

NEW BRITAIN PALM OIL LTD

CARBON FOOTPRINT REPORT 2012

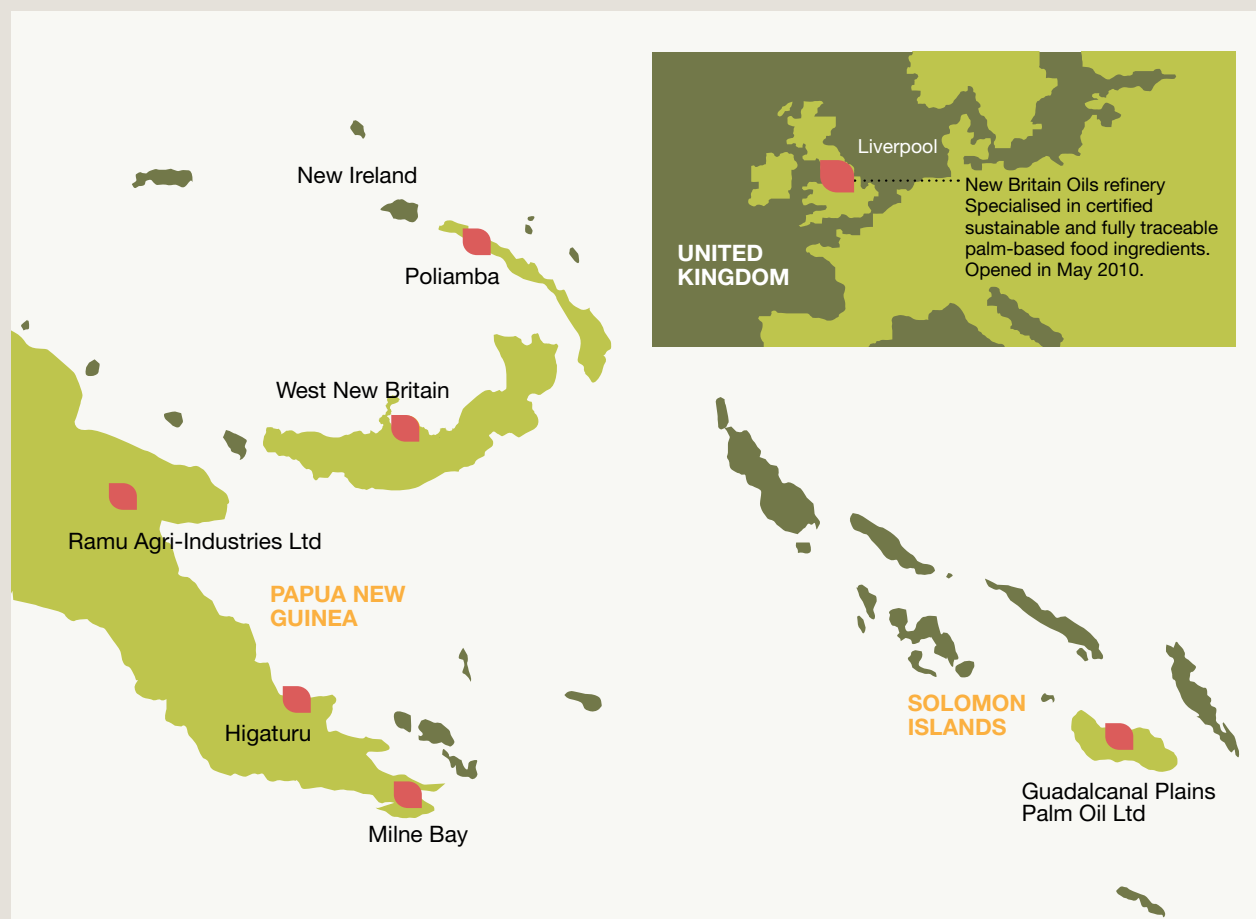


About New Britain Palm Oil



New Britain Palm Oil Limited (NBPOL) is a large scale integrated, industrial producer of sustainable palm oil in Australasia. We have just under 80,000 hectares of planted oil palm plantations, over 7,700 hectares of sugar cane and a further 9,300 hectares of grazing pasture; twelve oil mills; two refineries, one in Papua New Guinea (PNG), and one in Liverpool, UK, as well as a seed production and plant breeding facility. NBPOL is fully vertically integrated, producing its own seed (which it also sells globally) and planting, cultivating and harvesting its own land and processing and refining palm oil, in both PNG and the UK. It also contracts directly with its end customers in the EU and arranges shipping of its products.

Map of Operations



Our work on responsible and sustainable palm oil has evolved tremendously over the years, starting with our zero-burn policy established in 1969 through our early involvement in the Roundtable on Sustainable Palm Oil (RSPO) in 2004 and culminating in the adoption of the Palm Oil Innovation Group (POIG) Charter, a new initiative which forms the current basis for our priorities.

This is our second bi-ennial Carbon Footprint Report.

Greenhouse Gas (GHG) Accountability



In 2012, we published our first comprehensive Carbon Report which reflected the data collected from NBPOL's West New Britain site and New Britain Oils refinery in Liverpool over the period of 2008 to 2010. In the report, we committed to a full Group Carbon Footprint, to a reduction

in net emissions of 70% by 2016 and to achieving no net carbon emissions on expansion.

The work to document our Group carbon footprint over 2011 and 2012 was completed at the beginning of 2014:

Operation	Phase	Hectares (Estate) 2012	Cumulative % of Group	Target Completion	Actual Completion	Status
West New Britain	1	36,819	47%	Dec-11	Dec-11	completed
Guadalcanal	2	6,114	55%	Jun-12	Jun-12	completed
Ramu Agri-Industries	2	11,035	69%	Jun-12	Jun-12	completed
Poliamba	3	5,659	76%	Dec-12	Dec-12	completed
Milne Bay	3	10,267	89%	Dec-12	Dec-12	completed
Higaturu	4	8,449	100%	Jun-13	Jan-14	completed

Reflection of hectares per sites against total hectare statement of 78,343 hectares of mature and immature own plantings. This is exclusive of smallholders.



Whilst our first report was based on our own methodology – the NBPOL Carbon Calculator, the full Group footprint is calculated using the RSPO PalmGHG methodology. This enables us to benchmark our efforts with other producers.

The RSPO PalmGHG Calculator covers only data for the unit of certification which is the mill and its supply base. This is referred to as carbon emissions Ex-Mill. NBPOL has however extended the model to include from the mill to the bulking terminals on each site (Ex-Terminal). In addition a

further extension of this work was needed to reflect the carbon emissions of our two refineries (Kumbango in West New Britain, PNG and Liverpool in the United Kingdom).

CARBON FOOTPRINT

The footprint covers all net emissions data for the NBPOL group estates including its 12 mills, two refineries and all 42,039 hectares cultivated by smallholders. All gross emissions are allocated to the individual mills and then aggregated to give final figures for crop products.

EMISSIONS

The GHG emissions from palm oil production in the calculations are expressed per tonne of Crude Palm Oil or Palm Kernel Oil for the mill. The GHG emissions related to the refinery process at WNB and products shipped to Liverpool from West New Britain are expressed per tonne of RBD (refined, bleached and deodorized CPO) or PFAD (Palm Fatty Acid Distillate).

The total net emissions for the whole group for 2011 were calculated at 447,495 MT CO₂e/year. The emissions cover the Group's production of 553,545 tonnes of CPO and 132,038 tonnes of PK per year.

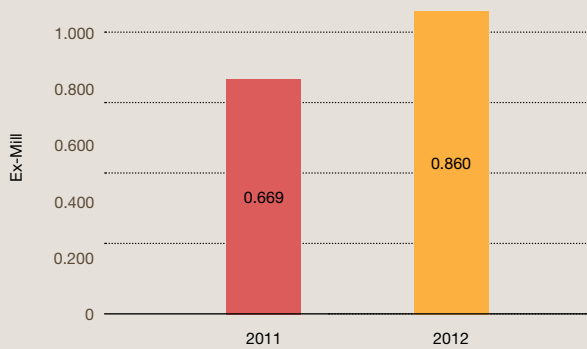
The total net emissions for the whole group for 2012 were calculated at net GHG emissions amounts to 606,613 MT CO₂e/year. The emissions cover CPO production of 512,626 MT CPO/year and PK production of 120,312 MT PK/year.

The increase in emissions reflected in 2012 is mainly contributed by the replanting programme in West New Britain which was increased by 289% against the previous year (633 ha in 2011 and 1829 ha in 2012. Emissions from cleared biomass at the beginning of the crop cycle increased from 250,906 MT CO₂e/planting year in 2011 to 417,334 in 2012).

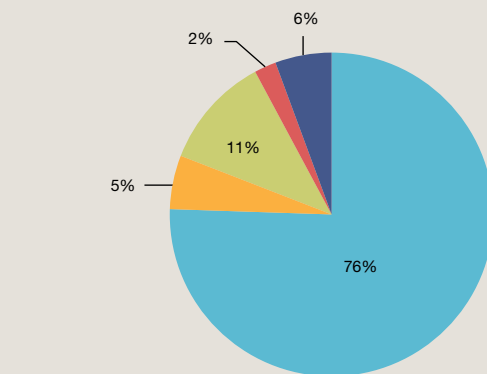
Also note that the total productivity declined and that the increased emissions were spread over fewer tonnes of CPO giving an even higher value on a per tonne of CPO basis and on a refinery product basis.

Due to the much larger hectarage and scale, West New Britain is by far the largest contributor of carbon emissions in the Group.

NBPOL GROUP MT CO₂E/MT CPO



2012 MT CO₂E NET EMISSIONS BY MILL INCL FIELD



The emissions figures for Ramu are not included as most plantings are on grass land which is indicated as low-carbon stock vegetation. Planting oil palm on grass land has a net positive sequestration of 123,383 MT CO₂e .

MT CO ₂ e-MT product		
WNB – Product ex Kimbe	2011	2012
CPO	1.12	1.55
PKO	1.15	1.60
PKE	1.15	1.60
GPP – Product ex PCBT		
CPO	0.58	0.43
PKO	0.70	0.55
PKE	0.70	0.55
MBE – Product ex Alotau Bulking station		
CPO	1.12	1.24
PKO	N/A	N/A
PKE	N/A	N/A
POL – Product ex Wharf		
CPO	1.35	1.12
PKO	N/A	3.42
PKE	N/A	3.42
RAI – Product ex Lae Bulking station		
CPO	-5.55	-4.48
PKO	N/A	N/A
PKE	N/A	N/A
HOP – Product ex Oro Bulking station		
CPO	0.35	0.40
PKO	0.45	0.49
PKE	0.45	0.49

Ex Terminal Emissions figure per tonne of product for each individual site by point of shipment

EMISSION SOURCES AND SINKS

The PalmGHG Carbon Calculator includes different sources of emissions and reflects the oil palm crop as a “sink” through sequestration of atmospheric carbon. The different emission sources can be ranked in order of importance in relation to their overall impact on total Group emissions; These are, in order of significance: land clearing, palm oil mill effluent (POME), nitrogenous fertilisers, fertiliser and fuel in other transport and mill diesel usage. Of the emissions the land use conversion and palm oil mill effluent contribute 90% of all the gross emissions.

In the calculations provision is made for separate budgets for each mill’s own crop and the smallholder crop (all part of the certified segregated supply chain of NBPOL). The PalmGHG model uses the annualised emissions and sequestration data to estimate the net GHG balance for the palm products from both own and out-grower crops at an individual mill and NBPOL combined the data according to their unit of certification requirements.

Emissions from the biomass cleared at the beginning of the crop cycle are averaged over the cycle. Emissions from the other sources are averaged over three years up to and including the reporting date, thus simplifying data collection and smoothing out short-term annual fluctuations.

By using the OPRODSIM (see Methodology) model for smallholders as well as for Guadalcanal and Poliamba the outcomes are more conservative as this data is not based on PNG growth conditions. In the future when data becomes available this might change the land use emissions.

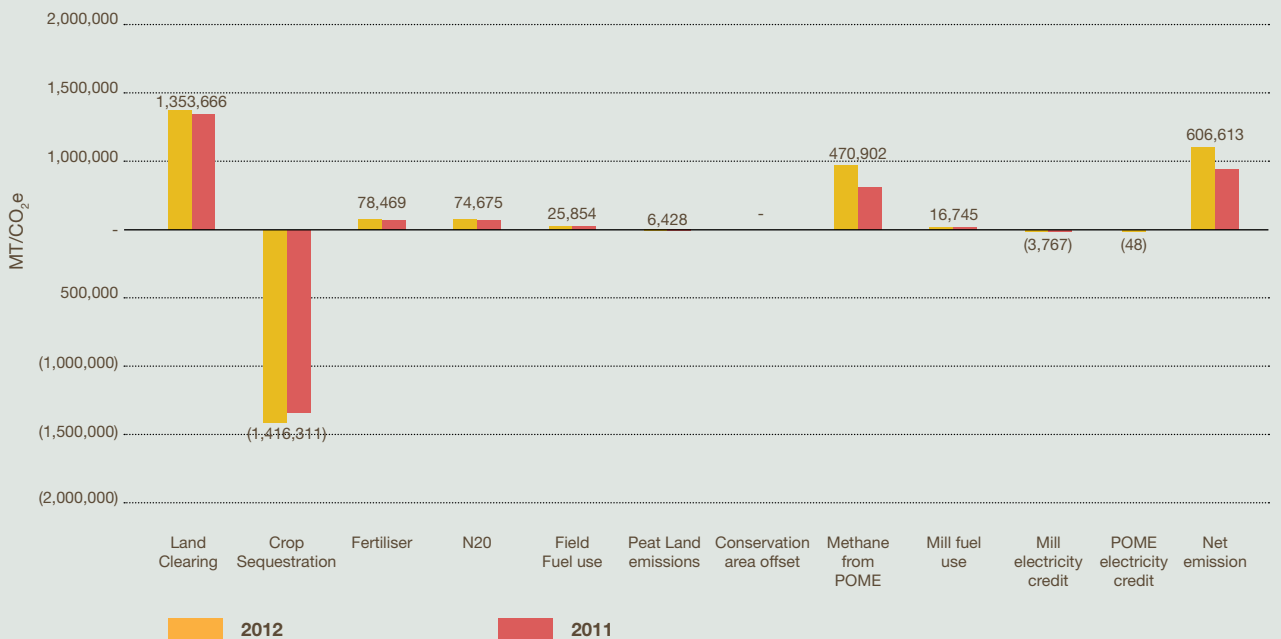
EMISSIONS FROM OIL PALM CULTIVATION

Land clearing is responsible for 67% of NBPOL carbon emissions and constitutes of a total of 976,001 MT CO₂e in 2011 and 1,035,522 of CO₂e in 2012. By far the biggest contribution comes from replanting of oil palm and a smaller amount from land conversion.

Comparing the 2011 with the 2012 figures there is an increase in emissions of 35%. This is caused by an increase in land clearing relating mainly to the replanting of areas and the reallocation of crop to different mills in West New Britain as the Warastone mill was fully commissioned in 2012.

The amount of carbon emissions from land clearing activity is offset by the carbon sequestration from the planting of oil palms which amounts to 1,011,498 MT CO₂e in 2011 and 1,081,836 MT CO₂e.

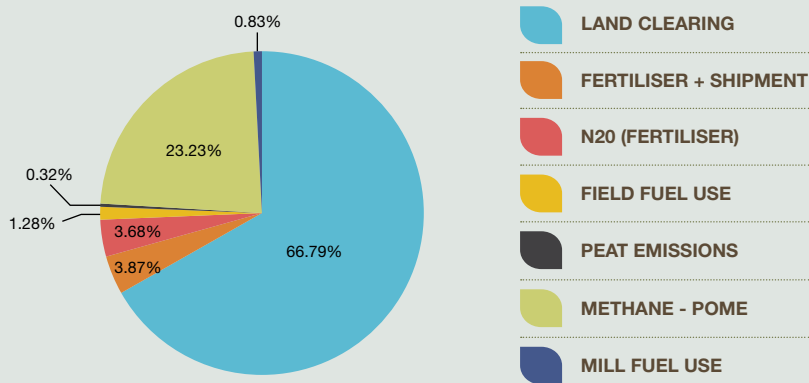
TOTAL GROUP EMISSION SOURCES/SINKS FOR 2011-12



The overview of the groups Emission Sinks and Sources 2012 Note: At current the figures used to calculate the emissions reduction of the two CDM projects at WNB are under review. The Group 2012 net emissions data will change as Mosa and Kumbango Net Emissions in this report is based on estimated calculation for methane assumption, the actual value will be updated after CDM verification from auditor at the end of February 2014.



2012 NBPOL'S GHG EMISSIONS ATTRIBUTABLE TO:



EMISSIONS FROM PALM OIL PRODUCTION

The emissions from the mill effluent digestion process represent the second most significant source of GHG. Palm Oil Mill Effluent (POME) represents the largest portion of GHG emissions from methane, totalling to 312,578 MT CO₂e in 2011 which contributes 70% of net emissions and 470,902 MT CO₂e in 2012 which contributes 78% of net emissions.

METHANE CAPTURE

In 2010, the two methane capture projects in West New Britain were predicted to commence operational commissioning as the start of the Clean Development Mechanism crediting period as of 1 January 2012. The project operational commissioning was delayed until 1 October 2012 as approved by UNFCCC.

GREENHOUSE GAS (GHG) ACCOUNTABILITY

Operation	Mosa (MT CO ₂ e)	Kumbango (MT CO ₂ e)
Projected monthly reduction (Estimated 2010)	4,141	4,530
Actual monthly reduction (Oct-Dec 2012)	1,296	2,177
Shortfall	-2,845	-2,353

The actual results from October to December 2012 are based on the Monitoring Report which was uploaded to the UNFCCC website for one month's public review in January 2014. The results might change after the verification by auditors at the end February 2014.

Different challenges with the implementation of these two projects delayed the actual start. The contributing factors to the delay were caused by technical problems with the grid connection as well as long travel distance involved in receiving spare parts and transporting technicians to site to verify conditions and repair generators. Our financial situation had an impact on the CDM projects and budget.

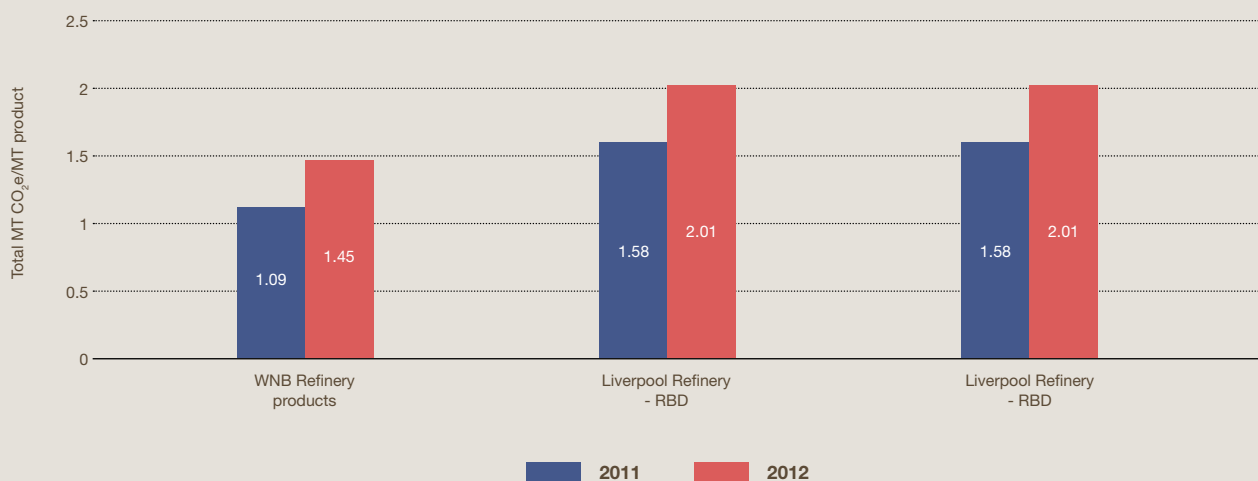
The estimates made in 2010, which were based on best available science at the time, were proven to be inaccurate. The company is still committed to the renewable energy initiatives and the work continues in spite of having to adjust the timelines for the implementation of the projects to a later date.

During 2011 and 2012 NBPOL did continue with the CDM registration and approval of two projects (Sangara and Hagita). These projects have been finalised and registered on the UNFCCC website.

REFINERY PRODUCTS

Whilst refined products are outside of the scope of the RSPO PalmGHG calculator, we have expanded the calculation to include our refineries in WNB and in Liverpool. This enables our customers to incorporate our products into their own product carbon footprints.

	Total MT CO ₂ e/MT product	
	2011	2012
WNB Refinery products	1.09	1.45
Liverpool Refinery – RBD	1.58	2.01
Liverpool Refinery – PFAD	1.58	2.01





PEAT LAND

We understand that the development of oil palm on peat can contribute greatly to the release of powerful greenhouse gases and we made a formal commitment to 'no planting on peat' in 2010, as part of our climate change strategy. We only have a small area (88 hectares) of peat in West New Britain, which is currently planted with oil palm and maintained through best practices in water table management. The area is part of a larger non-peat plantation development and is not considered a critical part of a wider peat land eco-system.



Methodology

CARBON REPORTING

The methodology used for NBPOL's first carbon reports was based on the original "Carbon Calculator" named GWAPP (Global Warming Assessment of Palm Oil Production) developed by Laurence Chase and Dr. Ian Henson and specifically designed for NBPOL based on NBPOL growth model data and other site specific conditions at the operations in West New Britain, Papua New Guinea. The initial model used for the calculations and the carbon report (version 3.3.) used the GWAPP model and allocation of the net emissions of CO₂e between CPO and PK, then subsequently between Palm Kernel Oil (PKO) and Palm Kernel Expeller (PKE), according to the actual values of these co-products. The information in the Carbon Report published was based on the version 3.3 model. This model was reviewed and refined into model 3.6 which used a different approach towards the allocation of the co-product based on mass allocation.

This gave a different overview of the figures compared to the initial report due to changes to the model.

The 3.6 model was later adopted by the RSPO and served as the basic input for the GHG calculator of the RSPO (PalmGHG). To be able to use the calculator the RSPO had to approve the methodology and finalise the calculator. The final calculator became available as Palm GHG Beta version 1a at the end of December 2012. All the data was initially collected in the previous model and had to be transferred to v1a when approved. Also all the WNB data was transferred into PalmGHG beta v1a to be in line with the other sides.

Boundaries

The methodology for this report includes calculated emission and sequestration from both directly managed lands and smallholders. The report is based on data of 2011 and 2012.

Although the RSPO indicated the option to include conservation area sequestration, it is still under consideration. Therefore the calculator does not include sequestration from carbon offset areas such as riparian reserves, set aside high conservation value areas, slopes, fragile soils areas or afforestation or reforestation projects.

For each site the data has been separately collected and entered into the calculator.

Companies can decide to customise the crop sequestration input by using their own data according to their own growth models but this will require an adjustment. For this

assessment NBPOL used West New Britain (WNB) and Ramu Agri Industries (RAIL) data and adjusted the figures with the help of Chase and Henson. For Higaturu (HOP) and Milne Bay (MBE) the same crop sequestration data was used as in WNB. The OPROSIM crop sequestration data was used for Guadalcanal (GPPOL), Poliamba (POL) and all the smallholder areas as on-site specific measurement were not available.

The data sets collected for WNB, GPPOL and RAIL are all based on 3 year average value (2010-2011-2012). POL, HOP and MBE were acquired in 2010 and the data collection was based for this year on old production systems.

For all vegetation and sequestering calculations only above ground carbon was measured.

In addition, there have been some changes made to the forest default figures (to include roots) and to the growth model of West New Britain (based on frond base measurements which all had an impact on changes to the model overall (increase net emissions). Also the allocation of crop for the West New Britain has changed compared to the initial Carbon Footprint assessment due to an additional mill (Warastone).

Refinery

The refinery component is not included in RSPO PalmGHG model. This is an additional part done by NBPOL and guided by Chase. This calculation is only based on WNB production and doesn't take into account the other sites. The volumes used for calculation do not take into account that a certain percentage of production is used internally in PNG (local customers). Therefore the full amount of CPO minus what was used in the refinery in WNB has been taken into account on the Liverpool level.

FINANCIAL DATA

All financial data is based on the accounts in the 2013 Annual Report. Please refer to 'Notes to the Consolidated Financial Statements' for further information.

RESTATEMENTS AND DATA QUALITY

We operate in an environment where much data is collated at field level across eight different operations, much in remote areas. we recognise that restatements are likely to occur in future reports. However, we believe that the trends and overall content of this is a fair and accurate reflection of our performance.

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