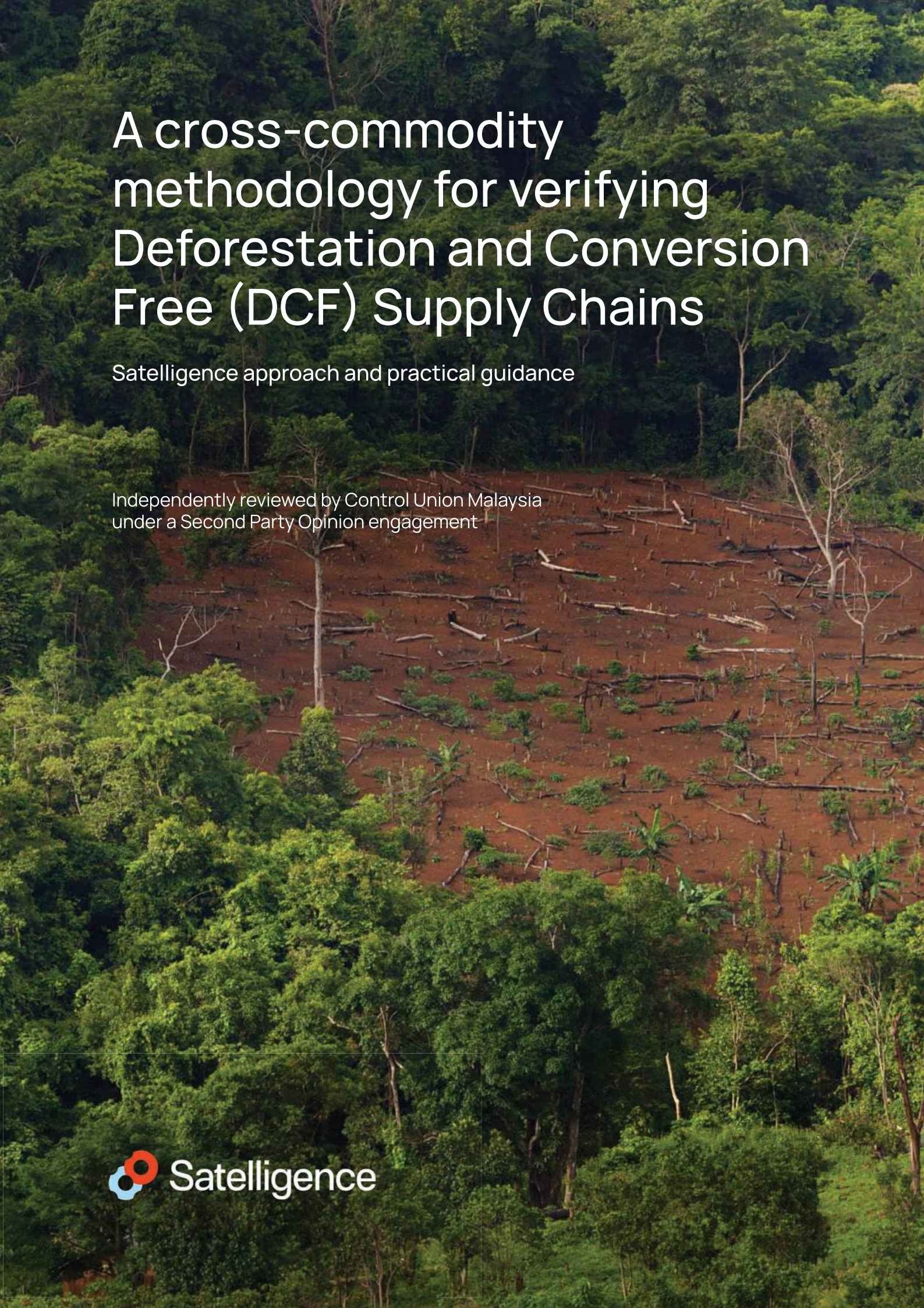


A cross-commodity methodology for verifying Deforestation and Conversion Free (DCF) Supply Chains

Satelligence approach and practical guidance

Independently reviewed by Control Union Malaysia
under a Second Party Opinion engagement

Satelligence

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Executive summary

This guidance document sets out Satelligence's methodology for assessing Deforestation and Conversion Free, or DCF, performance across forest and ecosystem risk supply chains. It is intended for supply chain actors, financial institutions, consultants, assurance providers and other stakeholders seeking a consistent, reviewable approach to DCF assessment across commodities, traceability conditions, regulations and buyer requirements.

The methodology applies a common geospatial logic across commodity supply chains, including palm oil, soy, cocoa, coffee, rubber, beef and others. The core assessment logic remains consistent, while the evidence base and implementation pathway may vary with traceability, crop mapping maturity, available supply chain data and sector practice. This allows DCF performance to be assessed under both high and low traceability conditions without changing the underlying principles of the approach, while supporting greater consistency, comparability and interoperability across the wider DCF ecosystem.

At its core, the methodology follows a defined sequence: establishing baselines for natural forests and other natural ecosystems before the relevant cutoff date; detecting deforestation and conversion after that date; and linking observed change to commodity production areas and supply chain entities. These may include plots, farms, facilities, mills, aggregators, sourcing areas or other relevant units, depending on the commodity and data context.

The methodology then derives DCF indicators, including area based and, where supported by the data, volume linked metrics. These indicators support sourcing decisions, supplier

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engagement, due diligence, claims substantiation, disclosure and verification. Across implementation pathways, the core DCF calculation logic remains consistent; what changes is how production or sourcing areas are defined, how attribution is handled, and what confidence or evidence tier is attached to the result.

The guidance is designed to be practical and auditable. Assumptions, input datasets, attribution steps and calculation logic are documented so that technical reviewers, clients and assurance providers can understand, test and calibrate results over time. The approach also supports comparison and alignment with relevant initiatives, frameworks and buyer expectations, including AFi principles, CGF pathways and sector specific protocols.

The document is intended to remain a living reference as data, standards and expectations evolve. The methodology has been independently reviewed by Control Union Malaysia under a Second Party Opinion engagement, covering methodology design, technical consistency, transparency of assumptions and limitations, and overall alignment with referenced frameworks. Inputs, parameters and explanatory guidance may be updated over time, while the core logic remains stable and reviewable. Because DCF assessment sits within the wider field of land use change analysis, the same geospatial foundation can also support related climate and nature assessments, including Scope 3 land use change emissions, biodiversity risk and water risk.

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Satelligence's work on DCF builds on a long-standing role in the development and practical application of geospatial approaches to deforestation and conversion free supply chains. Since 2016, Satelligence has worked as an advisor and implementation partner to food and beverage companies, consultants, certification bodies, conservation partners and sector initiatives, helping translate satellite based land use change analysis into operational methods for supply chain monitoring, supplier engagement, claims support and verification.

Satelligence has contributed to and supported ecosystem efforts such as the Palm Oil Collaboration Group and the Consumer Goods Forum Forest Positive Coalition through technical advisory services. Through these engagements, Satelligence has helped pioneer and operationalise approaches for linking deforestation and conversion alerts, baselines and risk indicators to supply chain entities such as farms, mills, facilities, sourcing areas and supplier groups.

This guidance document draws on that experience and reflects ongoing methodological alignment across commodity sectors. It takes into account relevant initiatives and protocols associated with RTRS (Round Table on Responsible Soy Association) for soy and corn, WCF (World Cocoa Foundation) and ECA (European Cocoa Association) for cocoa, GPSNR (Global Platform for Sustainable Natural Rubber) for rubber, ECF (European Coffee Federation) for coffee and other sector specific approaches. The aim is to set out a structured cross commodity methodology for companies sourcing multiple commodities across geographies, while remaining compatible with sector specific expectations where relevant.

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Key concepts for reference

LANDSCAPE CONCEPTS:

Forest	Satelligence applies the FAO definition of forest. Forest, as defined by the FAO, is "land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use."
Satelligence Forest and Natural Ecosystem Baseline (FBL)	Satelligence's harmonized global geospatial baseline that maps natural forests and other natural ecosystems to detect subsequent deforestation and conversion. This pioneering framework extends tracking beyond traditional forest-centric models to provide scalable monitoring across dry forest and non-forest ecosystems that are complex and transitional such as savannas, grasslands, and wetlands.
Non-forest natural ecosystem	Naturally occurring ecosystems that are not forests, such as grasslands, savannas, shrublands, wetlands and peatlands, that has not been converted to non-natural land use.
Deforestation & Conversion (D&C)	Deforestation – Human-driven conversion of natural forest to non-natural land use (e.g. cropland, pasture, infrastructure) after the relevant cut-off date. Conversion – Human-driven conversion of other natural ecosystems (non-forest native vegetation) to non-natural land use after the relevant cut-off date. (D&C - Short-hand used in this guidance document for all post–cut-off loss of natural forests and other natural ecosystems to non-natural land.)

LANDSCAPE CONCEPTS:

Production area	The mapped area where a given commodity is grown or produced (e.g. farms, plantations, jurisdictions) and which forms the spatial basis for calculating DCF metrics.
Planted crop layer	A Satelligence geospatial layer showing where a specific crop (e.g. palm, soy, cocoa, coffee) is likely planted or grown, used to attribute D&C to particular commodities. In some technical contexts, this may also be referred to as a commodity mask or commodity layer.

SUPPLY CHAIN & TRACEABILITY CONCEPTS:

Plot	The basic production unit for this methodology: a spatially defined area where a commodity is grown or produced (e.g. farm, estate block, plantation / concession, smallholder parcel), normally represented as a polygon. Used as a generic term in this guidance document for individual production units.
Jurisdiction	Administrative unit (e.g. municipality, district, province, state) used to group sourcing locations and assess relative D&C risk.
Sourcing area / supply shed	Geographic area from which a facility or buyer is likely to receive raw material (e.g. the combined farms supplying a mill, crushing plant or cooperative) which may be defined as a single facility, a cluster of facilities or, in some cases, an administrative unit.
Evidence or Evidence tier	The strength and type of spatial evidence used to define the production or sourcing area, such as: Spatial information (e.g. polygons, planted crop layers, sourcing areas, jurisdictional scores) that links land-use change to specific supply-chain units and is used to support or challenge DCF assessments.

SUPPLY CHAIN & TRACEABILITY CONCEPTS:

Mill	First aggregation / Tier-1 facility in the supply chain. For example: a processing plant that receives fresh fruit bunches from production plots and converts them into crude palm oil (CPO) and related intermediates. (Also used in the context of other commodities such as sugarcane.)
Traceability to Mill (TTM)	The ability to trace sourced volumes at least to the processing facility (e.g. mill, silo, cooperative, or refinery) that first aggregates the raw material. (Specific to Palm, Sugarcane.)
Traceability to Production Unit/Plot (TTP)	Ability to trace sourced volumes to specific production units (e.g. farms, estates, plantations, concessions, smallholder plots), often represented as named entities and/or polygons. (Also referred to as Traceable to Plantation for Palm Oil supply chains.)
First operator	The entity that first processes, aggregates, or places the commodity on the market after production (e.g. mill, cooperative, crusher, trader), often carrying specific legal or reporting obligations.
FFB (Fresh Fruit Bunches) CPO (Crude Palm Oil)	The harvested fruit bunches from oil palm trees that are delivered to a mill as the raw input for palm oil processing. Unrefined palm oil extracted at the mill from FFB, before further refining or fractionation.

DCF OUTCOMES:

Land Use Change (LUC)	A change in land cover or land use over time (e.g. forest to cropland), detected from satellite data and used as the core signal for D&C and related risk indicators.
Deforestation and Conversion Free (DCF)	Status indicating no post–cut-off deforestation or conversion detected within the defined production or sourcing area.
DCF %	Share of a unit's area or volume that meets the DCF criteria, expressed as a percentage.
D&C score	Post-cut-off D&C area divided by planted crop area in the relevant production or defined sourcing area.
Minimal Smallholder Deforestation (MSD)	Indicator or layer used to flag areas where smallholders are assessed as contributing only a minimal share of recent deforestation.
Commodity-driven	Describes D&C that occurs inside mapped production areas for a specific crop and is attributed to that commodity.
Implementation pathway	The way the core DCF methodology is applied under specific data conditions (e.g. traceability-led, planted crop layer-based, jurisdictional).
Unallocated deforestation and conversion	D&C detected in the landscape, occurring after the latest update of the relevant planted crop layer, not yet attributable with confidence to mapped production areas.
D&P (Deforestation and Peat) IRF v6.0	Refers to the active Deforestation and Peat component of the broader NDPE IRF framework. Satelligence provides environmental monitoring data to support D&P IRF profiles. The No Exploitation component remains outside the scope of Satelligence's geospatial monitoring.

1. Methodology and timing

DCF as a moving target, not a static label

Over the past decade, corporate and sector commitments have shifted from the broad idea of “deforestation free” supply chains toward the more specific expectation of Deforestation and Conversion Free (DCF) supply chains, covering not only forests but also other natural ecosystems such as savannas, wetlands, and peatlands.

Frameworks such as the Accountability Framework (AFi), the CGF Forest Positive Coalition, and the Palm Oil Collaboration Group have clarified principles and language for credible pathways, but they do not prescribe a single technical method. As a result, companies must define specific DCF pathways at the organisational level, including commodity and region appropriate cut-off dates, accepted datasets, monitoring and verification approaches, and procedures for handling legacy risk and remediation.

Underlying this is the broader concept of land-use change (LUC). In this guidance document, DCF is treated as a specific implementation of LUC risk: post–cut-off conversion of natural forests and other natural ecosystems to non-natural land in commodity production and sourcing areas. The same land-use change framework can also support other landscape risk indicators, such as Scope 3 land-use change emissions, biodiversity pressure or water-stress profiles, allowing companies to build multiple risk metrics on a single, consistent geospatial foundation.

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At the same time, regulations and buyers increasingly expect not only a DCF claim, but a traceable, repeatable explanation of how that claim was derived. The sector also expects a set of independent, comparable metrics to benchmark performance, complement remote monitoring, guide on-the-ground engagement, and validate reporting and certification systems such as the RSPO and the D&P (Deforestation and Peat) IRF v6.0, which forms part of the broader NDPE IRF framework.

We view DCF as a live metric, and not a static label. It is the outcome of clearly defined scope, cut-off dates, data inputs and calculation rules that must be made explicit if companies and verifiers are to rely on the results.

The practical challenges companies face today

Companies today face a mix of fragmented practices and uneven data. Different commodities (palm, soy, cocoa, coffee, beef, pulp, corn, maize, and more) use different definitions, cut-off dates, and tools. While some supply chains have detailed polygon-level traceability, others have only country- or trader-level information, with smallholder supply often remaining opaque.

At the same time, regulations such as the EUDR and frameworks like D&P IRF v6.0 and the CGF pathways expect action and evidence now, even where data and traceability are incomplete. This creates a verification burden for companies and auditors who need approaches that are consistent and proportionate to the available information, rather than bespoke each time.

Therefore, Satelligence made the decision to go beyond alerting and instead provide a clear guidance for applying its DCF methodology, which can be referenced in policies, contracts and verification processes, and used to support monitoring, progress tracking and on-the-ground engagement. Feedback

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from producers, traders, brands, and technical partners points to the need for a more consistent and usable approach across commodities, traceability conditions and supply-chain actors. This guidance document outlines how Satelligence turns complex satellite data into clear DCF scores that can be reviewed, questioned, and improved over time.

Salient points of this methodology

The methodology is designed to:

- Serve as a practical reference for companies and verifiers that need a consistent way to calculate DCF percentages and interpret deforestation and conversion (D&C) signals in supply chains.
- Provide a basis for alignment, benchmarking and calibration with relevant bodies, initiatives and frameworks such as D&P IRF v6.0, CGF pathways, buyer requirements, and verification protocols.
- Be decision-ready by linking land-use change directly to supply chain units (farms, facilities, mills, sourcing regions) producing DCF metrics that can be used across sourcing, claims, and due diligence.
- Use a consistent D&C score across commodities and traceability conditions, while making the underlying pathway, evidence tier and confidence level explicit.
- Be scalable by operating the same core logic under both high and low traceability and across multiple commodities and environmental landscape indicators with forest and ecosystem conversion risk.
- Be auditable (transparent and verifiable) at each step, from baselines and alerts to attribution and DCF % calculation, by recording the underlying assumptions.
- Enable independent review and iterative updates of inputs, parameters and outputs as data, standards and expectations evolve, while keeping the core logic stable and open to scrutiny.

This guidance document is a living reference and will be subject to ongoing review and calibration with sector experts and independent verifiers. Feedback from these reviews will inform future iterations of both the underlying methodology and this guidance document, while the core logic remains stable and clearly documented.

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2. Use & scope

Satelligence defines the practical boundaries of who this methodology is for, which decisions it supports, and where and how it can be applied. The focus is on defining the practical boundaries of use across stakeholders, commodities, and geographies. The methodology is intended to support consistent comparison across commodities and traceability conditions, with the same D&C score formula applied under different evidence configurations.

2.1 Who this methodology is for

First operators and traders

Includes companies that buy directly from aggregators like mills and silos or producer groups who need to understand whether those sourcing areas are DCF (e.g. for EUDR due diligence, NDPE/DCF policies, or D&P IRF v6.0 reporting).

Downstream brands and retailers

Includes CPG (Consumer Packaged Goods) and retail companies that rely on complex,
multi-tier supply chains and need a consistent way to interpret DCF performance across suppliers, commodities and countries, including where traceability is still (and likely) incomplete. This aligns with expectations set by initiatives like the CGF Forest Positive Coalition.

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Financial institutions and investors

Includes banks, asset managers, and insurers assessing the nature-related risk and impact of portfolios exposed to forest-risk commodities, and need spatially grounded metrics to complement disclosure frameworks.

Verifiers and technical partners

Includes organisations such as certification bodies, consultants, and NGOs who need a transparent geospatial backbone to review company DCF claims or provide second opinions.

The methodology is written so that non-technical readers can understand the logic and outputs, while still giving enough technical detail for specialists to replicate or interrogate the same.

Peers and other data / service providers

Including geospatial monitoring companies, consultancy partners and supplier-led initiatives that want to align on a common, widely recognised DCF approach across the wider ecosystem. The methodology is written so it can be implemented, scrutinised, and compared across providers, helping buyers, independent institutions and suppliers converge on consistent standards and shared technical reference rather than fragmented, proprietary methods.

2.2 Supported decisions

We distinguish clearly between the application of the methodology to support DCF claims and progress reporting, and its use to support sourcing, traceability and supply-base

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decision making. These decisions, referred to here as use cases, are outlined below and described further in Section 4: Implementation Pathways.

Use for DCF verification and reporting

The Satelligence DCF approach supports data and insights for assessing DCF progress and claims at plot, estate, mill, silo, cooperative or other first aggregation points. In this context, the methodology is used to generate decision-ready indicators such as:

- % volume sourced from areas that are DCF since a relevant cut off date
- Absolute hectares of deforestation or conversion linked to a sourcing unit (such as plot, mill, supplier, or sourcing region)

These indicators can then be incorporated into companies' internal DCF frameworks, external reporting, and verification processes.

These outputs can support DCF claims and disclosures and align with wider ecosystem guidance and initiatives, including the Consumer Goods Forum (CGF) Forest Positive Coalition (FPC), the Accountability Framework initiative (AFi) and, in the case of palm oil, the Palm Oil Collaboration Group (POCG).

Use for sourcing and traceability strategy

A second use of the Satelligence DCF approach is to support sourcing decisions, traceability improvement and supplier engagement where data coverage is incomplete or where companies need a broader view of D&C risk across their supply base. In this context, the methodology supports companies by:

- Providing a first-look view of D&C risk across defined sourcing areas where traceability or supplier links are limited
- Identifying hotspots for prioritising traceability mapping efforts, investment, and deeper due diligence (e.g. high risk municipalities or districts)
- Enabling comparison of sourcing areas and supply assets local and globally, by using a consistent D&C scoring logic, even where the evidence layer differs
- Indicating ways to prioritise supplier engagement and capacity building

This distinction is intentional. The same underlying D&C scoring logic can be applied across traceability scenarios, but the confidence in how the production or sourcing area is defined differs by pathway. Results used for DCF claims should therefore always be interpreted together with the relevant CGF pathway alignment and evidence tier.

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Use for broader climate, biodiversity, and water risk frameworks

This methodology is developed primarily in the context of DCF. However, the same land-use change and attribution logic can support other landscape risk assessments, such as Scope 3 land-use change emissions, biodiversity indicators, and water stress. By linking ecosystem type, land-use transition and commodity presence to specific plots, facilities and sourcing regions, the outputs can be reused as inputs to climate, nature and water-related disclosure and risk-management frameworks, avoiding the need for parallel, inconsistent geospatial systems.

2.3 Scope boundaries

To ensure this methodology is applied within its intended technical and operational scope, the following boundaries are explicitly defined as out of scope:

- **Geographic & planted crop limits:** Planted crop maps may vary by crop and country. Some layers provide national or near-national coverage, while others cover only the main producing regions or areas where sufficient validation data exists. DCF outputs should therefore be interpreted within the documented geographic scope of each commodity layer. Satelligence continuously invests in expanding and improving planted crop mapping across commodities and geographies as better data, validation inputs, and client needs emerge.

- **Planned roadmap capabilities:** This methodology describes current operational capabilities unless explicitly marked as planned or under development. Roadmap items, pilots, or future enhancements should not be interpreted as available methodology components until formally released and documented.

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- **Independent verification of individual DCF scores:** Satelligence provides the geospatial data, monitoring infrastructure and outputs, and analytical methodology required to support DCF assessment. Independent verification, assurance, or legal certification of client-specific DCF scores, compliance statements, or self-declared claims is outside the scope of this methodology unless explicitly included in an agreed scope of work or assurance arrangement.

- **Non-geospatial elements of DCF claims:** Legal compliance, Free, Prior and Informed Consent (FPIC), labour rights, social safeguards, and broader "No Exploitation" components are not determined through Satelligence's geospatial methodology alone. Where relevant, these require additional documentation, supplier engagement, legal review, or field verification.

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3. Satelligence DCF methodology

This section describes the common logic that underpins all subsequent applications of the methodology. In later sections, these applications are presented as different implementation pathways Section 4: Implementation Pathways, depending on the level of traceability and data available. Across all pathways and analysis options, the following core questions are guiding:

What natural ecosystems were present before the cut-off date?

What has changed in these natural ecosystems since then?

How much of that change is linked to the commodity of interest?

What proportion of a supplier's or sourcing area's production can therefore be considered DCF?



Simplified view of the four core stages in a DCF pathway: traceability, risk assessment, risk mitigation, and DCF claims and progress reporting.

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The following sub-sections detail these steps so they can be applied consistently across commodities, geographies and supply chains.

Overview of the DCF assessment process

The DCF assessment follows these six steps:

1. Define parameters of scope for the DCF analyses
2. Establish pre-cut-off ecosystem baselines
3. Detect post–cut-off deforestation and conversion
4. Link change to commodity production and sourcing
5. Treatment of uncertainty and data gaps
6. Combine data above to locate "commodity-driven" D&C metrics and volumes at desired aggregation levels

3.1 Define parameters of scope for the DCF analysis

Before any data is processed, the assessment must be anchored in clear policy parameters.

- The **scope of ecosystems** for a DCF analysis include:
  - Deforestation only: natural forests.
  - Deforestation and conversion (D&C): natural forests plus other conversion of other natural ecosystems (e.g. savannas, grasslands, shrublands, wetlands, peatlands).

This approach supports both; we treat deforestation and conversion (D&C) together by default, unless otherwise specified.

- The **cut-off date(s)** refers to the date after which any new deforestation or conversion renders an area non-DCF.

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Cut-off dates may be commodity-specific, company-specific, or set by sectoral agreements or regulation. For example, the NDPE cut-off date for palm oil is 31st December 2015, the Amazon Soy Moratorium has a cut-off of July 2008, and EU Deforestation Regulation is 31st December 2020 for all in-scope commodities.

- The **units of analysis** determine how change is interpreted, and at what level DCF metrics will be reported. These can be:
  - Spatial: plots/farms, concessions/estates, mill or silo supply sheds, jurisdictions.
  - Organisational: individual suppliers, supplier groups, co-operatives, companies.

3.2 Establishing pre-cut-off ecosystem baselines

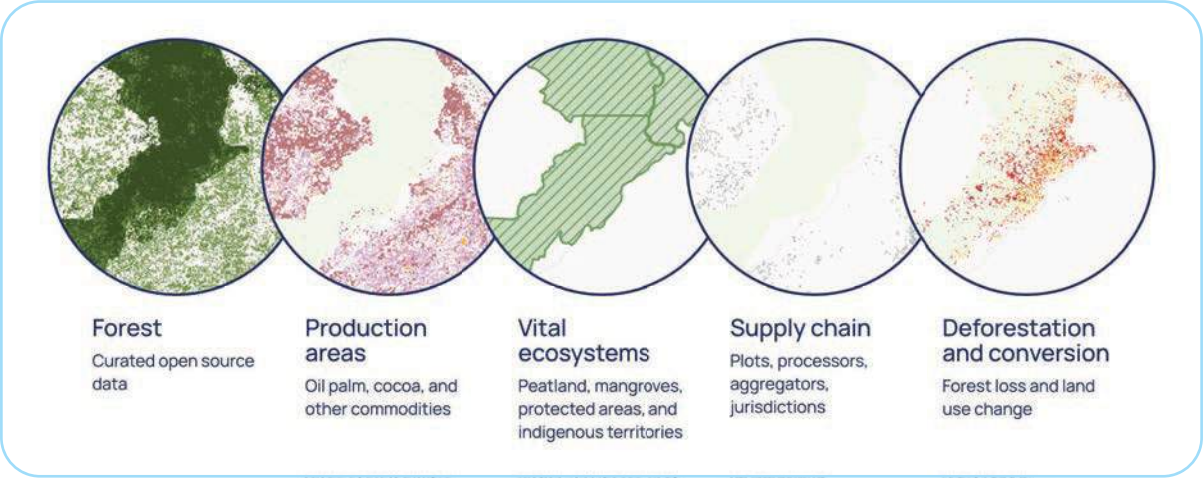
The baseline defines the status of D&C at the cut-off date. The process begins with establishing a historical baseline of natural vegetation and distinguishing that from agricultural production areas. The baseline year is a selected reference year (or period) that corresponds to, or is just before, the cut-off date.

We use land-cover and forest baselines to classify each pixel as:

- Natural forest (at Satelligence, we refer to this as the Forest Baseline).
- Other natural ecosystems such as Grasslands, Savanna, Wetlands, Peatlands (at Satelligence, we have a separate global layer for these natural non-forest ecosystems).
- Non-natural land such as commodities, crop land, and urban areas.

The forest and native vegetation baselines used in this step are described in more detail in Section 5 Methodology Building Blocks, where we set out how Satelligence constructs and validates its global Forest Baseline and native vegetation maps.

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Layered view of the geospatial inputs used in the methodology: forest, planted crop areas, vital ecosystems, and supply chain data are combined to identify and contextualise D&C.

The same baseline definitions and mapping logic are applied across all regions and commodities, so that results are comparable, coherent, and consistent. The output of this step is a baseline map of natural ecosystems, which serves as the starting point for measuring subsequent D&C.

3.3 Detecting post-cut-off deforestation and conversion

Once the baseline is established, we identify areas where natural ecosystems have been cleared or converted during the time period since the cut-off date.

The result is a change layer indicating where post–cut-off D&C have likely occurred. We use multiple change detection algorithms on satellite imagery to detect transitions of natural ecosystems in near real-time. The analysis covers the period from the cut-off date up to the most recently available satellite data. We make use of both optical and radar imagery to account for 'all-weather' monitoring, for example in areas with persistent cloud cover.

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Issues such as cloud cover, flooding, fire scars, and other temporary changes are accounted for as outlined in Section 5 Methodology Building Blocks. These effects are filtered out to reduce false positives and negatives. Detected change is cross-checked using both optical and radar satellite datasets, before being classified as deforestation, conversion, or other land management.

3.4 Linking change to commodity production and sourcing

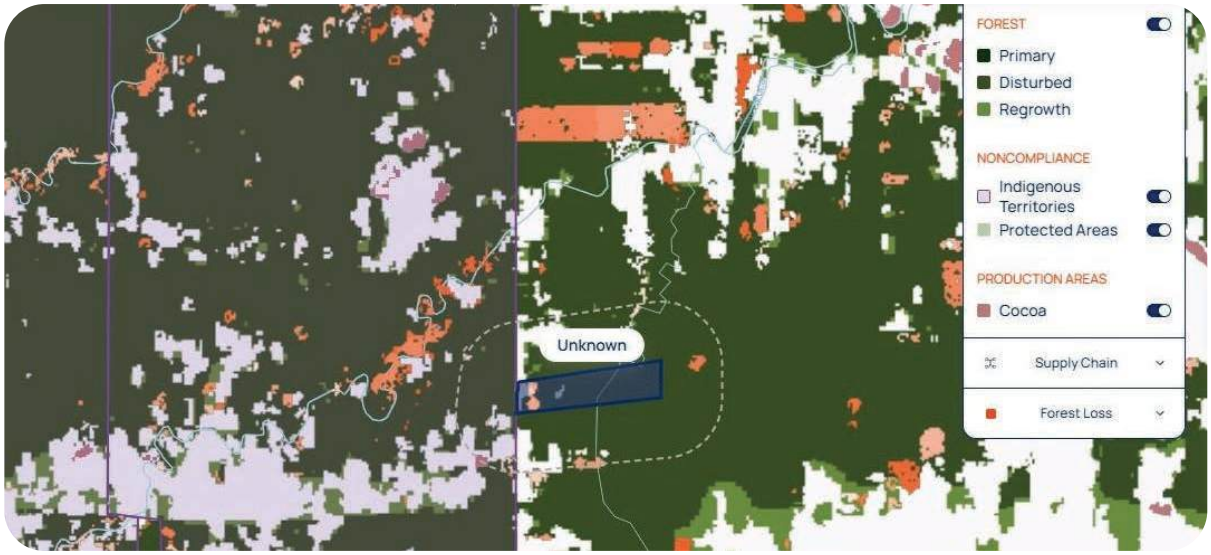
The core value of this DCF methodology is the ability to link detected change to specific commodities and supply chain actors, rather than attributing all change as generic D&C that applies equally to all sourcing parties in the region.

This attribution is implemented in two ways:

1. Attribution based on traceability information

Where polygons for plots or production units are available (directly from clients or from databases maintained by Satelligence), the change layer is intersected with these boundaries. Any D&C detected post the cut-off date inside a plot or production unit is attributed to that unit as a potentially non-DCF area. Depending on the commodity and supply-chain context, these may be supplied directly by clients or derived from structured Satelligence datasets.

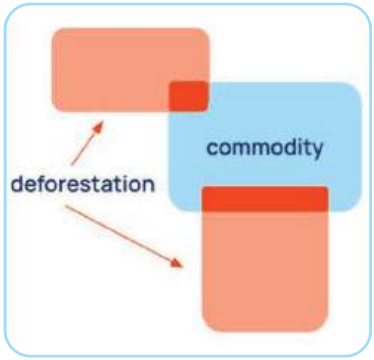
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In implementation terms, this corresponds to the traceability-led pathway (Pathway C) described in Section 4.2: Traceability-led pathway (CGF Pathway C) - Satelligence approach, where DCF metrics are derived directly from known production areas rather than inferred from broader landscapes.

2. Attribution based on Planted crop layers

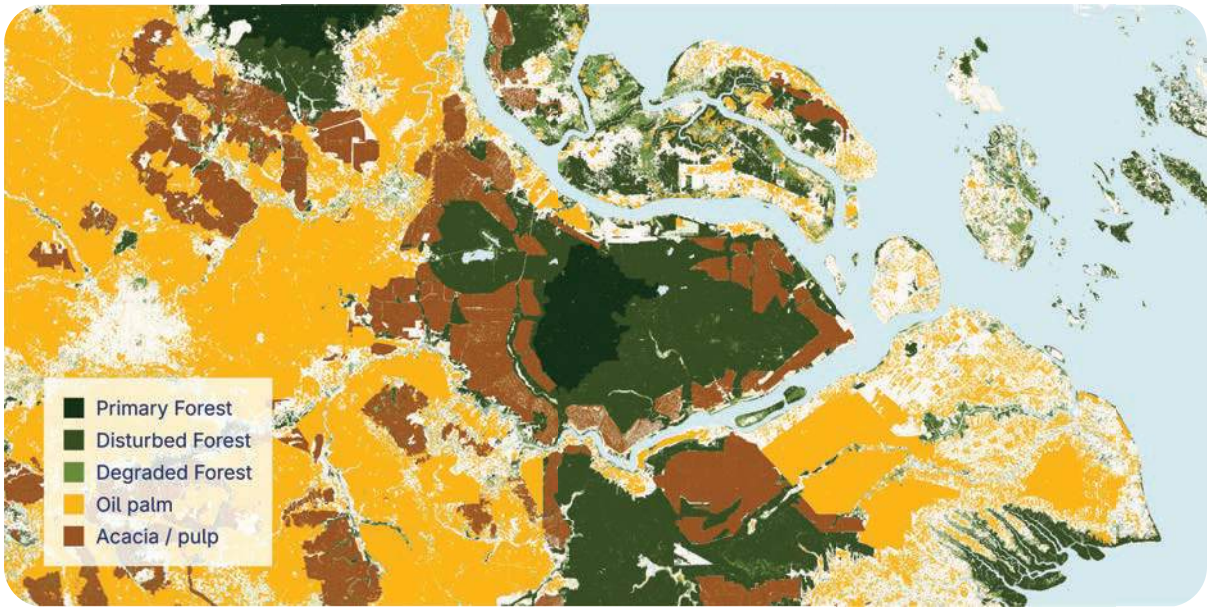
Where plot-level data are incomplete or not available, commodity specific land-use maps ("planted crop layers") are used to represent the most likely production areas for the commodity of interest.

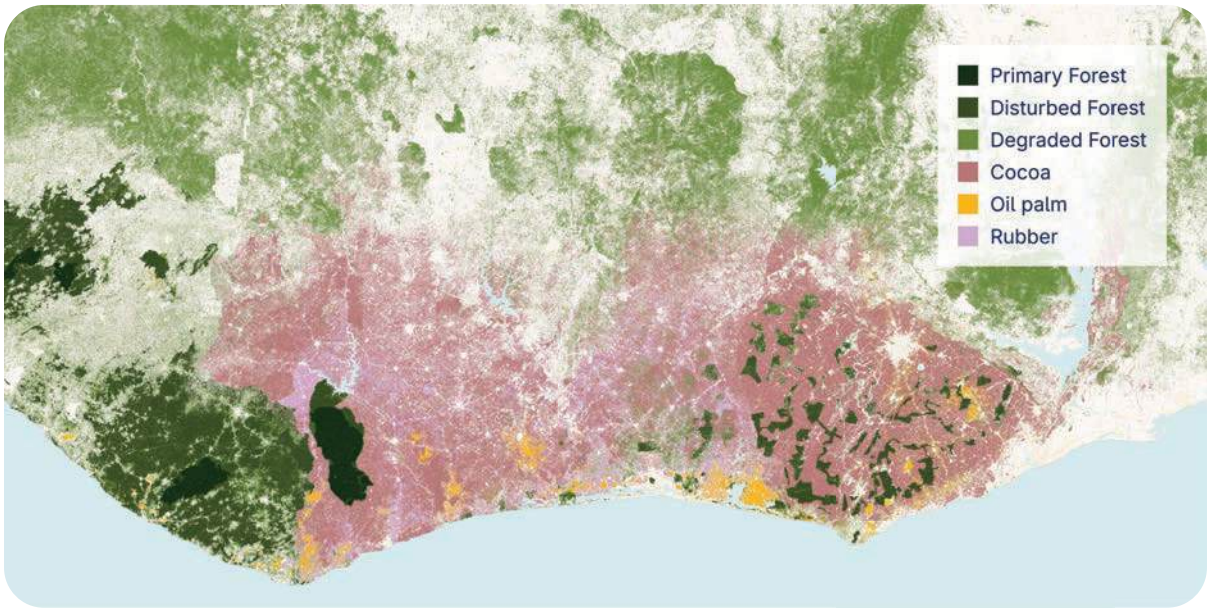


Like mapping forest and natural vegetation, we also map production landscapes for relevant soft commodities such as palm, soy, coffee, cocoa, maize and so on. By overlaying these layers on the Satelligence Forest and Natural Ecosystem Baseline (FBL) and D&C data layers, we are able to precisely locate "commodity-driven" D&C; areas of verified ecosystem loss now covered by commodity production. This provides a high-confidence, spatially explicit view of the portion of the total D&C footprint that can be attributed to the commodity in question and can be aggregated to facility or landscape level as needed.

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The following images show Satelligence maps from Indonesia and Côte d'Ivoire with different forest classes and commodity areas used to identify commodity linked D&C.





Where Satelligence maintains a validated planted crop layer, these mapped production areas can function as spatially explicit production boundaries and support a Pathway C application. In implementation terms, this corresponds to the commodity-driven pathway (Pathway C) described in Section 4.3: Commodity-driven pathway (CGF Pathway C) - Satelligence approach, where planted crop layers meet agreed spatial quality and validation criteria to act as production boundaries, even in the absence of client-supplied or publicly available plots.

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Where only broader crop-distribution layers are available, the same attribution logic can be applied to a defined sourcing area proxy, with the resulting score interpreted under Pathway B and reported with a lower evidence tier, as described in Section 4.4: Defined area pathway to support CGF pathway B.

In all above configurations, the same underlying D&C score is used: post-cut-off D&C area / planted crop area in the relevant production or defined sourcing area. What changes is not the metric itself, but the way the production area is defined and the confidence attached to it.

In both cases, we determine:

- Total planted crop area of the commodity within the relevant production or defined sourcing area for a given unit (e.g. hectares of palm within a mill's sourcing area or hectares of cocoa within a farm plot); and
- Area of that planted crop footprint that overlaps with post-cut-off D&C.

These results can then be assigned to volumes sourced from supply chain entities such as mills, cooperatives, farms, or sourcing regions, based on known or inferred sourcing areas.

This ability to link ecosystem change directly to commodity footprints, using one consistent D&C scoring logic across different evidence configurations, is at the heart of our DCF approach. It ensures that risk is attributed where it most likely occurs, making the confidence and pathway used explicit to clients and verifiers. It also enables targeted action and avoids unnecessary market exclusion for low-risk areas.

3.5 Treatment of uncertainty and data gaps

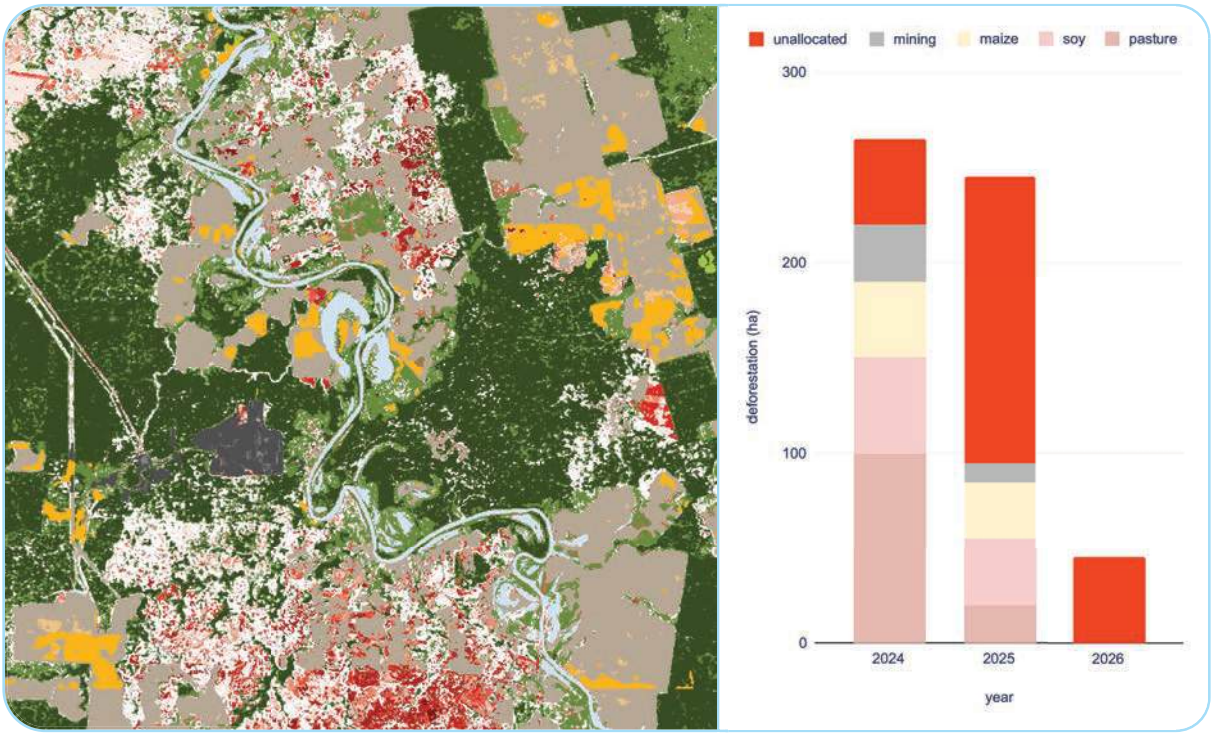
A challenge in near-real-time reporting is the gap between the latest available planted crop layers and the present day. Recent conversion from natural vegetation to a commodity crop cannot always be assessed accurately immediately, for two reasons:

- Data lag, because perennial crops require several years before they are mature enough to be reliably mapped from satellite data; and
- Classification gaps, where recent high-resolution imagery may be missing or outdated.

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This means that forest or other vegetation cleared in the last few years may not yet appear as mapped palm, cocoa or another crop, even though it is in the process of becoming one.

To address this, Satelligence captures all recent D&C occurring after the latest update of the relevant planted crop layer and uses supporting layers to remove known non-commodity drivers where possible. The remaining vegetation loss is reported as Unallocated D&C and, within the relevant sourcing region, is conservatively treated as potential future expansion of the target commodity until updated planted crop layers become available.



This approach provides a more complete and precautionary view of recent land use change, avoids under reporting of commodity related risk, and allows DCF performance to improve over time as new production areas become visible and can be mapped and attributed more precisely.

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3.6 Calculating DCF metrics and classification

The core metric in this methodology is a D&C score, calculated as post-cut-off D&C divided by the planted crop area in the relevant production or defined sourcing area. Our methodology computes a total D&C footprint by combining commodity-driven D&C with Unallocated D&C, the latter capturing recent changes that cannot yet be confidently attributed to mapped production areas.

DCF Area metrics:

Calculated by dividing the absolute D&C hectarage by the total relevant production area (the current planted crop area plus the area of unallocated D&C).

DCF% = 100 - (commodity-driven D&C + unallocated D&C) / (commodity area + unallocated D&C) x 100

Example:

Palm-driven D&C 2016-2023	150 ha
Unallocated D&C 2024-2025	100 ha
Oil palm production area 2024	800 ha

DCF% = 100 - (150 + 100) / (800 + 100) * 100 = **72.2%**

This is calculated by relating the post-cut-off D&C footprint to the planted crop area within the relevant production or defined sourcing area. Where Unallocated D&C is included, it is reported as an additional risk component reflecting recent deforestation and conversion beyond the latest mapped planted crop layer.

This robust, global-scale data can then be aggregated to inform reporting for any required scope, whether it be a (sub)national jurisdiction, an entire supply chain entity, or a broad sourcing landscape.

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DCF volume metrics:

Where volume data is available, we express the results as a share of sourced volume that is DCF, using agreed allocation rules to link volumes to plots, production areas or sourcing regions.

The reported DCF volume % metric is intended to serve as a consistent technical input that companies can use within their own DCF policies, claims frameworks and decision rules. Where required, clients may use these percentages together with their own thresholds, risk criteria or verification protocols to determine whether a sourcing unit is considered compliant, progressing or non-compliant.

The exact thresholds and classification rules should be aligned with company policies, sectoral guidance (e.g. POCG and D&P IRF v6.0 for palm oil; the CGF Forest Positive Soy Roadmap and Soy DCF methodology for soy; and cross-commodity principles such as the Accountability Framework Initiative), or verification protocols. Our methodology is parameterised to support the exploration of different pathways; it provides the underlying, consistent metrics needed to support them.

Where available, client-provided coordinates, polygons and volume data strengthen the precision of DCF reporting; where such data are incomplete, the methodology can still operate using validated planted crop layers and defined sourcing areas, with the pathway and evidence tier made explicit. Our methodology is designed to seamlessly integrate high-detail supply chain mapping with broader landscape-level sourcing without having to resort to lower confidence and generalistic methodologies, a principle further detailed below in Section 4:Implementation Pathways.

This core methodology is applied in different ways depending on the level of traceability and sourcing information available. The underlying D&C scoring logic remains the same, while the confidence in how the production or sourcing area is defined

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varies by pathway and evidence tier. These configurations are described in Section 4:Implementation Pathways, which align the Satelligence approach with the CGF Forest Positive Coalition's DCF pathways across commodities.

In practice, most companies work with mixed levels of traceability across products, suppliers and regions. The Satelligence approach is designed to integrate both high-detail production locations and broader sourcing areas within one consistent framework.

3.7 Handling limited or aggregated volume data

In cases such as for commodities like Palm and Cocoa, volume data are only available at aggregated levels (e.g. refinery or cooperative totals) or are not linked to specific production areas. In these situations, Satelligence reports DCF metrics on an area basis, labelling them as such, and does not infer plot/farm or Mill specific volumes beyond what is provided by the client. Area based DCF indicators (e.g. DCF % by production area and non DCF hectares) can still be used to compare sourcing areas, prioritise suppliers or facilities for engagement, and provide geospatial evidence to support company level volume accounting.

Companies may choose to convert area-based metrics into volume-based metrics, for example by applying their own yield figures or allocating refinery / cooperative volumes across production areas. Satelligence can support scenario analysis using yield estimates derived from commodity production areas, sector-standard productivity assumptions, and agreed allocation rules across aggregators, while presenting these as estimations based on agreed assumptions, rather than as verified supply volumes.

While this methodology is designed to produce DCF metrics, the same land use change foundation can also support Scope 3 emissions, biodiversity and water risk indicators. In practice, this gives companies one consistent geospatial base for nature and climate frameworks, instead of separate and inconsistent systems.

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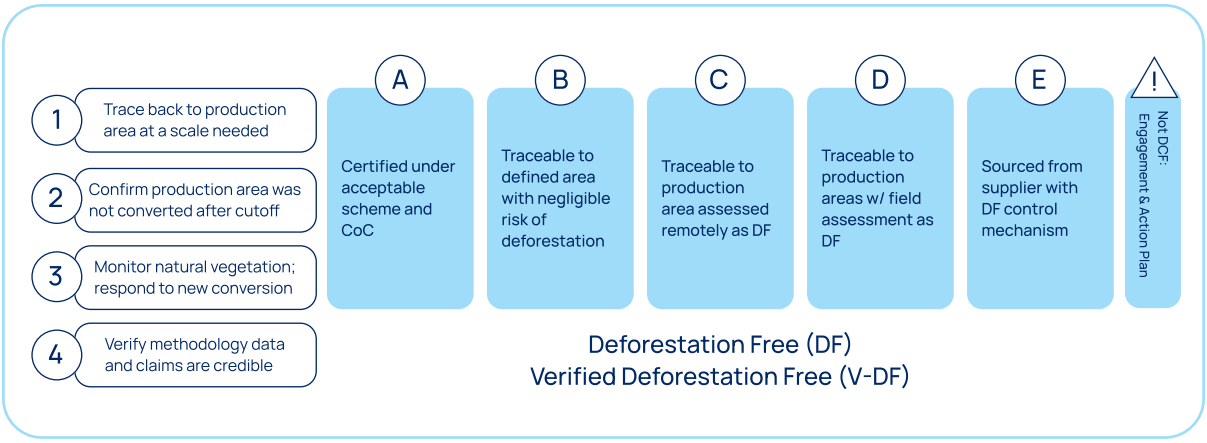
4. Implementation pathways

In practice, companies operate with very different levels of traceability and data quality across their portfolios. The Forest Positive Coalition of Action (FPC) of the Consumer Goods Forum (CGF), established in 2020, recognised this and developed commodity-specific roadmaps and DCF methodologies for palm oil and soy, as part of a shift from a "net-zero deforestation" objective to a broader forest-positive approach. These roadmaps, created with input from the Accountability Framework initiative and other partners, are living documents intended to guide member companies in implementing, monitoring, and reporting on their commitments to eliminate deforestation and the conversion of natural ecosystems in commodities such as palm oil, soy, beef and paper / pulp.

Within this work, the Coalition has defined a set of DCF pathways (A–E) that distinguish between volumes certified under acceptable schemes, volumes traceable to defined sourcing areas with negligible risk of deforestation and conversion, volumes traceable to production areas assessed remotely or through field verification, and volumes sourced from suppliers operating robust DCF control mechanisms.

In this guidance document, Satelligence focuses primarily on the practical geospatial implementation of Pathway B and Pathway C across commodities.

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The CGF Forest Positive Coalition DCF Methodology for Palm Oil. This provides the reference terminology for Pathways B and C in this guidance document. Satelligence uses this pathway logic across commodities, with commodity-specific data and evidence tiers. Terminology note: CGF uses DF / V-DF terminology; Satelligence uses D&C for detected deforestation and conversion and DCF for deforestation and conversion free assessment.

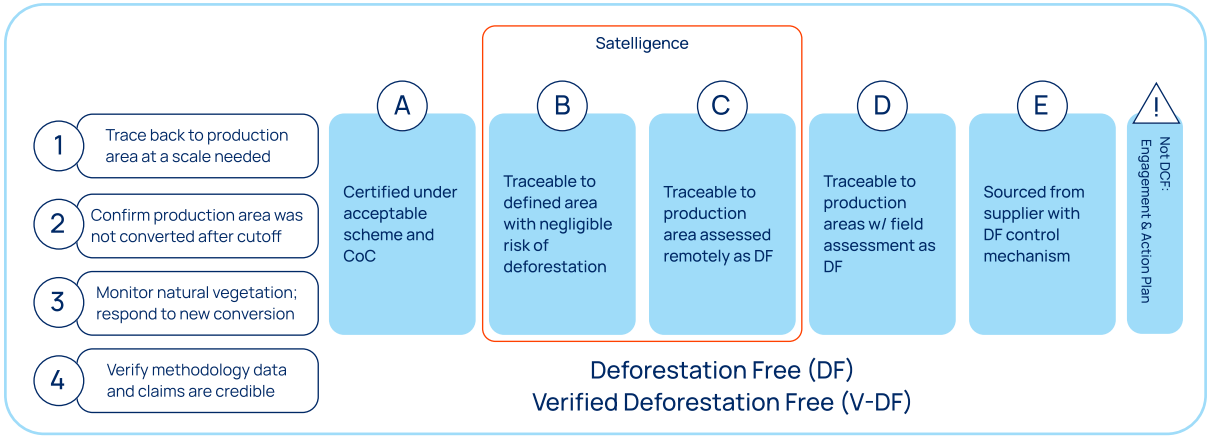
4.1 Satelligence approach to CGF DCF pathways across commodities

Satelligence applies the core DCF methodology described in Section 3: Satelligence DCF Methodology through a set of implementation pathways that align with the terminology of the CGF Forest Positive Coalition and are generalised for use across commodities beyond palm and soy.

These pathways are different configurations of the same underlying methodology, particularly the step of linking detected D&C to commodity production areas and supply chain entities Section 3.4: Linking change to commodity production and sourcing. Each pathway uses the same underlying logic, but with different data inputs depending on the level of traceability and the availability of spatially explicit commodity mapping. Together, they provide a geospatial implementation of the CGF Forest Positive Coalition's DCF pathways that can be applied across commodities.

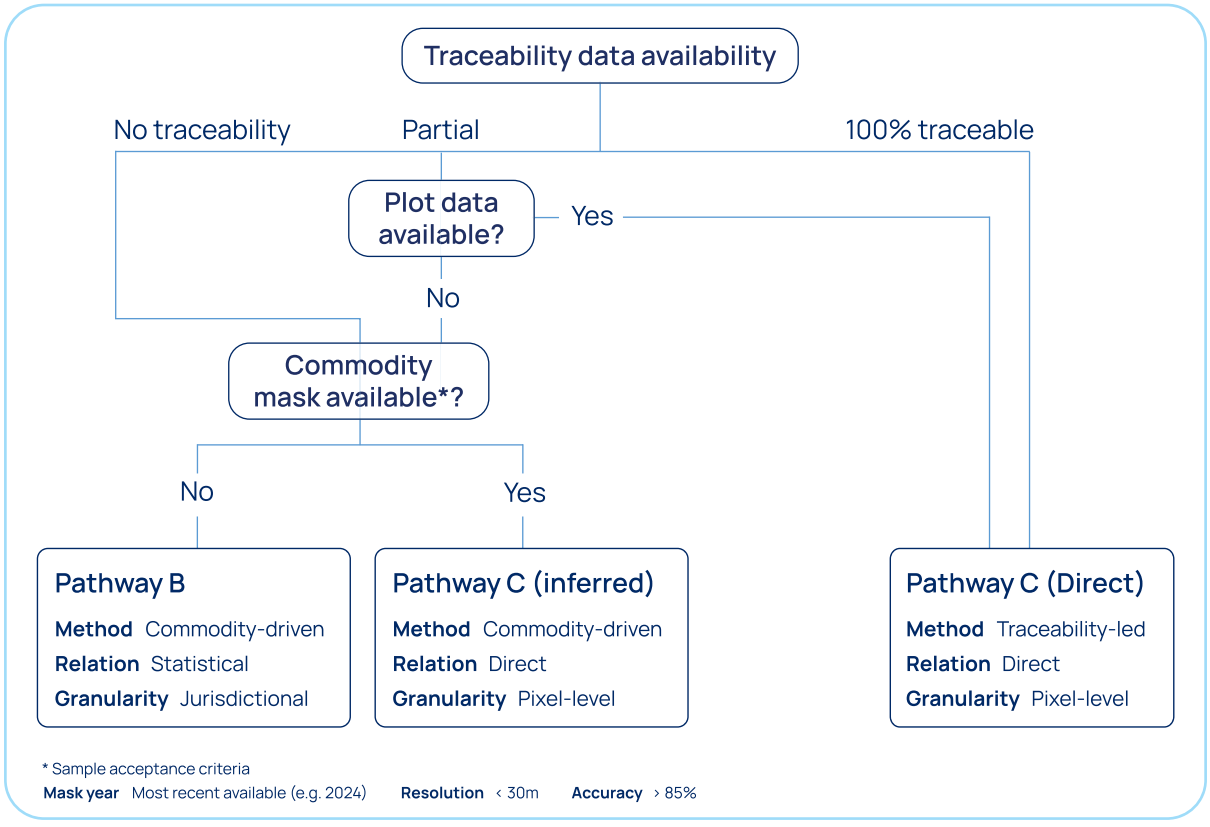
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The visual below provides an overview of the five CGF DCF pathways (A–E). Satelligence's methodology primarily supports CGF Pathways B and C.



Overview of the five CGF DCF pathways (A–E), with Satelligence's methodology primarily supporting Pathways B and C.

The decision flowchart below shows how the choice of pathway depends primarily on the level of upstream traceability and commodity map availability. This allows companies to select the most appropriate route based on their data and traceability position and align it with their internal DCF pathway strategy.



Decision flow chart based on traceability tiers. By using this tiered approach, we ensure that every pixel is accounted for, using the highest quality data available at each stage of traceability.

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4.2 Traceability-led pathway (CGF Pathway C) - Satelligence approach

When traceability to sourcing areas is available via plot polygons, these are used as production boundaries. Satelligence overlays them with ecosystem baselines and D&C areas, and calculates verified DCF percentages at plot, facility or supplier level as described in Section 3.4: Linking change to commodity production and sourcing. Where relevant, additional data layers (such as smallholder risk indicators or scheme specific information) can be incorporated to refine attribution and coverage.



Examples of CGF Pathway C, where client-supplied traceability are used as exact production boundaries for DCF assessment for Cocoa and Palm respectively.

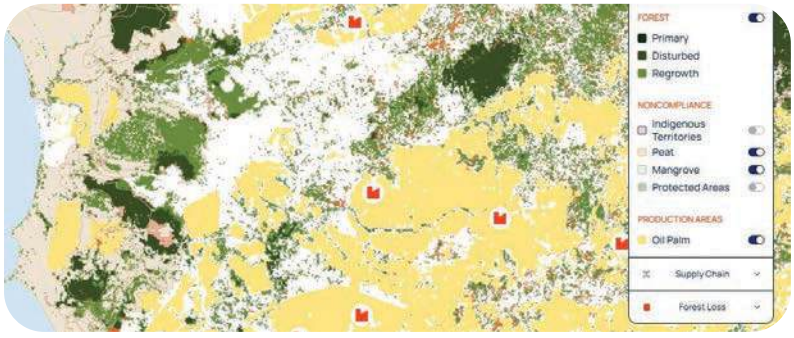
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4.3 Commodity-driven pathway (CGF Pathway C) - Satelligence approach

Where traceability to plot boundaries is partial or not yet available, Satelligence applies commodity specific planted crop layers (e.g. palm, soy, cocoa, coffee, rubber) to define crop production areas within the relevant sourcing area. These are then overlaid with the Satelligence Forest and Natural Ecosystem Baseline and detected D&C to identify commodity-linked change, and aggregated into DCF % for the relevant production or sourcing area (e.g. plot cluster, supply shed, landscape or mill radius).

The planted crop layers are used for Pathway C only where they have passed Satelligence's internal quality review for the relevant commodity and geography as outlined in Section 5.3: Commodity or planted crop production mapping. Where a planted crop layer is not considered suitable for inferred production boundary use, the assessment is classified under Pathway B using defined area proxies as described in Section 4.4 Defined area pathway to support CGF pathway B.

Here, the attribution step in Section 3.4: Linking change to commodity production and sourcing is implemented using planted crop layers as production boundaries, allowing D&C to be linked directly to mapped commodity footprints even where client supplied plot polygons are incomplete.



Example of the commodity-driven pathway (CGF Pathway C), where Satelligence planted crop layers are overlaid with forest layers to identify commodity-driven D&C.

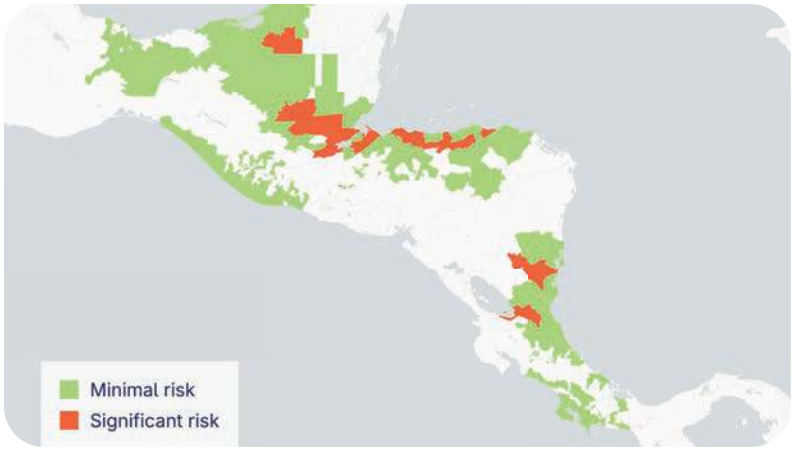
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4.4 Defined area pathway to support CGF Pathway B

Where neither plot level traceability nor a validated Satelligence planted crop layer is available, the same DCF logic to a broader defined area proxy is applied, such as crop distribution datasets (e.g. Cropgrids[1]), to represent likely crop presence within the sourcing area. In this configuration, D&C is related to the planted crop area in the defined sourcing area, rather than to exact known production plots.

To align with CGF pathway B, the resulting D&C score can be interpreted using a decision rule that ranks defined sourcing areas as zero, negligible or non-negligible risk. A practical basis for this is an adapted POCG/MSD 5% approach, under which the lowest risk areas (together accounting for only 5% of total commodity linked D&C in the relevant commodity producing areas) are treated as negligible risk, while all remaining areas are treated as non-negligible and prioritised for deeper traceability and due diligence.

This pathway can support supply base-level DCF reporting and claims, as well as sourcing, traceability and supplier-engagement decisions, but it should be clearly distinguished from Pathway C through the pathway label, evidence tier and confidence level applied in reporting.



Example of CGF Pathway B, where a defined area proxy is used to assess D&C risk at supply base level when exact production area mapping is not yet available.

[1] Tang, F. H. M. et al. (2024). CROPGRIDS: a global geo-referenced dataset of 173 crops. Scientific Data, 11, 413. DOI: 10.1038/s41597-024-03247-7. Dataset represents modelled crop distribution for 2020.

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CropGrids is a modelled crop-distribution proxy based on 2020 crop coverage. It is used under CGF Pathway B only where more specific crop maps or client traceability data are unavailable. Because it may not capture post-2020 production expansion, especially in rapidly expanding production regions, outputs are treated as lower-confidence and may require supplementary evidence where expansion risk is material.

4.5 Sector-specific application: Palm Oil

Palm oil is currently the most mature sector for operational DCF assessment, with established sector guidance, reporting frameworks and more developed supply chain data structures than most other commodities. In this guidance document, palm oil is treated as a specific application of the generic Satelligence DCF methodology, not as a separate methodology.

The same core logic described in Section 3: SATELLIGENCE DCF METHODOLOGY applies - establish pre–cut-off baselines, detect post-cut-off D&C, attribute change to production or sourcing areas, and calculate DCF metrics. What differs in palm oil is the availability of additional sector specific layers and practices, such as mill based sourcing analysis, curated mill concession linkages, and alignment with frameworks such as the Palm Oil Collaboration Group (POCG) and D&P IRF v6.0.

To keep the main guidance document cross commodity and scalable, these palm specific implementation details are provided in Annex: Palm oil application of Satelligence DCF methodology.

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5. Methodology building blocks

The Satelligence DCF methodology is built on a set of geospatial building blocks that are used consistently across all implementation pathways. This section summarises those building blocks: how we define and map natural forests and other native ecosystems, how we use satellite data to detect permanent change, and how we map commodity production areas so that D&C can be linked to specific crops and supply-chain actors. Together, these elements provide the technical basis for the DCF metrics and implementation pathways described above.

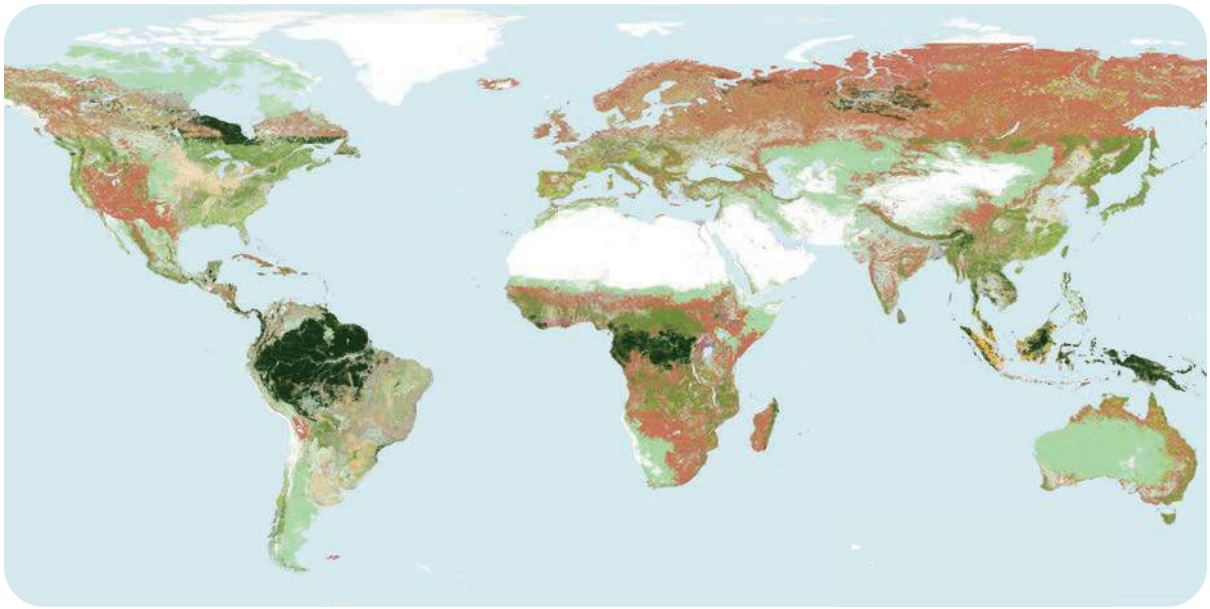
5.1 Forest and natural ecosystem baselines

A DCF assessment starts with knowing what is a natural ecosystem and what is not. Satelligence created a global Forest and Natural Ecosystems Baseline Layer (FBL) using a hybrid approach that combines open datasets (e.g. JRC Tropical Moist Forest, Hansen/Global Forest Watch, national forest maps) with in-house mapping, processing, and curation.The Satelligence FBL refers to a set of baseline layers available for multiple reference years and cutoff dates. It identifies natural forests and other natural ecosystems before the relevant cutoff date and provides the geospatial foundation for detecting post-cut-off D&C.

All layers are:

- quality-controlled and checked for spatial/temporal consistency
- harmonised into a single classification scheme
- stacked at 10 m pixel size and corrected for historical clearing up to the chosen cut-off date

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Satelligence Forest and Natural Ecosystem Baseline (FBL)

The resulting FBL distinguishes the following forest classes (Primary / intact forest, Disturbed forest, Regrowth & degraded forest) in addition there are, Dry and seasonal forest and Native vegetation:

Primary / intact forest – large, continuous forest areas with no detected historical clearing or intensive management, broadly equivalent to Intact Forest Landscapes and typically overlapping with HCV1/HCS high-density forest. Clearing of this class is prohibited under most NDPE policies and major certification schemes.

Disturbed forest – natural moist or dry tropical forest that shows signs of past human activity (e.g. selective logging, infrastructure) but has not been fully cleared and converted. It often corresponds to HCV2 and medium/low-density HCS forest and may be legally cleared in some jurisdictions, though many NDPE policies discourage or forbid its conversion.

Regrowth & Degraded forest – areas that meet forest criteria today but have a history of clearing or heavy disturbance (e.g. secondary forest, regenerating areas after logging or fire). These areas can still hold significant carbon and biodiversity value; treatment under

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DCF or NDPE policies depends on how HCS/HCV guidance and national definitions are applied.

Non-forest natural ecosystems - this is a baseline for non-forest natural ecosystems (savannas, grasslands, shrublands, wetlands, peatlands, mangroves). These landscapes support high biodiversity, provide essential ecosystem services, and play a key role in carbon storage and water regulation. Protecting native vegetation is critical for maintaining ecological balance and meeting sustainability and regulatory goals.

The Satelligence non forest natural ecosystems layer was already operational in priority biomes such as the Cerrado and Chaco. In 2026, it was expanded globally to support conversion free assessments beyond forests.

Dry forest - this is a dedicated baseline to address systematic bias in dry and seasonal biomes, This includes predominantly coffee and cocoa growing regions across Central and Latin America, and Central and East Africa in particular. Most open source datasets do not include dry forest classes, which results in overestimation of deforestation and emissions.

In dry and seasonal forests, our dedicated 'dry forest baseline' separates true clearing from normal seasonal leaf drop. This prevents "false positives" where temporary loss of foliage in the dry season would otherwise be misclassified as permanent deforestation.

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The baseline accuracy of the Satelligence forest layer has been validated through both external benchmarks and extensive internal testing.

In a 2025 evaluation[2], by CIAT (part of the Alliance of Bioversity International and CIAT) covering Côte d'Ivoire and Ghana, Satelligence's land cover mapping achieved a verified overall accuracy of 82.53% and 80.76% respectively. Based on these results, the evaluation concluded that Satelligence offers the most robust and comprehensive land cover maps among all assessed options, performing on par with or outperforming leading global and national datasets.

[2] Alliance of Bioversity International and CIAT (2025), Establishing Best Practices and Evaluating Data and Methods for Forest Monitoring, prepared for the World Cocoa Foundation, pp. 21–24

To complement this, Satelligence's broader internal accuracy assessments conducted across diverse commodity landscapes in South America, Africa, and Asia demonstrate an overall performance range of 81% to 93%.

Methodological Note: While this framework tracks both D&C, independent external validation to date has focused primarily on forest baselines. Users should note that mapping precision may naturally vary in non-forest natural ecosystems (savannas, grasslands, wetlands, peatlands) and dry forests which are complex, transitional biomes, often with tree cover under 5 meters, and formal validation for separate non-forest natural ecosystem classes remains an active item on our technical roadmap.

5.2 Change detection methodology

To detect D&C consistently over time, Satelligence uses ESA and NASA satellite missions, including Landsat (from the 1980s to today), Sentinel-2 optical imagery and Sentinel-1 radar imagery. Sentinel-1 radar imagery is used for 'all-weather monitoring' as it can "see" through clouds and is especially valuable in tropical regions with persistent cloud cover.

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Satelligence uses two change detection algorithms. One for optical data (Landsat and Sentinel-2), and another for radar data (Sentinel-1).

The optical change detection algorithm is called Spatio Temporal Adaptive Bareness (STAB[3]). In short, it uses forest statistics of the entire landscape and compares these statistics to a pixel of interest. If this pixel has a much higher Bareness (level of bare soil) than all of the surrounding forest, the pixel is flagged as deforested. The advantage of using an adaptive threshold is that it accounts for seasonality which is the case for many dry tropical forests and savanna such as the Cerrado and Chaco areas in South America.

[3] STAB is a proprietary Satelligence change detection method. Further technical details can be made available by Satelligence on request, subject to appropriate confidentiality considerations.

The radar change detection algorithm is called 'Bayesian Iterative Updating'[4]. This is a statistical method, where current observations are compared to historical observations to determine the probability of change.

[4] Reiche et al. (2015), A Bayesian Approach to Combine Landsat and ALOS PALSAR Time Series for Near Real-Time Deforestation Detection, Remote Sensing, DOI: 10.3390/rs70504973.

5.3 Commodity production mapping

Satelligence's planted crop layers provide a consistent view of where forest-risk crops such as cocoa, palm oil, coffee, and soy are grown. These maps support supply chain traceability, D&C risk assessments, and carbon emissions calculations, particularly in the context of regulatory and voluntary frameworks such as EUDR, NDPE, SBTi and CSRD.

The methodology combines open-source satellite imagery as described above with supply chain asset data and labeled training datasets. Using a supervised classification approach, we identify crop-specific land use based on spectral signatures. All maps have a 10-meter pixel size and are updated annually or seasonally, depending on crop dynamics. Because commodity footprints are subject to continuous expansion and refinement,

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the precise geographic boundaries, mapped regions, and current validation metrics for each commodity layer are maintained dynamically within Satelligence platform documentation, enabling users to accurately interpret localized DCF results. Where a commodity layer does not provide full national coverage, DCF outputs are interpreted only within the documented geographic scope of that layer.

There is currently no accepted industry standard for determining when a planted crop layer is sufficient for inferred production boundary use. Satelligence therefore applies an internal quality review for each relevant commodity and geography. Based on source credibility, data availability, consistency checks, temporal logic and expert review, a layer may be accepted for Pathway C Inferred, accepted with qualifications, or rejected and used only under Pathway B using defined area proxies.

To support evolving supply chains, Satelligence continuously invests in expanding toward full global coverage for a broader suite of commodities, including palm, cocoa, coffee, rubber, and sugarcane and others. This active development roadmap focuses on continuously improving within-crop accuracy and coverage while ensuring all global layers are consistently maintained on an annual update cycle.

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5.4 Data quality, security, and verification readiness

Satelligence complies with ISO/IEC 27001–certified information security management system. The certification is issued by Ernst & Young CertifyPoint B.V., an accredited independent certification body within the Ernst & Young global organization to ensure data integrity, access control, and risk management across the whole organisation. Client-supplied data used in DCF assessments is handled within Satelligence's controlled data processing environment under applicable internal information security and access control procedures.

Satelligence's DCF methodology has been independently reviewed by Control Union Malaysia under a Second Party Opinion engagement covering methodology design, transparency and framework alignment.
Methodologically, the three building blocks (Forest and Natural Ecosystem Baseline (FBL), planted crop layer, change detection) are:

- Cross-checked against external reference datasets and independent studies;
- Applied consistently across regions and commodities, with documented parameters and assumptions;
- Supporting independent review, so that verifiers can test and replicate results over time.

The combination of high-accuracy baselines, robust change-detection algorithms and commodity-specific mapping, underpinned by audited data governance, forms the foundation for the DCF implementation pathways described above.

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6. DCF outputs, reporting, & insights

This section describes what clients receive from a Satelligence DCF assessment and how those outputs can be used in practice for reporting, claims support and supplier engagement

6.1 Delivery mechanisms

Satelligence provides DCF results through three main delivery layers so they are actionable for sustainability and procurement teams, and traceable for auditors:

Dynamic monitoring via Satelligence platform

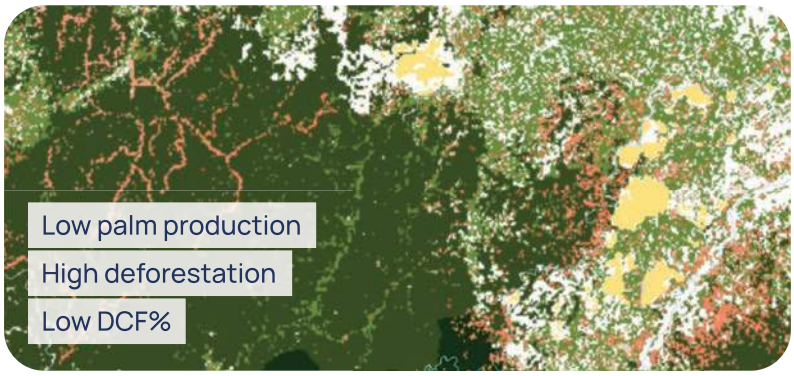
Ongoing, near real-time visualisation of change in forest and non-forest natural ecosystems across all mapped sourcing areas and supply assets. These maps form the geospatial evidence base for “no deforestation / no conversion” monitoring over time.

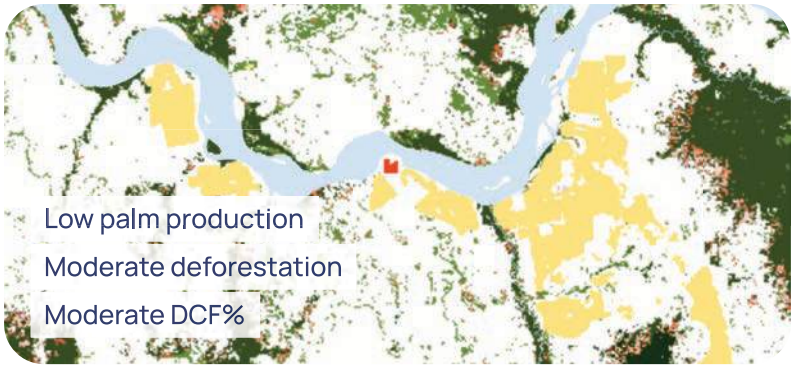
Asset-level dashboards and metrics

Aggregated performance metrics for each supply chain node (e.g. group, mill, silo, cooperative, plot), either through the Satelligence platform for ongoing monitoring or through off-platform data exports and PDF reports for reporting and verification purposes. These outputs can include:

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- Absolute figures: total hectares of forest and other natural ecosystems, post-cut-off D&C, and, where relevant, Unallocated D&C, within the relevant sourcing footprint;
- Performance ratios: % DCF status per supply entity, based on the methodologies described in Section 3: SATELLIGENCE DCF METHODOLOGY and clearly labelled as area and/or volume based,
- Pathway and evidence information: the relevant CGF pathway alignment, evidence tier, cut-off date and other metadata needed to interpret the result correctly;
- Visual reporting outputs: Maps, charts and summary tables that combine near real-time monitoring with aggregate statistics for internal decision making, external reporting and audit support.



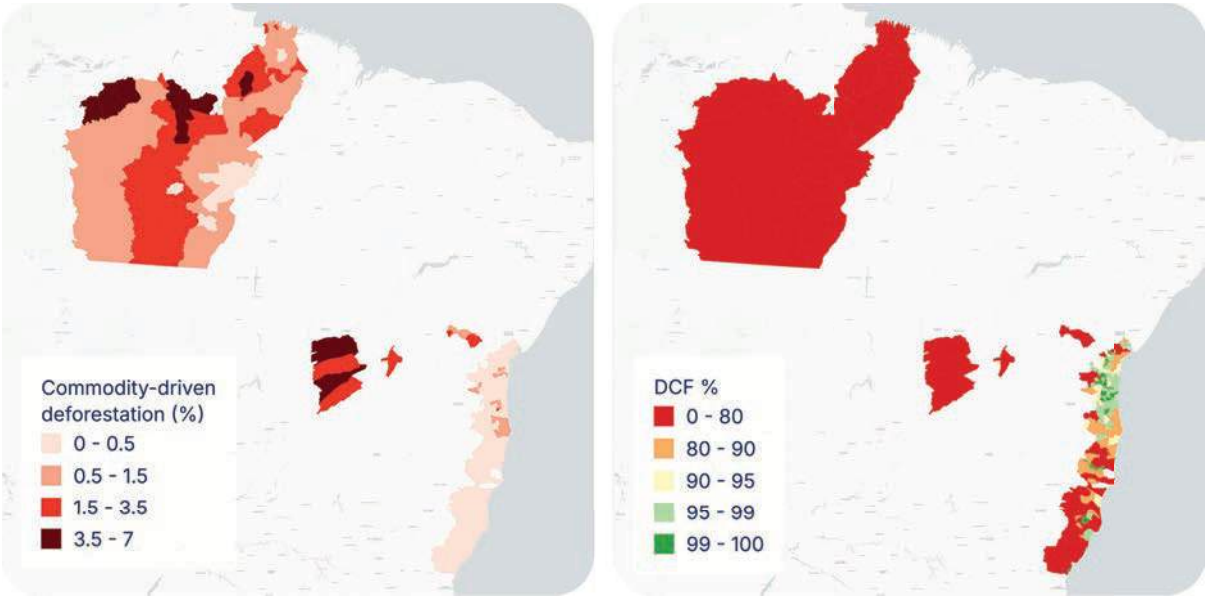




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Risk benchmarking of suppliers and facilities

Prioritization of facilities and suppliers based on observed D&C in their sourcing areas and the confidence of the underlying evidence. This helps clients identify higher risk suppliers, prioritise traceability requests, and focus engagement or field verification where it is most needed.



Verification note: all Satelligence reports and datasets include a methodological footnote and version reference linking the outputs back to this DCF methodology, including the version of baseline, planted crop layer, supply-chain dataset, change-detection approach, cut-off date and implementation pathway used. This allows verifiers to trace client-facing claims to the specific geospatial evidence, parameter choices and data and algorithm versions on which they are based. Version updates may apply either to the guidance document, the underlying methodology, or both, and should be interpreted accordingly.

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Continuous compliance, not just periodic reporting

Because satellite based indicators are refreshed frequently (typically every 10–14 days), Satelligence supports a shift from static, backward looking reporting towards continuous compliance. This provides a more efficient and cost-effective complement to infrequent audits and field checks, as issues can be detected, prioritised and addressed throughout the year rather than only at reporting deadlines. Data gaps can also be flagged transparently and near-real time, helping companies respond more quickly and consistently.

Satelligence uses a combination of radar and optical satellite data, with radar data helping reduce monitoring interruptions caused by persistent cloud cover in tropical sourcing regions. Where temporary data gaps occur due to cloud cover, sensor downtime, data availability, or processing delays, these are monitored through Satelligence's data ingestion process and flagged transparently to clients where relevant. This ensures users understand any monitoring limitations and can interpret alerts, gaps, and compliance status appropriately.

6.2 Supporting global reporting frameworks

Satelligence provides the technical, geospatial inputs clients need to populate major reporting and disclosure frameworks. By delivering objective, satellite-derived evidence, we help simplify the reporting burden for:

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D&P IRF v6.0 (No Deforestation, No Peat)

This includes Mill and landscape level D&C indicators, and plot-based DCF metrics where TTP data exist, can be used as inputs when companies construct or validate their IRF profiles (e.g. assessing whether “Delivering” narratives are consistent with observed land-use change). Satelligence does not assign IRF categories, but provides evidence that can support those classifications.

EUDR due diligence (Art. 9)

This includes geolocation linked land-use change status relative to the regulatory cut-off date, including polygons or points. These can be used as geospatial evidence within companies’ EUDR due diligence systems and in support of Due Diligence Statements.

SBTi FLAG and CSRD

This includes consistent land-use change (LUC) data on ecosystem change supporting Scope 3 LUC emissions calculations and mandatory sustainability disclosures that require spatially explicit information on land-use impacts. It also extends to biodiversity and water indicators for other nature and climate disclosures.

Satelligence’s DCF outputs are built on a single, consistent geospatial foundation, which can be translated into the requirements of different frameworks. This allows companies to use the same underlying evidence across DCF reporting, IRF, EUDR, Scope 3 land-use change and related nature-risk disclosures, while maintaining consistency, auditability and comparability.

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6.3 Methodology Maintenance and Versioning

To maintain long-term transparency and data integrity, Satelligence applies a structured methodology maintenance and review process. Updates are categorised into distinct tiers to provide users and verifiers with clarity on document validity and review implications.

Major Revisions (vX.0.0):

Include structural, methodological, or algorithmic changes that result in a material shift in DCF outcomes, defined as a >5% variance in company-level DCF performance metrics, are classified as major revisions. Major revisions trigger a new major version release and may require formal re-evaluation and renewed independent Second Party Opinion (SPO) review before use in future reporting cycles.

Minor Updates (v0.X.0):

Include non-material clarifications, terminology or formatting improvements, framework reference updates, platform/ reporting refinements, and supporting data source updates that improve usability, consistency, or documentation quality without changing the underlying methodology, DCF classification logic, or materially affecting DCF outcome calculations. These may include updates to forest baseline layers, commodity layers, or other supporting datasets where they are used for reference, context, improved documentation, or non-material refinement, and do not result in a material change to company-level DCF outcomes.

Minor Updates (v0.X.0):

Include clarifying text, typo and formatting corrections, design/ layout changes, and terminology consistency edits that do not alter the methodology, decision logic, or DCF outputs.

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7. Governance, review, & roadmap

This methodology is designed as a practical guidance document, not a policy in itself. Minor updates to this guidance document may reflect clarifications, examples, framework cross-references or improved explanation, while the underlying methodology remains unchanged unless explicitly stated.

Satelligence's role is to provide consistent, spatially explicit DCF metrics; companies remain responsible for deciding how these metrics are used in their own DCF frameworks, including the recognition of schemes and frameworks (e.g. RSPO, ISCC, D&P IRF v6.0, national or commodity specific standards) and the treatment of any related reporting categories. Verifiers and technical partners play a complementary role in checking that those choices, and the way Satelligence outputs are applied, are coherent and well justified.

The approach is a living methodology. It is already being compared and calibrated against independent assessments (for example, external evaluations of forest baselines and planted crop layers) and is open to structured review by sector experts and verification bodies such as CDP, Proforest, Control Union and accredited auditors. Feedback from these reviews will inform future iterations of parameters, data layers and documentation, while the core logic remains stable and transparently described.

Looking ahead, Satelligence will continue to expand and refine its core data layers (forest and natural ecosystems baselines, dry forest baselines and commodity production maps), to improve and update change-detection and attribution

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algorithms. In parallel, we plan to work with partners and initiatives on more robust ways to reflect smallholder-related risk, including the use of or co-development of such layers, where appropriate. As DCF practice and regulation evolve, the methodology will be progressively aligned with new frameworks and requirements. All substantive updates are version-controlled and communicated, so that companies and verifiers can see which datasets, parameter sets and methodological versions were used for any given DCF assessment.

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Annex

Palm oil-specific application

Introduction

This annex describes how the generic Satelligence DCF methodology is applied in the palm oil sector, where sector expectations, reporting systems and supply chain data structures are more developed than in most other commodities. It does not introduce a separate methodology; rather, it shows how the same core logic described in Section 3: SATELLIGENCE DCF METHODOLOGY is implemented in a palm-specific context.

In palm oil, the Satelligence methodology is designed to operate in alignment with sector initiatives such as the Palm Oil Collaboration Group (POCG), the CGF Palm Oil Working Group (POWG) and D&P IRF v6.0, while remaining compatible with client specific traceability, reporting and verification needs. Consistency across commodities is maintained through a common geospatial methodology and D&C scoring logic; what differs in palm oil is the maturity of the supporting data layers and the evidence tier available for implementation.

Satelligence continues to develop additional palm-related datasets and risk layers, including updates to concession data and smallholder risk layers. These planned enhancements are not part of the current methodology unless formally released and documented in a future version.

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Alignment with the Palm Oil Collaboration Group (POCG)

Palm oil is currently the most mature use case for operational DCF assessment. In line with POCG practice, Satelligence's palm DCF implementation begins with mill lists and, where available, plot level traceability data such as estate, plantation, concession and smallholder polygons.

The Satelligence approach allows plot and landscape level evidence to be combined transparently for each mill, while clearly distinguishing between them. This reflects the way POCG recognises that different levels of traceability and control can coexist within a mill's supply base and should be made explicit in DCF assessments.

Where a client or supplier provided TTP is available, these plot polygons are used as the primary production boundaries in the attribution step. Any post-cut-off D&C detected within those boundaries is linked directly to the relevant mill or supplier. Where supplier traceability is incomplete, Satelligence can also use its own palm supply chain data as described below under the header Satelligence Palm Oil Supply Chain Database to identify likely and known mill–concession linkages, provided the evidence tier is clearly labelled.



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Palm specific sourcing and volume assumptions and scenarios

In palm oil applications, companies sometimes request indicative volume figures such as FFB or CPO volumes associated with mapped production areas. Where useful for internal planning, Satelligence can support scenario calculations that combine area based results with standard, client agreed assumptions such as:

- tonnes of FFB per hectare
- oil extraction rates
- allocation rules across mills or refineries

These estimates are clearly labelled as scenarios, not as measured or verified supply volumes. They are not used as a standalone basis for DCF claims within the core methodology. Responsibility for how these scenarios are incorporated into volume accounting and reporting remains with the client.

Integration of MSD and smallholder safeguards

The flexibility of the Satelligence methodology is reflected in how Minimal Smallholder Deforestation (MSD) and related smallholder safeguards can be integrated into palm oil assessments.

MSD integration: Where a recognised MSD layer is available, it can be applied as an additional spatial filter during attribution to distinguish areas where smallholder driven deforestation is considered minimal from those requiring additional scrutiny. The currently referenced POCG ISH MSD layer is available for Indonesia and Malaysia only and is therefore not applied to palm-producing regions outside this coverage, such as Africa or Latin America. Planned global smallholder risk layers are excluded from this methodology until formally released and incorporated into a future methodology version.

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Landscape complement: The Satelligence planted palm layer and mill radius analysis provide a complementary landscape level view of palm driven D&C, helping to identify where observed change may sit outside mapped concessions or where MSD assumptions may need refinement.

This allows palm DCF assessments to better reflect the reality of mixed estate and smallholder supply bases, while keeping the evidence tiers and assumptions explicit.

DCF metrics in Palm Oil

For palm oil, the combination of mill lists, plot/concession polygons, 'planted palm' layers and supply shed assumptions allows Satelligence to generate mill-level DCF metrics in formats compatible with POCG-style reporting. These outputs can include:

- DCF and non-DCF % by area within each mill's production footprint (concessions and/or mapped palm area within the sourcing radius).
- Flags where mill level results are based primarily on concession polygons (high traceability) versus 'planted palm' layers and landscape analysis (lower traceability).

These outputs are designed to plug into companies' existing POCG-aligned DCF frameworks and, where applicable, to act as geospatial evidence and validation towards mill-level DCF claims or "Delivering" assessments, as discussed below under the header Alignment with D&P IRF v6.0.

Alignment with D&P IRF v6.0

Key updates in D&P IRF v6.0

The NDPE Implementation Reporting Framework is the palm sector's primary tool for tracking progress on No Deforestation, No Peat, No Exploitation (NDPE) commitments across palm oil supply chains. Version 6.0 updates the earlier Deforestation &

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Peat IRF to align more explicitly with Consumer Goods Forum (CGF) Forest Positive Coalition (FPC) and Accountability Framework initiative (AFI) for stronger, more accurate DCF claims.

In addition, it calls for stronger requirements for Traceability to Plantation (TTP) and disaggregate reporting by Directly Managed Areas (DMA), Independent Plantations (IP) and Independent Smallholders (ISH). It also formally introduces the Minimal Smallholder Deforestation (MSD) concept and clarifies when "Delivering" results can be used as evidence of DCF/ Verified Deforestation Free status at refinery level.

How Satelligence supports D&P IRF v6.0 implementation

Satelligence's methodology is designed to be compatible with these developments and supports the stronger emphasis on TTP. The same core geospatial logic described in Section 3: SATELLIGENCE DCF METHODOLOGY is used to generate spatially explicit DCF assessments at plot, concession and mill-sourcing-area level.

Where clients provide disaggregated polygon and volume data for DMA, IP and ISH, the traceability led pathway can generate separate DCF metrics for each supply base category. Where such data are not yet available, Satelligence can still provide mill- and landscape level D&C indicators that help companies and verifiers assess whether reported D&P IRF v6.0 performance appears consistent with observed land-use change.

Mill and landscape level 'Reality' check

In many cases, the available upstream information is limited to mill lists and partial plantation data, without full disaggregation. In these cases, Satelligence uses palm-driven D&C within a defined sourcing radius around each mill as an integrated landscape indicator covering both plantation and smallholder supply.

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This acts as an independent “reality check” by showing whether land-use change observed around the mill is broadly consistent with, or appears to be in conflict with, the D&P IRF v6.0 profile reported by the company or supplier.

Prioritisation for TTP and supply base disaggregation

Mills showing minimal palm-driven D&C in their sourcing landscapes can be treated as lower priority cases for immediate due diligence. Mills with elevated or ongoing D&C can be flagged as higher priority for obtaining DMA / IP / ISH volume splits, plot polygons and additional supplier evidence. In this way, Satelligence supports more targeted supplier engagement and more efficient use of verification effort.

Support to Delivering / Progressing classification, not substitution

When granular sourcing area data are available, the traceability led pathway (Pathway C) supports DCF analysis per supply base category, which can feed directly into D&P IRF v6.0 Delivering/Progressing assessments. Where such data are not yet available, Satelligence’s mill and landscape level indicators can be used as supporting evidence and prioritisation tools, but not as a substitute for the full D&P IRF v6.0 scoring process.

The Satelligence methodology does not replace D&P IRF v6.0 or independently issue official scores; D&P IRF v6.0 profiles require company-supplied volume data, supply-base categorisation, grievance records and policy implementation that lie outside geospatial analysis. Satelligence provides consistent, spatially explicit DCF metrics and landscape indicators to (i) help companies populate and interpret D&P IRF v6.0, and (ii) independently check whether reported performance aligns with observed land-use change.

This same near real-time monitoring capability referenced in Section 6: DCF OUTPUTS, REPORTING & INSIGHTS also strengthens D&P IRF v6.0 implementation by allowing companies to move beyond periodic reporting towards more continuous follow up of D&C risk.

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Companies retain discretion over how D&P IRF v6.0 categories (e.g., Delivering) or scheme certifications (e.g., RSPO, ISCC, MSPO/ISPO) are treated within internal DCF rules. Satelligence's role is to supply verifiable spatial inputs and validation tools that complement scheme-based pathways and enable organisations to confirm, refine or exceed their current recognition rules.

Collaboration with CGF POWG and Proforest

Satelligence is actively engaged in ecosystem initiatives with the CGF Palm Oil Working Group (POWG) and Proforest aimed at improving the consistency and usability of DCF approaches in the palm sector.

Current collaboration includes work on smallholder dominated origins such as Thailand, where limited traceability and fragmented sourcing structures make DCF implementation especially challenging. This collaboration helps ensure that Satelligence's palm application remains anchored in evolving POCG / CGF practice while remaining usable for clients and relevant to verifiers.

Satelligence Palm Oil Supply Chain Database

The Satelligence Palm Oil Supply Chain Database is a curated, supplier-linked geospatial registry of mills and mapped concessions / plantations. Its purpose is to fill TTP gaps in palm DCF workflows and support reproducible mill-level attribution where supplier polygons are incomplete.

Satelligence compiles a harmonised mill–concession dataset by integrating multiple verified sources into a single operational registry for palm DCF analysis. The database combines public and partner concession feeds, field and

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consultant collected records, supply chain and institutional disclosures, national government registries, global public datasets, and NGO / independent research. All inputs are ingested with provenance metadata and used to strengthen mill–concession linkages and fill gaps where supplier polygons are missing.

Satelligence also handles the heavy "data cleaning" of fragmented public and government mill and concession registries: standardising names, removing duplicates, reconciling coordinates, and filling gaps. This turns inconsistent source lists into a maintained, analysis-ready Palm Oil Supply Chain database, saving clients substantial manual effort and reducing the risk of errors in DCF assessments.

Primary source groups include:

- **Harmonised public and partner datasets:** RSPO/geoRSPO/MSPO/ISOP disclosures, Greenpeace, WRI, partner-gathered smallholder/estate data, and NGO grievance reports.
- **Field and consultant inputs:** Verified local government records and private GIS/sector networks collected by field consultants.
- **Supply-chain and institutional sources:** Government ministries and agencies, commodity chambers, NGOs, and private sector sustainability disclosures.
- **Country government agencies:** KLHK and Ministry of Agrarian Affairs (Indonesia); MPOB and state governments (Malaysia); equivalent land/agriculture agencies in other producing countries.
- **Public global datasets and research:** Global Forest Watch, Open Land Contracts, RSPO/ISCC disclosures, corporate concession maps, satellite-derived land-use change products, and independent analyses (e.g., Chain Reaction Research, Greenpeace, WWF).

These sources are regularly reconciled, quality-checked through automated and manual review, and timestamped with provenance fields.

Satelligence is currently updating this database using the latest RSPO, MSPO and ISPO reports and records, with a focus on improving mill–concession linkages, refreshing source provenance, and strengthening coverage where supplier traceability is incomplete. This supports more robust palm DCF attribution where supplier provided polygons are partial or unavailable.

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