

## RSPO NOTIFICATION OF PROPOSED NEW PLANTING

This notification shall be on the RSPO website for 30 days as required by the RSPO procedures for new plantings (<http://www.rspo.org/?q=page/535>). It has also been posted on local on-site notice boards.

### Date of notification:

Tick whichever is appropriate

<input checked="" type="checkbox"/>	This is a completely new development and stakeholders may submit comments.
<input type="checkbox"/>	This is part of an ongoing planting and is meant for notification only.

**Company** : **New Britain Palm Oil Ltd**

**Subsidiary** : **Higaturu Oil Palms**

**RSPO Membership No** : **1-0016-04-000-00**

### Location of proposed new planting

**Location** : Popondetta Plains within Ijivitari District and Kokoda Plains in Sohe District, Oro Province, PAPUA NEW GUINEA (Refer to attached map)

**Surrounding Entities** All new developments are scattered amongst the estates of NBPOL. NBPOL is the only oil palm plantation company in this area. Areas are scattered over a wide area mostly surrounded by

forest patches and grassland areas with traditional customary landowners living in villages and hamlets scattered around the Popondetta and Kokoda Plains.

**New Planting Area**

The total land bank assessed is 3,259.38 ha comprising of 31 noncontiguous blocks of land. Of the total area assessed 504.51 ha is considered HCV, 163.1 ha HCS Conserve and the remaining 2,591.77 ha are proposed for conversion to oil palm plantations.

**Geographic Location:**

The overall areas is bound by this box within the following coordinate.

Point	Longitude	Latitude
Northwest Corner	147.642	-8.61185
South-eastern Corner	148.475	-8.93995

The below table summarizes the assessment results in terms of total area assessed, area of High Conservation Value, area of High Carbon Stock Indicative Conserve and area to Develop in hectares. Locations of each proposed location are given as centroids along with a proposed planting time table.

No.	Name	Total assessed (ha)	HCV (ha)	HCS Indicative Conserve (ha)	Develop (ha)	CENTROID Latitude	CENTROID Longitude	Planting Time Table
1	Akute	58.3	7	0	51.3	- 8° 47' 26.69"	148° 15' 20.15"	2018
2	Aruka	101.3	14.7	3.7	82.9	- 8° 44' 14.09"	148° 26' 10.87"	2018
3	Viviri	38	0	0	38	- 8° 43' 56.55"	148° 25' 38.56"	2018
4	Ase	33.1	12.5	5.3	15.3	- 8° 39' 35.78"	148° 16' 24.11"	2018
5	Bana	58.9	15.2	0	43.7	- 8° 45' 18.39"	148° 21' 0.00"	2016

6	Biage	343.3	21.5	5.3	316.5	- 8° 53' 54.25"	148° 44' 24.51"	2016
7	Boruga Pusute	74.1	0	26.8	47.3	- 8° 40' 49.61"	148° 11' 11.65"	2018
8	Bouga	48.8	1.4	5.3	42.1	- 8° 48' 30.01"	148° 22' 20.65"	2018
9	Hoemba	58.6	0	0	58.6	- 8° 46' 23.37"	148° 21' 29.26"	2016
10	Hoka	31.9	0	0	31.9	- 8° 42' 49.94"	148° 25' 37.43"	2017
11	Hopanda	39.4	1.6	0	37.8	- 8° 48' 3.76"	148° 26' 19.72"	2018
12	Bakito Extension	17.6	0	0	17.6	- 8° 48' 8.91"	148° 25' 59.27"	2016
13	Isatapa	40.8	0	0	40.8	- 8° 44' 41.80"	148° 19' 48.83"	2016
14	Jireka 1	316.5	95.1	0	221.4	- 8° 49' 22.09"	148° 25' 42.47"	2018
15	Jireka 2	147.3	84.6	30.2	32.5	- 8° 48' 50.63"	148° 25' 47.94"	2018
16	Joiha	25.21	0.01	0	25.2	- 8° 45' 30.01"	148° 25' 6.12"	2016
17	Jopare	22.5	0.5	0	22	- 8° 48' 35.59"	148° 21' 42.62"	2016
18	Mena Extension	22.5	0	0	22.5	- 8° 47' 11.62"	148° 14' 29.58"	2018
19	Mohamei	55.8	0	0	55.8	- 8° 48' 32.05"	148° 16' 20.63"	2016
20	Serembe	426.4	32.9	71.7	321.8	- 8° 44' 26.91"	148° 0' 26.93"	2016
21	Sesehota	84	0.3	0	83.7	- 8° 49' 20.05"	148° 18' 30.69"	2016
22	Sigu	47	0	0	47	- 8° 41' 51.00"	148° 12' 46.92"	2018
23	Sipari	70.4	0	0	70.4	- 8° 44' 28.93"	148° 23' 6.75"	2016
24	Soropa	584.1	179.4	NA	404.7	- 8° 40' 57.01"	148° 25' 32.61"	2017
25	Darua	69.9	0	0	69.9	- 8° 47' 7.84"	148° 19' 57.18"	2017

26	Takoh	43.3	7.6	0	35.7	- 8° 47' 10.98"	148° 20' 31.15"	2017
27	UKD Extension	22.7	0	0	22.7	- 8° 47' 4.53"	148° 25' 7.52"	2016
28	Sauma	22.6	0	0	22.6	- 8° 47' 20.41"	148° 25' 4.73"	2018
29	Hasina	129.87	0	0	129.87	- 8° 47' 14.94"	148° 25' 57.97"	2017
30	Ufenapa	123.9	14	13.5	96.4	- 8° 46' 33.52"	148° 24' 22.71"	2017
31	Wuria Purofafa	101.3	16.2	1.1	83.8	- 8° 45' 15.78"	148° 23' 53.38"	2017
	<b>GRAND TOTALS</b>	<b>3259.38</b>	<b>504.51</b>	<b>163.1</b>	<b>2591.77</b>			

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## Abbreviations

ALS	Assessor Licensing Scheme
AOI	Area Of Interest
BBGI	Biage Business Group Inc
CEPA	Conservation & Environment Protection Authority
DLPP	Department of Lands and Physical Planning
Eoi	Expression of Interest
FPIC	Free Prior Inform Concept
GIS	Geographical Information Systems.
GM	General Manager
HCV	High Conservation Value
HCVMA	High Conservation Value Management Area
HCS	High Carbon Stock
HOP	Higaturu Oil Palms
IFMP	Integrated Forest Management Plan
ILG	Incorporated Land Group
LLG	Local Level Government
LO	Landowner
LSS	Land Settlement Scheme
LUCA	Land Use Change Analysis
ME	Mini Estates
MOA	Memorandum Of Agreement
MOU	Memorandum Of Understanding
NBPOL	New Britain Palm Oil Limited
OPLD	Oro Provincial Lands Division
QABB	Queen Alexandra Bird wing Butterfly
POIG	Palm Oil Innovations Group
RSPO	Roundtable Sustainable Palm Oil
SABL	Special Agriculture Business Lease
SEIA	Socio-Environment Impact Assessment
TFT	The Forest Trust
TSD	Technical Services Division
VOP	Village Oil Palm

## 1.0 SUMMARY ASSESSMENTS:

### 1.1 Executive Summary

This report presents the summary of the final results of the High Conservation Values (HCV), High Carbon Stock (HCS) and Social Environmental Impact Assessments undertaken by Daemeter Consulting, The Forest Trust (TFT) and Narua Lovai Consulting respectively. These studies were carried out within the period between July-December 2015 as an RSPO requirement prior to proposed new developments proposed by Higaturu Oil Palm Ltd in Papua New Guinea.

Higaturu Oil Palm Ltd (HOP) is located within Sangara Estate in Popondetta, Oro Province, Papua New Guinea. This estate was first planted in 1975 by the Common Wealth Development Corporation (CDC). Ownership has since changed hands several times, first to PACRIM, then Cargill, then New Britain Palm Oil Ltd in 2010 which in 2015 was taken over by the Sime Darby Group. The current planted area managed by HOP consist of 9,529 ha of company managed plantations and a mature smallholder area of 12,183 ha (total 21,712 ha). All of the supply base, including smallholders, managed by HOP are RSPO certified and are legally permitted to do so under PNG law. The area under consideration for new planting will expand the existing plantations managed by Higaturu Oil Palms Ltd (HOP) and feed into existing supply chain and mills.

The areas identified in this proposal are given priority as they are mostly grasslands (*Imperata cylindrica*) and therefore unlikely to contain High Conservation Values or High Carbon Stocks, which would otherwise impede their conversion to oil palm. Generally, the area is flat extending from the Kokoda area in the west to Oro Bay in the east comprising areas of grassland and forest patches. Much of the areas were once heavily forested, but has been deforested in the early 1960's to the 1990's by a mix of industrial logging and subsistence agriculture.

In line with NBPOL's commitment to sustainable development all of the areas proposed for new plantings areas, a total of 3259.38 hectares, were assessed for High Conservation Values, High Carbon Stock and Social Environmental Impacts. Relevant management recommendations were made which have been incorporated into an integrated management plan

Thirty one (31) areas totalling 3259.38 ha were assessed for HCV, HCS and SEIA. The HCV study found no areas of primary forest, no areas of peat and a total of 504.51ha HCV and 163.1 designate as HCS Indicative Conserve. Note the areas declared as HCV above overlapped with HCS Conserve and HCS Indicative Conserve, which for matters of practicality are reported as HCV. All of the areas and their associated communities were assessed in the SEIA which identified potential positive and negative impacts associated with the potential new developments. All prevention and mitigation actions were clearly detailed in all of the reports and have been accepted by NBPOL.

HOP under these ME's will manage the development maintenance and production of the planted area and implement all preventive and mitigation actions as identified in the HCV, HCS and SEI Assessments.

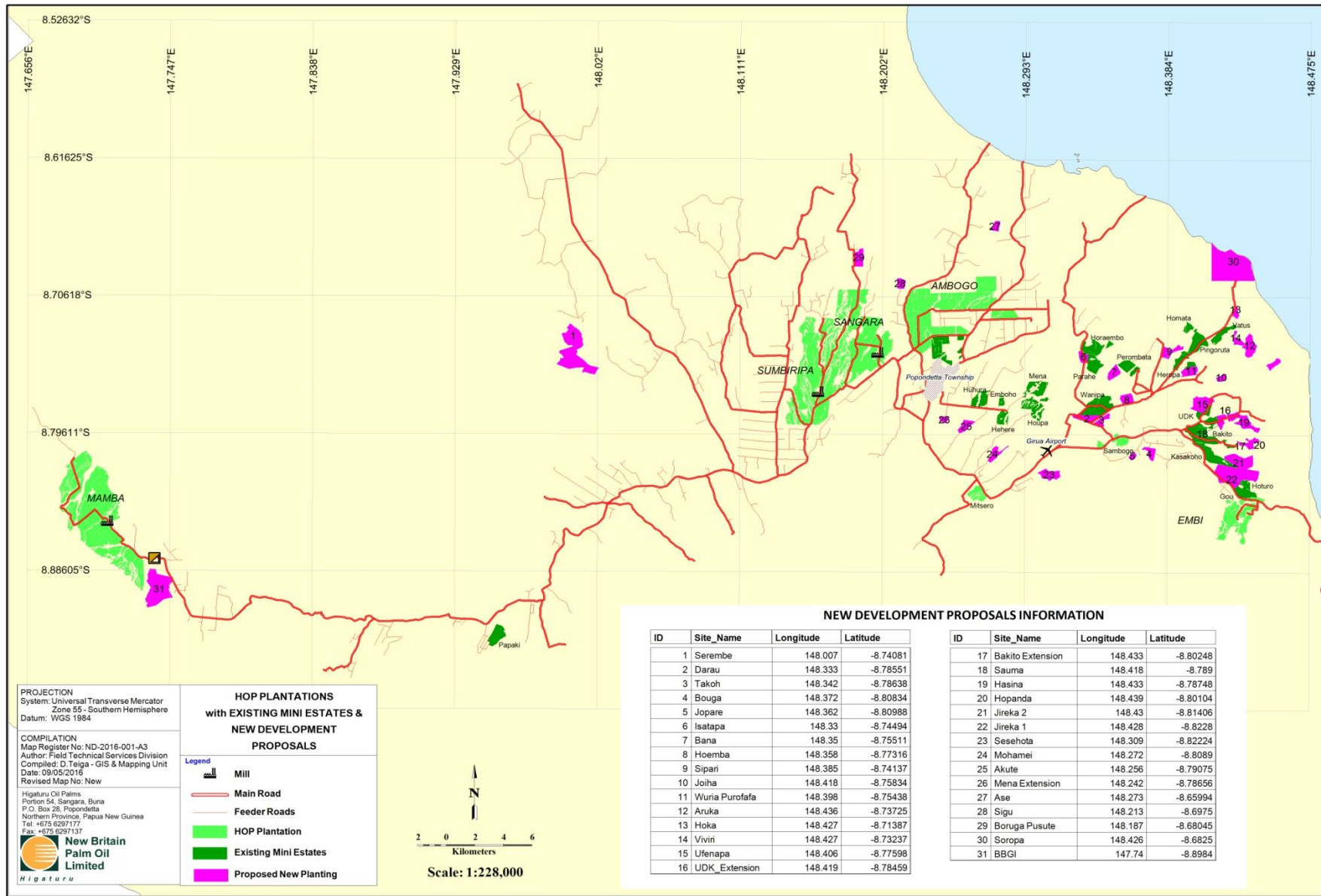


Figure 1. Location of HOP mini-estates.

## 1.2 Scope of the SEIA, HCV and HCS Assessments.

### 1.2.1 Organisational information and contact persons

Table 1. HOP organisational information and contacts.

Company Name	New Britain Palm Oil Limited
Subsidiary	Higaturu Oil Palms RSPO Membership Number: <b>1-0016-04-000-00</b>
Company Address	Higaturu Oil Palms P.O Box 28 POPONDETTA Oro Province Papua New Guinea
Geographical Location	E- 147°43'12" - 148°27'25" S- 8°34'28" - 8°55'30"
Capital Status	Foreign Investment
Type of Business	Oil Palm plantation and milling
Status of Land ownership	Customary land and State lease
Contact Person	<ul style="list-style-type: none"> <li>• Sander van den Ende – Group Sustainability Manger (<a href="mailto:svdende@nbpol.com.sg">svdende@nbpol.com.sg</a>)</li> <li>• Paul Maliou – Sustainability Manager (<a href="mailto:pmaliou@nbpol.com.pg">pmaliou@nbpol.com.pg</a>)</li> <li>• Mike Jackson – General Manager (<a href="mailto:mjackson@nbpol.com.pg">mjackson@nbpol.com.pg</a>)</li> </ul>
Total Area of new planting	Total area assessed for proposed new plantings is 3259.38 ha

### 1.2.2 Personnel involved in planning and implementation

Planning and implementation plans for new planting involves Lands Department, Sustainability Department, TSD, GIS and New Development as per list below

Table 2. Personnel involved in planning and implementation.

Name	Position
Sander van de Ende	Group Sustainability Manager
Paul Maliou	Sustainability Manager
Mike Jackson	General Manager

Richard Tiamu	TSD Manager
Brian Cazalet	Head of Plantations
Pieter Schlesinger	Estate Manager (New Development)
Benjamin Osa	Lands Manager

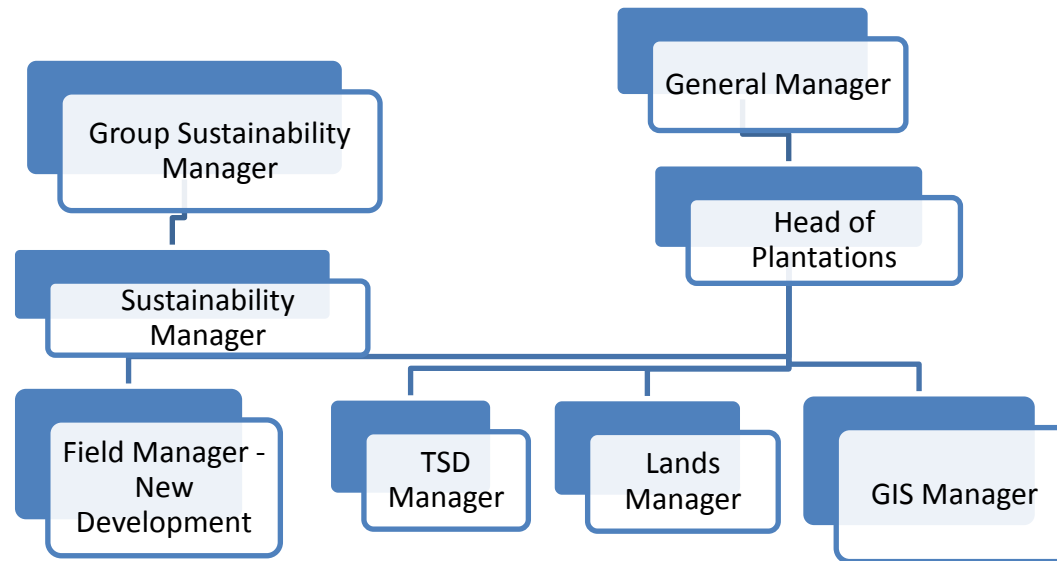


Figure 2. HOP Organisation Chart.

### 1.2.3 List of legal documents, regulatory permits and reference documents

#### a). List of Reports

- CEPA has been advised by HOP with regards to the proposed ME’s and HOP has been formally cleared to proceed with land evaluation and acquisition.
- Notification for Environmental Permits for the new plantings submitted to CEPA.
- Local stakeholders including LLG’s have been informed and included in discussions.

- MOU with landowners setting out terms and conditions
- HCV Assessment Report by Daemeter Consulting July 2015
- SEIA Assessment Report by Narua Lovai August 2015
- HCS Assessment Report by Tft July 2015

## b). List of Legal Documents

Table 3. List of Legal Documents consulted.

No	Legal Document	Issuing Authority	Year
1	Environment Act	Conservation & Environment Protection Authority	2000
2	Environment (Prescribe Activities) Regulation	Conservation & Environment Protection Authority	2002
3	Land Group Incorporation (Amendment) Act	Lands Department	2009
4	Fauna ( Protection & Control) Act	Conservation & Environment Protection Authority	2014
5	Papua New Guinea Logging Code of Practiced	Forestry Authority	1996
6	Papua New Guinea Lands Act	Lands Department	1996

### 1.2.4 Area and time plan for new planting

Of the total 3,259.38ha assessed, a total of 2,591.77ha has been earmarked for conversion into oil palm plantation located on the grassland and scrubland areas between Popondetta Township and Oro Bay. Developments will only start once all compliance to RSPO NPP requirements have been fulfilled and the Notification period has lapsed. The expected time bound plan for development is summarised below.

Table 4. Area and time-plan for proposed new ME's

Name	Planting Time Table
<i>Bana, Biage, Hoemba, Bakito Extension, Isatapa, Joiha, Jopare, Mohamei, Serembe, Sesehota, Sipari, UKD Extension</i>	2016
Hoka, Soropa, Darua, Takoh, Hasina, Ufenapa, Wuria Purofafa	2017
Akute, Aruka, Viviri, Ase, Boruga Pusute, Bouga, Hopanda, Jireka 1, Jireka 2, Mena Extension, Sigu, Sauma	2018

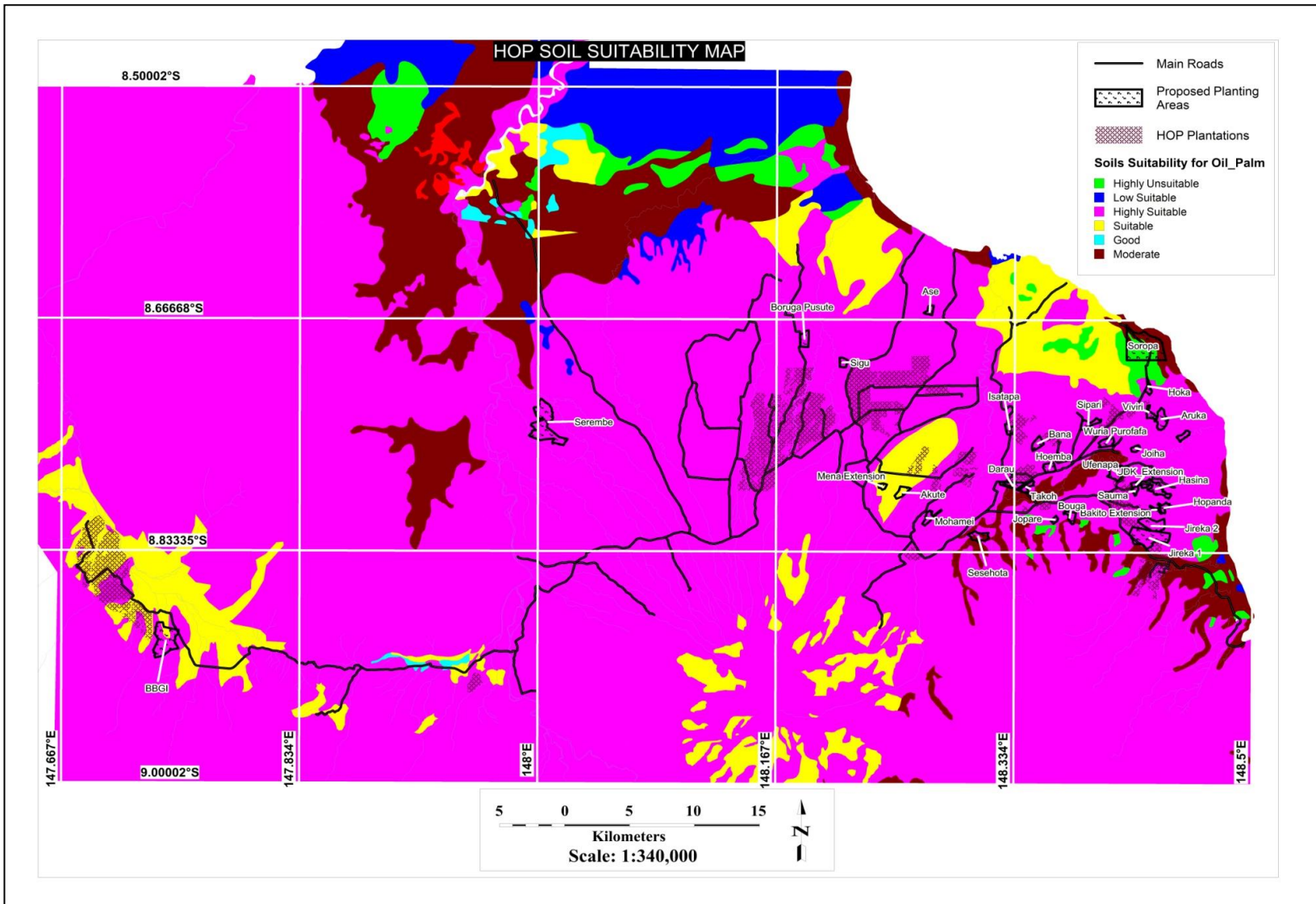


Figure 3. HOP Soil Map

## 1.3 Assessment Process and Procedures.

### 1.3.1 Assessors and their Credentials

#### a). HCV, SEIA and HCS Assessors

HCV assessment was conducted by Daemeter Consulting; the team consist of 8 people, a short biography of each person is provided on the table below.

**Table 5. HCV Assessor's credentials.**

Name	Institution	Role	Expertise
Julian Crawshaw	Daemeter Consulting Provisional ALS License	Lead Reporter / HCV Team Leader	Landscape Ecology, Forestry, Environmental services
Surin Sukswan	ProForest	Vegetation Expert / Social Survey	Botany, Landscape Ecology, Participatory approaches.
Muhammad Iqbal	Daemeter Consulting	Fauna Expert	Avifauna
Tom Vigus	Daemeter Consulting	Vegetation Expert / Social Survey	Ecology, Socio economic, engagement
Jeffery Lawrence	PNG Freelance Consultant	Vegetation Expert	Forestry, botany, landscape ecology
Clement Bailey	PNG Freelance Consultant	Vegetation Expert	Forestry, flora and fauna, conservation planning

**Table 6. SEIA Assessor's Credentials.**

Name	Institution	Role	Expertise
Narua Lovai	Freelance Consulting	Social environmental impact assessments.	Environment Expert/ Socio-Economic Expert Papua New Guinean expertise.

**Table 7. HCS Assessors Credentials**

Name	Institution	Role	Expertise
Michael Pescott	TFT	Project Management/Ecology/ Conservation/	Forest ecology, forest biometrics, high carbon stock assessments and approach
Michael Hansby	Hollow Wood Enterprise	Forester/ Participatory mapping/ Botany	Forestry assessments, forest mapping, field work



### 1.3.2 Assessment Methods

#### a). HCV Assessment Methods

The HCV assessment for Higaturu Oil Palms took 3 weeks for the field data collection, starting on the second week of July to the first week of August; the assessment was guided by the Papua New Guinea High Conservation Value Toolkit 2006 as well as the Global Generic HCV Toolkit. Data sources used in the identification and analysis of the HCV process includes the following;

**Table 8. Type and sources of secondary data collection.**

Data Type	Data Sources	Year
Land Cover	Quick Bird 2013 satellite images (1:50, 000)	2013
Topography	Digital Elevation Model (DEM) produced by the Shuttle Radar Topography Mission (SRTM), horizontal resolution of 91m / 3 arc-seconds.	
Ecosystem Mapping	CSIRO, Australia (H. A. Haantjens et al , 1964) was used as a proxy for ecosystems	1964
Species	IUCN Red List 2015; CITES 2015; Mammals of Papua 2014; HCVRN HCVRN – Common Guidance for the Management and Monitoring of HCVs, 2014 HCV Forest Toolkit for PNG 2005 Bonaccorso 1998 article Coates 1985; Diamond 1972 <a href="http://highcarbonstock.org/the-hcs-approach-toolkit/">highcarbonstock.org/the-hcs-approach-toolkit/</a>	2015 2013 2014 2014 2005 1998 1972
Social Cultural	EIAs and Interim HCV Assessment reports provided by the company	

#### Secondary Data Collection

Secondary data was collected and analysed (including an assessment of its spatial accuracy) during the planning phase of the assessment, as summarized below.

**Table 9. HCV secondary data collection.**

Land Cover	Land Cover mapping was undertaken by The Forest Trust ( <a href="http://www.tft-earth.org">www.tft-earth.org</a> ) and used for both the HCV and HCS assessments, which were undertaken concurrently. For the assessment of HCVs 1-4, present forest cover was assessed from satellite imagery. Quick Bird 2013 satellite images were classified into land cover types through on-screen digitization). This land cover mapping gave clear indications of the areas that
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	needed to be surveyed during full assessment. Digitization was carried out at a scale of 1:50,000 or better.
Topographical Data	The Digital Elevation Model (DEM) produced by the Shuttle Radar Topography Mission (SRTM) was used for defining general topography and slopes in the AOI. HCV 4.2 utilizes this secondary data set as these are the major components of erosion potential. Version 4 of this data set, which was used in this assessment, has been hole-filled by CGIAR and has a horizontal resolution of 91m / 3 arc-seconds.
Ecosystem Mapping	For the identification of HCV 3 ( <i>Rare or Endangered Ecosystems</i> ), the land system mapping undertaken by the CSIRO, Australia (H. A. Haantjens et al , 1964) was used as a proxy for ecosystems. The objectives of the CSIRO survey were to describe, classify, and map the inherent land characteristics of the country - including its surface geology, topography, soils, and vegetation - and broadly assess the land-use potentialities by consideration of these characteristics in relation to the climate, present land use, and edaphic requirements of various crops. The comprehensiveness of this survey makes it a very valuable resource.
Species Data	Secondary data on species potentially present in the assessment area based on known distribution and habitat use were extracted from publications, field guides and supporting data, including: the IUCN Red List 2015; CITES 2015; Daemeter Consulting, 2015; Mammals of Papua 2014; HCVRN – Common Guidance for the Identification of HCVs, 2013; HCVRN – Common Guidance for the Management and Monitoring of HCVs, 2014; HCV Forest Toolkit for PNG 2005; Bonaccorso 1998 article; Coates 1985; Diamond 1972; and biodiversity database of Daemeter Consulting. A species list, including the conservation status of each species, was then cross-referenced and augmented by experts that joined the field survey and by consulting community groups with knowledge of the area and species likely present.
Social and Cultural	Secondary data for the assessment of HCV 5 and 6 were available from EIAs and Interim HCV Assessment reports provided by the company. These described a range of social and economic classes, livelihoods, and village infrastructure.

### Primary Data Collection

Extensive field work was under take as part of all assessments. The following table summarizes the primary data collected.

**Table 10. HCV Primary data collection.**

Field Verification of Topographical Conditions	To assess the accuracy of topographical conditions shown in the DEM, general field observations were made throughout the MEs. The DEM accurately reflected our field observations.
Plant Surveys	Remaining natural forest (as defined by satellite imagery and land cover analysis) were surveyed using a rapid assessment method that relied on informal transects. Rapid, semi-structured plant observations were made of trees and juvenile regeneration in all the MEs with forest areas. Species identifications for selected taxa were made in the field, supplemented with digital photographic documentation. HCV species (rare, threatened, endemic and GoPNG protected species covered under HCV 1.2 and 1.3) were given highest priority for identification to species level
Mammals	Research on mammals was based on a combination desktop analysis, field survey and interviews. A photo book of mammals that are likely present in the region was developed. During village interviews the team queried villagers about the presence of each of these mammal species.  The survey of mammals and other vertebrates of concern under HCV 1 was conducted using rapid assessment techniques, combining (i) un/structured interviews with hunters, (ii) assessment of habitat quality (in combination with the botany team), and (iii) direct (visual) and indirect (prints, calls, scat) sightings whilst undertaking habitat assessments.

	Community interviews were conducted at the village level (7 villages in the area of Kararata, Dobuduru, Bapuhi, Ahora, Serembe, Siremi, Kokoda). Interviews were conducted by showing Higaturu’s HCV/ biodiversity pictures and photos to selected respondent (hunters and villagers). Respondent were asked to point at available species, to indicate those that potentially exist versus those that never existed in the surrounding area. An unstructured interview method was used to get accurate information for particular species. Interview locations were decided based on proximity to potential species habitat.
Birds	Bird surveys aimed to identify features of the bird community relevant to HCV 1.3. (HCV 1.2 was deemed very unlikely present for birds given geographic location and land cover.) Survey methods included walking transects, opportunistic observations during the surveys and interviews with local hunters. The combination of these methods ensured a holistic bird inventory and increased the likelihood of detecting key species that deserve conservation interventions
Social and Cultural Survey	Using the CG as a reference, questions were prepared for meetings at the village level to evaluate the dependency of community members on natural ecosystems to fulfil their basic needs (HCV 5) and identify any important cultural sites (HCV 6). Focus Group Discussion (FGD) was used in order to collect data on social and cultural aspects. The FGD approach is an effective way to collect information on social and cultural dimensions of village life in an informal setting that permits discussion and exchange of ideas between group member

**b). SEIA Assessment Method.**

In addition to the above primary data collection the SEIA contained a significant portion of field work. All of the primary data collection complements the overall FPIC approach that NBPOL undertakes in all of its new developments.

**Table 11. SEIA data collection methods.**

Secondary Data	Secondary data was collected by accessing information available from the HOP staff and literature. Published language maps of the area were utilized to get an overview of tribe and clan distribution. Historical records and the 2000 and 2010 census data were utilized to understand demographics and changes over the past 20 years.
Primary Data	For primary data, three sets of questionnaires were prepared to obtain environmental and socio-economic data from landowners and other stakeholders. One questionnaire was for the interim ILG committees, another questionnaire was for ILG members and the third one was for notable stakeholders within the area. The questionnaires were primarily designed to assemble a basic outline of the predevelopment situation which both HOP and the respective ME landowners intend to improve over time. In preparation for the fieldtrip the HOP Lands Unit sent out formal notification on the SEIA to all the interim ILG committees and relevant Provincial Government officials. After the fieldtrip, the data acquired was processed with relevant information from literature searches, inputs from consultation with stakeholders as well as the knowledge and experience of the consultant on MEs in the oil palm industry to compile the SEIA report.

**c). HCS Data Collection Method**

**Table 12. HCS data collection methods.**

<p>Secondary Data</p>	<p>Land-use / vegetation cover maps and tables: The area was classified according to the observed vegetation cover using a Geographical Information System (GIS), ArcMap 10.0, and a combination of utility obtained from ‘RapidEye’ imagery (5m), Landsat 8 (30-15m) and various high resolution images from Google Earth Pro.</p> <p>The Landsat * imagery was utilized to conduct a supervised classification for initial vegetation stratification. This imagery represents a range of ages (time since capture) and a range of cloud cover percentages.</p> <p>Subsequently no single data set was entirely suitable for the initial vegetation classification, and all three datasets were utilised during this initial process. Supervised classification was performed in order to extract forest cover from the image, aiding in the delineation of vegetation type boundaries. Several image processing techniques were used to aid in this. Subsequently the remote sensing technicians implemented visual classification of the satellite images. This involves visually assessing spectral frequency, image texture and reflectance characteristics. To assist in classification, the images were processed / enhanced using various techniques to increase the contrast within the images allowing easier definition of stratum boundaries. Due to the high level of heterogeneity in species composition and tree size distribution within the forested areas, visual interpretation of the images was the primary means of initial stratification. Following the site inspection, the initial stratification was verified and adjusted according to observations made in the field.</p>
<p>Primary Data</p>	<p>The HCS utilizes a rapid carbon assessment methodology which only measures large plant species which usually comprise the large majority of biomass carbon. The precision targets for the HCS assessment estimates with 90% confidence intervals to within 10% of the total carbon stocks estimated. Based on experience of homogeneity of vegetation strata between 30 plots were per strata were measured totalling 108 plots. Concentric circular plots with areas of 0.05 and 0.01 were place within which trees of (&lt;15cm DBH) (&gt;=15cm DBH) were measured in each respectively. All data derived from the plots measured were utilized in allometric equations to estimate above ground biomass of trees (Brown, 1997; Chave et al, 2005). Specific gravity of different plants were adjusted from literature and the total above ground carbon calculated per plot. The average plot carbon was extrapolated to hectare for the final estimates.</p>

**1.3.3 Stakeholders Consultations**

Stakeholder consultation is fundamental to the HCV process. A range of stakeholders were consulted during full assessment stage. Stakeholder input focused on opinions and concerns about HOP’s proposed development of the AOI and specific input on biodiversity issues, environmental services, local livelihoods and other issues of concern to local communities and broader stakeholder groups.

Before any field visits, meetings were held with the clan leaders of the various proposals for mini estates. This was to ensure that all landowners were aware of the purpose of the HCV assessments; this included a question and answer segment to ensure that all concerned were aware of the need for adequate consultation. From the nature of questions and comments, Daemeter felt that the villagers had been briefed about HCV and had a good understanding about why it was necessary.

In addition, discussions were held with other relevant stakeholders, including the Oro Provincial Government (OPG), the National Forest Service (NFS) under the auspices of the PNG Forest Authority (PNGFA), the Conservation and Environment Protection Authority (CEPA), the Higaturu Local Level Government (LLG) and the OPG Office of Conservation and Climate Change and Adaptation (OCCC).

A follow-up meeting was held with members of the Provincial Government.

- Eddie Malaisa - Provincial Wildlife and Environmental Officer
- Sebastian King – Provincial Forestry Officer
- Champion Avediba – Acting Agricultural Advisor
- Ward Councillors and Council Officials – from Popondetta Urban LLG and Oro Bay Rural LLG
- Sam Vegogo – Provincial Administrator
- Willie Paul Purari – Deputy President of Higaturu LLG
- Ishmael Koneha – CEPA representative
- Mary Fay Karong & Claire Tarawa – Provincial Office of Conservation and climate change
- Silas Orowari – Provincial Government Extension Officer
- Hon Eavartius Bori – Higaturu LLG President/Deputy Governor
- Merire Dubo – Provincial Customary Lands Officer

The final HCV results were presented to the landowners of the proposed areas. This required an extra trip of the Daemeter lead assessor into the field. The HCV results were presented through a series of discussion with respective landowners utilizing maps and explanations to justify the results. The final HCV delineations and management recommendations reflect the outcome of this consultation.

**Table 13. Minutes of stakeholder consultation.**

Organisation	Name	Key Concerns / Recommendations
<b>Oro Provincial Government (OPG)</b>	Sam Vegogo	The Province is preparing and an agriculture development plan which included matching crop suitability to areas within the Province. He expressed the need for ; <ul style="list-style-type: none"> <li>- diversification to ensure that the province did not rely on one cash crop and</li> <li>- the need for research facilities to aid development.</li> </ul> He was looking to develop a Land Use plan for the province, even though there was no funding and in terms of the Popondetta plains he expressed the need for cooperation between the Provincial Government and HOP.
<b>PNG Forest Authority (PNGFA)</b>	PNFA Officers	PNFA Officers explained that landowners approached them on regular basis to express interest in getting their areas logged before being converted to oil palm. The officers explained that landowners were referred to HOP

		most of the time but occasionally gave permission verbally for logs to be taken from smaller areas of forest. <sup>1</sup> The PNGFA officers explained that the companies managing the Plywood and Veneer Mill had recently requested an increase in allowable cut to 50,000 cubic metres per annum and the sawmill had requested an increase to 10,000 per annum – both these entities have no reliable resource such as could be managed under an FMA. Thus these entities have put enormous pressure on the remaining forest patches on the Popondetta plains to the detriment of the survival of QABB.
<b>Higaturu Local Level Government (LLG)</b>	Willie Paul Purari, (Deputy President)	The LLG was suffering from lack of funds for its role in bringing development to the local area. Although their jurisdiction includes areas which are largely planted with oil palm, the LLG receives no income from oil palm development.
<b>Provincial Conservation and Environment Protection Authority (CEPA)</b>	Mr Ishmael Koneha	He stated that there was still keen interest on the Popondetta plains for WMAs and that HOP staff had GPSed many areas but there had been no gazetals since the completion of the OCP. He also expressed disappointment there had been no communication from HOP to CEPA or the OPG about the proposed mini estates <sup>2</sup> . It was suggested that the process should have included CEPA during the early planning stages.
<b>Provincial Office of Conservation and Climate Change</b>	Mary Fay Karong and Claire Tarawa	These people were two recently recruited officers whose roles were to create awareness in general about Climate Change and to train people in the field of adaptation.
<b>Mini Estate Comment of consultation with Mini Estates</b>		
<b>Jireka 2</b>	The HCVMA was too large and wanted Daemeter to review with a site visit. The HCVMA was based on a clan member that said they wanted the forested area kept for community use. The clan leader said that what was mapped as forest was now ex-gardens and scrub. A follow-up visit was made and this was confirmed and the boundary would be adjusted.	
<b>Jopare</b>	Wanted a boundary adjustment which would extend the area by about 4 ha into the grassland. A follow-up visit was made to confirm this area.	
<b>Akute</b>	The clan leader was of the understanding that when they GPSed the boundaries that was the limits of the plantation and everything within it would be oil palm. They were not happy with a 16 ha HCVMA. It turned out that the representative's uncle had told the assessment team that the clan wanted the forested patch maintained for community use. This was a misunderstanding and he wanted to revisit the area after talking to the other clan members. This area is mapped as an HCS area. A return visit was made to the area, to determine if the forested area was of sufficient quality to be classified as HCV 1. This was done in the absence of HCV 5 – as the landowner had said that the clan would use other areas for community use. The area in the NW corner was little more than scrub, or the low end of secondary forest, however there was a stream flowing through this and a riparian buffer would be necessary around it. The southern section of the central area was recovering gardens and would be excluded, however the northern area would be maintained. It was secondary forest and appeared to be recovering quite well. A species list was developed and has been added to the vegetation report.	

<sup>1</sup> Although HOP explained that it does not give permission for logs to be extracted from any proposed mini estate site because HOP does not have any legal jurisdiction to do so. Current mini estates new developments are mostly grassland and not forest lands.

<sup>2</sup> Although HOP Lands & Mini Estates explained that it provides monthly progress reports normally get sent to Provincial Administrator's office and Provincial Lands Office. CEPA is an office under the Provincial Administration and can obtain copies from the Provincial Administrator's office.

<b>Soropa</b>	<p>There was a separate meeting with the owner of the state lease. There appears to be problems with this ME that are not connected with HCV. The owner understood that the riparian strip along the coast and the sago swamps should be excluded from use. Also Buna village at the northern end of the plantation would be enclaved. The owner also wondered about the use of the sago palms for housing and food as well as use of the area for fishing.</p> <p>It was explained that the owner should join the field team on a field visit. However this did not occur.</p> <p>Daemeter considers that it is unlikely that development will occur in this area until many of the non-HCV related issues are dealt with.</p>
<b>Serembe</b>	<p>The people were broadly happy with the outcome of the HCV assessment. One person asked if he had to have the riparian buffer in his area. When he was told that this element was not really negotiable he seemed satisfied.</p> <p>One of the major motivations for getting oil palm was to have a road built that would allow better access to their village.</p>
<b>Boruga Posute</b>	<p>This area was 100% for development. The community seemed pleased with this outcome as they were certain they had plenty of forested areas elsewhere for gardening, hunting etc... The forested area was quite marginal and given that it had been recently logged and was in generally poor condition it was to be conserved.</p>
<b>Ase</b>	<p>There were areas of forest and a riparian strip in this area as HCV. The owner seemed pleased with this outcome as he felt that the constant fires in the kunai area were damaging the conservation area. Planting oil palm in this central area would stop this damage to the conservation areas. He said he would be very interested in talking to the company about support for the QABB conservation area.</p>
<b>Sigu</b>	<p>This area was 100% for development and they were pleased with this outcome. However they still expressed concern over declining water quality in the river and also the amount of rubbish and wanted support from HOPL in developing a water system for their village. They wanted a boundary adjustment to include a grassland area. The team went and surveyed it.</p>
<b>Kokoruni</b>	<p>The clan members were disappointed their mini-estate could not be accepted because it was all forest. They did not realise this was a requirement. Their main motivation for having oil palm in the area is to have a road up to their village which currently they do not have. They suggested as an alternative an area to the south which from the satellite image it did not appear to be forested. However I suggested getting HOPL environmental staff to have a good look at it prior to getting land titling work done.</p>
<b>BBGI</b>	<p>The group seemed pleased with the outcome of just a riparian strip of approximately 7 ha. When it was suggested that a riparian strip of approximately 10 m from the track edge of 2 trees along the track they thought this was a good idea. They see big benefits of improved infrastructure with oil palm, therefore their motivation is not just OP but ensuring good infrastructure in a remote place.</p>
<b>Mohamei, Aruka, Hopa, Viviri</b>	<p>There were no real issues with any of the areas. The group were asked about any problems (based on the fact that the owner of the lease would not come with the group to resurvey the area) about the Soropa area but there was no reply.</p>

### 1.3.4 Peer Review

In the HCV context, peer review is the process whereby an HCV assessment is evaluated by HCV expert(s) to identify any shortcomings of the assessment process and output. The reviewer checks that:

The HCV toolkit is used appropriately,

- HCV identification has been carefully evaluated by experts in the appropriate field and the logic explained,
- Management and monitoring recommendations follow current best practices and are fitting for the landscape and social context,
- Appropriate stakeholder consultation has taken place, and
- All of these are reflected in the HCV Assessment Report.
- Upon receipt of the peer review, edits are made to address comments by the reviewer and a final draft is produced.

Daemeter used the ALS peer reviewer pool to assess our integrated HCV and HCS reports.

### 1.3.5 List of legal, regulatory and other guidance referenced

#### a) References Used in the SEIA

- Bleeker, P., 1983, *Soils of Papua New Guinea*, CSIRO, Canberra, Australia.
- Douglas Environmental Services, 2007, *Environmental Assessment Report for the Smallholder Agriculture Development Project – PNG*, Report to OPIC, Port Moresby, PNG.
- Haantjens, H.A., 1964, *General Report on Lands of the Buna – Kokoda Area – Territory of Papua and New Guinea*, CSIRO, Melbourne, Australia.
- International Association for Impact Assessment, May 2003, *Social Impact Assessment International Principles*, Special Publication Series No.2
- Interorganizational Committee on Guidelines and Principles for Social Impact Assessment 1994, *‘Guidelines and principles for social impact assessment*, Impact Assessment, vol.12, no. 2, pp.107 – 152.
- Koczberski, G & Curry, G.N., 2007, *Beneficiaries Assessment Report for the Smallholder Agriculture Development Project – PNG*, Report to OPIC, Port Moresby, PNG.
- Koczberski, G & Curry, G.N., 2007, *Social Assessment Report for the Smallholder Agriculture Development Project – PNG*, Report to OPIC, Port Moresby, PNG.
- McAlpine, J.R., 1983, *Climate of Papua New Guinea*, CSIRO, Canberra, Australia.
- NBPOL, 2014, *Annual Report for 2013, NBPOL*, Mosa, West New Britain Province, PNG.
- RSPO, 2013, *Roundtable on Sustainable Palm Oil Principles and Criteria*, RSPO Secretariat, Kuala Lumpur, Malay SEIA.
- RSPO, March 2008, *RSPO PNG NIWG Principles and Criteria*, RSPO.
- RSPO, May 2010, *RSPO New Planting Procedures - Guidance Document*, RSPO.

#### b) References Used in HCV

- Brown, E., N. Dudley, A. Lindhe, D.R. Muhtaman, C. Stewart. & T. Synnott (eds.). 2013. *Common Guidance for the Identification of High Conservation Values*. HCV Resource Network.
- Haantjens, H.A., S.J. Paterson, B.W. Taylor, R.O. Slatyer, G.A. Stewart & P. Green. 1964. Geology, Geomorphology, and Land Systems of the Buna-Kokoda Area, Papua (with inset maps of Physical Regions, Regional Land Use Potential, Lamington Land System-Distribution of Units, and Traverses and Sample Sites) *Land Research Series No. 10*. Commonwealth Scientific and Industrial Research Organisation, Melbourne, Australia.
- Menazza, S. 2010. *Survey Regarding National Legal And Policy Measures Related To Indigenous And Community Conserved Areas*. The Nature Conservancy.



- Parsons, M.J. 1992. The world's largest butterfly endangered: the ecology, status and conservation of *Ornithoptera alexandrae* (Lepidoptera: Papilionidae). *Tropical Lepidoptera* 3(1): 33-50.

**c). Reference Used In HCS**

- [highcarbonstock.org/the-hcs-approach-toolkit/](http://highcarbonstock.org/the-hcs-approach-toolkit/)
- Havel, J. 1975. Training Manual for Forestry College. Volume 3. Forest Botany. Part 2. Botanical Taxonomy.
- Paijmans, K. 1975. Explanatory notes to the vegetation map of Papua New Guinea. No. 35. Commonwealth scientific and industrial research organization

**2.0 SUMMARY FROM ASSESSMENT**

**2.1 Summary of SEIA Assessment**

The SEIA concludes that HOP has complied with FPIC since its initial response to the expressions of interest lodged by the landowners. The SEIA recommends that this engagement is maintained and cautiously verify that the landowners fully understand the terms and conditions of the mini-estate agreement before endorsing it until the mini-estate agreement is signed. It is concluded that the landowning clans have ample land for other uses and are allocating parcels of grassland to HOP for mini-estate development for mostly positive impacts including revenue generation, improving road access, and individual access to housing, water supply and sanitation. There were also negative impacts identified which have been summarized in the table below.

**Table 14. SEIA Management and Mitigation Plan.**

No	Aspect/Activity	Potential Impact/s	Relevant RSPO Principles	Mitigation measure/s	Performance indicator/s	Monitoring period/frequency	Persons responsible for mitigation and monitoring
<b>A</b>	<b>PRE-PLANTING SITE EVALUATION AND LANDUSE AGREEMENT NEGOTIATIONS</b>						
1	Expression of Interest (Eoi) from landowners (LOs).	<ul style="list-style-type: none"> <li>• Resistance by some LOs against the proposal to enter ME development venture with HOP. Some LOs may prefer establishing VOP blocks or other land uses.</li> </ul>	<ul style="list-style-type: none"> <li>• Principles 1 &amp; 7 including FPIC.</li> </ul>	<ul style="list-style-type: none"> <li>• Ascertain that the Eoi genuinely reflects the collective intention of all the landowners.</li> <li>• Ensure that LOs are not coerced or unduly influenced in</li> </ul>	<ul style="list-style-type: none"> <li>• Confirmation meeting held with the community.</li> <li>• Confirmation interviews held with individual members of the community representing the</li> </ul>	<ul style="list-style-type: none"> <li>• During ILG registration and ME agreement negotiation.</li> </ul>	<ul style="list-style-type: none"> <li>• Lands Officer</li> <li>• Sustainability Manager</li> </ul>

No	Aspect/Activity	Potential Impact/s	Relevant RSPO Principles	Mitigation measure/s	Performance indicator/s	Monitoring period/frequency	Persons responsible for mitigation and monitoring
				giving up their land for ME development.	demographic cross-section of the community. • FPIC		
2	Study of ILG Genealogy.	<ul style="list-style-type: none"> <li>Some ILG members are not included.</li> <li>Disputes over eligibility for membership may arise.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1,2, 6 &amp; 7</li> </ul>	<ul style="list-style-type: none"> <li>Ensure all LOs actively participate in the study.</li> </ul>	<ul style="list-style-type: none"> <li>Assessment of ILG genealogy in accordance with RSPO guidelines and the ILG Act.</li> <li>Timely submission of Genealogy Report.</li> </ul>	<ul style="list-style-type: none"> <li>Prior to the start of ME agreement negotiations.</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Sustainability Manager</li> </ul>
3	<p>Survey of baseline ILG household socio-economic situation including the following aspects:</p> <ul style="list-style-type: none"> <li>Type of house</li> <li>Population</li> <li>Demography</li> <li>Education and skills</li> <li>Economic activity</li> <li>Income</li> <li>Nutrition</li> <li>Water supply</li> <li>Sanitation</li> <li>Health</li> <li>Law and order</li> <li>Local government support</li> </ul>	<ul style="list-style-type: none"> <li>Certain households not included in the survey.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1,2, 3,4, 5, 6 &amp; 7</li> </ul>	<ul style="list-style-type: none"> <li>Ensure all households are covered in the survey.</li> </ul>	<ul style="list-style-type: none"> <li>All households are covered in the survey.</li> </ul>	<ul style="list-style-type: none"> <li>Prior to the start of site preparation and then every three years during the lease period.</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Sustainability Manager</li> </ul>

No	Aspect/Activity	Potential Impact/s	Relevant RSPO Principles	Mitigation measure/s	Performance indicator/s	Monitoring period/frequency	Persons responsible for mitigation and monitoring
4	Negotiation of ME Agreement as per the ILG Act.	<ul style="list-style-type: none"> <li>Land use agreement not understood by all LOs.</li> <li>Members of the ILG community not given the opportunity to hear from existing ME landowners.</li> <li>Some LOs unwilling to proceed with ME development.</li> <li>LO terms and conditions not adequately accommodated in the agreement.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1, 2, 3, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Ascertain that LOs are kept informed on the progress of the negotiations.</li> <li>Facilitate discussions between intending and current ME landowners.</li> </ul>	<ul style="list-style-type: none"> <li>LOs are kept informed on the progress of the negotiations.</li> </ul>	<ul style="list-style-type: none"> <li>During ME Agreement negotiations.</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Sustainability Manager</li> </ul>
5	Finalisation and signing of ME Agreement.	<ul style="list-style-type: none"> <li>LOs not fully aware of terms and conditions of the agreement before signing it.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1, 2, 3, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Ascertain that LOs are aware of terms and conditions of the agreement before signing it.</li> </ul>	<ul style="list-style-type: none"> <li>LOs are aware of terms and conditions of the agreement before signing it. This should be verified by the Ward Councillor and two local pastors.</li> </ul>	<ul style="list-style-type: none"> <li>During and up to the signing of the ME Agreement.</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Sustainability Manager</li> </ul>
6	Pre-development water quality analysis	<ul style="list-style-type: none"> <li>Lack of monitoring data will not help HOP deal effectively with water contamination allegations.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1, 2, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out pre-development water quality monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Pre-development water quality monitoring carried out.</li> </ul>	<ul style="list-style-type: none"> <li>Before start of site preparation.</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability Manager</li> </ul>

No	Aspect/Activity	Potential Impact/s	Relevant RSPO Principles	Mitigation measure/s	Performance indicator/s	Monitoring period/frequency	Persons responsible for mitigation and monitoring
<b>B</b>	<b>SITE PREPARATION AND PLANTING</b>						
7	Marking out of HCV sites, unplantable areas and buffer zones.	<ul style="list-style-type: none"> <li>Some sites not marked for buffer zone protection.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1, 2, 3, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure all relevant sites are clearly marked.</li> </ul>	<ul style="list-style-type: none"> <li>All relevant sites are clearly marked.</li> </ul>	<ul style="list-style-type: none"> <li>Prior to site preparation and planting.</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Sustainability Manager</li> </ul>
8	Enhancement of buffer zone vegetation.	<ul style="list-style-type: none"> <li>Species mix not improved in buffer zone.</li> <li>Lack of connectivity of forest areas and corridors to allow safe movement of fauna and avifauna.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 2, 3, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate restoration of local species variety including QABB vines in the buffer zones.</li> <li>Ensure connectivity of forest areas throughout the region.</li> </ul>	<ul style="list-style-type: none"> <li>Diverse local species including QABB vines in the buffer zones.</li> <li>Uninterrupted connectivity of forest areas throughout the region.</li> </ul>	<ul style="list-style-type: none"> <li>During site preparation and planting</li> </ul>	<ul style="list-style-type: none"> <li>Plantation Manager</li> <li>Sustainability Manager</li> </ul>
9	Payment of land rental to ILG.	<ul style="list-style-type: none"> <li>Funds not used for the benefit of the ILG.</li> <li>Members not aware of how these funds are used.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1, 2, 6, &amp; 7.</li> </ul>	<ul style="list-style-type: none"> <li>Check that funds are used for the common good of the ILG.</li> <li>Confirm transparency in the use of ILG revenue.</li> <li>ILG Management training scheduled for February-October 2016</li> </ul>	<ul style="list-style-type: none"> <li>Funds are used for the common good of the ILG.</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Sustainability Manager</li> </ul>
10	Employment on ME.	<ul style="list-style-type: none"> <li>Priority not given to members of the ILG community.</li> <li>Income abused on</li> </ul>	<ul style="list-style-type: none"> <li>Principles 2, 3, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Engage workers from outside of the immediate area only when</li> </ul>	<ul style="list-style-type: none"> <li>ME workers are from the ILG community or the immediate</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Sustainability Manager</li> </ul>

No	Aspect/Activity	Potential Impact/s	Relevant RSPO Principles	Mitigation measure/s	Performance indicator/s	Monitoring period/frequency	Persons responsible for mitigation and monitoring
		<p>alcohol and luxury items, neglecting house improvement, water supply tank, better sanitation and clothing for the family.</p> <ul style="list-style-type: none"> <li>Increased income may lead to greater promiscuity and STD/HIV-AIDS infections.</li> </ul>		<p>necessary.</p> <ul style="list-style-type: none"> <li>Provide awareness on budgeting and facilitate saving of income.</li> <li>Provide regular awareness on STD/HIV-AIDS infections.</li> </ul>	<p>area.</p> <ul style="list-style-type: none"> <li>Awareness provided on budgeting and facilitate saving of income.</li> <li>Regular awareness on STD/HIV-AIDS infections.</li> </ul>		
<b>C</b>	<b>MAINTENANCE AND HARVESTING</b>						
11	Fertiliser application.	<ul style="list-style-type: none"> <li>Improper application of fertilisers resulting in bodily harm to sprayers and contamination of ground and surface water.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 2, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure proper application of fertiliser.</li> <li>Carry out periodic water quality monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Application of fertiliser by trained persons using the correct procedure.</li> <li>Water quality monitoring carried out as scheduled.</li> </ul>	<ul style="list-style-type: none"> <li>Monthly</li> <li>Six monthly</li> </ul>	<ul style="list-style-type: none"> <li>Plantation Manager</li> <li>Sustainability Manager</li> </ul>
12	Pest control.	<ul style="list-style-type: none"> <li>Improper application of pesticides resulting in bodily harm to sprayers and contamination of ground and surface water.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 2, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure proper application of pesticides.</li> <li>Carry out periodic water quality monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Application of pesticides by trained persons using the correct PPE and procedure.</li> <li>Water quality monitoring carried out as scheduled.</li> </ul>	<ul style="list-style-type: none"> <li>Monthly</li> <li>Six monthly</li> </ul>	<ul style="list-style-type: none"> <li>Plantation Manager</li> <li>Sustainability Manager</li> </ul>

No	Aspect/Activity	Potential Impact/s	Relevant RSPO Principles	Mitigation measure/s	Performance indicator/s	Monitoring period/frequency	Persons responsible for mitigation and monitoring
13	Maintenance of buffer zone.	<ul style="list-style-type: none"> <li>Neglected buffer zone not effectively serving its intended purpose.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 2, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain local species variety including QABB vines in the buffer zones.</li> <li>Ensure connectivity of forest areas throughout the region.</li> </ul>	<ul style="list-style-type: none"> <li>Diverse local species including QABB vines in the buffer zones.</li> <li>Uninterrupted connectivity of forest areas throughout the region.</li> </ul>	<ul style="list-style-type: none"> <li>Monthly</li> </ul>	<ul style="list-style-type: none"> <li>Plantation Manager</li> <li>Sustainability Manager</li> </ul>
14	Payment of land rental, company shares and FFB royalty to the ILG.	<ul style="list-style-type: none"> <li>Funds not used for the benefit of the ILG.</li> <li>Lack of transparency in the use of these funds.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1, 2, 4, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Provide financial management assistance to the ILG Committee.</li> <li>Ensure members are informed of use of ILG funds.</li> </ul>	<ul style="list-style-type: none"> <li>Financial management assistance provided to the ILG Committee.</li> <li>Transparency in the use of ILG funds.</li> </ul>	<ul style="list-style-type: none"> <li>Six monthly</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Plantation Manager</li> <li>Sustainability Manager</li> </ul>
15	HOP and ME management meetings.	<ul style="list-style-type: none"> <li>The inability to identify issues, resolve the negative aspects and maximise positive outcomes in a collaborative manner will prevent HOP from assisting the ILG community upgrade its socio-economic status and quality of life.</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1, 2, 3, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct regular management meetings.</li> <li>With the participation of the community, develop and implement solutions to issues identified by the meeting.</li> </ul>	<ul style="list-style-type: none"> <li>Management meetings conducted and corrective actions implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Six monthly</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Plantation Manager</li> <li>Sustainability Manager</li> </ul>
16	Three yearly household socio-economic	<ul style="list-style-type: none"> <li>Lack of monitoring and timely resolution may lead to severe</li> </ul>	<ul style="list-style-type: none"> <li>Principles 1, 2, 3, 4, 5, 6, 7 &amp; 8.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out socio-economic surveys at three</li> </ul>	<ul style="list-style-type: none"> <li>Socio-economic surveys carried</li> </ul>	<ul style="list-style-type: none"> <li>Three yearly</li> </ul>	<ul style="list-style-type: none"> <li>Lands Officer</li> <li>Plantation Manager</li> </ul>

No	Aspect/Activity	Potential Impact/s	Relevant RSPO Principles	Mitigation measure/s	Performance indicator/s	Monitoring period/frequency	Persons responsible for mitigation and monitoring
	surveys.	social problems and decline in welfare of the ILG community.		<ul style="list-style-type: none"> <li>year intervals.</li> <li>With the participation of the community, develop and implement solutions to issues identified by the surveys.</li> </ul>	out and corrective actions implemented.		<ul style="list-style-type: none"> <li>Sustainability Manager</li> </ul>

## 2.2 SUMMARY FROM HCV ASSESSMENT(S):

A summary of findings within all the proposed Mini Estates in the assessment is presented in Table 15. below. Each HCV is classified as Present, Potentially Present or Not Present. Presence of an HCV in this table indicates that it is present in at least one ME, “Not Present” means that it is not present in any of the MEs.

The main HCVs present were:

HCV 1: All the forests in the MEs had been logged in the past and generally these areas were subject to continuing high levels of disturbance. Patches of forest that were classified as HCV 1 were in sufficiently good condition to recover; particularly where there was good regeneration of species that are typically found in primary forest. There were many such areas in the MEs.

There was one ME where QABB (Queen Alexandra Birdwing Butterfly) caterpillars were sighted and others where *Pararistolachia* vines were present. QABB is classified as CITES Appendix I and therefore HCV1.2.

HCV 3: Rare ecosystems are not extensive in the AOI landscape, but do exist. Rare forest ecosystems, which are threatened because of agricultural expansion, exist in the Akute and Soropa MEs. No endangered ecosystems were identified.

HCV 4: There were many small watercourses that ran through the MEs. These would require riparian buffers to be maintained. Large rivers were excluded from the ME, however the buffers between the ME and the banks of the large river would require active management to stop deforestation and erosion of the banks.

HCV 5: The community in the area was highly forest dependent. Many of the forested areas the community has chosen to reserve from development because these areas are required to meet their basic needs. Nevertheless, there were other areas that the assessment team suggested would be HCV5, yet these were rejected by the community based on the premise that they had many better forest areas outside the MEs.

HCV 6: There were occasional cemeteries within the MEs. These would be enclave. Also in Kokoda Plains, the boundary ran up the side of the Kokoda track. The community wanted to preserve 2 tree widths of rubber trees to afford shade to the walkers.

**Table 15. General Summary of HCV Findings**

HCV	Description	Present	Potentially Present	Not Present
1.1	Protected Areas			
1.2	Concentrations of rare, threatened and endangered species			
1.3	Concentrations of endemic species			
1.4	Critical temporal concentrations of species			
2	Natural ecosystems or ecosystem mosaics which are large in extent, un-fragmented, form a significant components of the landscape or are of significant importance at a local, regional or national level, and which contain most of the naturally occurring species.			
3	Ecosystems that are naturally rare, have become rare due to historical processes, or threatened by present or future processes.			
4.1	Areas critical to water catchments			
4.2	Areas critical for soil erosion			
4.3	Areas critical for fire prevention			
5	Sites and resources fundamental for the basic necessities of local communities or indigenous peoples.			
6	Cultural values critical to the traditional cultural identity of local communities, including areas of cultural, ecological, economic, religious or archaeological significance.			

### 2.3 SUMMARY OF HCS ASSESSMENT

Land cover analysis from satellite image interpretation combined with the 108 field plots were integrated with the results of the HCV analysis. As stated earlier in this report the results were summarized in Table below 16.



**Table 16. Summary of HCV and HCS Assessments**

Proposed Mini Estates	HCV	HCV & HCS Conserve	HCV and Indicative Conserve	HCS Indicative Conserve	Plantable	Total
Akute	0	7	0	0	51.3	58.3
Aruka	3.1	11.6	0	3.7	82.9	101.3
Viviri	0	0	0	0	38	38
Ase	0	12.5	0	5.3	15.3	33.1
Bana	0	15.2	0	0	43.7	58.9
Biage	13.9	7.6	0	5.3	316.5	343.2
Boruga Pusute	0	0	0	26.8	47.3	74.1
Bouga	0	1.4	0	5.3	42.1	48.9
Hoemba		0	0	0	58.6	58.6
Hoka		0	0	0	31.9	31.9
Hopanda	1.6	0	0	0	37.8	39.4
Bakito Extension	0	0	0	0	17.6	17.6
Isatapa	0	0	0	0	40.8	40.8
Jireka 1	0	95.1	0	0	221.4	316.5
Jireka 2	0	84.6	0	30.2	32.5	147.3
Joiha	0	0.01	0	0	25.2	25.21
Jopare	0	0.5	0	0	22	22.5
Mena Extension	0	0	0	0	22.5	22.5
Mohamei	0	0	0	0	55.8	55.8
Serembe	0	30.9	2	71.7	321.8	426.4
Sesehota	0.3	0	0	0	83.7	84
Sigu	0	0	0	0	47	47
Sipari	0	0	0	0	70.4	70.4

Soropa	179.4	NA	NA	NA	404.7	584.1
Darau	0	0	0	0	69.9	69.9
Takoh		7.6	0	0	35.7	43.3
UDK Extension		0	0	0	22.7	22.7
Sauma		0	0	0	22.6	22.6
Hasina		0	0	0	129.87	129.87
Ufenapa		14	0	13.5	96.4	123.9
Wuria Purofafa	0.9	15.3	0	1.3	83.8	101.3
<b>Totals</b>	<b>199.2</b>	<b>303.31</b>	<b>2</b>	<b>163.1</b>	<b>2591.77</b>	<b>3259.38</b>

The above table is presented in detail below specifying the exact designation per proposed area and supported by a GIS map overlaid onto satellite imagery. These maps have been presented to all stakeholders and will be utilized for management and monitoring purposes throughout the project.

## Akute

Table 17. Akute ME HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Akute	HCVMA	7		0	7.0
	Non HCVMA	0		51.3	51.3

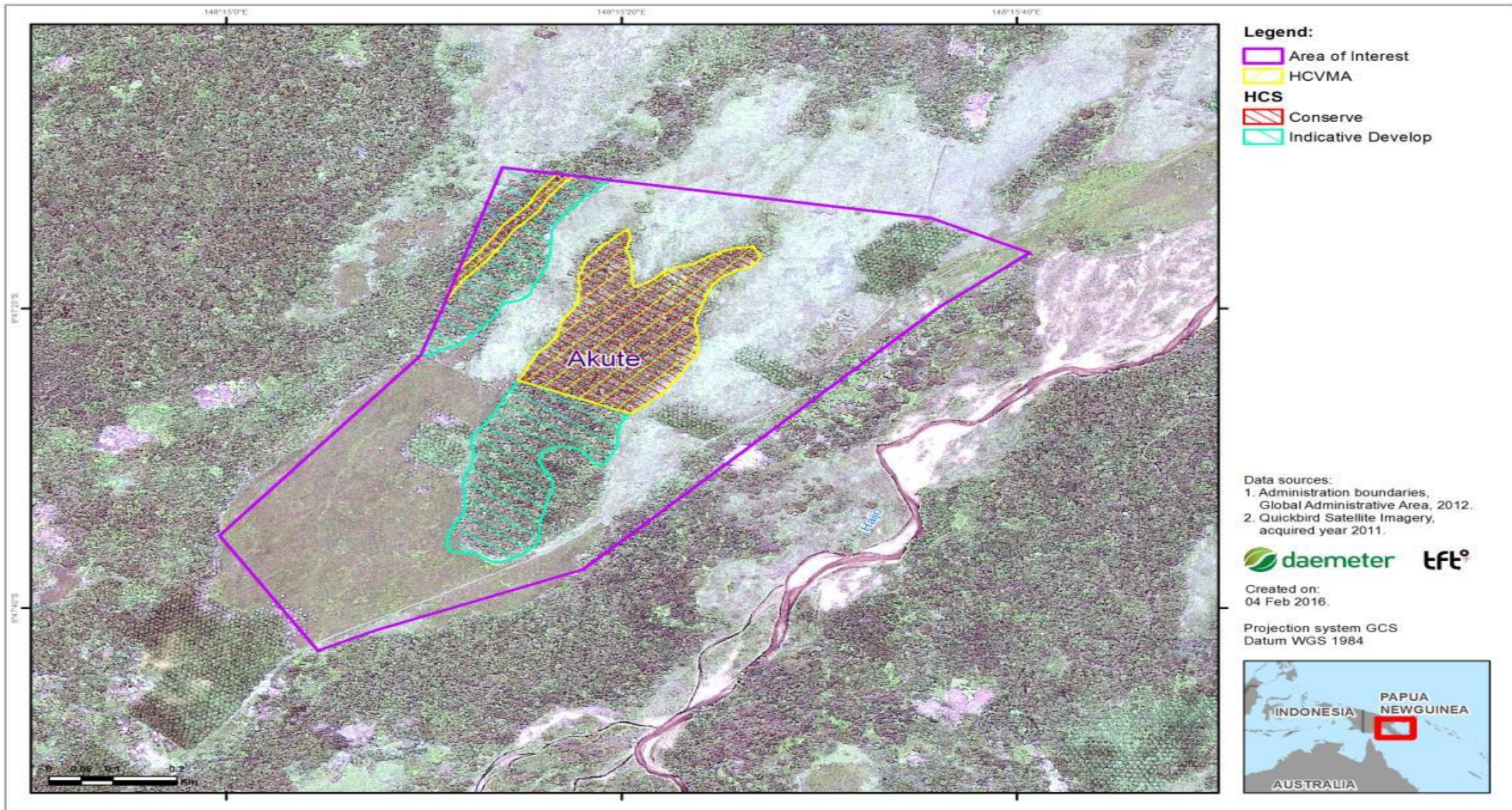


Figure 4. Akute ME HCV and HCS Areas (ha)

# Aruka

Table 18. Aruka ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Aruka	HCVMA	11.6		3.1	14.8
	Non HCVMA	0	3.7	82.8	86.5

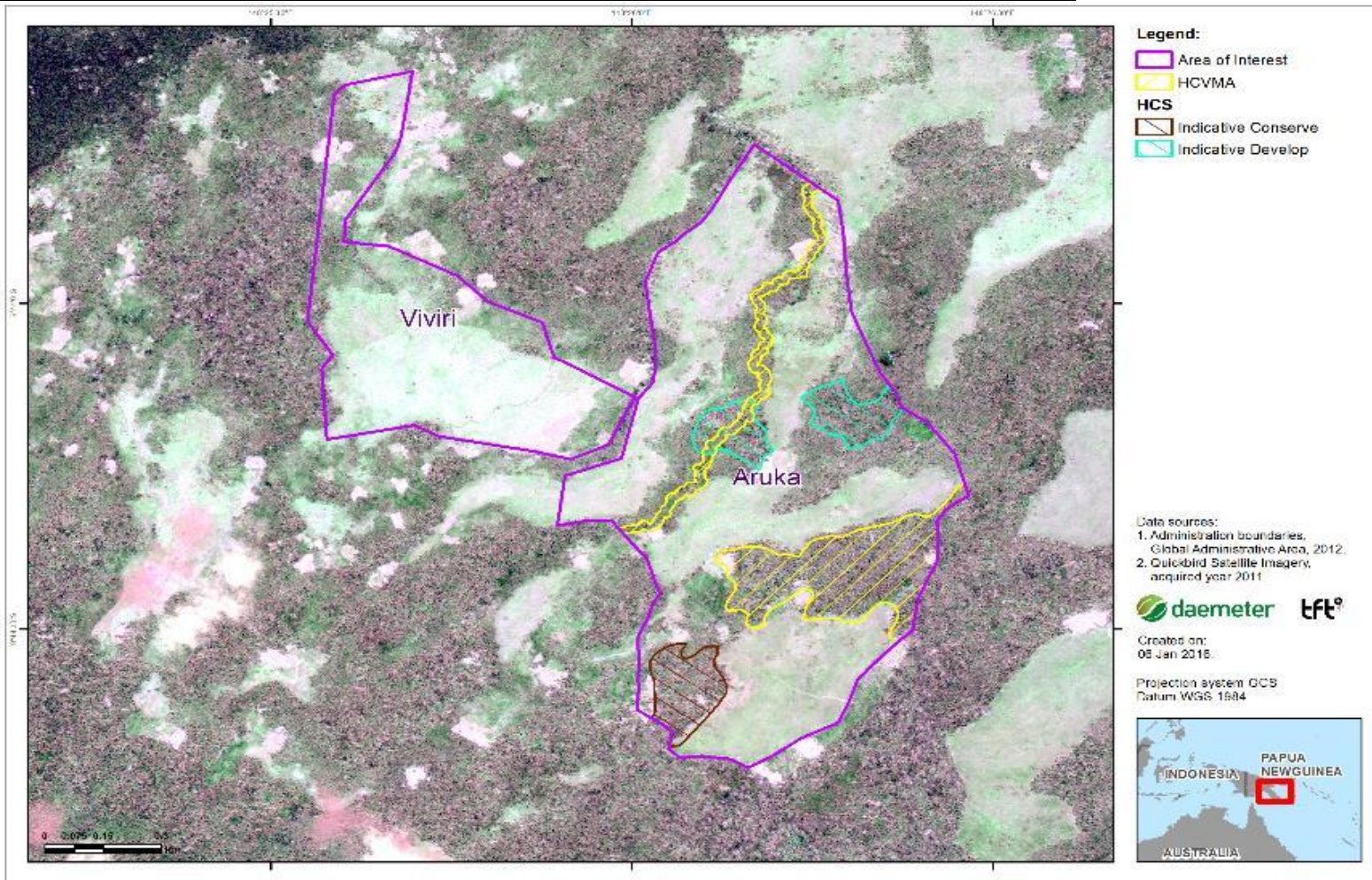
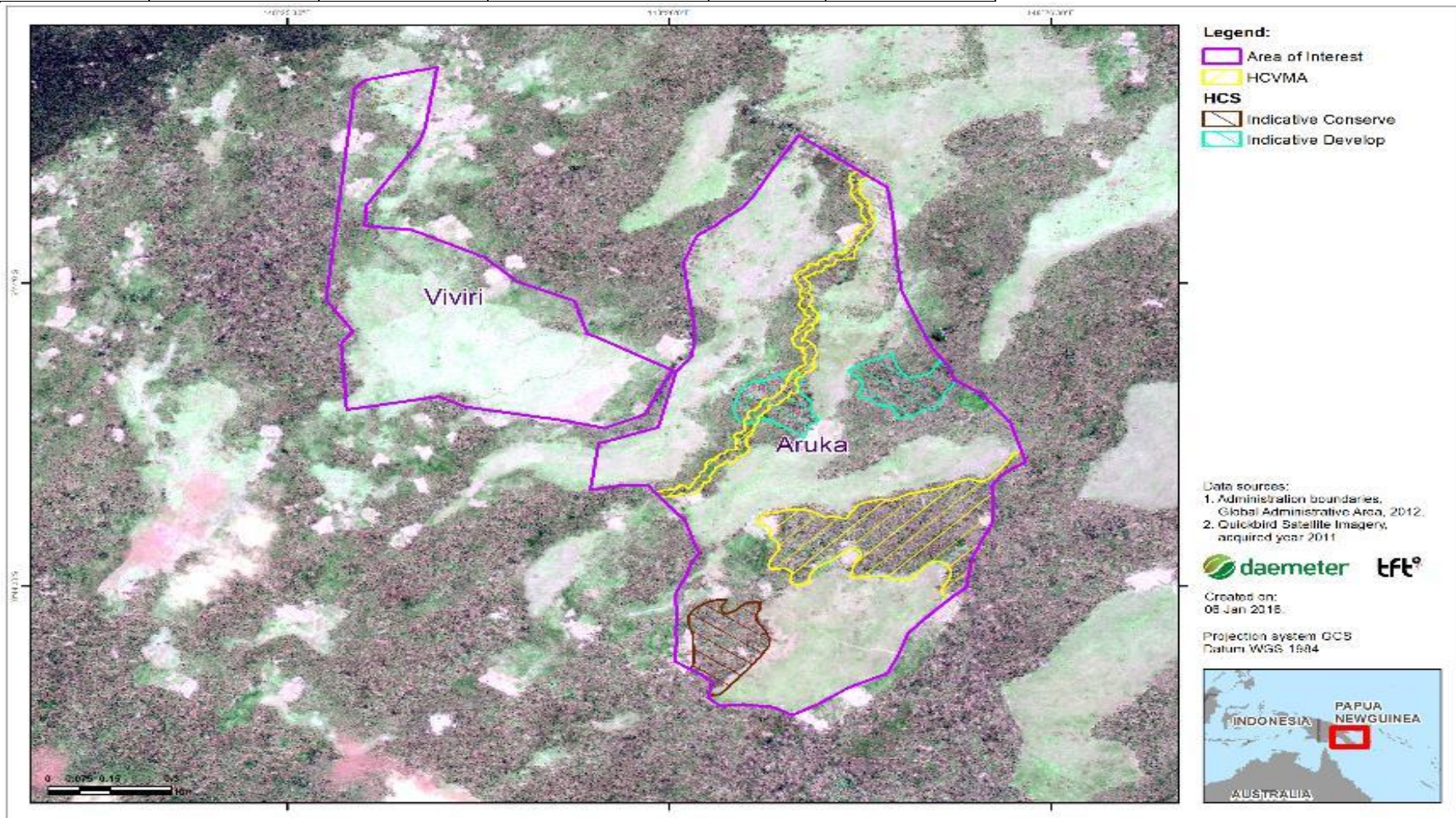


Figure 5. Aruka ME HCV and HCS areas

# Viviri

Table 19. Viviri ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Viviri	HCVMA				
	Non HCVMA	38.0			38.0



# Ase

Table 20. Ase ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Ase	HCVMA	12.5			12.5
	Non HCVMA		5.3	15.3	20.6

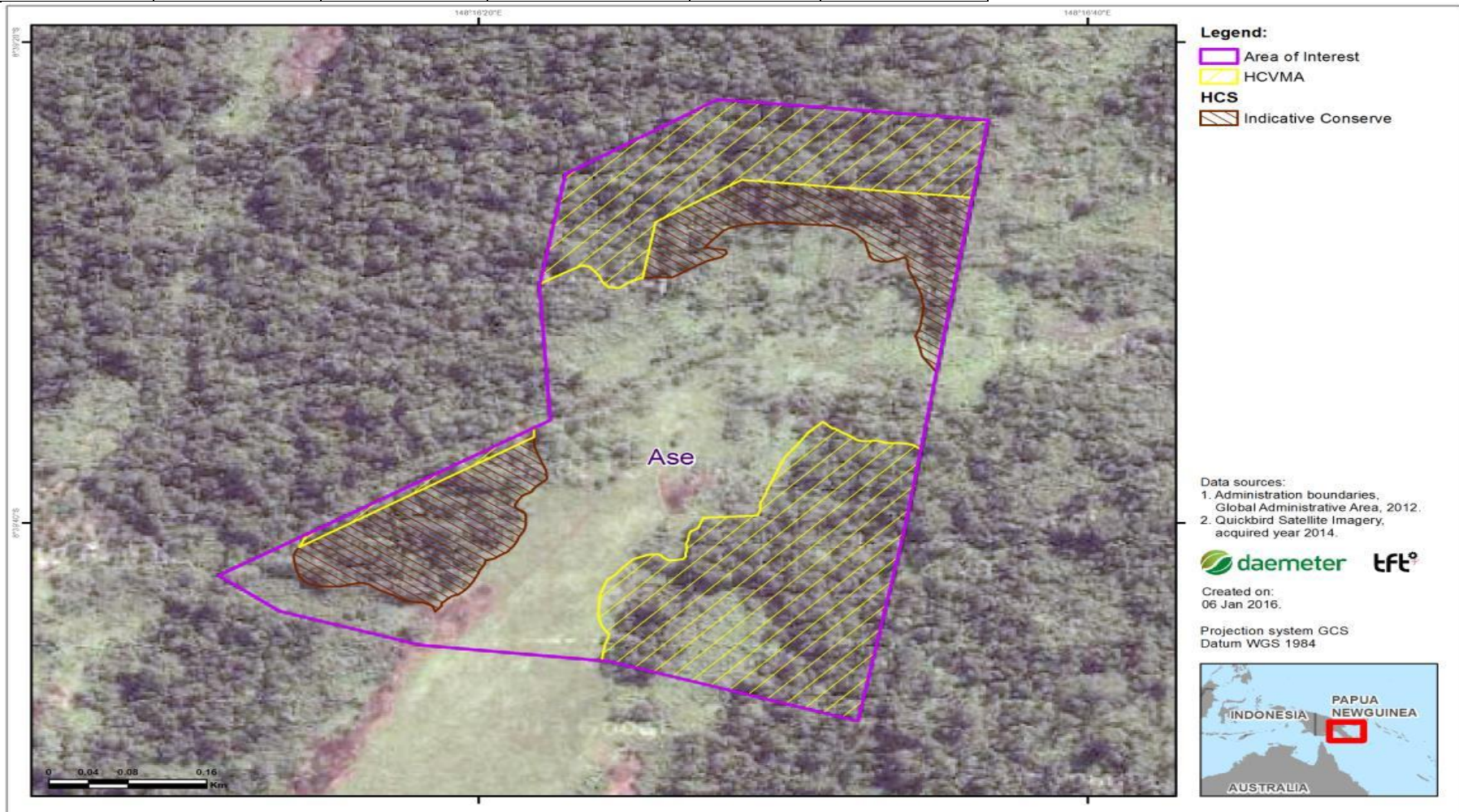


Figure 7. Ase ME HCV and HCS areas

# Bana

Table 21. Bana ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Bana	HCVMA	15.2			15.2
	Non HCVMA			43.7	43.7

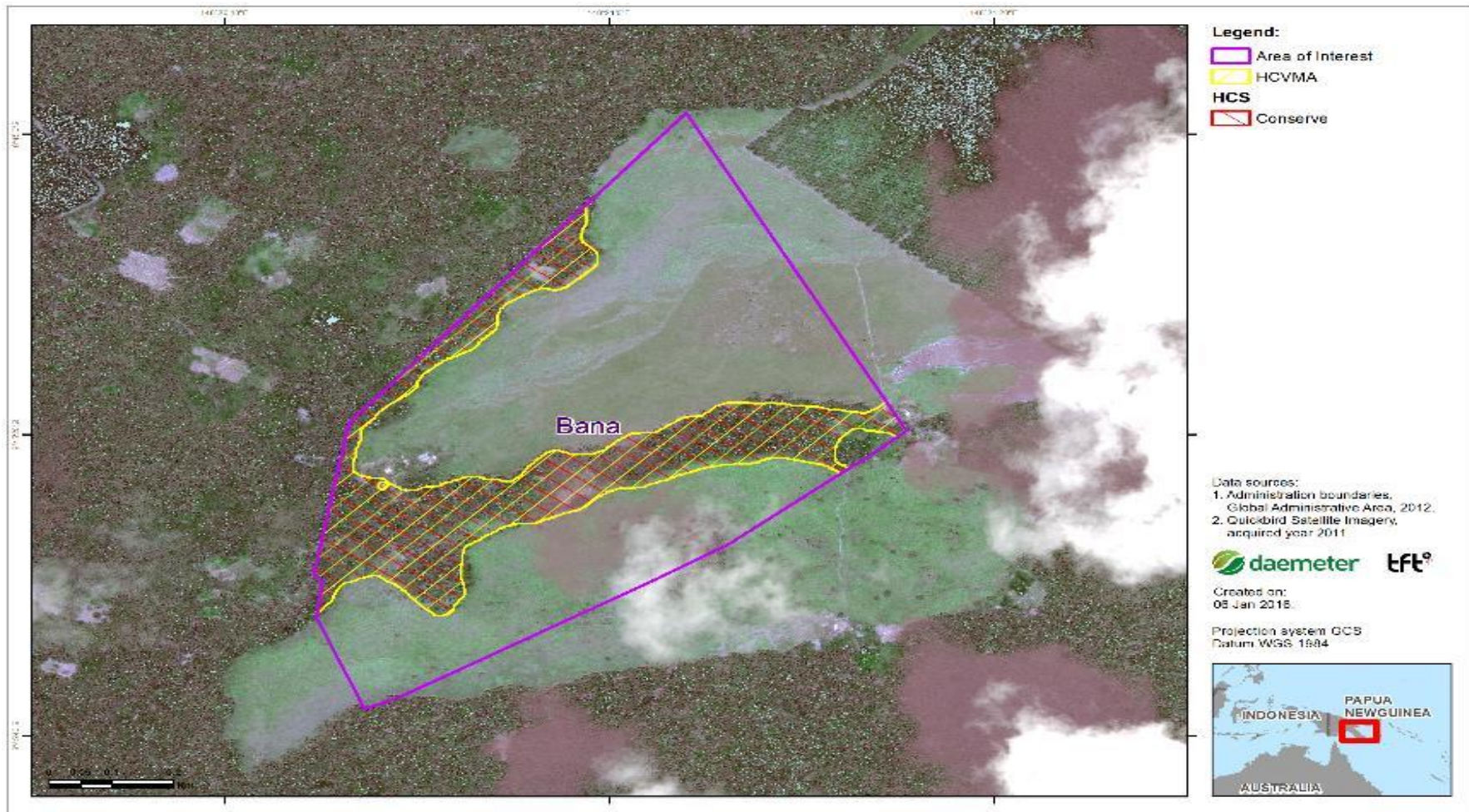


Figure 8. Bana ME HCV and HCS areas



## Biage (BBGI)

Table 22. Biage (BBGI) ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Biage	HCVMA	7.6		13.9	21.5
	Non HCVMA		5.3	321.7	321.7

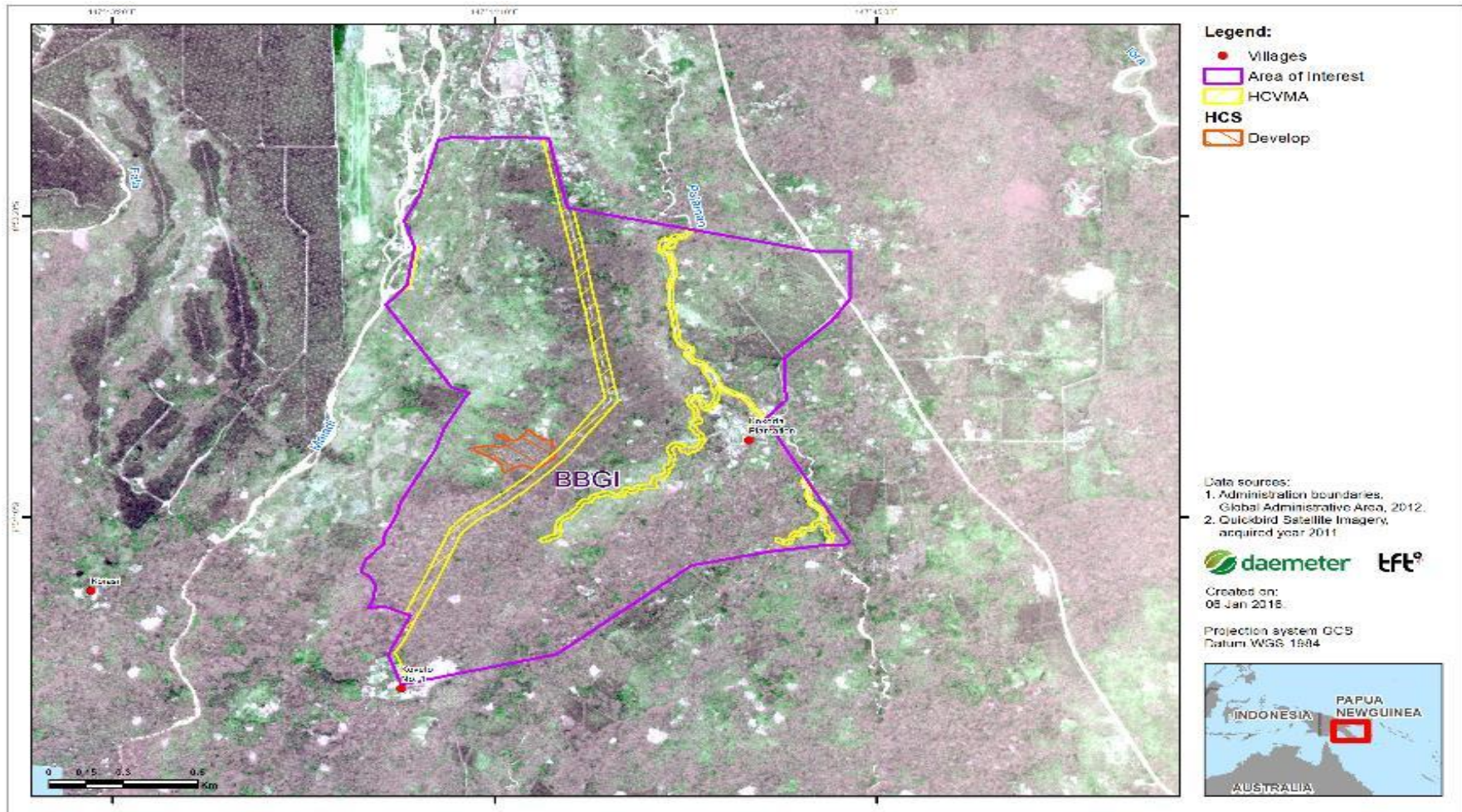


Figure 9. Biage ME HCV and HCS areas.

# Boruga Pusute

Table 23. Boruga Pusute ME HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Boruga Pusute	HCVMA				
	Non HCVMA		26.8	47.3	74.1

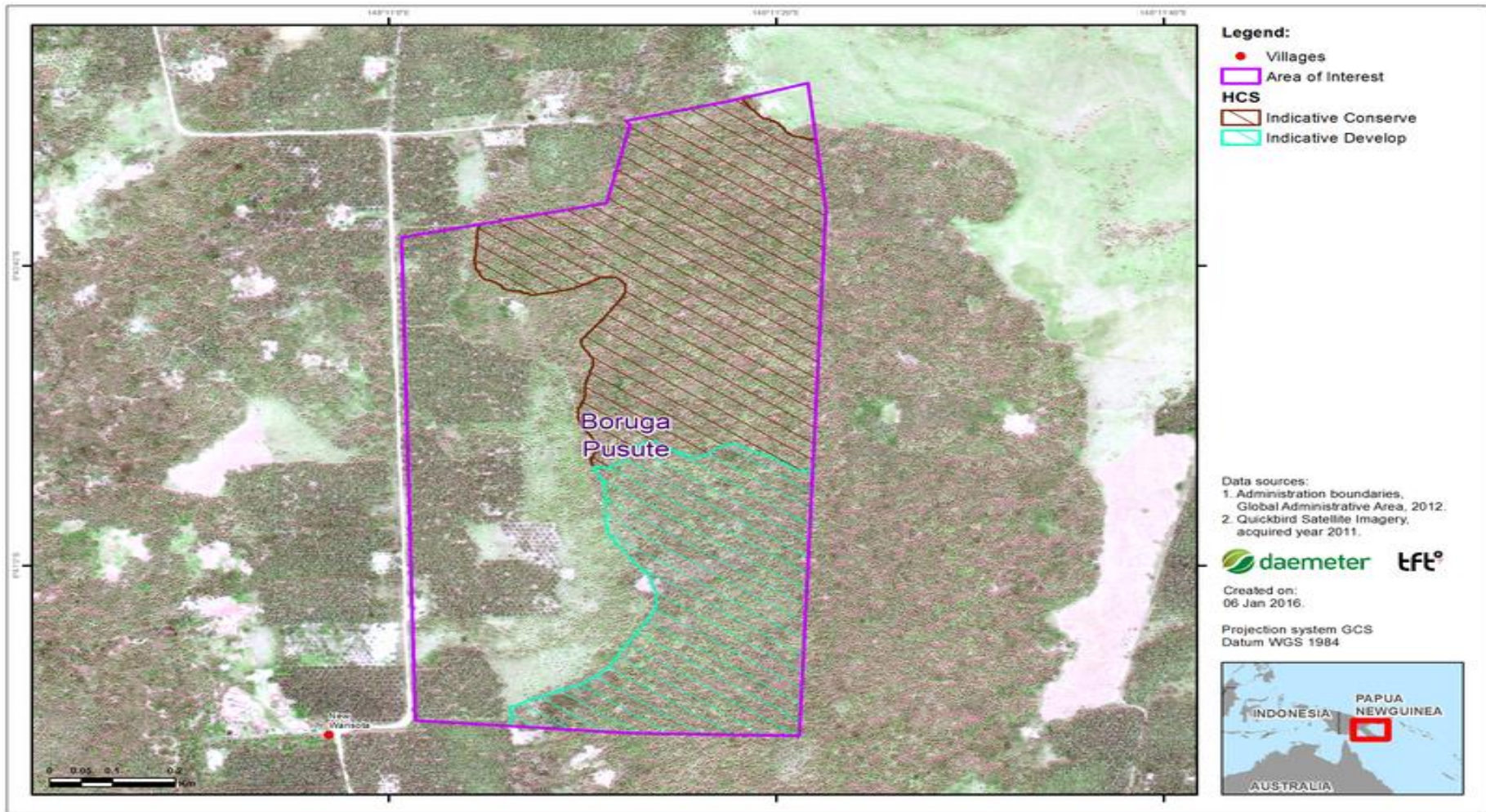


Figure 10. Boruga Pusute ME HCV and HCS areas.

# Bouga

Table 24. Bouga Me HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Bouga	HCVMA	1.4			1.4
	Non HCVMA		5.3	47.5	47.5

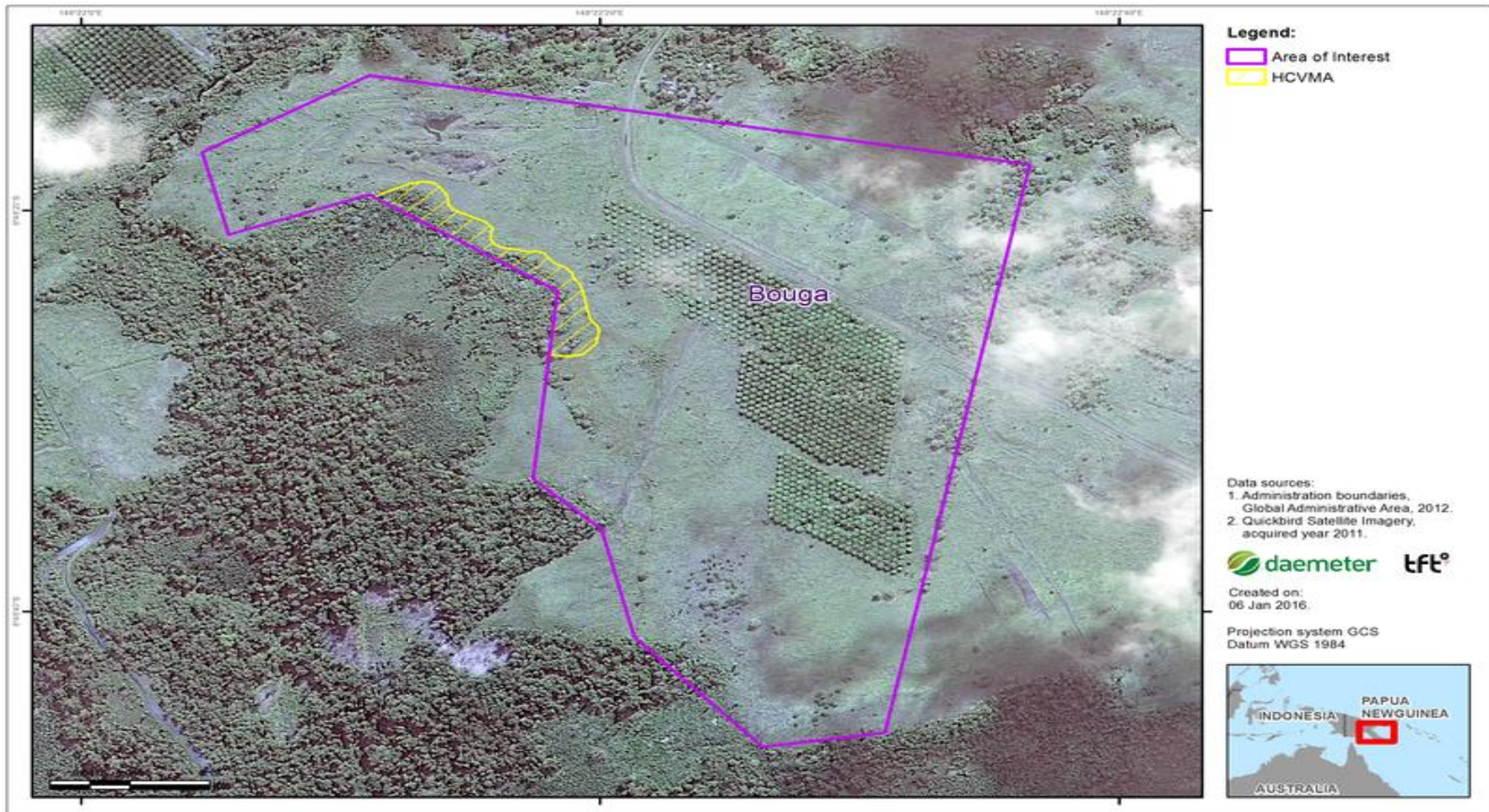


Figure 11. Bouga ME HCV and HCS areas.

# Hoemba

Table 25. Hoemba ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Hoemba	HCVMA				
	Non HCVMA			58.6	58.6

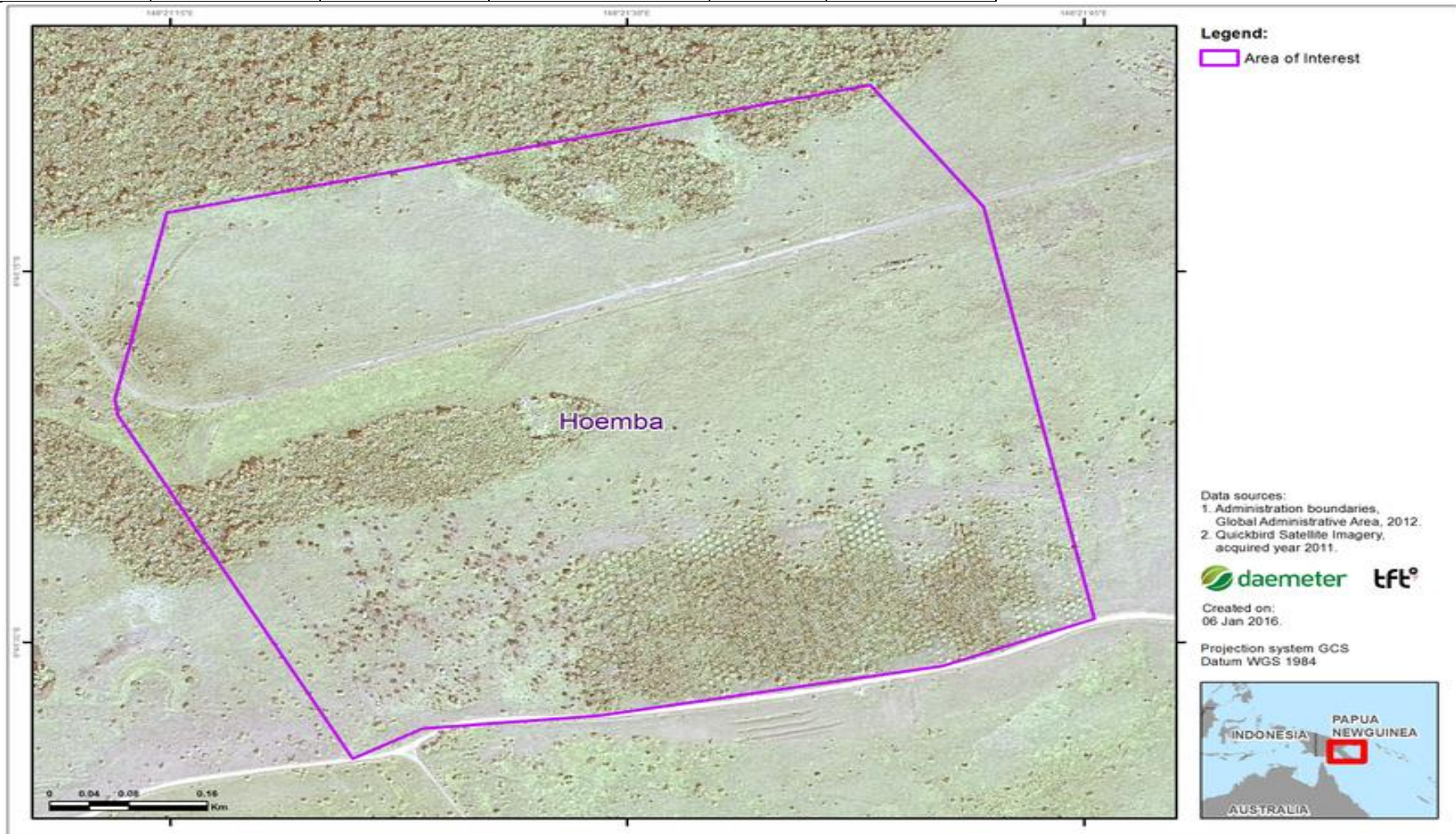


Figure 12. Hoemba ME HCV and HCS areas.

# Hoka

Table 26. Hoka Me HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Hoka	HCVMA				
	Non HCVMA			31.9	31.9



Figure 13. Hoka ME HCV and HCS areas.

# Hopanda

Table 27. Hopanda ME HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Hopanda	HCVMA			1.6	1.6
	Non HCVMA			39.4	42

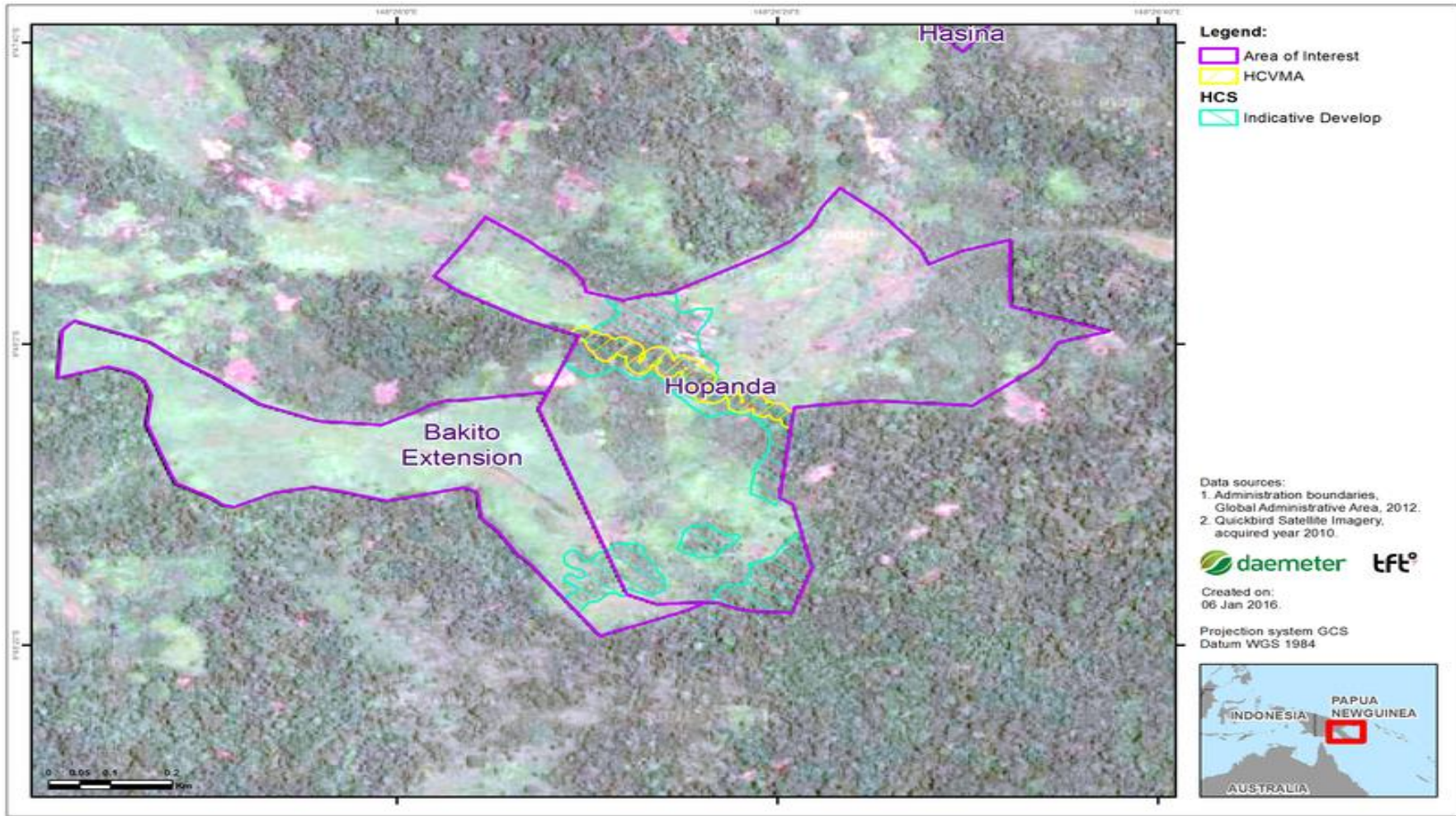


Figure 14. Hopanda ME HCV and HCS areas.

# Bakito Extension

Table 28. Bakito ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Bakito	HCVMA				
Extension	Non HCVMA			17.6	17.6

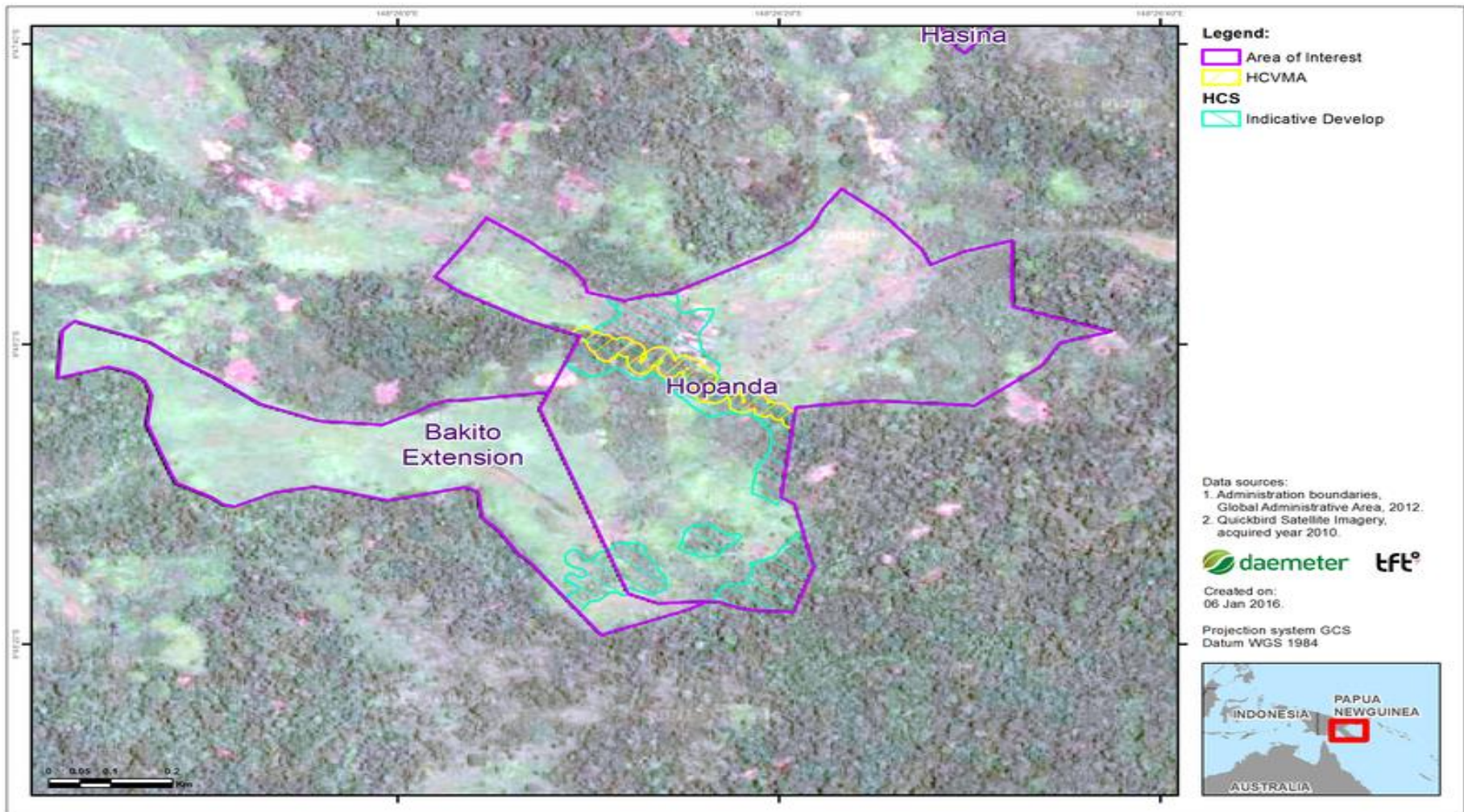


Figure 15. Bakito Extension HCV and HCS areas.

# Isatapa

Table 29. Isatapa ME HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Isatapa	HCVMA				
	Non HCVMA			40.8	40.8

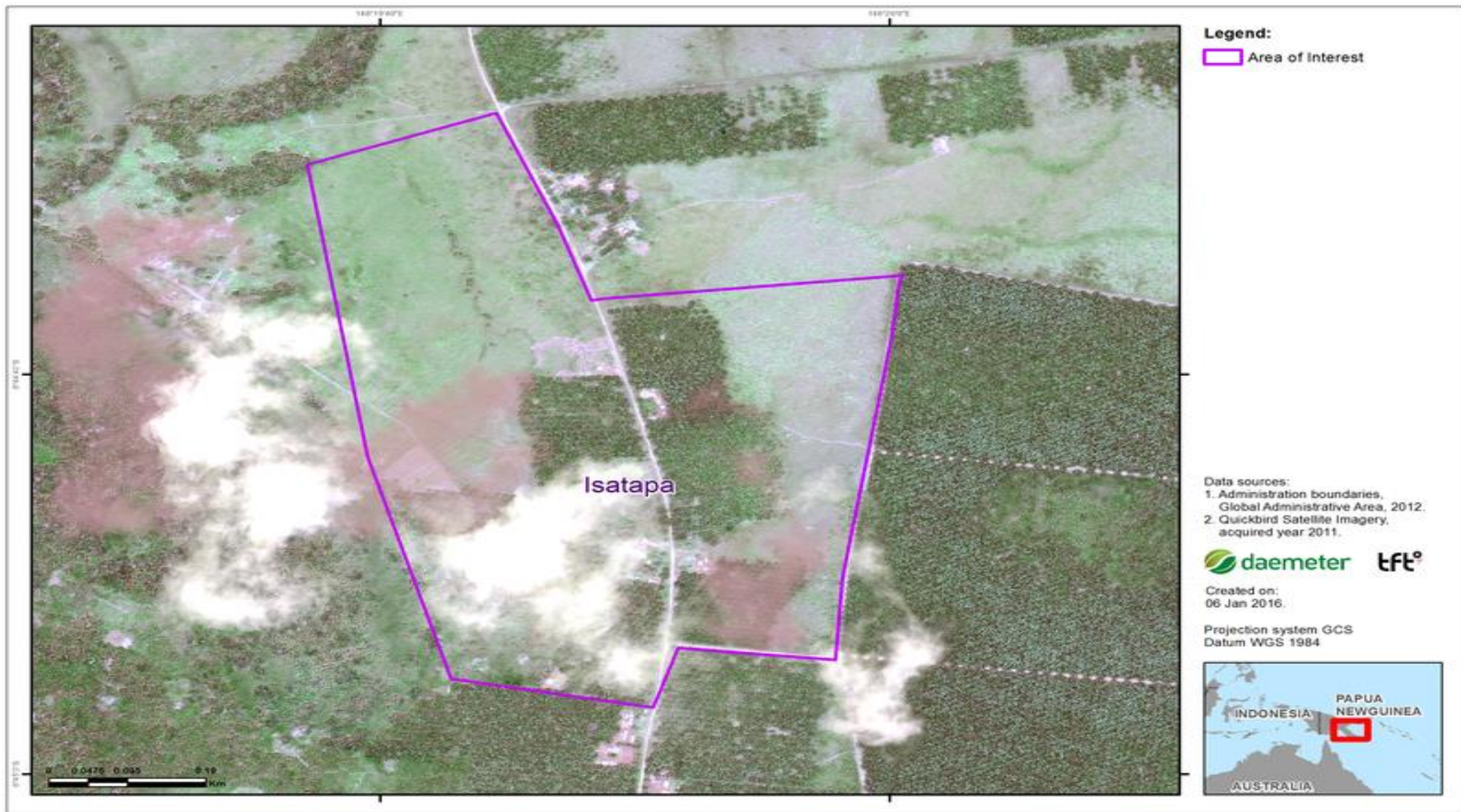


Figure 16. Isatapa ME HCV and HCS areas.



# Jireka 1

Table 30. Jireka 1 ME HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserver		
Jireka 1	HCVMA	95.1			95.1
	Non HCVMA			221.4	221.4

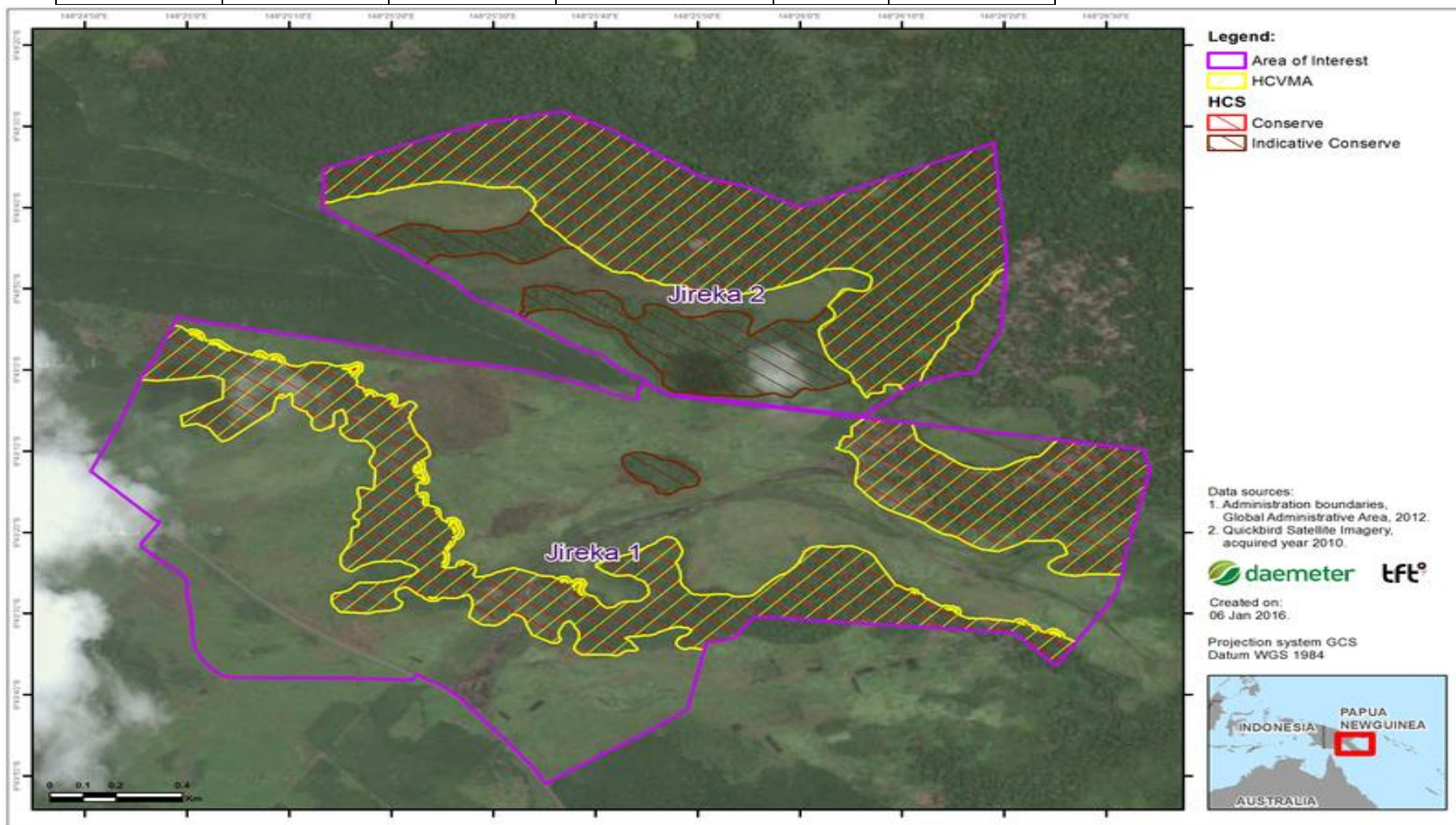


Figure 17. Jireka 1 ME HCV and HCS areas.

# Jireka 2

Table 31. Jireka 2 ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Jireka 2	HCVMA	84.6			84.6
	Non HCVMA		30.2	32.5	62.7

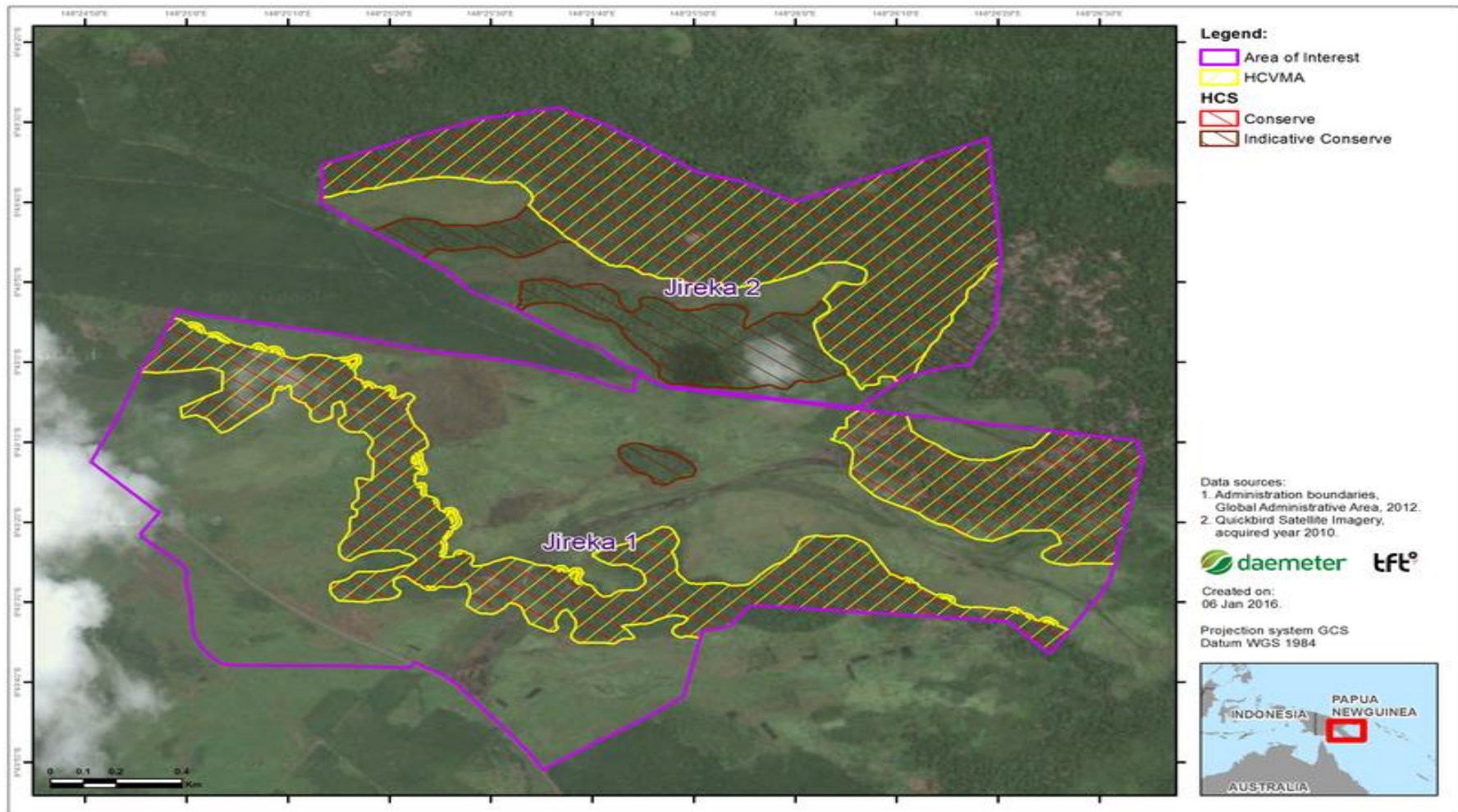


Figure 18. Jireka 2 Me HCV and HCS areas.

# Joiha

Table 32. Joiha ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Joiha	HCVMA	<0.01			<0.01
	Non HCVMA			25.2	25.2

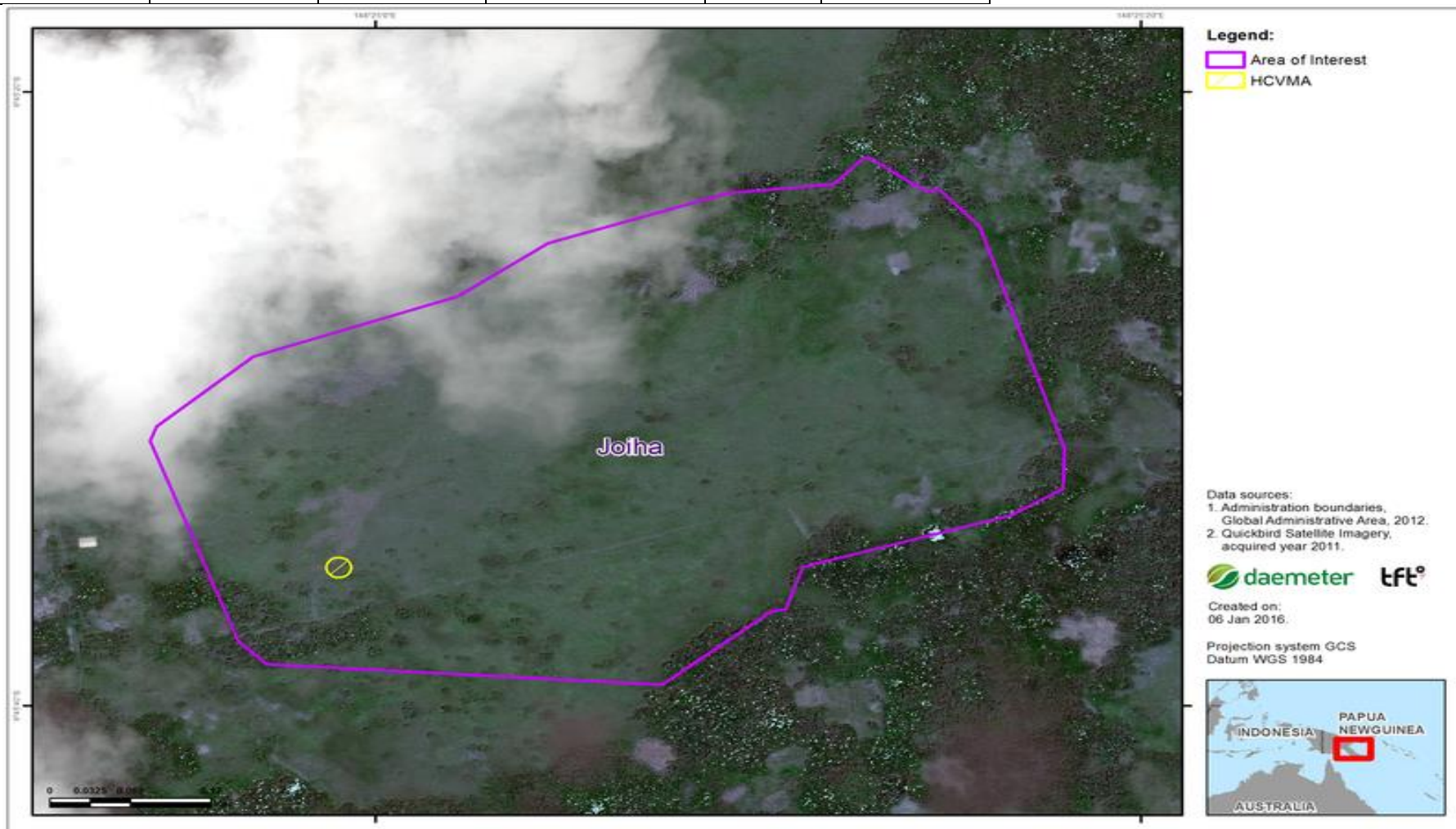


Figure 19. Joiha ME HCV and HCS areas.

# Jopare

Table 33. Jopare ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserver		
Jopare	HCVMA	0.5			0.5
	Non HCVMA			22.0	22.0



Figure 20. Jopare ME HCV and HCS areas.

# Mena Extension

Table 34. Mena Extension ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Mena Extension	HCVMA				
	Non HCVMA			22.5	22.5

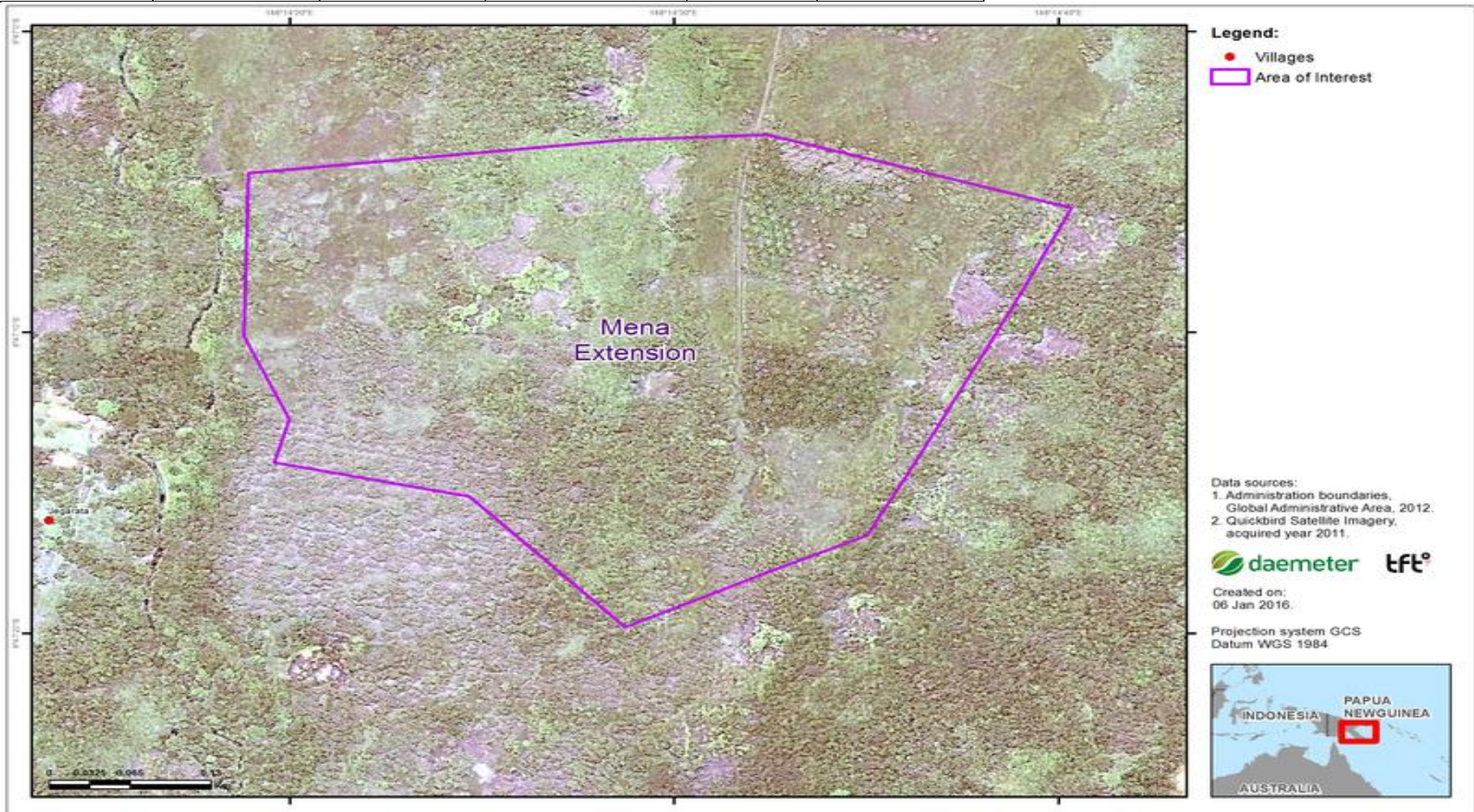


Figure 21. Mena Extension HCV and HCS areas.

# Mohamei

Table 35. Mohamei ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Mohamei	HCVMA				
	Non HCVMA			55.8	55.8

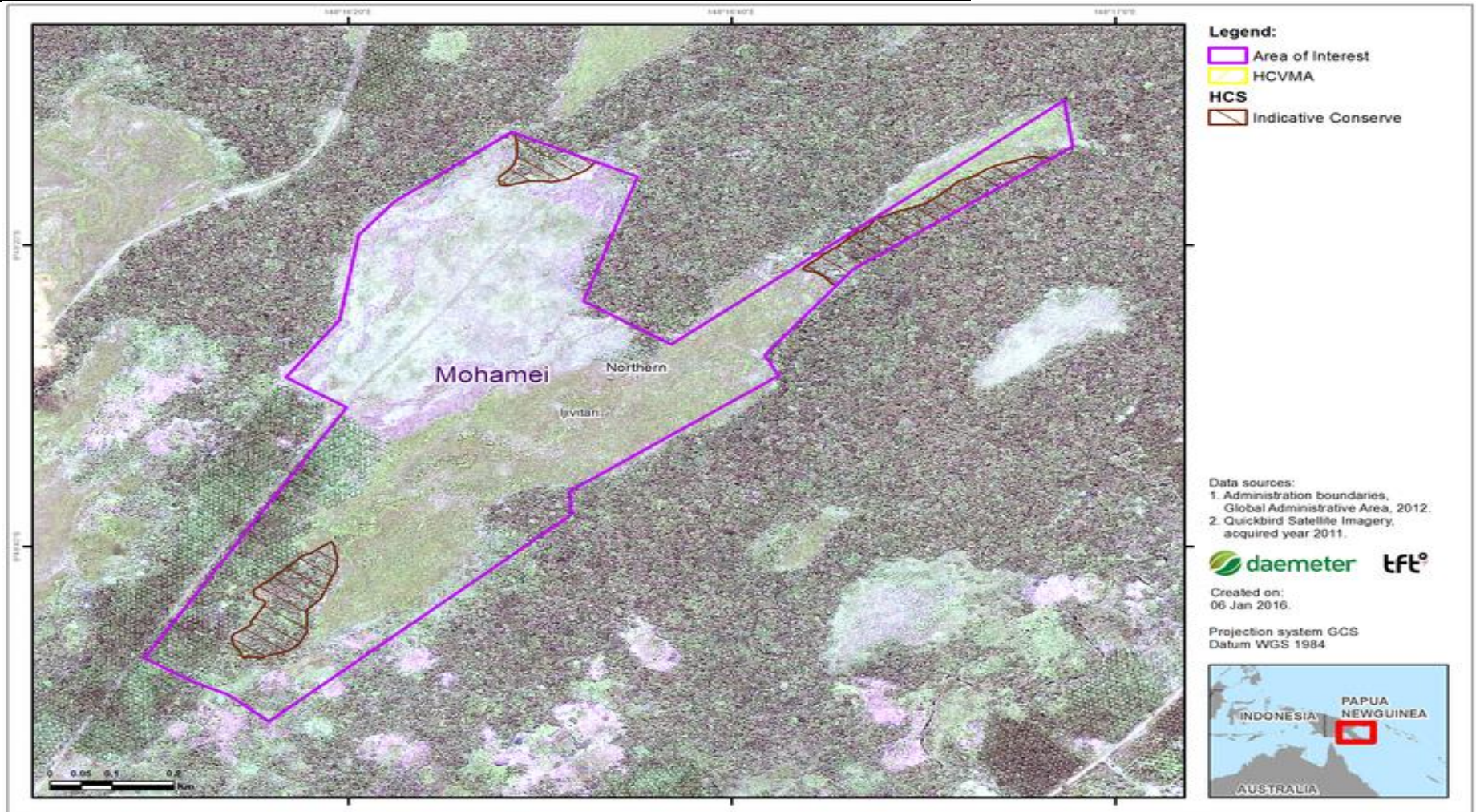


Figure 22. Mohamei Me HCV and HCS areas.

# Serembe

Table 36. Serembe Me HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Serembe	HCVMA	30.9	2.0	0.0	32.9
	Non HCVMA		71.7	321.8	393.5

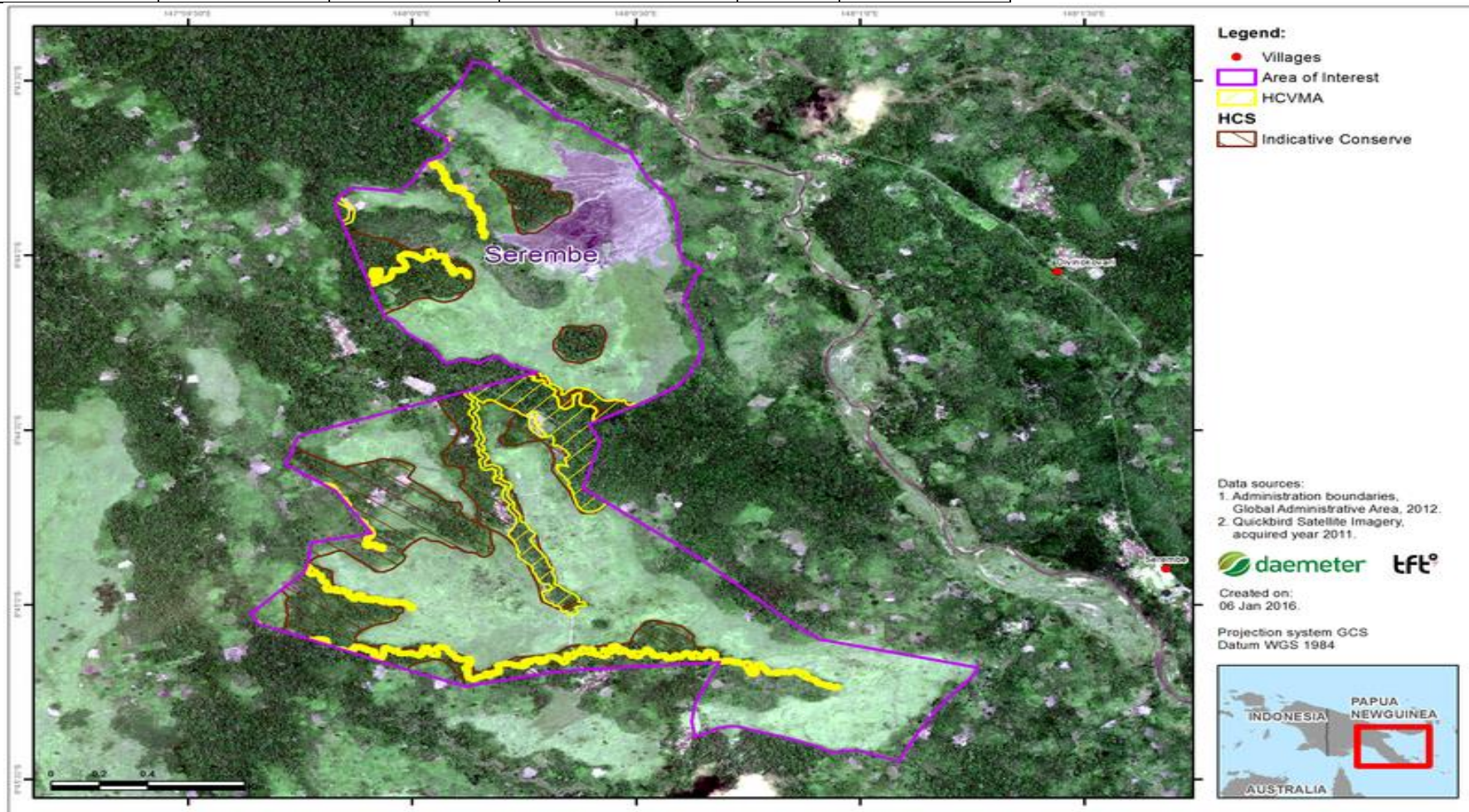


Figure 23. Serembe Me HCV and HCS areas.

# Sesehota

Table 37. Sesehota ME HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Sesehota	HCVMA			0.3	0.3
	Non HCVMA			83.7	83.7

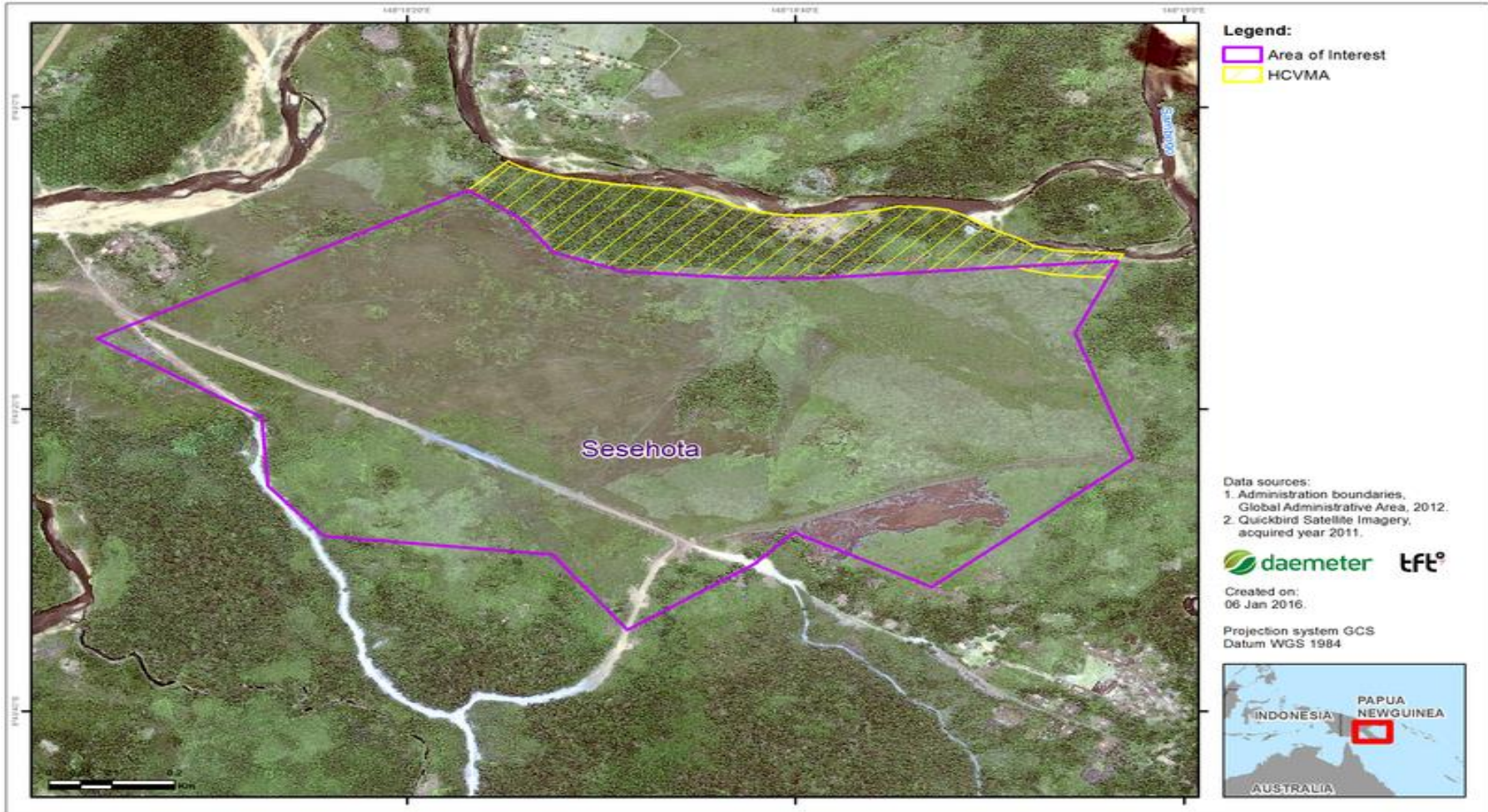


Figure 24. Sesehota Me HCV and HCS areas.



# Sigu

Table 38. Sigu ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Sigu	HCVMA				
	Non HCVMA			47.0	47.0

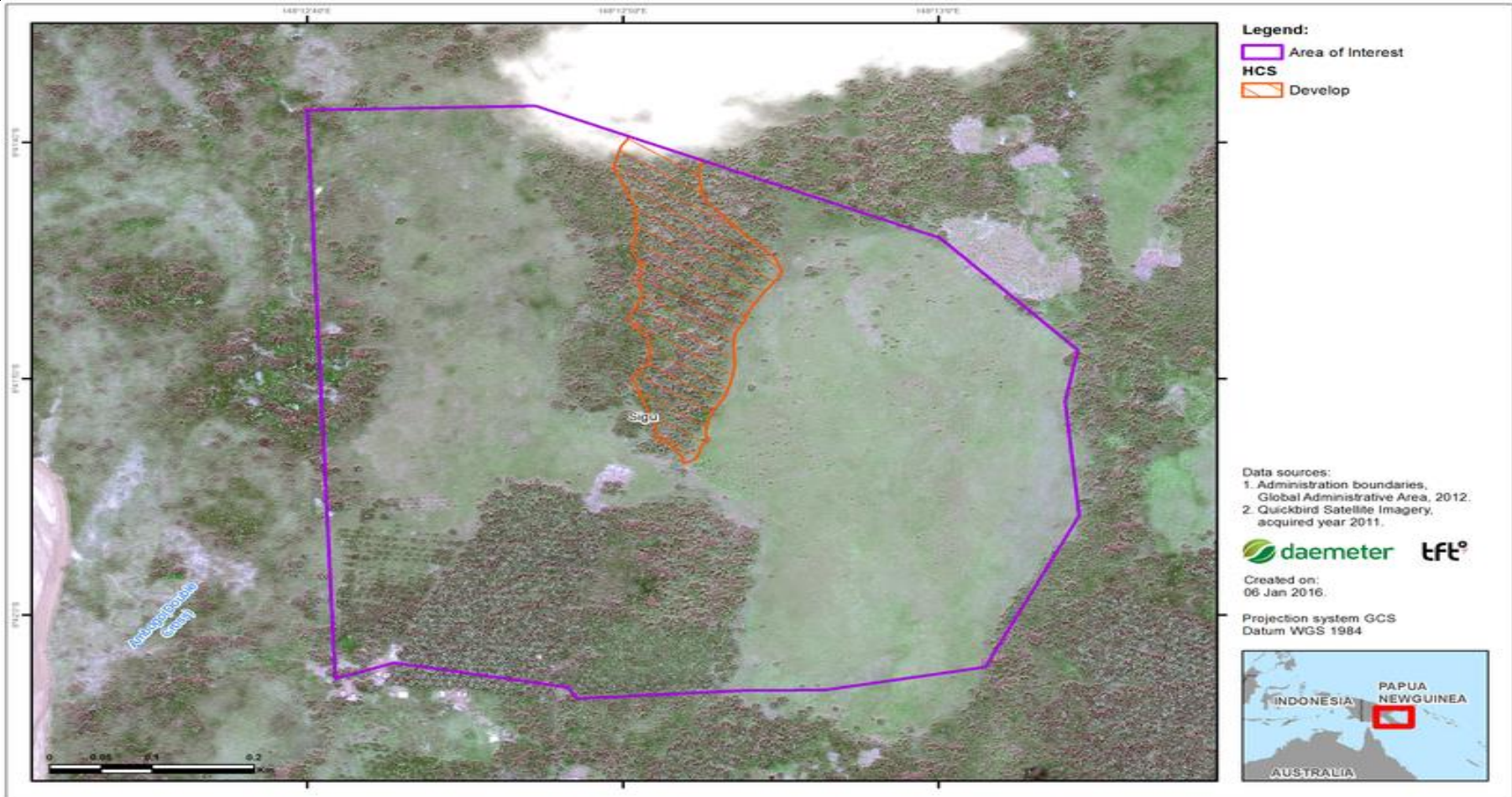


Figure 25. Sigu Me HCV and HCS areas.

# Sipari

Table 39. Sipari ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Sipari	HCVMA				
	Non HCVMA			70.4	70.4

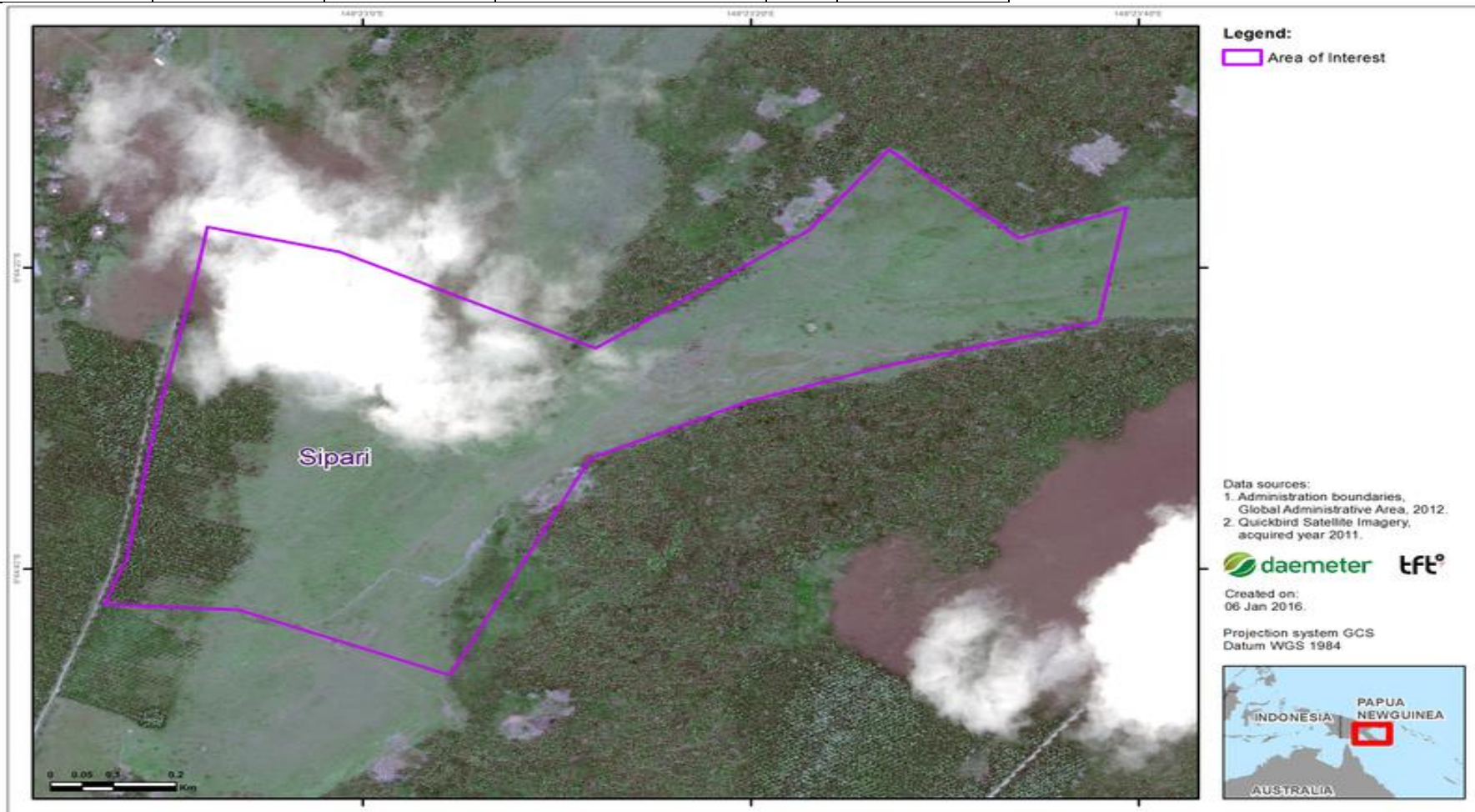


Figure 26. Sipari ME HCV and HCS areas.

# Soropa

Table 40. Soropa ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Soropa	HCVMA	179.4			179.4
	Non HCVMA			404.7	404.7



Figure 27. Soropa ME HCV and HCS areas.

# Darau

Table 41. Darau HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Darau	HCVMA				
	Non HCVMA			69.9	69.9

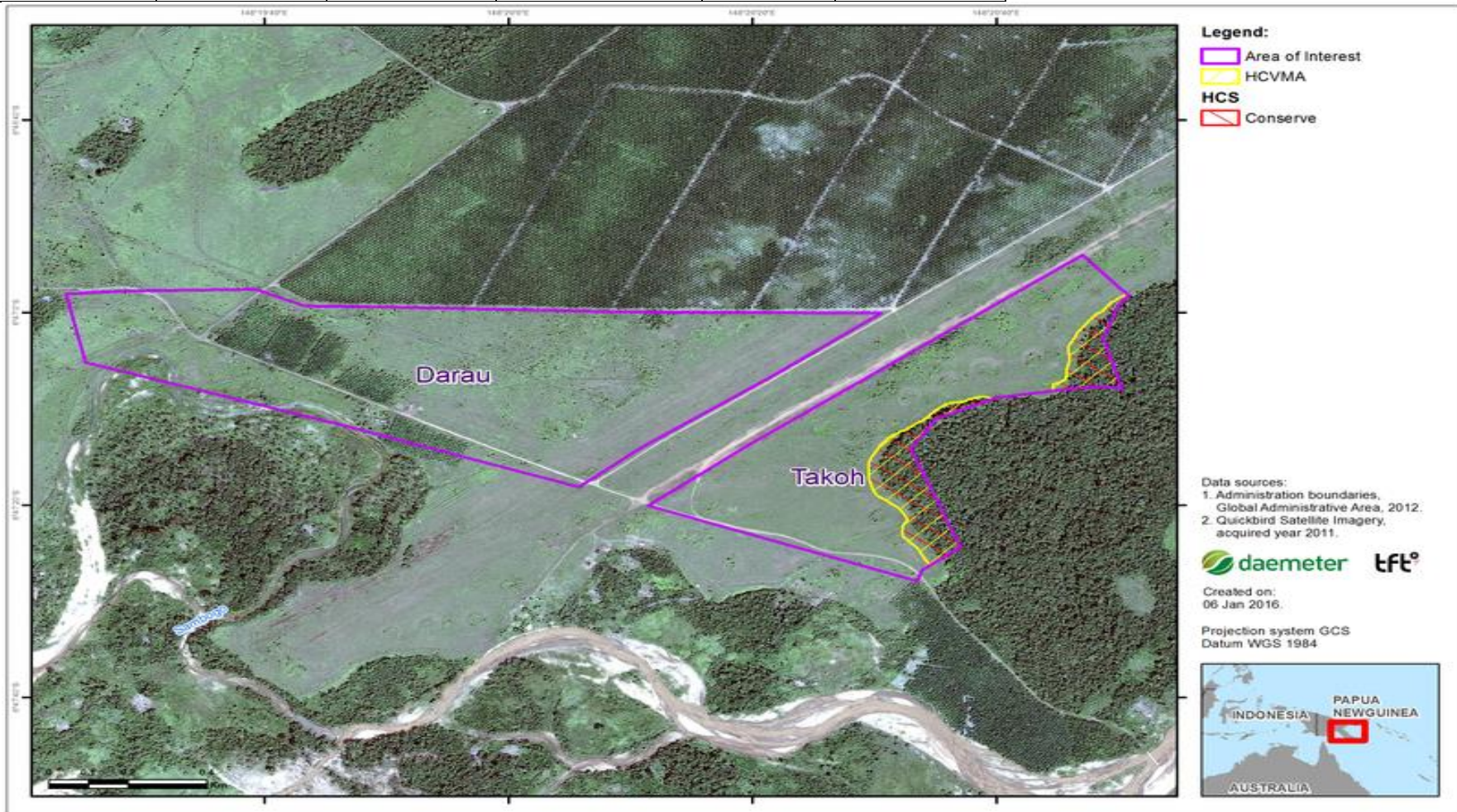


Figure 28. Darau Me HCV and HCS areas.

# Takoh

Table 42. Takoh ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve7.6	Indicative Conserve		
Takoh	HCVMA	7.6			7.6
	Non HCVMA			35.7	43

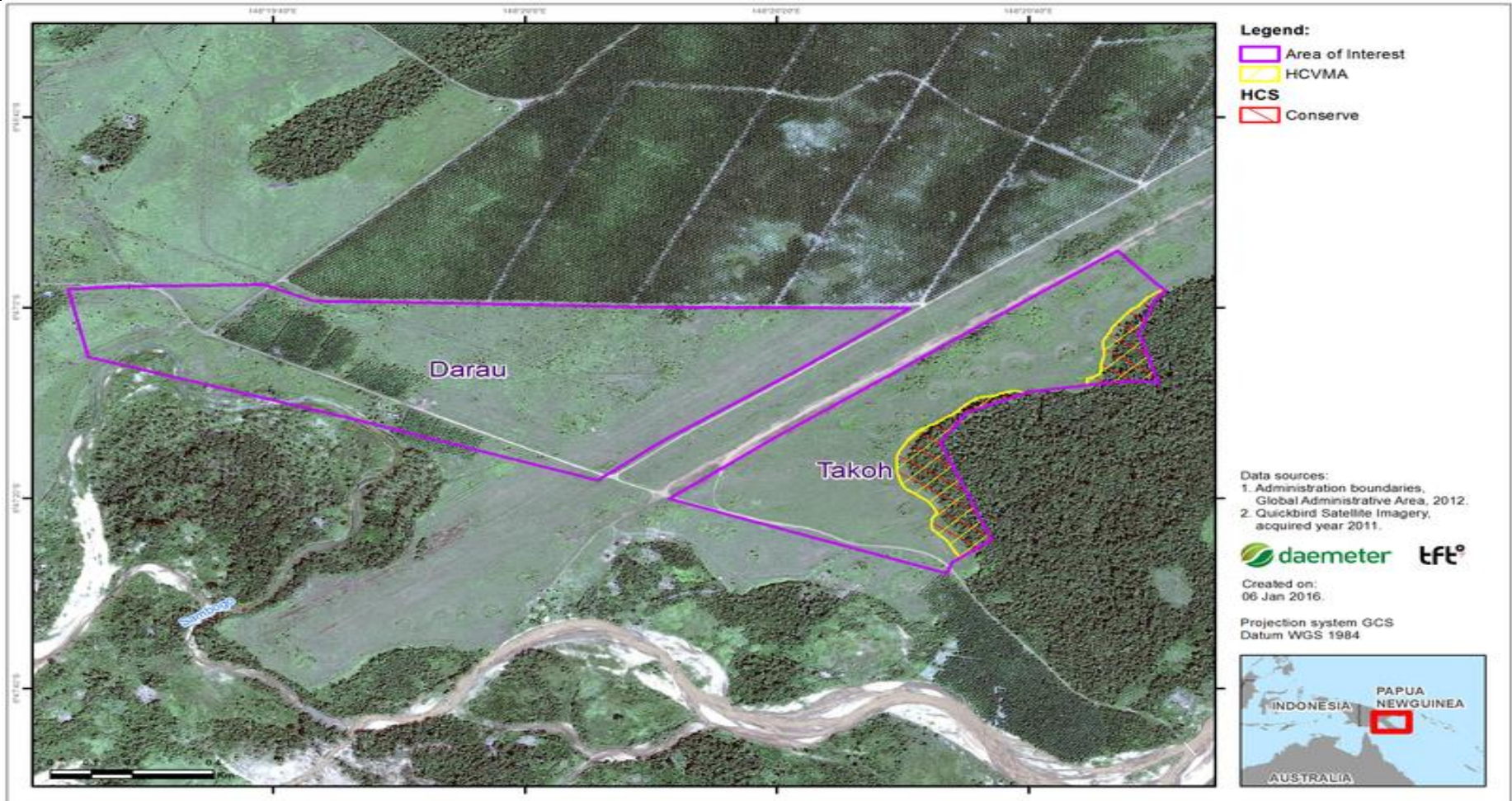


Figure 29. Takoh ME HCV and HCS areas.

# UDK Extension

Table 43. UDK Extension ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
UDK Extension	HCVMA				
	Non HCVMA			22.7	22.7



Figure 30. UDK ME HCV and HCS areas.

# Sauma

Table 44. Sauma ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Sauma	HCVMA				
	Non HCVMA			22.6	22.6



Figure 31. Sauma ME HCV and HCS areas.

# Hasina

Table 45. Hasina ME HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Hasina	HCVMA				
	NonHCVMA			129.87	129.8



Figure 32. Hasina ME HCV and HCS areas.



# Ufenapa

Table 46. Ufenapa ME HCV and HCS Area Summary (ha)

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Ufenapa	HCVMA	14.0			14.0
	Non HCVMA		13.5	96.4	109.9

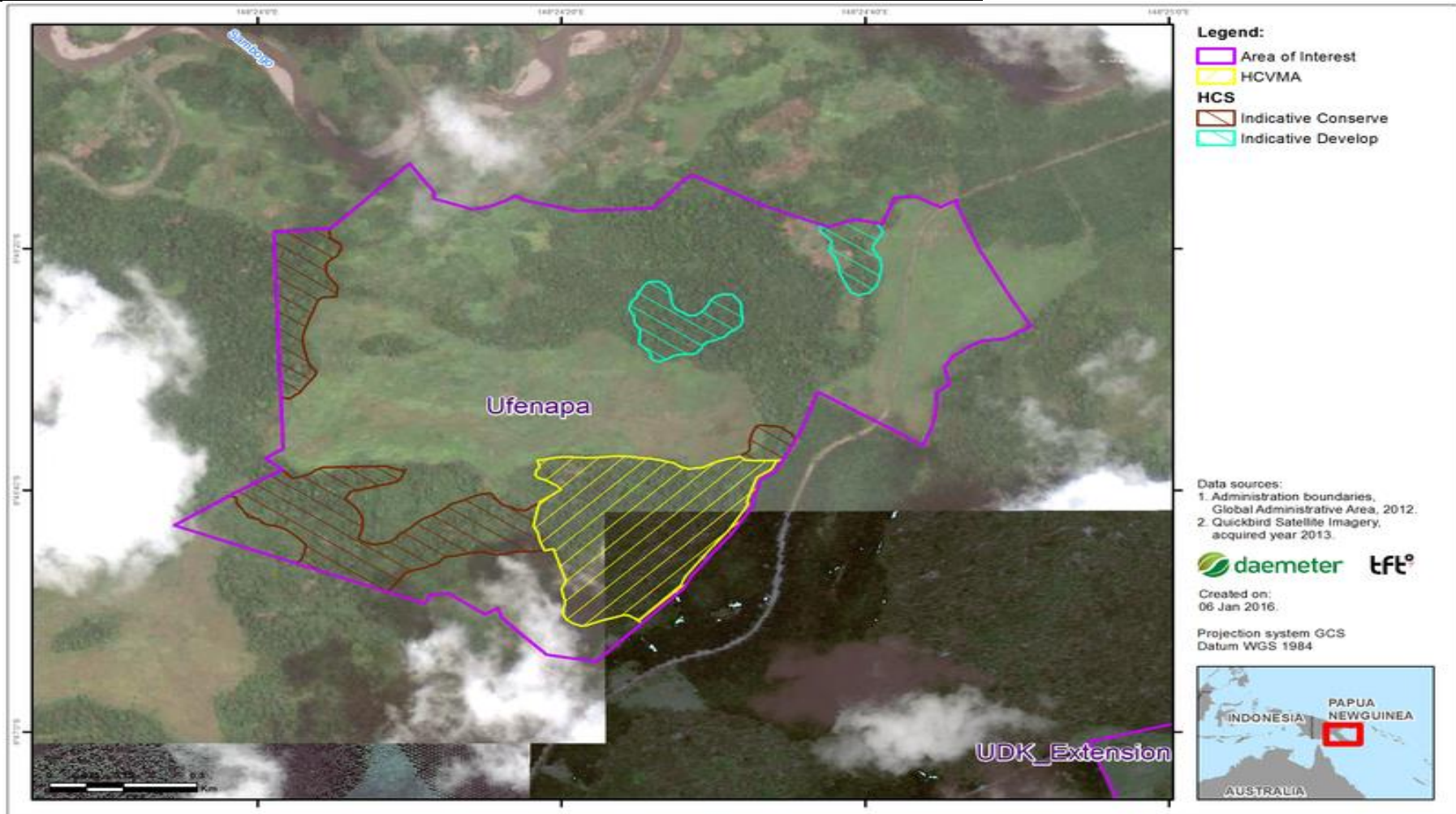


Figure 33. Ufenapa ME HCV and HCS areas.

# Wuria Purofafa

Table 47. Wuria Purofafa ME Block 1 & 2 HCV and HCS Area Summary (ha).

Site Name	HCVMA	HCS		Non HCS	Grand Total
		Conserve	Indicative Conserve		
Wuria Puro fafa (block 1 & 2)	HCVMA	15.3		0.9	15.2
	Non HCVMA	0.2	1.1	84.8	86.1

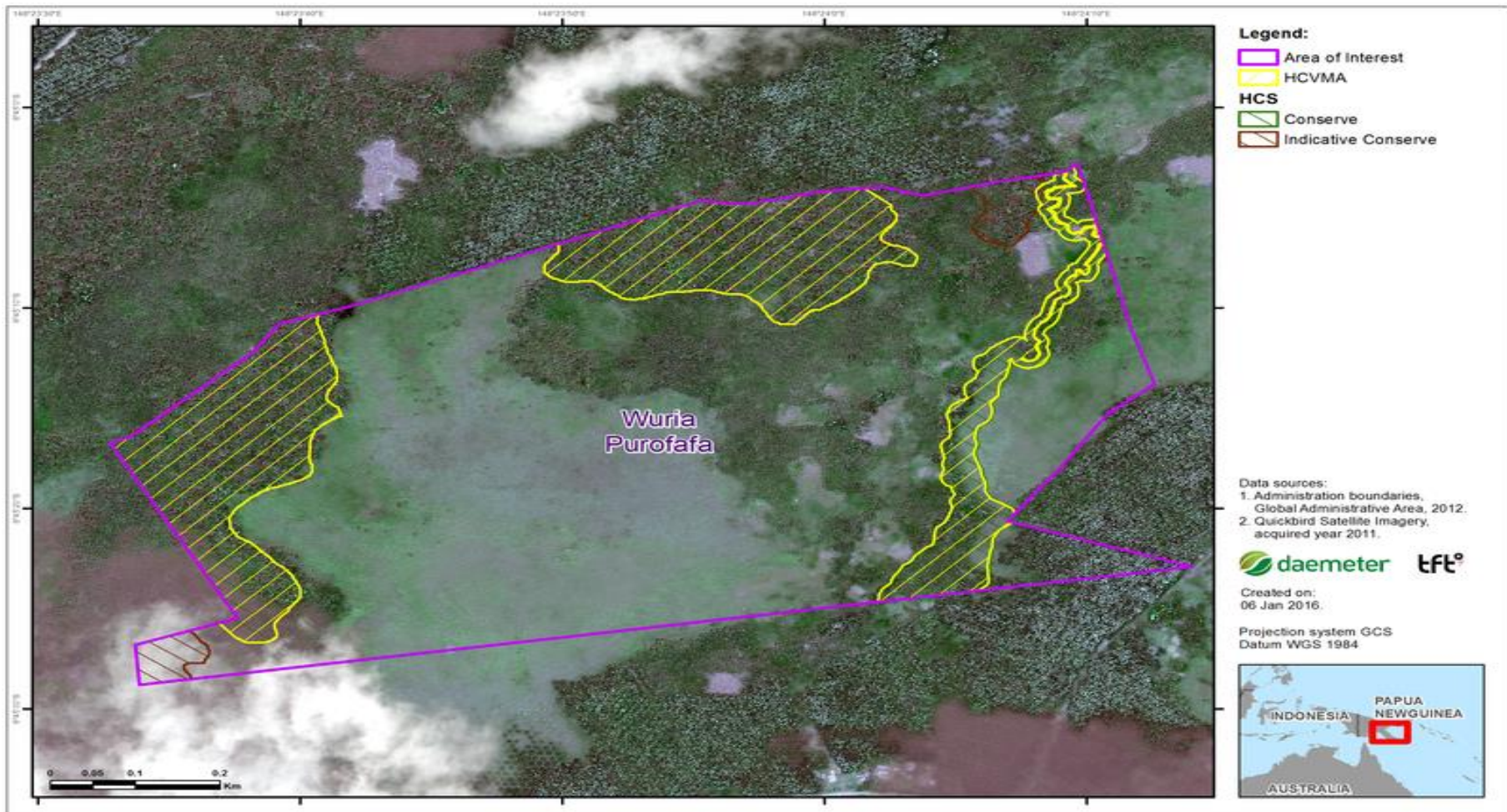


Figure 34. Wuria Purofafa ME Block 1 HCV and HCS areas.

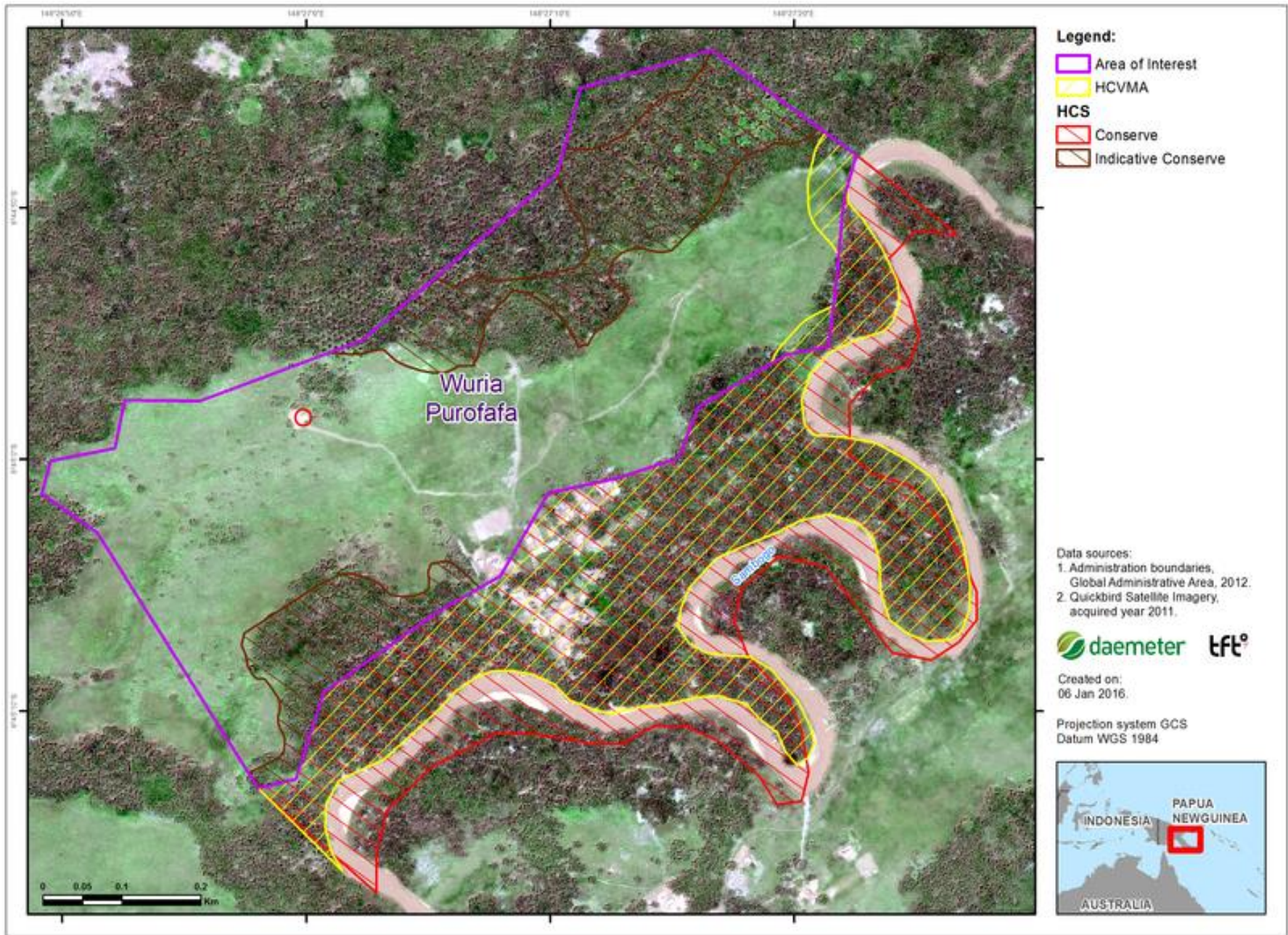


Figure 35. Wuria Purofafa ME Block 2 HCV and HCVMA areas.

### 3.0 Summary of Management Recommendations:

#### 3.1 HCV and HCS Management Recommendations.

All areas which are indicated in tables 15 and 16 are included in maps listed above under sections 2.2 and 2.3 of HCV & HCS and also contained in the public summary report titled “Public Summary Report SEIA HCV and HCS Assessments Carried Out By New Britain Limited At Higaturu Oil Palm (HOP) Popondetta, Oro Province, Papua New Guinea” which is part of the overall RSPO NPP report to be submitted together with this report. These maps are to be utilized as part of simple management plans guiding the demarcation of these areas prior to planting and the continued protection of these areas during the management of the oil palm estate. The management plan should include the following recommendations relating to management of HCV and HCS areas are:

1. With landowning communities reconfirm the HCV, HCS areas consulted and agreed on including areas marked as “Indicative Conserve”
2. Agree on how HCV-HCS areas are used, including no clearing, limited tree felling and firewood collection, no burning, limited Non Timber Forest Products collection.
3. Agree rentals and contract conditions of protecting HCV-HCS areas including management requirements Ensure that enforcement of infringements are clearly communicated and that meeting records to prove this are kept. For effective enforcement it is recommended to retain rentals of HCV and HCS areas until the infringement is addressed.
4. Demarcate boundaries of HCS/HCV areas:
  - a. Prior to land clearing - using flagging tape so that all boundaries can be seen by the land clearing operator. Land clearing operators should be given instructions that they should ignore the communities’ requests to clear HCVMA. Ensure all contractors are properly inducted, trained and monitored to ensure these areas are respected and that any felling is done away from the areas demarcated for protection.
  - b. After land clearing – using signs at appropriate intervals. Carry out quarterly patrols of all HCV/HCS boundaries to assess infringements or destruction of signage. Ensure inspection records are kept as auditable proof of this. Any incident must be reported on an incident form and follow up correct and preventive action must be documented.
5. Ensure enforcement, by NBPOL, but with community collaboration, of the following. This would include agreements to:
  - a. Stop burning / clearing for gardens in the HCV area.
  - b. Stop harvesting timber from the HCV area.
  - c. Limit collection of NTFPs including fire wood
6. Collaborate with local communities to establish and maintain riparian buffers – this involves planting trees of nutritional value to the community in the riparian areas For areas near to other natural forest natural regeneration can be relied on to re-established cleared areas.
7. Maintain or improve water quality in all rivers in the area of operations through limiting the maintaining riparian strips.
8. Final integrated HCV-HCS areas are socialized with the communities to develop a final Land Use Plan with prescribed management and monitoring responsibilities of the company and communities, including;
  - Map community lands outside of the proposed block boundaries, including predicted change in needs/livelihoods and forest area uses (e.g. new garden establishment)
  - Agree on company and community management actions of the identified or likely HCS-HCV area outside of the proposed blocks on community land

- Develop and agree a company monitoring procedure, including quarterly surveys of HCV-HCS areas on the ground and using satellites, annual community/household surveys on livelihoods and forest use
- Agree with the community monitoring of biodiversity, such as of QABB sightings

The above recommendations are summarized in table 48 below under section 4.1 which shall be utilized to generate simple management plans and monitoring tools for each HOP estate to implement and for the HOP sustainability department to monitor the implementation of. It is highly recommended that local NGO's are utilized to carry out key aspects of this work to enable engagement with local communities and civil society in general.

### **3.2 SEIA Management Recommendations.**

The SEIA has found that all the proposed areas are undergoing FPIC satisfactorily. . Once the NPP study has been accepted, steps will be taken in order to legally develop these lands under oil palm. There are no current disputes and if we find there is dispute over the land we will not develop. HOP under these ME's will manage the development maintenance and production of the planted area. There is no purchase of the land, but local customary landowners will register their land under the PNG ILG (amendment) Act 2009 or other legal mechanism which does not result in the land being alienated from the customary landowners. Upon getting the land lease title, will enter into a sub-lease agreement with HOP to develop and maintain their land in return for financial gains and other social benefits as agreed to under the lease agreement.

As a result of the SEIA the following recommendations were made with regards to mitigating potential environmental impacts.

- Conduct RSPO awareness in all ILG'S
- Ensure Buffer zones are clearly marked and left intact
- Enrich species diversity in the buffer zones
- Include cultivation of QABB vines in Buffer Zones
- Carry out water quality monitoring prior to site preparation
- Ensure proper disposal of all waste generated.

There were also recommendations with regards to potential socio-economic aspects.

- Undertake full genealogy study of members of land owning clan
- Conduct base line household socio-economic survey of each community
- Verify that all clan members are kept informed of agreement negotiations (FPIC).
- Determine how clan members with VOP blocks on proposed ME will be handled
- Evaluate increases in land rental and FFB royalty rates would improve socio-economic welfare within the ILG communities
- Ensure all members of each ILG understand the agreement prior to signing.
- Ensure priority for employment and contracts is given to the ILG community
- Investigate means of improving living conditions
- Arrange project planning and financial management training for ILG's
- Organise training and awareness on budgeting and saving
- Organise awareness sessions on alcohol and substance abuse as well as HIV for ILG and nearby communities
- Promote sporting activities within ILG and nearby communities

HOP is aware about the FPIC and transparency in relation to dealings with customary landowners and has incorporated this in its procedures.

The communities are represented by ILGs and also Local Administrators. Also the communities have given their consent based on a full understanding of the matter/proposal and sufficient information is provided.

Each ILG has appointed a spokesperson to address these issues and to discuss on behalf of the ILG.

All documents are in English (the official language of PNG) but can be translated into local languages as necessary.

#### 4.0 SUMMARY OF PLANS:

#### 4.1 HCV & HCS Management and Mitigation Plans

Table 48. HCV & HCS Management and mitigation Plans.

HCV	Threat	Management Recommendation	Monitoring Recommendation
1	<ul style="list-style-type: none"> <li>• Conversion of forest areas to agriculture.</li> <li>• Increased extraction of logs to meet demand from the ply mill &amp; sawmill</li> </ul>	<ul style="list-style-type: none"> <li>• Agreement on forest boundaries with clans and demarcation of all HCV areas, including boundaries adjacent to future palms and within existing forest</li> <li>• Agreement on use of forest areas by clans (e.g. no clearing for agriculture, limited firewood extraction, but no tree felling allowed)</li> <li>• Propagation of Pararistolochia vine NBPOL support for adjacent QABB conservation areas.</li> <li>• Communication and awareness on the importance of maintaining HCVs.</li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly surveys of all HCVs to check for incursions of gardening or logging.</li> <li>• Surveys include mapping of any further clearing and restoration activities within HCVMA. This should include Landsat image interpretation as well as in-field GPSing of boundaries.</li> <li>• Monitoring amounts of Pararistolochia vines planted and surviving</li> <li>• Annual QABB survey in sample HCVMA. Annual Community surveys in sample HCVMA to monitor trend in hunting effort and success</li> <li>• Use of Monitoring Results to adapt management recommendations in the future</li> </ul>
3	<ul style="list-style-type: none"> <li>• Conversion of forest areas to agriculture.</li> <li>• Increased extraction of logs to meet demand from the ply mill &amp; sawmill</li> </ul>	<ul style="list-style-type: none"> <li>• Agreement on forest boundaries with clans and demarcation of forest areas.</li> <li>• Agreement on use of forest areas by clans (e.g. no clearing for agriculture, limited timber extraction)</li> </ul>	<ul style="list-style-type: none"> <li>• As above: Mapping of any further clearing and restoration activities within HCVMA</li> <li>• Use of Monitoring Results to adapt management recommendations in future</li> </ul>
4	<ul style="list-style-type: none"> <li>• Burning to assist agricultural development within the riparian buffer strip.</li> <li>• Lack of awareness by company employees</li> </ul>	<ul style="list-style-type: none"> <li>• Demarcate boundaries of HCV areas. HCV areas marked on NBPOL operational maps.</li> <li>• Maintain and establish riparian buffers – this involves: <ul style="list-style-type: none"> <li>○ Planting trees of value to the</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Quarterly monitoring of riparian buffer condition</li> <li>• Use of adaptive management to evaluate and adjust management and monitoring activities as necessary.</li> </ul>

HCV	Threat	Management Recommendation	Monitoring Recommendation
	<p>and contractors about HCV 4, particularly small river riparian buffers and mismanagement of high risk activities within buffer areas (e.g. building roads through riparian areas).</p> <ul style="list-style-type: none"> <li>• People constructing huts and living (permanently or temporarily) and farming animals.</li> </ul>	<p>community in degraded riparian areas. Tree species to be planted should be selected in consultation with the community to ensure they obtain benefit from these species.</p> <ul style="list-style-type: none"> <li>○ Ensuring forest cover is maintained (e.g. Wuria Purofafa)</li> <li>• Agreeing with the community on allowable use of vegetation in riparian areas (e.g. sak-sak)</li> </ul>	
5	<ul style="list-style-type: none"> <li>• Continued agricultural expansion putting increased pressure on forest areas.</li> <li>• Degradation of water quality and fish stocks</li> </ul>	<ul style="list-style-type: none"> <li>• Agreement with clans on permissible levels of resource extraction from forest areas.</li> <li>• Agreement on “no clearing” (e.g. for gardens) within forest areas within the lease.</li> <li>• Agreed enforcement protocol of holding back rental payments for transgressions found in inspections</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring recommendations for HCV 1 &amp; 4 will overlap with HCV 5 and are not repeated.</li> </ul>
6	<ul style="list-style-type: none"> <li>• Accidental clearing of cemeteries and other cultural sites (e.g. WW2 historical sites) by NBPOL staff.</li> </ul>	<ul style="list-style-type: none"> <li>• Demarcation in the field prior to land clearing and planting.</li> <li>• Demarcation on operational maps.</li> <li>• Documentation of cultural and historical values</li> <li>• Interpretation of cultural and historical values e.g. putting up signage on site and training of interpretive guides</li> </ul>	<ul style="list-style-type: none"> <li>• Checks to make sure enclaved areas are still clearly delineated.</li> </ul>

## 4.2 SEIA Management and Mitigation Plans

The monitoring and management actions laid out in Table 14 in section 2.1 above are aimed at mitigating negative environmental and socio-economic impacts and maximising positive outcomes. The successful implementation of these actions requires the support and close oversight of HOP management. The main actions have therefore been reiterated below as critical management measures for consideration and execution by HOP management.

- Management of potential environmental impacts
  - Conduct RSPO awareness in each intending ILG community.
  - Make sure all buffer zones are clearly marked and left intact for the duration of each ME.
  - Enrich species diversity in the buffer zones and ensure their interconnectivity.

- Include the cultivation of QABB vines in the buffer zones and collaborate with the Provincial Environment Office to revive the QABB population on the Popondetta Plains.
  - Carry out a water quality monitoring before site preparation and six monthly thereafter.
  - Ensure appropriate disposal of all waste generated on each ME.
- Management of potential socio-economic aspects
    - Carry out a full genealogy study of members of the landowning clan.
    - Conduct a baseline household socio-economic survey of each landowning community.
    - Verify that all the clan members are kept informed of agreement negotiations.
    - Evaluate increases in land rental and FFB royalty rates that would lead to improved socio-economic welfare in each ILG community.
    - Ascertain that all members understand the ME Agreement before signing it.
    - Ensure priority for employment and contracts is given to each ILG community.
    - Investigate ways and means of improving living conditions and social services in each ILG community particularly with water supply and sanitation.
    - Arrange project planning and financial management training for each ILG Committee.
    - Organise training and awareness on budgeting and saving income for ILG community members and new ME workers.
    - Organise regular awareness on alcohol and substance abuse as well as STDs and HIV-AIDs for each ILG and nearby communities.



## 5.0. VERIFICATION STATEMENT:

Higaturu Oil Palms (HOP) a part of the New Britain Palm Oil Limited (NBPOL) opted for documents and records verification. TUV NORD INTEGRA lead auditor Mr. Cheong, Chun Yuen (Robert) has conducted a desktop study, review and verify the documents from 23/05/2016 to 25/05/2016.

New Britain Palm Oil Ltd – Higaturu Oil Palms is a member of the RSPO since 20/02/2013 and holds the RSPO membership number -1-0016-04-000-00. Higaturu Oil Palms is part of the NBPOL Group which was recently acquired by Sime Darby in 2015. While did the acquisition process, the area has been planted with palm oil since the 1980's comprising of company owned estates (Sangara, Sumberipa, Ambogo, Mamba and Embi Estates) and Smallholder Schemes under the States Land Settlement Scheme (LSS), and Village Oil Palms (VOP) owned by local customary landowners who sell their crop to the company's mill.

New Britain Palm Oil -Higaturu Oil Palms (HOP) was recently acquired in 2015 by Sime Darby. Under the expansion program traditional landowning groups voluntarily expressed their interest in writing to the company to lease portions of their land to the company under the lease-lease back arrangements for oil palm plantation following the RSPO New Planting Procedure. Majority of the land for these new developments is acquired from the traditional customary landowners and from state leases held by individuals and groups. All these land are spread across the Popondetta Plains within Ijivitari District and Kokoda Plains in Sohe District both in Oro Province of Papua New Guinea. The total land area proposed for development is 3,259.38 hectares of which 2,591.77 ha will be converted and the remaining 667.61ha is to protected within the 31 mini-estates.

The HCV, HCS Assessments and SEIA studies were included within the scope of NBPOL – Higaturu Oil Palms and conducted by qualified assessors. The HCV and HCS Assessments were conducted concurrently by the The Forest Trust (TFT) and Daemeter Consulting from 08<sup>th</sup> -20<sup>th</sup> July 2015 and the SEIA study was done in 17<sup>th</sup> -25<sup>th</sup> August 2015 by Mr. Narua Lovai a freelance SEIA consultant. All three groups are registered with the RSPO.

To fulfil the RSPO Criterion 7.3, consultants The Forest Trust (TFT) also conducted the Land Use Change Analysis (LUCA) to ensure that there is no deforestation due to land development. LUCA assessments were conducted together with the HCS assessment from the 08<sup>th</sup> -20<sup>th</sup> July 2015 through a combination of satellite imagery analysis from Landsat and carried out field sampling checks. Stages and process of the LUCA are as follows:

- Maps and satellite imagery
- Analysis of vegetation stratification using ArcGIS
- NDVI (Normalized Difference Vegetation Index)
- Field verification.

In relation with the RSPO Announcement on compliance to Criterion 7.8, Higaturu Oil Palms also did the High Carbon Stock Assessment on the proposed 31 mini-estates to ensure no deforestation, no peat and maintain the identified HCV areas. The assessment was conducted by The Forest Trust (TFT) from 08<sup>th</sup> -20<sup>th</sup> July 2015 by following guideline from the HCS approach toolkit version 1.0. The study found 5 strata of vegetation cover that could be identified; Low Density Forest (LDF), Young Regenerating Forest (YRF), Scrub (S), and Open Land (OL) and these correlated with carbon stocks. This HCS report will be submitted to the ER WG via RSPO Secretariat concurrently with the NPP Notification.

Documents for assessments result and the content of the plan are comprehensive, of professional quality and comply with the relevant RSPO Principles, Criteria and Indicators.

Based on the review of the reports for Social Environment Impact Assessment, HCV Assessment, Summary of Planting, High Carbon Stock including land use change analysis, carbon emissions and sequestration, it can be

concluded that the assessment and plans are comprehensive, professional and in conformance with RSPO New Planting Procedure.

Signed on behalf of:

**Cheong, Chun Yuen (Robert)**

Lead Auditor RSPO P&C  
21/06/2016

**Mr. Mike Jackson**

General Manager  
21/06/16

**Mr. Paul Maliou**

Sustainability Manger  
21/06/2016

**TÜV NORD INTEGRA**



**HIGATURU OIL PALMS**

