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The HCS Approach Toolkit

The High Carbon Stock Approach: No Deforestation in Practice

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Document overview

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Introduction

There is now broad global agreement among a wide range of companies, research institutions, conservation and environmental NGOs, many governments, and forest-dependent communities on the need to stop tropical deforestation. Tropical forests hold the greatest diversity of life on Earth and provide a range of services we all need. Without them, people, businesses and the planet will not thrive.

The question, however, is how plantation companies and farmers can ensure they are not contributing to tropical deforestation with new plantations in order to grow the food, fuel, feed and fibre we need for our growing population. How can we differentiate degraded land potentially suitable for establishing plantations and crops from forest areas that need to be protected? Current approaches such as the High Conservation Value process, greenhouse gas emissions monitoring, participatory mapping and respect for communities' rights to land and to give or withhold their Free Prior and Informed Consent (FPIC) may slow deforestation and secure peoples' livelihoods, but they have not stopped all forest clearance. These approaches remain valuable, but they do not delineate all areas of natural forest for which protection is sought, and thus do not provide sufficient guidance for implementing 'No Deforestation' policy commitments. There is also a clear need for a practical definition of 'natural forest' which can be used in concessions.

In response to this challenge and following a bold commitment to 'No Deforestation', Golden Agri-Resources (GAR) in collaboration with Greenpeace and TFT have pioneered a methodology to identify natural forest areas, called the High Carbon Stock Approach. From 2010-2014, processes to define potentially viable areas of tropical forest as well as degraded lands were trialled in Indonesia and Liberia, combining carbon storage, biodiversity conservation and local community rights and livelihoods. In August 2014, a multi-stakeholder HCS Approach Steering Group was formed to oversee the further development of the methodology and its use in the field.

To standardise and make it available to all practitioners who need it, the Steering Group has published here the HCS methodology as Version One of the HCS Approach Toolkit, to be used in further trials and for broader consultation. We will periodically issue updates to the toolkit, as well as new chapters covering how to conserve, restore and monitor HCS forests. We are very much seeking feedback on the approach, and welcome input to the Steering Group on the implementation of it across different tropical regions in order to strengthen and refine the methodology. The HCS Approach Steering Group is developing a set of 'Quality Assurance' requirements for users, and in the interim we ask HCS Approach practitioners to apply the methodology as it is laid out in the toolkit.

"How can we differentiate degraded land potentially suitable for establishing plantations and crops from forest areas that need to be protected?"

To those who will be using the HCS Approach, it is important to note that identifying HCS forests is only one of several critical aspects of land use planning in forest landscapes. Lands vital to local communities, High Conservation Value (HCV) areas and peatlands must also be protected. During the HCS process and in particular the final phase of the methodology, the HCS Approach integrates with these other categories of land use. It therefore relies on high quality HCV assessments, participatory mapping, respect for customary rights and FPIC to arrive at a proposed conservation area plan.

In closing, we would like to thank the authors and reviewers who have contributed to this toolkit, and all those who share our vision of the HCS Approach and its contribution to ending deforestation.

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Editorial Committee of the HCS Toolkit, on behalf of the HCS Approach Steering Group

The High Carbon Stock Approach: A practical approach to 'No Deforestation'

By Peter Heng (Golden Agri-Resources), Scott Poynton (TFT) and Grant Rosoman (Greenpeace)

"The HCS Approach is already a practical tool which can be used for any product, in any country in the humid tropics, to address the need for forest protection within agricultural development"

"No Deforestation" is a rallying cry for concerned consumers around the world. They are fed up with images of communities being evicted from their lands and orang-utans being rescued from tiny islands of forest areas among vast open land which has been cleared for the latest industrial plantation. But to put "No Deforestation" into practice, we need to answer some complex questions:

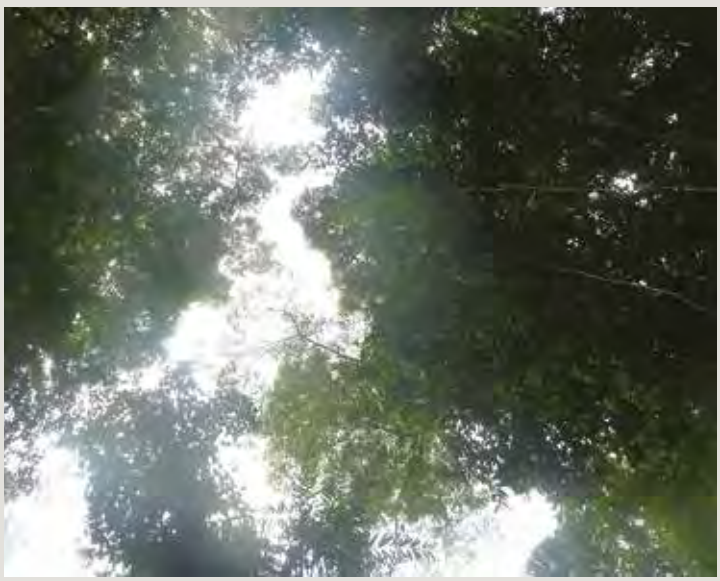
- What exactly characterizes a forest? Most tropical forest landscapes today are not entirely covered with forests, but rather have a dynamic mix of vegetation, ranging from grassland to scrub to regenerating forests to dense forests with a high canopy. Where do we draw the line between 'forest' and 'non-forest', given the impracticality of the various international definitions of forest?
- What attributes and conditions allow a tropical forest to maintain and restore its functions as a forest? Is the size of a forest patch important to its survival?
- Can we design a healthy forest mosaic in economically active areas that maintains carbon and biodiversity, and integrates with other conservation tools? Should we 'sacrifice' smaller lower carbon and biodiversity patches to development to prioritise conservation of larger well-connected forest patches? How should we take into consideration the amount of forest remaining in the landscape?
- How are local community rights and needs addressed in the process of halting deforestation? What level of support and involvement of local communities do we need to achieve forest conservation in both the short and long term? What is the role of governments in achieving No Deforestation?

The HCS Approach is an attempt to answer these questions. It is a pragmatic land use planning tool rather than a carbon assessment, which provides a methodology for implementing the No Deforestation concept in active concessions slated for development in tropical forest countries. It aims to respect customary rights and meet community needs while at the same time considering the company's operational reality. In short, the approach offers a paradigm shift to include forest conservation as a cornerstone of any expansion of agriculture in tropical forest landscapes.

Development of the HCS Approach started in late 2010 by Golden Agri-Resources (GAR), TFT and Greenpeace during the development of GAR's Forest Conservation Policy. This included working through the challenges of defining 'forests' and achieving conservation of these forests in the long-term, as described above. Since then the approach has been trialled in GAR-related palm oil concessions in West Kalimantan, Indonesia and Liberia, as well as with other companies in pilot HCS studies elsewhere in Indonesia and in Papua New Guinea. The two phases of the approach have had separate expert reviews and inputs from multiple stakeholders to develop the current methodology described in this toolkit.

In 2014 dozens of companies in the palm oil and pulp and paper sectors, as well as key consumer goods companies, pledged to use the HCS Approach to implement their own No Deforestation pledges. This is encouraging, and has lent urgency to completing the first version of this toolkit for practitioners who want to responsibly develop plantations in tropical forest landscapes. While feedback from further implementation will improve the methodology, we are confident that the HCS Approach is already a practical tool which can be used for any product, in any country in the humid tropics, to address the need for forest protection within agricultural development. We look forward to learning lessons from HCS studies in new regions as we embark together on this No Deforestation journey.

All photos: Courtesy TFT ©



Acronyms and definitions

TERM	ACRONYM	DEFINITION
Diameter at Breast Height	**DBH**	Tree diameter measurement normally taken 1.3m up from ground level (*see Chapter 4*).
Environmental and Social Impact Assessment	**ESIA**	
Free, Prior and Informed Consent	**FPIC**	The principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or otherwise use. *(Source: FPP)*
Geographic Information System	**GIS**	A computer system capable of assembling, storing, manipulating, and displaying information identified according to its location on Earth. *(From USGS)*
Global Positioning System	**GPS**	A system that uses signals from satellites to tell you where you are and to give you directions to other places. *(From Webster.com).*
High Carbon Stock	**HCS**	HCS forests are those identified through the HCS Approach as forested areas to be prioritised for protection from conversion.
High Conservation Value	**HCV**	High Conservation Values (HCVs) are biological, ecological, social or cultural values or attributes associated with natural or traditionally managed ecosystems, which are considered outstandingly significant or critically important at the national, regional or global level. HCV management areas are critical areas in a landscape which need to be managed appropriately in order to maintain or enhance one or more HCVs. Areas which possess such attributes include: HCV1: Areas containing globally, regionally or nationally significant concentrations of biodiversity values (e.g. endemism, endangered species, refugia). HCV2: Globally, regionally or nationally significant landscapes where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance. HCV3: Areas that are in or contain rare, threatened or endangered ecosystems.HCV4: Areas that provide basic ecosystem services in critical situations (e.g. watershed protection, erosion control).HCV5: Areas fundamental to meeting basic needs of local communities (e.g. subsistence, health).HCV6: Areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities). *(Source: HCV Network)*

TERM	ACRONYM	DEFINITION
High Density Forest	**HDF**	One of the HCS vegetation classes
High forest cover landscape		A landscape with a natural forest cover greater than 80%.
International Union for the Conservation of Nature	**IUCN**	
Landscape		A geographical mosaic composed of interacting ecosystems resulting from the influence of geological, topographical, soil, climatic, biotic and human interactions in a given area. *(Source: IUCN)*.
Low Density Forest	**LDF**	One of the HCS vegetation classes
Low forest cover landscape		A landscape with a natural forest cover of less than 30%
Medium Density Forest	**MDF**	One of the HCS vegetation classes.
Medium forest cover landscape		A landscape with a natural forest cover of between 30 and 80%.
Non-timber forest product	**NTFP**	Any product or service other than timber that is produced in forests. NTFPs include fruits and nuts, vegetables, fish and game, medicinal plants, resins, essences and a range of barks and fibres such as bamboo, rattans and a host of other palms and grasses. *(Source: CIFOR)*
Reducing Emissions from Deforestation and Degradation (UN-REDD+)	**REDD+**	A framework being developed by the UN through which developing countries are rewarded financially for (a) Reducing emissions from deforestation; (b) Reducing emissions from forest degradation; (c) Conservation of forest carbon stocks; (d) Sustainable management of forests; and/or (e) Enhancement of forest carbon stocks. *(From The REDD Desk, 2015*)
Roundtable on Sustainable Palm Oil	**RSPO**	
Set-aside area, set-asides		A tract of land within a private concession or farm on which commercial crops will not be grown.
Young Regenerating Forest	**YRF**	One of the HCS vegetation classes

Chapter 1

High Carbon Stock in context and an outline of the HCS Approach Toolkit

By Charlotte Opal, TFT

CHAPTER CONTENTS

Introduction

In the past five years, dozens of leading companies in the soy, palm oil, pulp & paper, and beef industries have agreed to eliminate deforestation from their activities and supply chains. Many of them had already agreed to protect 'High Conservation Value' (HCV) areas, yet many secondary forests that provide essential carbon storage, habitat for biodiversity, and forest products for local communities are not considered HCV. Some broader definitions of 'forest' exist, but are not practical enough to be able to implement company commitments to No Deforestation in the tropics.

"There is a clear need for a practical, scientifically robust and cost-effective methodology that can distinguish viable forest areas from degraded areas that have lower carbon and biodiversity values"

There is thus a clear need for a practical, scientifically robust and cost-effective methodology that can distinguish viable forest areas from degraded areas that have lower carbon and biodiversity values. The High Carbon Stock Approach represents the first practical methodology that has been tested and developed in active concessions in Asia and Africa with input from a variety of stakeholders. It is a relatively simple tool that plantation companies can use for new developments while ensuring that forests are protected from conversion.

Broadly, the HCS Approach stratifies the vegetation on an area of land into different classes. Each vegetation class is validated through calibrating it with carbon stock estimates in the above-ground tree biomass. The diagram below shows the four HCS forest classes; the threshold for potential HCS forests lies between the Young Regenerating Forest (YRF) and Scrub (S) classes.

This High Carbon Stock Approach Toolkit will take practitioners through the steps in identifying HCS forest, from initial stratification of the vegetation using satellite images and field plots, through a Decision Tree process to assess the conservation value of the HCS forest patches in the landscape and ensure communities' rights and livelihoods are respected, to making the final conservation and land use map. This chapter gives a brief overview of the HCS process and an outline of the toolkit, beginning with an overview of the HCS Approach in its broader context.

HCS CLASSIFICATION

The HCS Approach in context

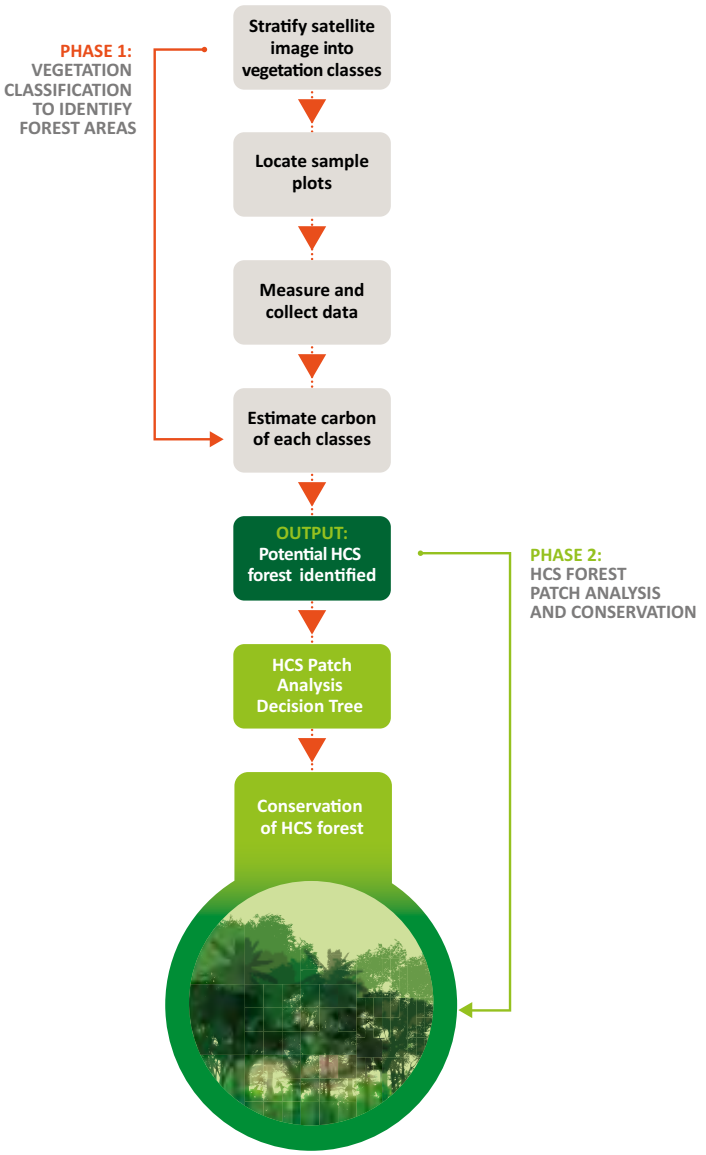
First, it is important to note that the HCS methodology is **designed for use in fragmented forest landscapes and mosaics in the humid tropics**. The methodology could eventually be adapted to other vegetation types such as tropical savannahs or temperate or boreal forests, but this first iteration was developed to identify natural forest areas in the humid tropics, and this toolkit will explain how to use it in that context.

Second, despite having the word 'carbon' in the title, the High Carbon Stock forest concept is **not intended to be used as a measure of carbon stores**, or for any type of carbon footprint or accounting. While forests are of course important stores of carbon, there are many other reasons to protect them. Estimates of carbon content of the vegetation are simply used in the HCS Approach to help distinguish different types of vegetation: generally speaking, more carbon indicates denser and more structurally complex vegetation. The HCS Approach thus uses an estimate of above-ground biomass in trees greater than or equal to 5cm DBH (diameter at breast height) only – other above-ground biomass and below ground carbon is not considered. (However, high carbon soils such as peatlands are taken into account in the approach through being added to the areas for protection and conservation in the final integrative land use planning stage).

Third, the HCS Approach is grounded in GIS and remote sensing, forestry and conservation science, but **the methodology for determining HCS forest is designed to take into account variations in the local forest types and conditions**. This means that while the methodology used to identify HCS forests is the same in every country, the results of each assessment may vary according to the context of local landscapes, even when the rules described in this toolkit are consistently applied. Average above-ground carbon values are calculated for the classes identified, but these will likely vary among countries and even within the same country.

Finally, the HCS Approach is **designed to be used in parallel and integrated with other land use and conservation strategies**. These include free prior and informed consent (FPIC) and the protection of peatlands, riparian zones, HCV areas, and areas important to local communities and indigenous people for cultural or economic reasons. Indeed, if these other aspects have not been properly assessed and mapped, the steps set out in the HCS Approach cannot be fully completed because a final integrated land use and conservation map cannot be developed.

STEPS IN THE HCS PROCESS



An overview of the HCS Approach and the HCS Approach Toolkit

This toolkit is intended for use by practitioners who seek to ensure that forests are not cleared in concessions which are designated for new planting. The HCS methodology is best implemented by a team of specialists with different skills. These skills can vary from land tenure analysis and participatory mapping to satellite imagery analysis, forest inventory, biodiversity assessments and landscape planning. The chapters that follow are therefore technical in nature, with the aim that a trained practitioner can use them in the field to implement the HCS Approach with little additional guidance.

As stated above, the HCS Approach is intended to be integrated with overall land use planning which also protects HCV areas, peatlands and lands important to communities. As those processes are well described elsewhere, this toolkit does not address them in detail; it assumes that when the HCS study begins, high-quality assessments of those other values have already occurred. Nonetheless, the authors have made best efforts to highlight those steps in the HCS methodology where these other assessments are particularly important.

The order of the chapters in the HCS Toolkit follows the steps of an HCS assessment. It takes the user through the first step of engaging local communities and stakeholders in the process, all the way through to creating a proposal for HCS forest areas which need to be conserved and areas which are suitable for development. Each step in the HCS Approach and its corresponding Toolkit chapter is outlined to the right. A short conclusions chapter highlights areas for further study.

"The HCS Approach is intended to be integrated with overall land use planning with also protects HCV areas, peatlands and lands important to communities"

Putting the HCS Approach into its social context

CHAPTER 2
RESPECTING COMMUNITY RIGHTS TO THEIR LANDS AND TO FPIC IN THE HCS APPROACH

For the HCS process to be successful, and for forests to be conserved, local communities must be integrated into the process from the beginning. This chapter gives an overview of how to include communities in land use planning and integrate the HCS process with Free, Prior, and Informed Consent (FPIC): the right of local communities to give or to withhold their consent to any project affecting their lands, livelihoods and environment.

A short case study of how one company dealt with community conflict during a HCS pilot study is also presented.

Phase One: Making the first indicative HCS forest map

CHAPTER 3
INITIAL VEGETATION CLASSIFICATION THROUGH IMAGE ANALYSIS

The first step in the HCS Approach is to classify vegetation into relatively homogeneous classes on the basis of satellite imagery. The techniques of unsupervised vs. supervised vs. visual stratification are discussed alongside an overview of available image databases and tools.

The chapter includes sample satellite images from HCS studies to show how the initial classification is done.

CHAPTER 4
FOREST INVENTORY AND ESTIMATION OF CARBON STOCK

In the next step, the vegetation classes proposed in the first step are sampled in the field. This chapter explains how to select sample plots, measure vegetation, estimate above-ground biomass and refine the classification.

At the end of Phase One, an indicative map of HCS forest areas will be produced, with patches of HCS forest of varying size and connectivity identified.

Phase Two: Analysing HCS patches and creating an indicative conservation/development map

CHAPTER 5
HCS FOREST PATCH CONSERVATION: BACKGROUND AND PRINCIPLES

The map produced in Phase One will likely include some large forest areas as well as some isolated smaller patches of HCS forest. This chapter provides a review of conservation science research and literature relating to analysing forest patches in a landscape, and explains how different parameters including shape, size, configuration, and connectivity underpin decisions on the conservation of patches in the HCS Decision Tree.

CHAPTER 6
HCS FOREST PATCH ANALYSIS DECISION TREE

HCS forest patches are analysed using different parameters using a mix of GIS tools, manual analysis and field checks. This chapter describes the HCS Decision Tree, which is a relatively simple tool to address a complex set of decisions to be made about each HCS forest patch. Guidance is provided on how patches are classified at each step in the Decision Tree.

The final step in the Decision Tree integrates the HCS forests with other conservation and management areas including peatlands, HCV areas and areas important to communities to come to a development and conservation area proposal.

The future of the HCS Approach Toolkit

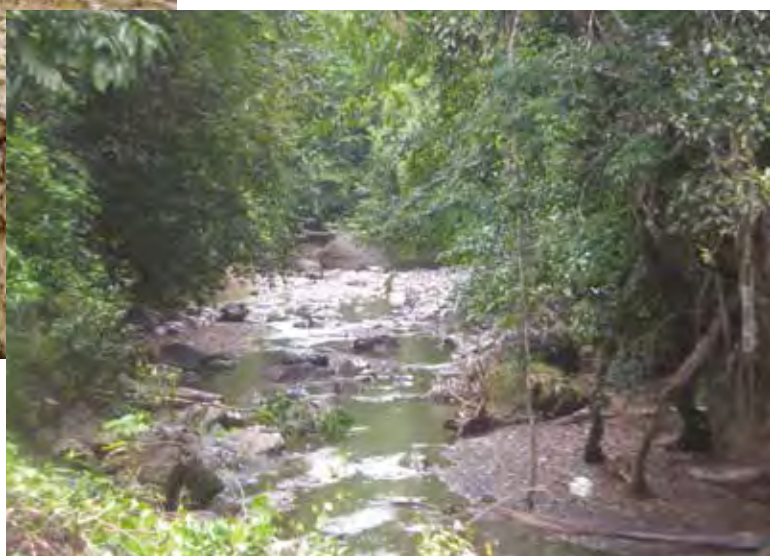
This first edition of the HCS Approach Toolkit aims to collate the knowledge acquired through the first wave of HCS trials and innovation. This included testing out the methodology in pilot studies, undertaken between 2011 and 2014 in palm oil and pulp and paper plantations in Indonesia, Liberia and Papua New Guinea. In publishing the methodology, the HCS Approach Steering Group expects this toolkit to be used to implement HCS assessments for agricultural expansion across tropical regions, including transparency of the decision-making processes and results.

"Much as the HCS Approach itself is innovative and collaborative, this HCS Toolkit will adapt and change based on the best thinking and experience of the companies, NGOs, and experts who use it"

The HCS methodology may change slightly along with the conservation science which underpins it, and no doubt lessons will be learnt through further testing. This first edition is therefore also intended to be used for broader consultation and to gather more feedback. However, the HCS Approach Steering Group does not foresee major changes to the methodology and any fine-tuning will need to be agreed by the Steering Group. Companies committed to the HCS Approach should feel confident that the results of HCS assessments using this toolkit will be robust, relevant and accepted well into the future, even if minor methodological refinements are incorporated over time.

Finally, this first version of the toolkit takes the practitioners through to the outcome of the proposed conservation/development area map. Following this, HCS forest areas (integrated with other conservation areas) need to be conserved together with local communities and have their legal protection ensured. Innovations are also needed for financing the protection of HCS forest, and for their management and monitoring. In 2015 the HCS Approach Steering Group will be gathering experiences and leading discussions on these aspects with the aim of developing guidance and additional modules for the toolkit in order to address them.

The HCS Approach Toolkit is therefore best seen as a 'living' document which will be updated and added to over time as the methodology is refined. Much as the HCS Approach itself is innovative and collaborative, this HCS Toolkit will adapt and change based on scientific advice and research, as well as the innovations and experiences of the companies, NGOs, and experts who use it to implement their commitments to eliminate deforestation.



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