3,398.0	37.3	938.40	10.3
Habitat over limestone	235.4	60.4	25.7	11.40	4.8
Habitat over ultra-basic	3.3	1.2	36.4	0.02	0.6
Heath	1.1	0.7	63.6	0.02	1.8
Lowland 300 m - 770 m					
Hill dipterocarp	1,986.7	1,938.7	97.6	600.10	30.2
Lower montane 750 m - 1,300 m					
Lower montane	192.6	186.5	96.8	94.90	49.3
Upper dipterocarp	724.0	716.9	99.0	301.50	41.6
Upper montane > 1,500 m					
Upper montane	75.0	73.0	97.3	38.90	51.9
Peninsular Malaysia (P.M.)	13,182.9	6,827.4		2009.25	

Source: Suksuwan & Zuraidah (2014)