

A photograph of a long-tailed shrike perched on a tree branch. The bird has a black head and back, a white breast, and a long black tail. The background is a soft-focus green and blue sky.

UP

UNITED PLANTATIONS BERHAD

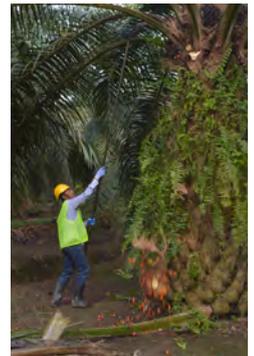
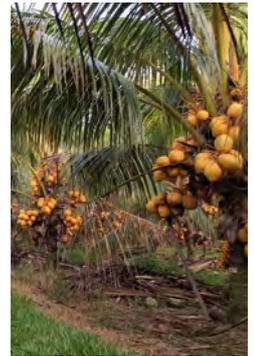
SUSTAINABILITY REPORT
2019

Long-tailed shrike (Lanius schach) is one of the 183 species of birds found at our conservation area at PT SSS.

Sustainability Report 2019

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About This Report

United Plantations has always taken pride in its sustainable approach to all aspects of its operations and we are therefore pleased to present our 2019 Sustainability Report to interested stakeholders.

This Report covers the environmental, economic and social performance across all our operational and management activities within the UP Group including Subsidiaries in the form of our Refinery Unitata and bulking installation – BBI, as well as our plantations and mills in Malaysia and Indonesia. From next year, our Joint Venture refinery UniFuji which is now fully operational as well as our newly acquired plantation, Tanarata Estate will also be included.

This report, which represents our first step towards an integrated report focuses primarily on updates and activities carried out within the financial year ended 31 December 2019, with comparable prior year statistics, where available and relevant.

The Sustainability Report for 2019 will remain as part of our Annual Report. From 2020, we are planning to have our sustainability report as a separate report and will thereafter produce the report every second year.

The structure and content for this report draws upon guidance from Bursa Malaysia's Sustainability Reporting Framework and the GRI Sustainability Reporting Guidelines. Our internal Sustainability Committee is responsible for officially coordinating with the various departments and subsidiaries in assessing and covering all key material sustainability matters within our Group.

In preparation of this report, we have again engaged and considered the responses from both internal and external stakeholders and performed a thorough

internal review and assessment of key sustainability aspects and impacts which represents the most critical areas of our Group's business and operations and in this connection we would like to thank all stakeholders for their valuable participation. This exercise resulted in arriving at 22 material sustainability matters at various significance levels. These are reflected in the materiality matrix included in this report.

As part of our sustainability processes and activities we will continue to strengthen our performance and disclosures to various stakeholders by monitoring our specific targets and key performance indicators, fostering close relationship with our stakeholders as well as harmonising material sustainability risks across the Group. We hope to provide our stakeholders with an overview of our approach and continuous progress in meeting our sustainability commitments.

This report has been prepared in accordance with the GRI Standards: Core option. For more information on the GRI Index, please refer to our website, www.unitedplantations.com/sustainability/.

External Assurance

GRI recommends the use of external assurance, but it is not a requirement to be in accordance with the Standards. We believe external assurance adds to the credibility and transparency of sustainability reporting. In this connection, we are pleased to inform our stakeholders that KPMG has provided limited assurance over 10 selected Key Performance Indicators (KPI's) reported in our 2019 Sustainability Report thereby bringing additional value and credibility to our disclosure. Their assurance report is available on pages 92-93



Flowers are a thing of beauty, they are grown with pride in our compounds and gardens to brighten up the environment.

Message From The CED



Dato' Carl Bek-Nielsen addressing participants during the Price Outlook Conference (POC 2019).

I am pleased to present UP's 2019 Sustainability Report to you in which we describe our Group's sustainability policies and actions in order to share our commitment on sustainability and to show how we are pursuing this in practice.

Ultimately, it is our actions and behaviour that defines what type of company we are and for UP. The Executive Committee (EXCOM) of UP continues to view sustainability as one of the key pillars in our Group's strategy which is of paramount importance to our long-term success.

For generations, UP has interweaved Economic viability, Environment Responsibility and Social Awareness into the way we conduct our business. This commitment was evidenced by the fact that the world's first RSPO certificate was awarded to UP in 2008. Our commitment is further reinforced by obtaining the Malaysian Sustainable Palm Oil (MSPO) certification in 2018 and Indonesian Sustainable Palm Oil (ISPO) certification in 2019.

We remain 100% committed to the MSPO, ISPO and RSPO principles and criteria (P&C). We welcome the implementation of the new RSPO P&C in 2019 which has seen some major enhancements adopted into the standard, including but not limited to no deforestation, no planting on peat regardless of its depth, reinforced protection of human and labour rights (stronger alignment with the Core International Human Rights Treaties and relevant ILO Conventions across all RSPO membership categories) as well as enhanced focus on fire prevention.

These initiatives combined raises the bar for sustainable production even further by firmly upholding our policies on no deforestation and no new peat development which were already introduced in 2010, as well as strengthening human rights and the well-being of the local community. We see this as necessary commitment in order to assure the industry's future relevance and acceptance by consumers around the world.

We nevertheless openly acknowledge that much more can and must be done and we intend to work harder at integrating as well as mainstreaming our sustainability efforts into our operations.

In this respect, I am pleased to report that the sustained efforts undertaken by our Company especially since 2005 were recognised again by the Sustainable Business Awards in partnership with Global Initiatives who on the 27 November 2019 gave United Plantations Bhd a special recognition award for Business Responsibility and Ethics.

The recognition is pleasing but it also raises the bar and compels management to keep stimulating new progressive ideas, failing which, the positive momentum, created by so many individuals in our Group will slow down.

During 2019, the materiality assessment has again been carried out in close collaboration with our stakeholders in which views and expectations on various topics have been discussed and documented thereby enabling us to identify and map the most relevant issues pertaining to our economic, environmental and social risks and opportunities. This exercise has been very rewarding and is fundamental to achieving our business strategy and with that our well-being.

However, we must not forget, that our commitment to sustainability is an ongoing journey with no finishing line. We will therefore continue to align our business values, purposes and strategy with sustainability principles divided into four main areas, namely Employees, Environment, Community and Market place.

Employees

Our employees have been and will always be our core assets remaining a key pillar for the success and continued growth of our Group. In this connection, their welfare and rights as well as a safe and healthy work place are of key importance in every aspect of our operations.

We remain focused on safety leadership and strategies targeting risk reduction as we value the lives and wellbeing of our employees, contractors, visitors and local communities throughout our operations. We are doing our best to improve awareness on safe practices and to enhance preventive skills among all our employees in order to minimise the risk of work place accidents. It is therefore most disturbing and regretful that our Group experienced three fatal accidents in 2019.

These fatalities involved two tractor related accidents and one oil mill operator. Such accidents are most unfortunate and deeply regrettable and our hearts go out to their bereaved families. The Group is determined to continue to mitigate all safety risks through robust safety programmes and preventive intervention and I wish to reiterate that our Group must be more vigilant and will further improve and continue its regular in-house training programmes combined with impromptu safety audits in our mills, estates and refineries. This includes top management commitment on the vital "Reach and Teach" but also "Reach and Remind"



White throated Kingfishers (Halcyon Symmennis) can be found on both our Malaysian and Indonesian Plantations.

training sessions amongst all employees. A culture of prevention is not achievable if we accept that accidents are a normal occurrence in our daily lives. In line with our approach of preventive measures as a way of providing safe work places, we continuously conduct HIRARC on all our operations. We do not accept any accidents, and all efforts must be directed toward avoiding them. The Company has therefore strengthened its commitment by recruiting an additional Safety Officer and has a target to provide additional human resources to this most important cause in 2020.

During 2019, progress was made to maintain the highest possible welfare standards for our workforce whilst simultaneously focusing on improving on our environmental footprint. New investments in infrastructural amenities as well as improving on services to our employees will therefore continue in 2019. With the acquisition of the 3,642 hectares Pinehill Estate (now known as Tanarata Estate), a total upgrade in the infrastructure and social amenities has begun in order to emulate the high standards present at our other estates. We are confident that there will be a very positive turnaround of the property which includes its upgrade into a MSPO and RSPO certified entity of our Group within the next three years.

Environment

As the world faces the threat of global warming, we are all becoming increasingly aware that our presence on this earth leaves a mark on the environment. UP is committed to being a leader in environmental performance by not just focusing on good agricultural practices but also by committing itself to safe guarding the natural resources. Finding the right balance between Economy and Ecology is a cornerstone in our Group

and much emphasis is therefore placed on reducing variables that impact our environment negatively.

Much scrutiny and criticism has been aimed at the palm oil industry, with accusations of habitat destruction and endangerment of protected species, indiscriminate burning and causing regional trans-boundary haze, as well as contributing towards social conflicts and climate change. Whilst palm oil production has contributed to certain aspects of the above and whilst there are rogue players who blatantly violate most environmental laws, it is important that the accusations are backed by holistic facts and presented objectively instead of being singled out as the lightning rod for the public's growing anger on issues concerning deforestation and climate change.

The palm oil industry is complex and far too often it is subject to being painted with one brush without recognizing the tremendous efforts undertaken by many different stakeholders, including producers, to promote the responsible production and consumption of sustainable palm oil. Unjust subjective accusations keep tarnishing the image of the industry without offering solutions or taking ownership of problems. This behaviour will get us nowhere apart from negatively impacting the livelihoods of millions of people whose sole objective is to uplift themselves out of poverty. We need to be more nuanced with our criticism but also highlighting good practices so others may emulate these.

Our Group therefore believes that producing palm oil sustainably is the only way forward wherefore it is important that all stakeholders support the RSPO, or other credible initiatives, in order to make sustainable palm oil the preferred choice and norm. This above all else should be our common goal.





Reducing our Carbon Footprint

Our Group’s commitment towards mitigating its “carbon footprint” and thereby its Greenhouse Gas (GHG) emissions remains a high priority to which new initiatives and investments continue to be made.

Following an updated and very comprehensive Life Cycle Analysis (LCA) report undertaken from January to February 2020, it was pleasing to note that UP from 2004-2019 has managed to reduce its GHG emissions per kg refined oil by 43% (including indirect land use change and nature conservation) compared to the GHG emissions in 2004.

Our goal of reaching 60% reduction (including indirect land use change and nature conservation) of the GHG emissions by 2023 has been set by Management which we will relentlessly pursue through new innovations inspired by our strong collaboration in Scandinavia. (please refer to page 62)

The UniFuji JV which the Company had been working on since April 2015 was officially inaugurated by His Majesty Sultan Nazrin Muizzuddin Shah Ibni Almahrum Sultan Azlan Muhibbuddin Shah Al-Maghfur-Lah, Deputy Yang Di- Pertuan Agong and Her Royal Highness Raja Permaisuri Perak Darul Ridzuan Tuanku Zara Salim on 17 January 2019 in the presence of the Mentri Besar Perak Darul Ridzuan, YAB Dato Seri Ahmad Faizal bin Dato Azumu, YB Teresa Kok, the Honourable Minister of Primary Industries, Malaysia as well as Excellencies from EU, Denmark, Netherlands, Sweden, Japan and the United Nations.

It was a memorable day and I am extremely grateful to all those who made the effort to witness this milestone. UniFuji is a strategic project involving a design and layout that encompassed the latest technologies available to create a perfect example of the circular economy within an oil palm plantation with a ‘state of the art’ Optimill, biogas plant and a uniquely innovative in-house refinery running without the use of fossil fuels .

Conservation of jungle reserves and promoting biodiversity are of key importance to the UP group. In this respect it continues to be our view that conservation means development as much as it does conservation and that all growers should strive towards reaching this balance.

Collaboration with Copenhagen Zoo



Herein, I am delighted that our collaboration with Copenhagen Zoo which was initiated in 2007 and officially established in 2010, continues to develop positively with many success stories arising from the hard work, research and studies undertaken to date.

The commitment and skills introduced by Copenhagen Zoo have been extremely fulfilling and has helped our Group operationalise not only the vital virtue sustainability but also helped to manage and nurture our more than 7,500 Ha jungle reserves in our Group.

Today, our Biodiversity team more than ever is responsible for mainstreaming environmental concerns into standard operating procedures. Nevertheless, more can be done and there are still areas in need of greater attention which will be the areas of focus in 2020.



Biomass Reciprocating Boilers at the Optimill.

Community

We recognise that we are part of a global community, and that we therefore have an obligation to bring about positive changes to the lives for the families of our employees and our local communities. In that connection, we shall keep striving to play a positive role in and around the locations where we operate by first and foremost taking ownership of problems that arise.

Amongst others, we intend to do so by engaging and working closely with local communities in our efforts to uplift their living standards and to offer business and employment opportunities to interested parties wherever possible, thereby contributing to the wealth, resources and expertise to local economies.

During 2019, we have engaged with more than 150 smallholders during our smallholder field days where the overall goal was to pass on vital knowledge and advice towards smallholders increasing their yields through good agricultural practices and thereby increase their earning potential and at the same time take necessary steps to include sustainability measures in their operations.

In Indonesia, we are fully committed towards the Plasma scheme and continue positive progress in establishing additional areas for the benefit of neighboring communities.

Through respect and engagement with local communities and community leaders in Indonesia we have seen positive developments in alleviating conflicts relating to land rights, which are handled in an amicable and transparent manner through proper grievance procedures and in line with the spirit of the RSPO which is described further in the report. Furthermore, continuous improvements were made during 2019 to maintain the highest possible welfare standards for our workforce and to ensure high standards of educational facilities provided for their children.

This naturally includes the continuous review and upgrading of our housing facilities provided to our employees, be this guest workers or local employees. A total revamp of the houses in the newly acquired Pinehill Estate (now known as Tanarata Estate) is taking place with most of the earlier employee houses being demolished and new modern ones being established.

This process will continue at Tanarata Estate during 2020 as well as in other areas of our Group. We believe that in order for any business to develop fruitfully one must commit oneself to a long term perspective and shun short-termism.

Only by committing oneself to this and taking ownership can one conceptualize the true spirit of creating shared value (CSV) which is a fundamental step towards forming a sustainable and successful business.

Marketplace

UP recognises the importance placed by our customers and consumers on food safety, product quality and traceability of the supply chain. Full traceability demonstrates that we are in control of our operations and that our supply of palm oil is safe.

This has opened up market opportunities amongst reputable brand manufacturers and retailers globally who view favourably the assurances of sustainable and traceable palm oil which we have been able to offer customers.

We have established a total overview of our supply chain and for our up-stream operations, we can identify the palm oil mills from which the Crude Palm Oil and Palm Kernels are produced as well as the plantations from which fresh fruit bunches (FFB) are derived from. This supply chain has been mapped out to ensure traceability and food safety and to focus on a structured approach should any grievances be raised by our stakeholders.

For our down-stream operations, we have also mapped our supply chain and whilst all our palm oil can be traced back to the plantations or the various palm oil mills, the main portion of the palm kernel oil which we use can only be traced back to the Palm Kernel crushing plants and palm oil mills.

To trace all the palm kernel oil back to the plantations is still a challenge and is a process that will be pursued further in the coming years. Whilst we acknowledge that we have come a long way in our sustainability journey, we are also aware that there are many challenges ahead which we will have to meet.

The points I have touched on above serve only as highlight to this report, and will be further elaborated upon in the following pages (pages 30-93). Furthermore we would recommend that you seek additional information under the sustainability section on our website, www.unitedplantations.com/sustainability/.

Finally, I thank you for your interest in our sustainability efforts and hope you will find our journey interesting. I would also like to thank our Board of Directors for their continuous support, guidance and interest in this report as well as all our stakeholders including NGO's for their active and valuable participation and inputs that have been of much value to our Group.

With the continuous commitment by our group including an active participation by all our stakeholders, I am confident that we will be able to face most challenges ahead of us as we keep moving forward with our sustainability commitments.

Dato' Carl Bek-Nielsen
Chief Executive Director (CED)

LANE 2 CONTAINERS

MAX HEIGHT
3.8m
12'6"

CPKO UNLOADING
BAY

Products from the Unitata refinery are destined for local and oversea buyers.



Awards and Recognitions

2017	<ul style="list-style-type: none"> ✓ Awarded 3rd placing out of 184 companies (Plantations)-Sectoral award based on two financial performance indicators by the Edge Billion Ringgit Club: <ul style="list-style-type: none"> - Highest Return on Equity over three years - Highest Return to Shareholders over three years ✓ RSPO NEXT Certification - (World’s second RSPO NEXT Certification and the first for Asia Pacific and Africa) ✓ Awarded the ACCA MaSRA Commendation Award for Biodiversity.
2018	<ul style="list-style-type: none"> ✓ Awarded Winner for the Best Sustainability Reporting by Europa Awards for Sustainability organized by EUMCCI 2018 ✓ MSPO Certification (for all UP’s Malaysian operations) ✓ Awarded Winner for Climate Change and a Special Recognition Award on Land Use and Biodiversity by the Sustainable Business Awards Malaysia 2018 (SBAM) presented by Global Initiatives.
2019	<ul style="list-style-type: none"> ✓ Awarded a Special Recognition Award on Business Responsibility & Ethics by the Sustainable Business Awards Malaysia 2019 (SBAM) presented by Global Initiatives. ✓ ISPO Certification for our Indonesian operations.



United Plantations awarded the Special Recognition Award on Business Responsibility and Ethics by the Sustainable Business Awards.



Mr. Martin Bek-Nielsen receiving the ISPO certification on behalf of PT SSS.



Bidding fond farewell to Mr. and Mrs. Ho Dua Tiam, Inspector General Estates/Special Adviser, after 54 years of loyal and dedicated service.



Recipients of United Plantations' 25 Year Service Award.

Our Value Creation Model

We strive to remain a leader within responsible agriculture based on our core values of integrity, discipline, innovation and R&D combined with a dedicated focus on sustainability. Our value creation model enables us to focus on the resources we have available and how we can create value for our stakeholders over time through our integrated business activities.

Business Resources (Input)

FINANCIAL RESOURCES	HUMAN RESOURCES	INTELLECTUAL RESOURCES	SOCIAL & RELATIONSHIP RESOURCES	MANUFACTURED RESOURCES	NATURAL RESOURCES
<p>Strong and stable financial position enabling investments</p> <p>Access to financial institutions</p>	<p>Dedicated and competent employees</p> <p>Succession planning and training</p> <p>Sustainability focus</p>	<p>Vast experience and knowledge</p> <p>Innovation and R&D capabilities</p> <p>Good agricultural practices and policies</p>	<p>Key stakeholders including suppliers and international customers</p> <p>Good collaboration with local government institutions and surrounding communities</p>	<p>Well-functioning palm oil mills and refineries integrated with estates</p> <p>Quality control and R&D investment in place</p>	<p>Fertile and strategically located land bank</p> <p>Biomass availability</p> <p>Water availability through adjacent rivers</p>
<p>MARKET CAP RM5.47 billion</p> <p>CASH AND SHORT TERM FUNDS RM459 million</p> <p>DEBT/EQUITY RATIO 0.12</p>	<p>EMPLOYEES 6,844</p>	<p>SINCE 1906</p> <p>R&D ESTABLISHED 1951</p>	<p>PLASMA 1,314 Ha</p> <p>COPENHAGEN ZOO COLLABORATION Since 2010</p> <p>SOCIAL COMMITMENTS RM17.2 million</p>	<p>REFINERIES 2</p> <p>PALM OIL MILLS 5</p> <p>BIOGAS PLANTS 5</p>	<p>LAND BANK 63,074 Ha</p> <p>PLANTED AREA 51,284 Ha</p> <p>CONSERVATION 8,029 Ha</p>

Our Integrated Business



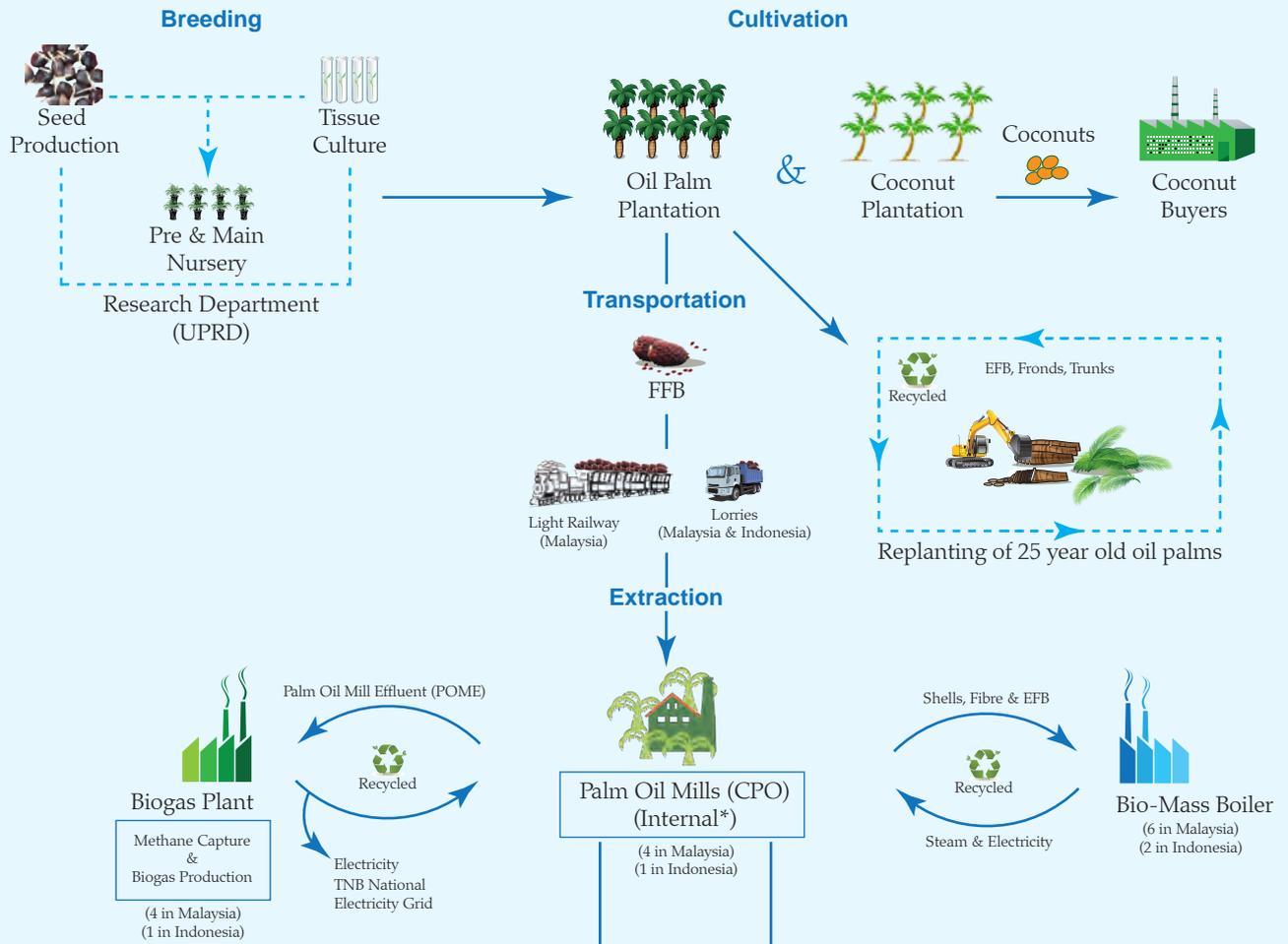
Business Resources (Output)

SHAREHOLDER VALUE	EMPLOYEE SATISFACTION AND CREATING SHARED VALUE	CERTIFIED SUSTAINABLE PALM OIL	BALANCE BETWEEN ECONOMY AND ECOLOGY	QUALITY PRODUCTS	GREEN HOUSE GAS EMISSIONS AND WASTE
<p>Value created through good performance</p> <p>Capital appreciation and sustainable dividends over time.</p>	<p>Safe and respectful work environment</p> <p>Good housing, medical & education facilities</p> <p>Advancing the economic and social condition in the surrounding communities</p>	<p>Sustainability practices operationalised</p> <p>Increasing sales of certified sustainable products of high quality</p>	<p>Focus on R&D and efficiency to optimise yields</p> <p>Preserving the environment through conservation efforts</p>	<p>Delivering premium quality products and services that are safe and based on a high level of responsibility</p>	<p>Key focus and investments in the circular economy where waste is converted to renewable energy.</p>
<p>PROFIT AFTER TAX 284 million</p> <p>EARNING PER SHARE 136 sen</p> <p>DIVIDEND YIELD 5.14%</p>	<p>SAFETY PERFORMANCE UP MALAYSIA : 98.6% UP INDONESIA : 99.8%</p> <p>PLASMA FARMERS 815</p>	<p>RSPO CERTIFIED PALM OIL 182,600 MT</p> <p>RSPO CERTIFIED PALM KERNEL 37,600 MT</p> <p>NEW RSPO CERTIFIED AREA 6,717.12 Ha</p>	<p>TOTAL FFB YIELD/Ha 25.88 MT</p> <p>TOTAL OER 22.02%</p> <p>TOTAL CPO YIELD/Ha 5.70 MT</p> <p>TOTAL ANIMAL SPECIES 399</p>	<p>CERTIFICATION ISO 9001, HACCP, HALAL, KOSHER, BRC, GMP, MESTI, FDA, GMP +B2, MPCA</p> <p>LOW CONTAMINANTS 3-MCPD < 0.5 ppm GLYCIDYL < 1.0 ppm</p>	<p>REDUCTION OF GHG EMISSIONS SINCE 2004 (INCLUDING iLUC & NATURE CONSERVATION) 43%</p> <p>BIOMASS UTILISATION RATE 99.6%</p>

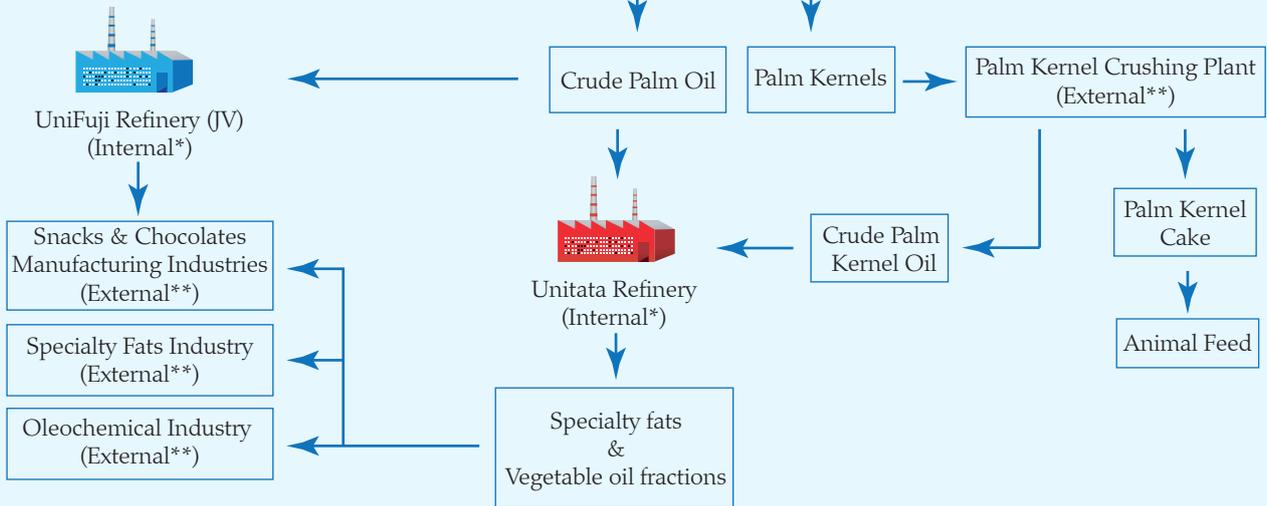
Through our integrated business, we support and contribute towards the United Nation Sustainable Development Goals (UNSDGs).

Creating Value Through UP's Intergrated Business Activities

Upstream (Plantation Division)



Downstream (Manufacturing Division)



Internal* : Within the UP Group.
 External** : Stakeholders, outside the UP Group.

Segmental Contribution 2019

UPSTREAM	DOWNSREAM	OTHERS
75 %	22 %	3%
RM213.6 million	RM61.3 million	RM9.4 million

Governance Structure

Effective governance and robust risk management policies and procedures combined with our core values are key for achieving long term success.

The Board of Directors of UP is responsible for approving the direction and overall strategy for UP Group and monitoring and management's progress in connection with the financial objectives and strategic priorities. The Board receives a formal Sustainability Report at least once a year before it is reviewed and approved for release to the shareholders and public.

In relation to UP's overall sustainability objectives, targets and priorities, the Board of Directors has delegated responsibility to the Executive Committee (EXCOM) headed by the Chief Executive Director (CED), Dato' Carl Bek-Nielsen. The Executive Committee reviews and approves UP's sustainability objectives and monitors progress and sustainability developments within the Group.

The CED and EXCOM are assisted by the Group Sustainability Committee (GSC) which is chaired by the CED. There is also the Group Sustainability Reporting

Team (GSRT) headed by Mr. Martin Bek-Nielsen, Executive Director, Finance & Marketing and includes key personal from Finance, Research, HR & Environment, Safety & Health, Share Registrar and Marketing Departments.

The GSRT collates all the information from the GSC, stakeholders' responses and prepares the Sustainability Report.

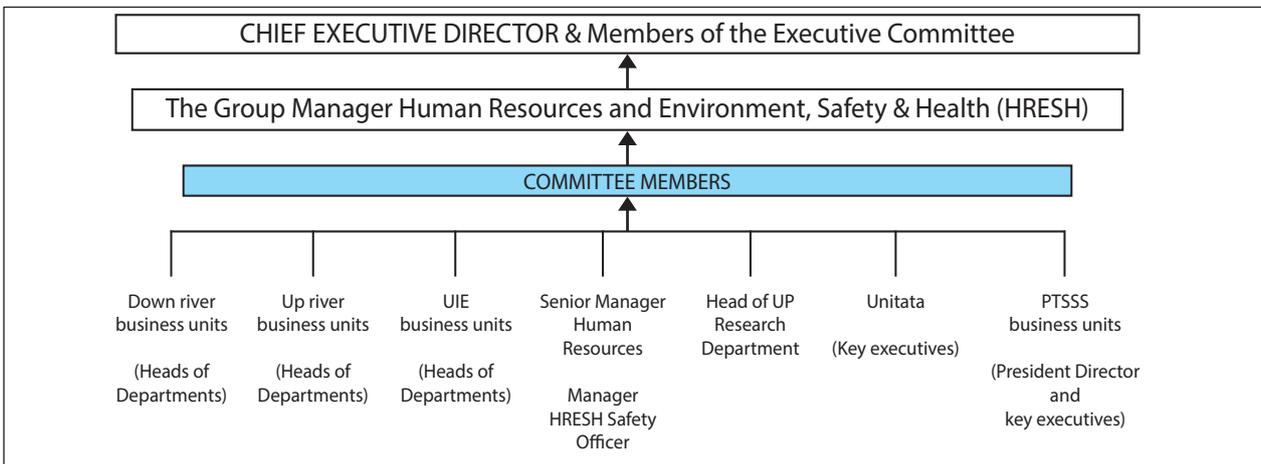
Sustainability matters have been a subject close to the heart of UP. Officially established in 2003, the GSC provides policy direction on strategic leadership on UP's Sustainability agenda, identifies our Group's most material issues in relation to risks and opportunities and monitors progress against targets set by the CED and EXCOM on a bi-annual basis.

Since the Sustainability Report became mandatory in 2016, Mr. Martin Bek-Nielsen has been briefing the Board, CED and EXCOM on the work of the GSRT and sustainability issues at every official meeting held. Sustainability is also a key aspect in the Group's Risk Management Structure which assesses various sustainability issues and developments in its annual Risk Assessment and Management process.

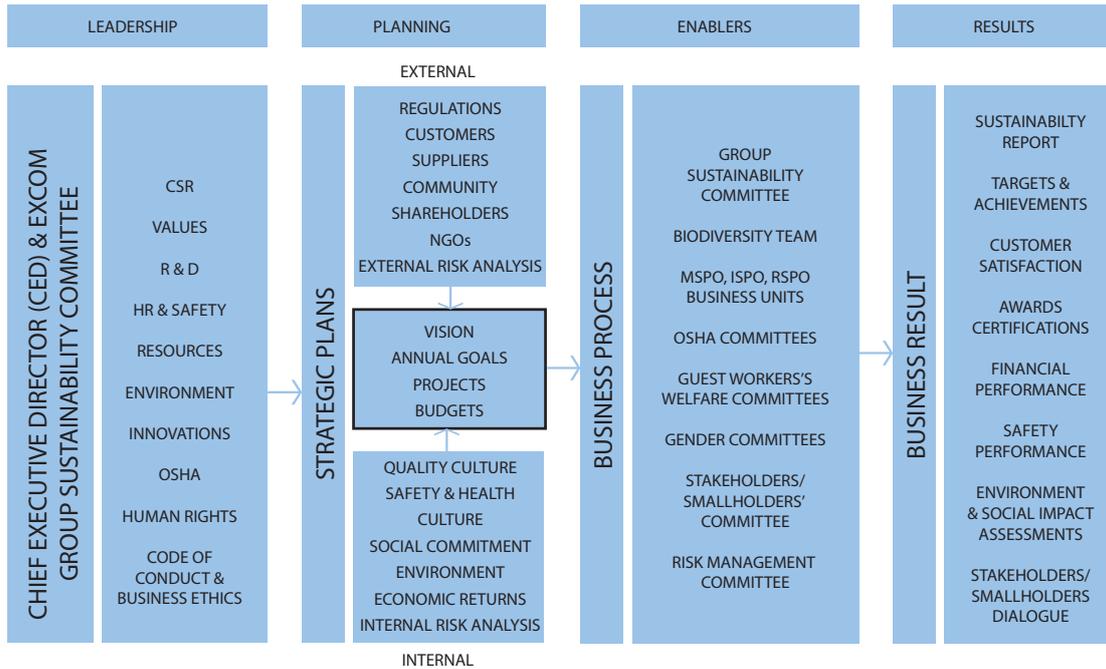
Sustainability Governance Management Structure



Group Sustainability Committee



Group Sustainability Systems Framework (GSSF)



UP's Group Sustainability Systems Framework (GSSF) is the system through which its commitment to environment and sustainable development including social and occupational safety and health matters are formalized. It is based on four key focus areas as follows:

Leadership of the Group Sustainability Committee is at the highest level of the company and is spearheaded by the Chief Executive Director Dato' Carl Bek-Nielsen. This committee provides policy directions on environment and sustainable development, occupational safety and health, allocation of resources and communications.

Planning encompassing external and internal needs that are formulated through the company's vision, policies, goals, projects budgets and risk analysis.

Enablers are various sub-committees and teams that ensure the adoption of environment and operational practices that are in line with current best practices and policies.

The MSPO, ISPO and RSPO business units and the various sub-committees are enablers of the GSSF and ensure that the environmental and operational policies are implemented. They are guided amongst others by the MSPO, ISPO and RSPO's Principles and Criteria and following Manuals and SOP's:

- 1) MSPO, ISPO and RSPO Principles and Criteria

- 2) Field Management Manual
- 3) Standard Operating Procedures – Oil palm field practices
- 4) Standard Operating Procedures – Palm Oil Mill operations
- 5) Occupational Safety and Health and HIRARC Manual
- 6) Environment & Social Impact Assessments and its Management & Monitoring Plans
- 7) High Conservation Value, High Carbon Stock Assessments and its Management & Monitoring Plans
- 8) ISO9001:2008, HACCP and Quality Manual for Unitata Refinery

Results are measured through customer satisfaction, safety performance, financial performance, environment protection and management and certifications.

The Group's Internal Audit Department, together with the Group's Sustainability Division carries out audits on various sustainability issues and areas throughout the year to ensure compliance to the Group's sustainability policies and procedures.

Materiality

This report addresses key sustainability matters which have been identified after taking into consideration both the Group's view on significant environmental, economic and social aspects, impacts, risks and opportunities which are vital to the success and continued growth of the Group, and the views and responses from our stakeholders on pressing material issues.

In identifying the material sustainability matters, and opportunities, we have drawn information from various internal and external sources of information which include the views of the Group Sustainability Reporting Team within our organisation, stakeholders, industry groups, standards recommended by global and industry specific reporting bodies, such as the Roundtable for Sustainable Palm Oil (RSPO) and the Global Reporting Initiative (GRI) and existing peer literature.

As a result of the abovementioned exercise and evaluation of the Group's Sustainability Risks and Opportunities, we have this year identified 22 key sustainability issues under four main headers, namely Environment, Employees, Community and

Marketplace, which we have assessed as being of high concern to stakeholders and of high significance for our Group in 2019.

Data collected from various stakeholders are then analysed and used to create a materiality matrix which also includes the assessment on the significance of the identified key sustainability matters and the prioritisation of stakeholders to the organisation. The resulting Materiality Matrix is as shown on the following page.

Material issues which have been identified are then assessed by the Sustainability Reporting Team to establish if there are policies and procedures in place to address and manage these issues, and if none, to ensure implementation plans are drawn up and presented to the management for follow up as part of the Group's sustainability commitment.

Quantifiable indicator data and targets are assigned where relevant and are communicated to our stakeholders via this Sustainability Report. The materiality assessment has been reviewed and endorsed by Executive Committee (EXCOM) of UP.



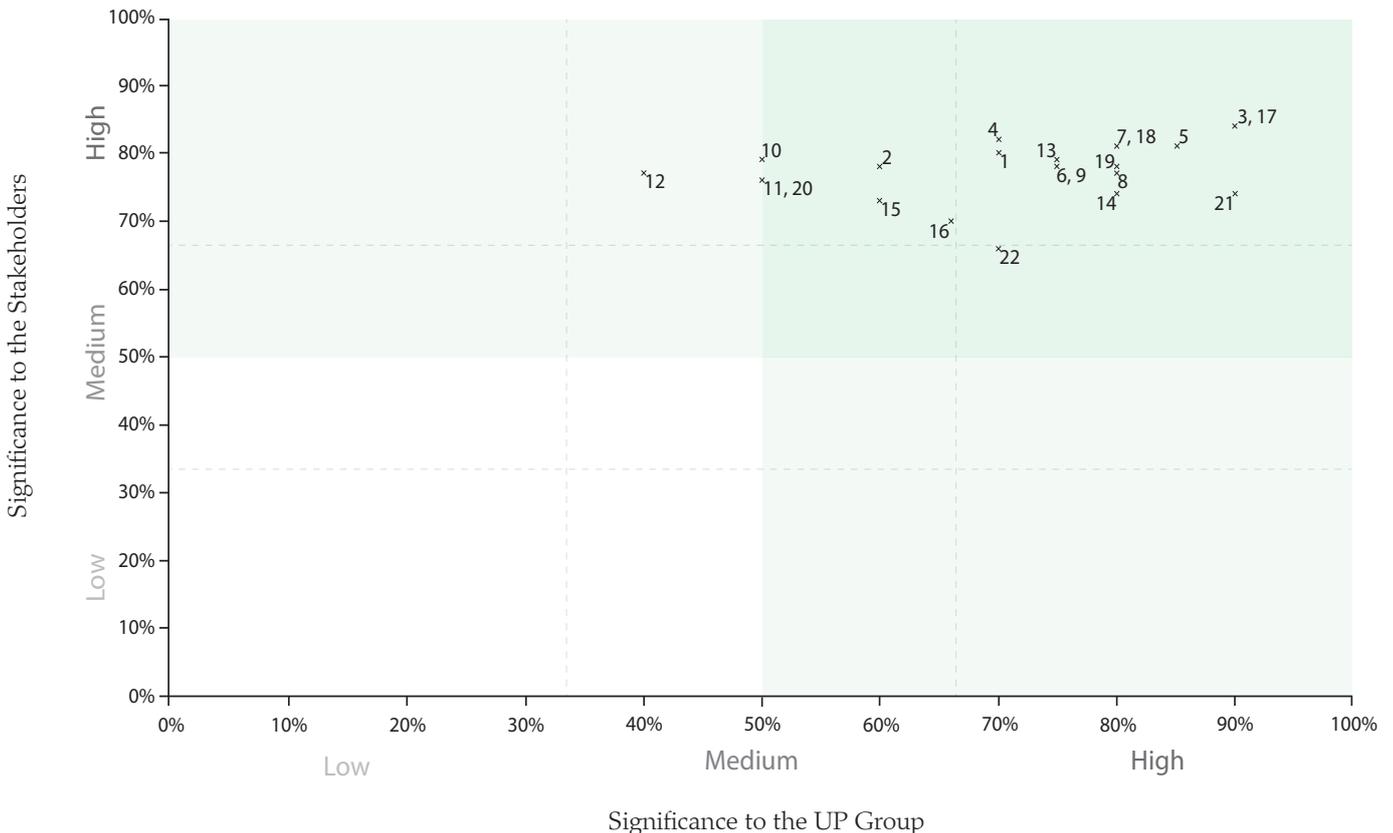
Rail transport of fresh fruit bunches is energy efficient and unique to United Plantations.

Summary of Materiality Matters

22 Key Sustainability Issues	Relevant UN SDGs *	Stakeholder Groups
1. Code of Ethics and Governance	8, 16	<ul style="list-style-type: none"> - Shareholders - Employees - Customers/Consumers - Local Communities /Smallholders - Government Agencies / Regulators - Non-Governmental Organisations (NGO) - Palm Oil Industry Group - Suppliers/Contractors
2. Equal Treatment	5	
3. Human and Workers' Rights	1, 8	
4. Social Care and Workers' Welfare	2, 4, 8	
5. Occupational Safety & Health	3, 9	
6. Fighting the Haze and Preventing Fires	13	
7. Biodiversity and Conservation	14, 15, 16, 17	
8. Deforestation/High Carbon Stock	13	
9. GHG Emissions, Discharges and Waste Management	7, 9, 13, 16, 17	
10. Water Impacts	6, 9	
11. Peat Development	13	
12. Pesticides and Chemical Usage	12	
13. Community Welfare	3, 4, 8	
14. Free, Prior and Informed Consent	16	
15. Grievance Resolution	16	
16. Plasma Development (for Indonesia)	2, 12	
17. Product Quality	12	
18. Certifications for Food Safety, Sustainability and Others	12	
19. Sustainability and Traceable Supply Chains	12	
20. Evaluation of Suppliers/Contractors' Sustainability Commitment	12	
21. Commodity Prices	-	
22. Currency Fluctuation	-	

* Please refer to page 44 on United Nations Sustainable Development Goals (UN SDGs).

Materiality Matrix





United Plantations Berhad supports the United Nations Sustainable Development Goals (UN SDGs)

United Nations Sustainable Development Goals (UN SDGs)

UP respects and recognises the importance of its role in this global initiative. As such, the Group has mapped the relevant SDGs with each materiality topic and identified eight (8) UN SDGs with their specific targets that are most relevant to its business operations as well as key concerned materiality topic highlighted by the stakeholders.

For more information, please refer to our website, www.unitedplantations.com/sustainability/.

Targets and Achievements

Our targets and commitments drive us to continuously improve and we subscribed to the mantra “what we measure, we can manage”. In this report, we provide a brief overview about our progress of targets and achievements and for further details, please refer to our website, www.unitedplantations.com/sustainability/.

The key progresses made this year is the reduction of carbon footprint per MT of NBD oil by 43% compared to 2004 levels with iLUC and nature conservation. In our Indonesian operations, we are pleased to inform that the entire HGU area of 6,717.62 Ha have achieved ISPO and RSPO certifications.

In our Malaysian operations, the entire plantations and mills are MSPO and RSPO certified. We have further extended the guest workers’ passport lockers covering 63% of our plantations in Malaysia and expect to complete all sites by 2021.

UP and Sustainability Certifications

The Migros Criteria, ProForest and UP’s involvement in the RSPO

Whilst UP has focused on responsible agricultural production for generations, our formal journey towards being recognized as a certified producer of sustainable palm oil commenced in September 2003 when we were audited by ProForest and became the world’s first audited producer and processor of sustainably produced palm oil in accordance to the Swiss supermarket chain, Migros’ principles and criteria on sustainable palm oil. UP’s role regarding the RSPO remain one of being active and in this connection, we are pleased to state that our Company was one of the initial palm plantations signatories to the RSPO in 2004. Shortly after the establishment of the RSPO, UP was a part of the initial stakeholders group involved in developing the principles and criteria to define sustainable palm oil.

UP’s involvement in the RSPO today

Today our CED, Dato’ Carl Bek-Nielsen is the Co-Chairman of the RSPO Board of Governors representing the Malaysian Palm Oil Association’s seat. He was elected to this position in November 2014 and has thereby actively participated in and helped to oversee important developments and decisions within the RSPO.

UP’s RSPO certified sustainable production volumes

Our capability of supplying sustainably certified, traceable and high-quality palm oil and palm kernel oil is an important part of our commitment to customers. Our total

RSPO certified and traceable quantity available based on our own production was approximately 182,600MT of palm oil and 37,600MT of palm kernels in 2019.

Supply outpacing RSPO certified demand

Whilst it is commendable that approximately 19% of the world production of palm oil is now certified by the RSPO it is unfortunately still a fact that the global uptake of RSPO certified palm oil was only 7,068,932MT or 49% of the supply amounting to 14,351,626MT of CPO in 2019, thereby outpacing demand.

This is a dreadful message to the growers and clearly shows that there are many western consumer goods manufacturers (CGMs) and retailers who whilst being members of the RSPO have failed to take ownership of the sustainability commitments manifested within the RSPO.

The RSPO certified oil not purchased will end up in the supply chain without being sold as certified sustainable palm oil-but just conventional palm oil sending a negative message to growers worldwide.

In this connection, during the RSPO RT held in Bangkok in November 2019, it was pleasing to note that the concept of commensurate effort/shared responsibility which was initially spear-headed and put forth as a necessary criteria was finally adopted by the Board of Governors of the RSPO. This is poised to help stimulate the demand for RSPO certified oil.

UP and the World's First RSPO Certificate in 2008

UP's entire oil palm plantations in Malaysia were successfully certified in accordance with the RSPO Principles and Criteria on the 26th August 2008 thus becoming the world's first producer of certified sustainable palm oil. It subsequently conducted its second cycle recertification in 2017 and successfully conducted Annual Surveillance Audit 1 and 2 in 2018 and 2019 respectively.

We anticipate to conduct RSPO Scope Extension Assessment for our newly acquired plantation, Tanarata Estate within three years from date of acquisition (August 2019). For our Indonesian operations, UP/PTSSS have successfully obtained the certificate for the entire HGU* area of 6,717.62 Ha in December 2019.

The Time Bound Plan for the balance uncertified areas will be in tandem with the issuance of HGU certificates by the Government of Indonesia. This is expected by 2023. For our Plasma scheme smallholders, the full certification is expected by 2023 subject to the issuance of individual land certificates by the local government.

*HGU refers to the certificate on land cultivation rights title issued by the Government of Indonesia.

Malaysian Sustainable Palm Oil (MSPO) Certification

The Malaysian Sustainable Palm Oil (MSPO) standard is a national certification standard created by the Malaysian Government and developed with input from stakeholders in the palm oil industry.

We are pleased to announce that all of our mills and estates in Malaysia have successfully obtained the MSPO Certificates in August and September 2018 and subsequent Annual Surveillance Audits are ongoing.

We anticipate to conduct MSPO Scope Extension Assessment for our newly acquired plantation, Tanarata Estate by the 4th quarter of 2020.

Indonesian Sustainable Palm Oil (ISPO) Certification

The Indonesian Government established a mandatory certification scheme in 2011, namely the Indonesian Sustainable Palm Oil Principles & Criteria (ISPO) to ensure that all producers within a few years will have to live up to certain standards when operating in Indonesia.

We are pleased to announce that we have successfully obtained the ISPO initial certificate for the entire HGU* area of 6717.62ha in August 2019 and subsequent Annual Surveillance Audits are ongoing.

*HGU refers to the certificate on land cultivation rights title issued by the Government of Indonesia.

Sustainable Palm Oil Transparency Toolkit (SPOTT)

UP participates in the Sustainable Palm Oil Transparency Toolkit (SPOTT assessment conducted by Zoological Society of London (ZSL)). SPOTT is designed to measure the transparency of companies in public disclosures of best practices and sustainability commitments via the RSPO Annual Communication of progress (ACOP), RSPO New Planting Procedures (NPP) Public Notification, Company Annual/Sustainability Report and Company Website.

The key objectives of the SPOTT assessment is to promote industry transparency and accountability to drive the uptake and implementation of environmental and social best practices in high biodiversity impact sectors.

United Plantations Berhad maintains an active engagement and commits to collaborate with the Zoological Society of London (ZSL) in the progress towards improving sustainability reporting and enhancing a greater transparency.

Our current status on SPOTT assessment as of October 2019 is 84.4% resulting in UP being ranked as number 3 amongst the 99 assessed Global Oil Palm Producers and Traders.

For further details on SPOTT assessment for palm oil companies, please refer to SPOTT's website, www.spott.org/palm-oil/



Pre-nursery seedlings carefully transplanted into the main nursery.

Employees

The success and achievement of our Group is related to our employees, both past and present, who loyally through hard work, strong leadership, honesty and respect have committed themselves to serve and dedicate their career and livelihood at UP.

We promote a working environment where there is mutual trust and respect and where everyone feels responsible for the performance and reputation of our group "No man at the top is stronger than the pyramid of people who support him/her." We recruit, employ and promote employees on the sole basis of the qualifications and abilities needed for the work to be performed and meritocracy is a hallmark of our Group.

Our employees are the Groups' core assets, without which the success and stability of UP would not materialise. We are committed to diversity and have an equal employment opportunity policy.

Whilst we actively promote the employment of women at UP, we also recognise that some work on our plantations is potentially more suitable for men due to the heavy physical nature of the tasks.

Male workers predominantly perform tasks such as harvesting fresh fruit bunches, crop collection and evacuation to the railway cages for transport to the mills, while women are assigned lighter work such as weeding, gardening and loose fruits collection. We provide crèches, playgroup classes and kindergarten at all operating sites to support our employees and their children.

UP Group

Employees – Year 2017 to 2019

	2019	2018	2017
UP Bhd	5,169	4,936	5,223
Unitata Bhd. and UniFuji Sdn. Bhd.	304	282	242
Butterworth Bulking Installation Sdn. Bhd.	16	16	15
PT SSS1, Indonesia	1,355	1,274	1,345
Total	6,844	6,508	6,825

Category of Employees (Malaysian) as at 31 December 2019

Employee Classification	Gender Classification		Age Classification			Ethnic Classification				Total
	Male	Female	18-30	31-50	>50	Malay	Chinese	Indian	Others	
Directors	1	-	-	-	1	-	1	-	-	1
Management	113	22	23	71	41	27	24	81	3	135
Staff	19	137	66	157	104	97	7	218	5	327
Workers	563	349	213	389	310	244	1	664	3	912
Total	867	508	302	617	456	368	33	963	11	1,375

Category of Employees (Other Nationalities) as at 31 December 2019

Employee Classification	Gender Classification		Age Classification			Ethnic Classification					Total
	Male	Female	18-30	31-50	>50	Others	Indonesia	Nepalese	Indian	Bangladeshi	
Directors	2	-	-	2	-	2*	-	-	-	-	2
Management	12	2	-	9	5	1*	13	-	-	-	14
Staff	40	11	11	40	-	-	51	-	-	-	51
Workers - PTSSS	989	295	361	850	73	-	1,284	-	-	-	1,284
Guest Workers - Malaysia	4,072	46	1,816	2,268	34	6	1,030	15	938	2,129	4,118
Total	5,115	354	2,188	3,169	112	9	2,378	15	938	2,129	5,469

* Danish & British

Grand Total = 6,844

Summary of our Group's employees gender mix

	UP Indonesia (PTSSS)	UP Malaysia	UP Group
Percentage Female Employees	23.00%	10.20%	12.60%
Percentage Male Employees	77.00%	89.80%	87.40%

Code of Conduct and Business Ethics

A key element of UP’s sustainability framework is our Code of Conduct & Business Ethics. We implement responsible and ethical business policies and practices in all aspects of our operation. The Government in line with its anti-corruption drive has announced that S17(A) MACC Amendment Act (2018) which covers corporate liability will come into force on 1 June 2020, to comply with this new enactment, the Code of Ethics & Governance Policy was reviewed and expanded to include all associated persons as defined under the Act. The changes were made under the Business Integrity and Corruption section of this Policy as follows:

UP has a zero-tolerance to fraud, bribery, and corruption and this applies to all dealings by our directors, employees, suppliers, consultants, agents and any persons associated with UP.

- UP as a responsible corporate citizen has been and shall continue to give scholarships and donations to deserving cases on the condition that this is not corruptly given as defined under Section 17 A(1) of MACC Amendment Act 2018. However, UP has a general policy of not giving political contributions to any political parties or candidates.
- UP does not prohibit the giving of meals and gifts in the course of business dealings as long as these are of reasonable value, not in cash and are not corruptly given.
- Corruption and bribery risk assessment was done and adequate procedures have been put in place to minimise the exposure to the Group. This risk like all other identified risks shall be periodically assessed and reported in the Statement On Risk Management and Internal Control.
- Directors and officers have been sent for training to familiarise themselves with S17A MACC Amendment Act (2018). In-house anti-bribery training has been and will continue to be conducted in all operating units. Associated persons like contractors, agents, consultants, suppliers with bribery risks have been made aware and they have undertaken to comply with this Policy.

- The Internal Audit Manager has been appointed as the competent person responsible for anti-corruption compliance matters and he is to report all his findings on this area to the Chairman of the Audit Committee who is an independent director. The Chairman of the Audit Committee shall after deliberation at the Audit Committee report the findings to the Board.

In addition to the above, all directors and employees who are vested with approval authorities on purchasing or enter into trades are to declare in the Annual Conflict of Interest Statement their compliance with the section on Conflict of Interest under this Policy.

For more information on our Code of Conduct and Business Ethics, please refer to our website, www.unitedplantations.com/sustainability/.

Whistleblower Policy

We are committed to high standards of ethical, moral and legal business conduct. This policy aims to provide an avenue for employees, that they will be protected from reprisals or victimization for whistle blowing.

For more information on our Whistleblower Policy, please refer to www.unitedplantations.com/sustainability/.

UN Guiding Principles On Business And Human Rights

During the launch of The Malaysia Chapter of the UN Sustainable Development Solutions Network (UN-SDSN) in 2015, UP was mentioned as one of the sustainable development solution initiatives being undertaken in Malaysia. In the SDSN Malaysia Chapter, UP was identified as a “Business with a soul”. This acknowledgement was indeed pleasing and indicated our commitment to being a leader in economic, environmental and social sustainability.

Human Rights Policy

United Plantations Berhad is committed to the protection and advancement of human rights including prohibiting the use of child or forced labour wherever we operate. Our human rights policy is based on our core values on Safety and Health, Environmental Stewardship and Respect for people.



	2019	2018	2017
Total Average Earnings per worker per month - UP Group Plantations (Malaysia)	RM 1,625	RM 1,595	RM 1,592
Total Average Earnings per worker per month - UP Group (Indonesia) - Permanent Workers	IDR 3,561,489	IDR 3,767,903	IDR 3,391,159
Total Average Earnings per worker per month - UP Group (Indonesia) - Temporary Workers	IDR 2,968,447	IDR 3,276,675	IDR 2,409,208

For further details on Human Rights Policy, please refer to our website, www.unitedplantations.com/sustainability/.

Guest Workers Policy

We consider our foreign workers as guest and they are partners in our business along with our local workers. Our guest workers are from Indonesia, Bangladesh, India, Nepal which constitutes 85% of our workforce in Malaysia, as such our challenges are to identify and understand human rights impacts on our diversified workforce within our Group.

For further details on our Guest Workers Policy, please refer to our website, www.unitedplantations.com/sustainability/.

Recruitment Practices

We recruit guest workers directly through the appropriate government approved channels as below:

- Indonesians – Indonesian Embassy – FWCMS – KDN
- Indians – e-Migrate System – FWCMS – KDN
- Nepalese – Nepal High Commission – FWCMS – KDN
- Bangladeshis – Awaiting new recruitment policy by Malaysian Government

*FWCMS - Foreign Workers Centralised Management Services by Government of Malaysia

*KDN - Kementerian Dalam Negeri/ Ministry of Home Affairs of Malaysia

*e-Migrate system by the Government of India

We do not charge any recruitment fees to reduce the financial burden on our guest workers.

We are waiting for the new recruitment policy by the Malaysian Government. Upon its release, we plan to establish call centres in the respective source countries which will act as a bridge between the workers from villages to the main accredited recruiting agents in order to disseminate the recruitment process, job scope at the plantations and conduct pre-departure briefings. It will also minimize the risks of sub-recruiting agents charging additional recruitment costs on the guest workers.

Paying fair wages and employees benefits

The average monthly earnings of our workers in Malaysia amounts to RM1,625 which includes productivity incentives and overtime. The minimum wage set by the Malaysian Government in 2019 was RM1,100. We practice gender equality policy on wages payment and remuneration for all our employees. For our Indonesian operations, the average monthly earnings of the permanent workers amounts to IDR3,561,489 which includes productivity incentives and overtime. The minimum wage set by the Indonesian Government in 2019 was IDR2,965,514 and will increase 2.8% to IDR3,047,533 in 2020.

The average earnings per workers per month are reflected in the table above.

Guest Workers Repatriation and Leave

With 85% of our workforce being guest workers, there is a frequent turnover of employees within our Group. We strongly promote freedom of movement which can be seen in the table below. During 2019, 675 guest workers have been repatriated upon completion of their employment tenure. Another 542 guest workers went back on leave to their respective home countries with the majority returning back to resume their employment at UP. Nevertheless, 84 guest workers who had gone on leave did not return.

Repatriation and Leave during the year	2019	Total number of guest workers (%)
Total number of guest workers	4118	100
Repatriation	675	16.39
Gone on leave	542	13.16
Gone on leave and returned	458	11.12
Gone on leave and did not return	84	2.04

Freedom to form a Union

Employees and workers have the right to form and become members of labour unions. Through unions, workers have the right to carry out collective bargaining as permitted under Malaysia and Indonesia laws.

UP Group (Malaysia)	2019	2018	2017
% of staff as members of All Malayan Estates Staff Union (AMESU)	74	76	76
% of workers as members of National Union of Plantations Workers (NUPW)	15	16	14
% of workers as members of Food Industry Employees' Union	39	45	57
UP Group (Indonesia)	2019	2018	2017
% of workers as members of Union*	6	6	5

*In Indonesia, the union committee has been re-established and membership drive is in progress.



An aerial view of the Jendarata palm oil mill and Unitata refinery complex surrounded by employees' housing quarters.

Social Commitments and Social Amenities

Our commitment towards providing quality housing and social amenities and to maintain the highest possible welfare standards for the families of our workforce.

Providing and improving social amenities remains very much a hallmark within our Group. Continuous improvements were made during 2019 to maintain the highest possible welfare standards for our workforce.

For babies and young children, UP continues to provide and maintain crèches for personalised childcare thereby ensuring that employees are comfortable about their children while at work.

Today, our Group has 9 Primary Schools and 7 Kindergartens which are maintained by the Company, providing education for more than 500 children ranging from ages of 5 to 12 years. Bus subsidies for school children above the age of 12 years old are also provided for.

Places of worship for our employees, Group Hospitals and Clinics and an Old Folks' Home to care for the aged and the homeless as well as a fully operational Danish Bakery are also a part of UP's care and commitment towards the wellbeing of its employees. In addition, 33 scholarships were granted to children of our employees during 2019 thereby enabling these students to pursue their tertiary studies. For more information of our social amenities, please refer to our website, www.unitedplantations.com/sustainability/.

Social Commitments of the Group

	2019 RM	2018 RM	2017 RM	Grand Total RM
Hospital & Medicine for Employees, Dependents & Nearby Communities	2,443,905	2,424,918	2,400,609	7,269,432
Retirement Benevolent Fund *	460,656	531,338	101,866	1,093,860
Education, Welfare, Scholarships & Other	323,408	298,841	298,269	920,518
Bus Subsidy for School Children	169,244	206,377	215,545	591,166
External Donations	119,735	127,359	120,008	367,102
New Infrastructure-Road, TNB and Water-Supply for domestic use	1,510,388	772,903	1,132,292	3,415,583
Employee Housing	4,510,135	7,134,389	11,879,818	23,524,342
Infrastructure Projects, Buildings, Community Halls, Places of Worship	1,678,719	2,508,547	6,773,589	10,960,855
Provision of Social Amenities	5,975,262	5,158,811	6,195,586	17,329,659
Total	17,191,452	19,163,483	29,117,582	65,472,518

* The above payments are in addition to the regulatory contributions by the Group to the Employees' Provident Fund, Social Security Contributions and other benefits.



The Human Resource, Environment, Safety and Health team briefing workers on safety practices.

Training and Development

In UP, our human capital is indispensable and our approach is “Reach and Teach” as well as “Reach and Remind”. Training schedules are prepared for our employees annually in the respective estates and other departments to ensure that the various trainings are being carried out on a regular basis throughout the year.

This is monitored and verified internally by the HRESH team and also through external auditors during RSPO/MSPO/ISPO annual audits. As for Staff and Executive levels, trainings are generally conducted on a group basis.

These trainings cover Occupational Safety & Health, Human Rights, Best Agriculture & Management Practices and Industrial Laws and others. With 85% of our workforce being guest workers and with 20% annual turnover it is imperative that on the job trainings and re-trainings are constantly conducted.

The scope further widens for certain type of categories, for instance, fire drills are being held periodically as per annual trainings programmes with the participation of neighbouring communities.

The competence and skills of the Group’s employees are the main contributors to Operational Success. This, undoubtedly, also helps them to enhance their capabilities and build capacity.

Life-long learning, through training programme, conferences and seminars which are relevant to the Group’s businesses are identified on an on going needs basis and the Company allocates a dedicated training budget to support the continuous development of our employees.

The trainings’ effectiveness transpires in the awareness of our employees during unannounced internal audits and performance monitoring.

Occupational Safety and Health

We are committed to securing the safety and health of all our employees at work and strive to maintain a safe and healthy working environment for our employees, contractors, visitors and local communities throughout our operations.

We value our work place safety and health as being of paramount importance for all our employees and our respective Managers/Heads of Departments are responsible in implementing this policy.

For further details on our Occupational Safety and Health Policy, please refer to our website, www.unitedplantations.com/sustainability/.

Fatal Accident Rate (FAR)

During 2019, the Group regrettably experienced three fatal accidents. These fatalities involved two tractor related accidents and one oil mill operator. Such accidents are most unfortunate and deeply regrettable and our hearts go out to their bereaved families.

The Group is determined to continue to mitigate all safety risks through robust safety programmes and preventive intervention.

Our Group will further improve and continue its regular in-house training programmes combined with impromptu safety audits in our mills, estates and refineries through our “Reach and Teach” and “Reach and Remind” initiatives. In line with our approach of preventive measures as a way of providing safe workplaces, we continuously conduct HIRARC on all our operations.

Fatal Accident Rate (FAR)

	2019	2018	2017
Fatal/1000 Employees*	0.56	0.19	0

*For our Malaysian operations including our newly commissioned JV refinery, UniFuji and the newly acquired plantation, Tanarata Estate.

Lost Time Injury Frequency Rate (LTIFR)

In 2019, 55% of accidents involved harvesting operations (thorn pricks, debris falling into eyes, cutting stalk, fronds falling on body, 14 % commuting accidents and 31% others (workshop, fall from height, tractor and lorry, slipped and fall, hand tools as well as sundry works). We are introducing a behavioural safety approach to further enhance the safety culture in the Group.

Lost Time Injury Frequency Rate (LTIFR)

	2019	2018	2017
Frequency/Million Hours*	8.27	6.56	9.04

*For our Malaysian operations including our newly commissioned JV refinery, UniFuji and the newly acquired plantation, Tanarata Estate.



The reticulated python sighted in our PT SSS conservation zone.

Environment



UP is committed to being a leader in sustainable agricultural practices and is aware of the footprint it leaves on the environment and our Group therefore constantly strives towards reducing variables that impact the environment negatively. Focus on reducing GHG's, energy, water and waste in line with the concept of the circular economy is therefore a vital part of UP's environmental policies.

Global plantation development has contributed significantly to economic development and prosperity. However, deforestation and other unsustainable practices have many negative consequences for people and the environment and as a Group we therefore are fully committed to protect forests, peatlands, and human and community rights.

As an important part of our sustainability journey we work closely with other growers, suppliers, contractors, processors, NGOs, Brand manufacturers and other industry stakeholders to take part in transforming the industry as well as to create further awareness on the importance of sustainable palm oil production.



Jungle reserves such as in Lima Blas Estate are biodiversity repositories.

In addition to our focus on continuous improvement to minimise waste and our overall carbon footprint, our Group has through investments and a dedicated Group Sustainability Committee introduced policies to break the link between palm oil and deforestation. We fully adhere to the Principles & Criteria of the MSPO, ISPO and RSPO as well as our commitment on No Deforestation, No New Development on Peat and No Exploitation of People and Local Communities (NDPE) which are embedded in our Environment and Biodiversity Policy as well as Human Rights Policy.

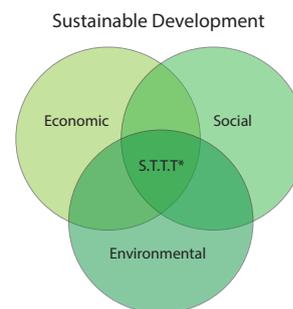
Key points of our Environment and Biodiversity Policy are summarized below and for further details please see the sustainability section on our website, www.unitedplantations.com/sustainability/.

- Conducting our operations under the best principles of agriculture.

- Promoting the conservation and development of biodiversity within our group of plantations.
- We want to ensure that our agricultural operations comply with the following criteria:
 - No development on high carbon stock (HCS) forests
 - No development on high conservation value (HCV) areas
 - No new development on peatland regardless its depth
- We strive to maintain an open and dynamic approach towards continuous improvements in respect of conservation in HCV, HCS areas and reduction of greenhouse gas (GHG) Emissions.

Environmentally friendly policies introduced and milestones achieved which are an integral part of our Environment and Biodiversity Policy :

- Zero-burn policy (1989)
- No primary forest clearing policy (1990)
- No bio-diesel production/supply policy (2003)
- Methane capturing facilities introduced (2006)
- HCV assessment introduced (2007)
- Total phase-out of Paraquat (2010)
- No new development on peat (2010)
- HCS assessment and Land Use Change Analysis for new plantings (2014)



*Sustainability through Transparency, Traceability & Trust

Environmental Commitments of the Group

	2019 RM	2018 RM	2017 RM	Grand Total
Environmental Friendly Operational Activities	6,416,803	6,680,501	5,147,810	18,245,114
Environmental Friendly Projects (Biogas, Biomass-others)	328,883	1,577,752	9,030,692	10,937,326
Biodiversity & Conservation (Forest reserve, Endangered Tree Species Projects, Collaboration with Copenhagen Zoo)	1,021,791	758,797	658,062	2,438,650
Total	7,767,477	9,017,049	14,836,564	31,621,090



Riparian reserves such as this mangrove forest on Lada Estate are important for flora and fauna conservation and the health of waterways.

Partnership, Biodiversity & Conservation



Conservation of jungle reserves and wildlife sanctuaries as well as promoting green corridors are examples of our commitment to the environment. To date, United Plantations has set aside more than 7,500 Ha of land for conservation purposes representing approximately 15% of our total planted area in order to encourage biodiversity and wildlife on our estates. In Indonesia, UP has set approximately 40% of its land concession for the purpose of conservation.

Riparian reserves are maintained to preserve flora and fauna, provide wildlife corridors, ensure water quality and prevent erosion. In order to develop effective conservation strategies, we need the assistance of experts in these fields who have established a series of collaborations and partnerships. One such partnership is Copenhagen Zoo (CPH Zoo), which was initiated in 2007 and officially established on 1 October 2010, through a Memorandum of Understanding (MOU) between UP and CPH Zoo. It marked an important milestone for the Company's target of producing certified sustainable palm oil in Indonesia and being able to document the environmental integrity of its Indonesian operations.

Biodiversity Department

In order to better manage our large conservation areas, UP set up its Biodiversity Department (BioD) in 2011 under the purview of Dr. Carl Traeholt, our Group's Chief Environmental Advisor.

The Biodiversity team consists of a Division manager with solid natural resources management experiences, supported by five subject specialists and five field staff. This is supplemented by additional contract-workers when the need arises. The team is responsible for mainstreaming environmental concerns into standard

operational procedures and focus on activities primarily within the following areas:

- Biodiversity (Fauna and Flora)
- Habitat and Ecosystem
- Forestry and rehabilitation
- Hydrology and Limnology
- GIS and Mapping
- Integrated Pest Management
- RSPO and ISPO
- Protection and Monitoring
- Community Outreach

One of the key components in making the BioD a success which is our common goal was to develop internal capacity to manage and conserve UP's ecological resources, and to make first-hand information about biodiversity assets easily available. This is possible with the current BioD consisting of Dr. Carl Traeholt, our Group's Chief Environmental Advisor, Mr. Bjorn Dahlen, Environmental Advisor. Mr. Muhd Silmi, Manager BioD and essential topic specialists, such as a limnologist, a forester/botanist, zoologist, herpetologist and database officer. These subject specialists are supported by two chief rangers and a number of ranger assistants, as well as a native tree nursery manager.

Biodiversity Department's activities

Since 2011, the BioD had undertaken an impressive amount of activities in support of the company's commitment of producing sustainable palm oil and conserving the natural environment. In the past, many exciting activities and accomplishments have been reported. For example, the Biodiversity Division has worked with leopard cats, *Prionailurus bengalensis*, as predator of rats to replace the environmentally detrimental chemical control. The work with the Sumantra cobra (*Naja Sumatrana*) and king cobra

(*Ophiophagus Hannah*), the world's largest venomous snake has not only produced some amazing results. It has also attracted one of the world's best known and respected herpetologists, Romolus Whitaker, who continues to grace UP/PTSSS in Kalimantan and offer support and capacity building ever year. The Biodiversity Division has also undertaken numerous camera trap surveys, bird and tree surveys to document the biodiversity within the company's conservation areas. The BioD has recorded many of Borneo's endangered species to date, among them Asia's only great ape, the orangutan, *Pongo pygmaeus*.

While these are exciting and inspiring stories about exotic species, the BioD is about far more than that. An entire host of other activities commenced right from the modest beginning in 2011, including developing a GIS database that incorporates literally all the team's

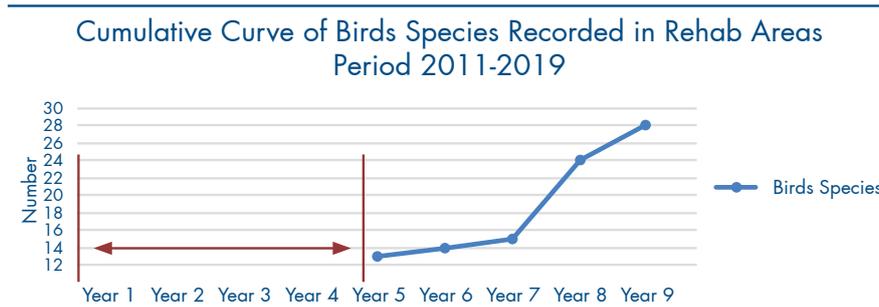
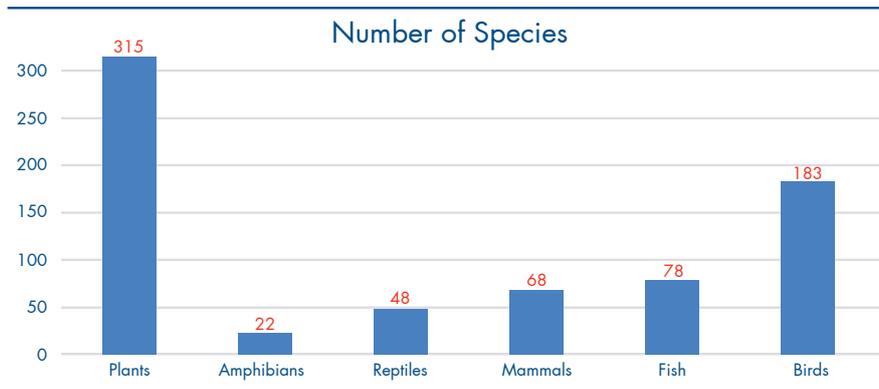
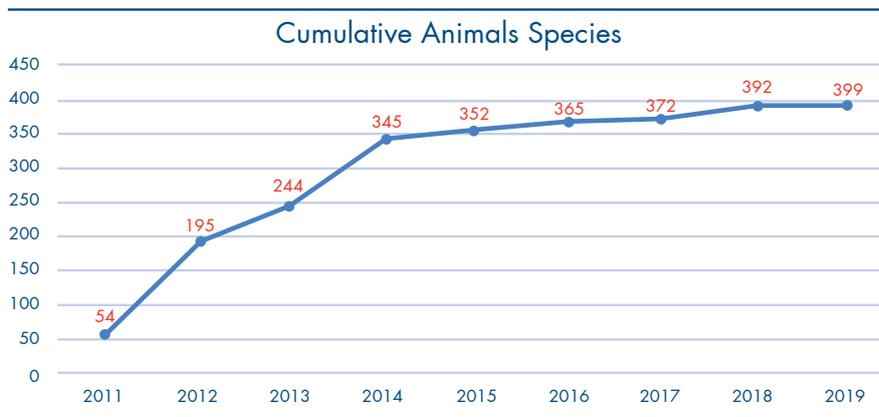
recorded data, be it from camera trap pictures, radio-tracking locations, number of tree seeds collected, time and place of illegal logging or recovery of aquatic fauna. Most of these stories can be found on our website.

Biodiversity activities during 2019 in PT SSS

Recording of Species

To date, the BioD has recorded a stunning 68 species of mammals, 183 bird species, 48 reptiles, 22 amphibians and 78 fish in PT SSS conservation areas.

This is expected to increase significantly in the future as many more surveys are completed. In 2019, we found an additional 7 species which consist of 2 reptiles, 1 mammal and 4 birds to the list bringing it to a new record in PT SSS.



Bird diversity at an increasing trend over the years.



The aerial photo of the rehabilitation areas in field 86, Lada Estate Division II.

Rehabilitation activities

Our Biodiversity division continues to monitor the diversity of birds in rehabilitation areas Field 86. The monitoring purposes is to see the rehabilitation effect on the diversity of birds. We monitored understory birds which mostly use tree canopies for their daily activities and tend to be elusive in behaviour. By use of mist nets, the monitoring started in 2015 and every year the same method has been applied in that rehabilitation location. The result is really interesting.

We found that the number of bird species cumulatively increased every year. In 2019, cumulative number of birds has reached 28 species. It means that there is a positive trend of an increasing number of bird species that use the rehabilitation areas as their habitat. We are proud of the fact that the rehabilitation program has proven to be a success and provides an increasingly comfortable habitat particularly for birds.

In addition to birds and as highlighted during 2018, we were also thrilled to identify the clouded leopard that has started to use the rehabilitation areas. We hope for further progress in the years ahead

Efforts to propagate jungle tree seeds for our rehabilitation activities

Propagating the native Borneo fruit trees is the main program in our nursery site which is located in the Lada



The jungle and fruit tree nursery in Lada Estate and various seeds.



Sprouted seeds of the Tengkwang trees, one of the species of dipterocarp trees. In the past the native people of Borneo used the tengkwang seed to extract oil for cooking purposes.

and Runtu Estates. The fruit trees are very important in providing food sources for a lot of animals in PT SSS conservation areas. Under our rehabilitation programs, we are enriching the forests with these important fruit trees. During 2019, we have planted 8,492 jungle trees in our rehabilitation areas.

As of todate, we have a stock of 34,685 jungle tree seedlings in our nursery. Not just fruit trees, we also prioritise to propagate the trees from the Dipterocarpaceae family or commonly called Dipterocarp trees. The Dipterocarp trees or Meranti which is their local name are diminishing due to high demand for wood extraction, mainly illegal logging. Currently, we have around 4,000 dipterocarp tree seedlings which consist of 4 different species. In the next few months the seeds will be ready for planting in our rehabilitation and conservation areas.

The value of the Pangkalan Durin wetland

The Pangkalan Durin wetland area of 28 Ha is located in Lada Division I. Historically the Pangkalan Durin wetland was owned by a group of people in the village or Desa of Pangkalan Durin. In 2012, the group of people offered the areas of wetland to PT SSS to be planted with palm oil trees under the Plasma scheme.

Due to the conservation qualities of the land the Company together with the BioD offered the owners of the land to buy it or offer them a similar land area size to be planted with oil palm under the Plasma





Storm storks (*Ciconia stormi*) hanging around in the Pangkalan Durin wetland area.



Leopard cat with its meal (rat).

scheme in another location. After some negotiations, the Pangkalan Durin wetland area of 28 Ha was bought and converted to a permanent conservation area which has given a lot of value for biodiversity conservation and ground water management.

The wetland has become a paradise for many water birds. In particular during the dry season where water birds like Whistling duck, Yellow bittern, Egret, Waterhen, Moorhens and Purple heron can be found.

The most impressive and pleasing finding in the Pangkalan Durin wetland area was the presence of a group of Storm stork (*Ciconia stormi*) which is an Endangered species criteria refer to IUCN Red List. At least 4-5 individual storm storks were recorded during the dry season from September to November 2019. It was a meaningful decision that was taken by the company to protect this particular wetland and convert it into a conservation site.

The Leopard cat monitoring

Since 2015, we have started monitoring leopard cats in Lada Estate using 40 units of camera traps spread in an 800 x 800 meter grid system. Every year we keep track of their abundance and population. The

abundance of leopard cats increased as well as their population. Although the data in 2019 showed a drop of abundance of leopard cats, we think it is due to a change in capturing probability. We assume the dry season which caused smoke in the air and heat might have changed the leopard cat activity pattern.

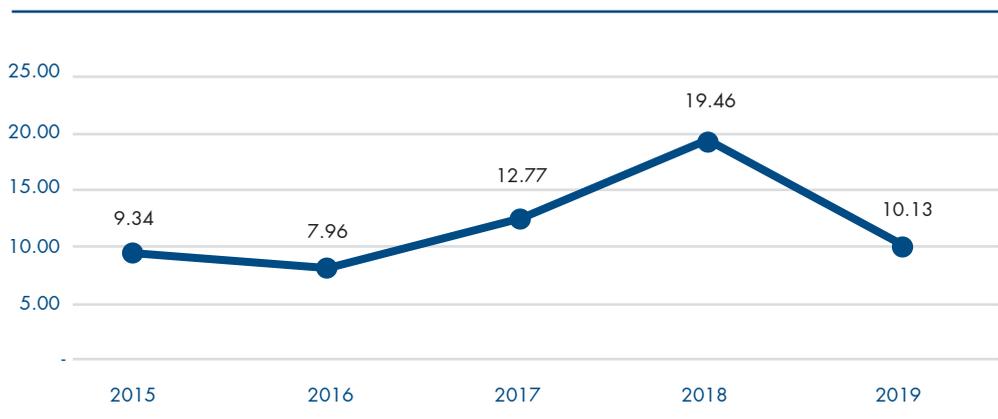
The leopard cat density is considered very high in the oil palm estate with at least 2-4 individual/km² compared with the conservation forest which mostly houses less than 1 individual/km².

We have observed that the leopard cats are very effective when hunting rats. Our observation data from the cats fitted with radio telemetry indicated that one individual leopard cat can eat 2-3 rats per day.

The leopard cats are smart and intelligent, they can hunt the rat on the ground, under heap of palm fronds, and in the oil palm trees. We also recorded many photos from our camera traps showing leopard cats carrying the rats after a successful hunt.

It is our clear opinion that leopard cats in oil palm plantations are excellent means of biological control to reduce the rat population.

Relative Abundance Indices



Monitoring of bio-indicators in various water bodies

The water bodies like streams and rivers around the land concession of PT SSS play an important role to ensure the future conservation of wildlife and even human beings. The diversity of the water plankton is sometimes neglected as a holistic part of conservation efforts. Bio indicators like plankton can reflect how the practices of the palm oil business effect the areas water quality.

We have monitored the plankton diversity on Lada and Kumai estates and used that as reference to evaluate water quality. As of todate, 106 species of plankton have been recorded to live on the surface water. Based on Diversity Indices of plankton, the quality of the water in Lada and Kumai Estates is considered fairly good. The existence of plankton is very important for aquatic life and will continue to be monitored going forward.

Research conducted on Otters

PT SSS has around 1,200 Ha of mangrove forest under its conservation areas in Lada Estate. The mangrove forest is a habitat for at least 3 species of otter, like the Small clawed otter (*Aonyx cinerea*), Smooth otter (*Lutrogale perspicillata*) and Hairy-nosed otter (*Lutra sumatrana*).

The presence of the otter in the mangrove conservation areas is a good sign of the state of the mangrove forest itself. In 2018 we had conducted research using camera traps in the mangrove forest areas. The interesting result was that we found the presence of the *Lutra sumatrana* in our mangrove conservation areas. The status of this species is considered as an Endangered species criteria in reference to IUCN Red List. We have published the short note of "First Record of Hairy-Nosed Otter (*Lutra sumatrana*) in Southern Central Kalimantan, Indonesia" in the reputable "IUCN Otter Spec. Group Bull. 36 (2) 2019.

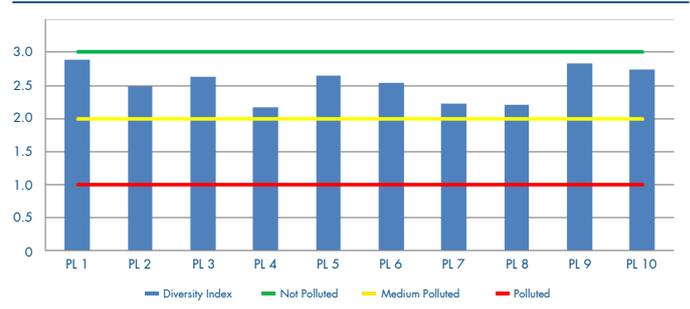
We published our story about *Lutra sumatrana* and its presence in the Southern part of Borneo. The last reference only recognized that the *Lutra sumatrana* only was distributed in the Northern part of Borneo like in Sabah and Brunei.

Attended seminars about conservation and sustainability

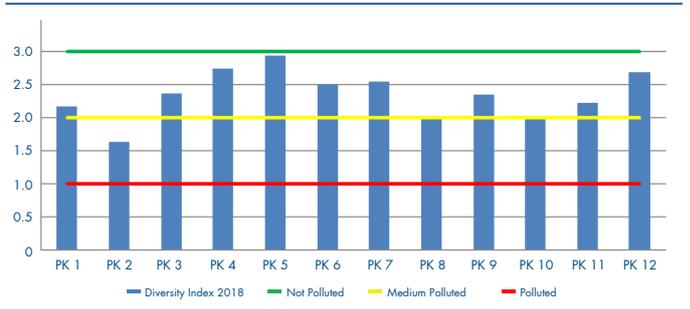
The BioD staff actively participate in local and international forums in the form of seminars and conferences during the year. The purpose is to share our knowledge of conservation and learn from others other practitioners, academicians and thereby to improve the conservation effort in PT SSS.

In 2019 our BioD attended the Song Bird seminar and Sustainable Palm Oil seminar in Copenhagen on 28 to 29 May 2019 which was hosted by Copenhagen Zoo. The BioD also attended the 29 International Congress for Conservation Biology (ICCB), Kuala Lumpur, Malaysia. We presented our research paper on the leopard cat study using radio telemetry in the oil palm landscape.

Diversity Index in Lada



Diversity Index in Kumai



The plankton diversity indices in the Lada and Kumai Estates are used as indicators of water quality.

Socialisation on conservation

Socialisation on the importance of conservation to the local community surrounding PT SSS is on our routine agenda. We share information about the conservation efforts conducted by the company. We also encourage the local community to support the program because the value of conservation is not just for the company, but also for the community who live around the areas as well as the future generations.

We present many pictures and videos, and use simple sentences to explain the importance of conservation and the value of it. By doing that, we hope the community will continue to be our partners and to further understand the efforts taken to protect the conservation areas and actively take part in protecting the conservation areas with us.

We also made painting competitions with conservation themes with kids in elementary school as part of their familiarisation towards conservation efforts and its importance. Because they are the ones who will own the environment in the future.

Dr Carl Traeholt
 UP Group Chief Environmental Advisor
 and
 Mr. Muhd Silmi
 Manager Biodiversity Division



Smooth otters (*lutrogale perspicillata*) photographed in our 1,200 Ha mangrove conservation area in Lada Estate.



Community engagement to promote conservation awareness.



Various types of wildlife captured from our BioD Department's camera traps.

Deforestation

UP is fully committed to its NO deforestation policy and contributes to the protection of critical ecosystems and biodiversity in and around the landscapes where we operate. By strictly avoiding land clearing in High Carbon Stock areas, UP ensures that it is in full compliance to its NO deforestation policy of July 2014.

New Planting Procedure (NPP) and Responsible land use planning

The RSPO New Planting Procedure (NPP) consists of a set of assessments and verification activities to be conducted by growers and certification bodies (CB) prior to a new oil palm development. The intention is that new oil palm plantings will not negatively impact primary forest, HCV, HCS, fragile and marginal soils or local people’s lands. UP subscribes and supports this stance. It is not enough to set aside areas for conservation. Patrolling of the conservation areas need to be conducted to protect these areas from intruders and fires so that the biodiversity is truly conserved.

Our Bio-D Division utilizes the SMART system which is the world’s preferred, most comprehensive and user-friendly conservation monitoring system. The added advantage of using SMART is its statistical power that allows the BioD to compile and develop trend-lines and other forms of analyses pertaining to managing and protecting conservation areas and species.

For more information on our HCV and HCS assessment, please refer to our website, www.unitedplantations.com/sustainability/.

Peat Developments

The Group has committed to NO new development on peatland regardless of depth since 2010. However, the management plans are in place and being implemented on existing plantations on peat. The total land bank of United Plantations Berhad as of 31 December 2019 is 63,074 Ha. The total planted area under oil palm is 46,731 Ha of which Malaysia has 37,655 Ha and 9,076 Ha in Indonesia. In Malaysia the total peat area is 4,824.50 Ha and in Indonesia it is 784 Ha, i.e. total peat area is approximately 5,608.5 Ha equal to approximately 12% of our total oil palm planted area.

*The hectarage of peat for the newly acquired plantation, Tanarata Estate is subject to change as the current figure is based on semi-detailed soil survey.

Water Management

Water management is particularly important on the acid sulphate and peat soils. These soils are fragile and if over drained, they will rapidly deteriorate. On the acid sulphate soils, the water level should be maintained up to the jarosite layer, submerging the pyrite (FeS₂) and preventing it from oxidizing to sulphuric acid, which can cause a steep drop in the pH.

Weirs for Moisture Conservation

To conserve moisture during these periods, a series of weirs are constructed across the collection drains to hold back water and raise the water-table to within 50-75 cm from the surface. To regulate the height of the water table, wooden planks are slotted into the desired level.

The density of weirs varies with the soil type, slope, rainfall and cropping system. On the average, one weir is provided for every 40 to 60 hectares or every 600-1,000 m along the collection drain. Assisted by the water gates at the discharge ends of the main drains, the weirs are very effective in minimizing the adverse effects of the moisture stress.

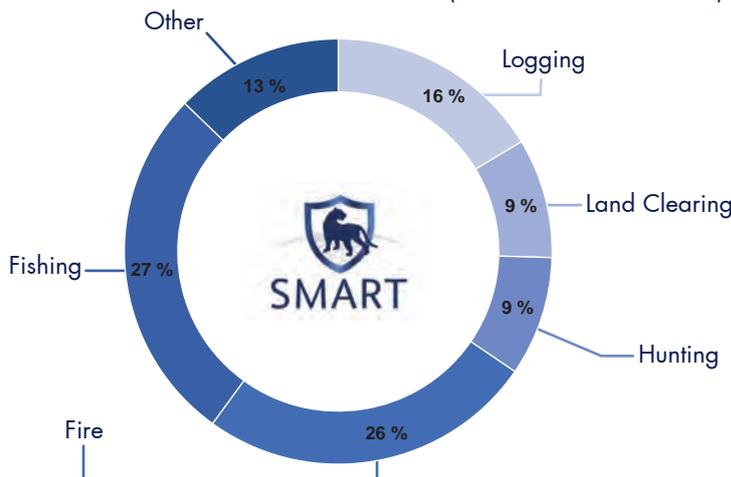
United Plantations has recently engaged an external consultant to undertake a peat drainability study in our Malaysian operations to better understand the hydrological characteristics of our peat areas.

Monitoring of meteorological parameters

Weather stations have been setup at strategically important locations throughout our Group. These provide a large amount of micro-climatic information critical to, particularly, make accurate fire-risk predictions.

Being able to predict the risk of fire allows the management in each estate to implement proactive measures, to prevent and minimize the risk of fire, as well as to be on high alert with firefighting equipment, in case of a fire outbreak.

SMART Patrol Report
(THREAT HCV REPORT 2019)



Threat	Activities
Logging	9
Land Clearing	5
Hunting	5
Fire	14
Fishing	15
Others	7
n=55	

GHG Emissions, Discharges & Waste Management

Investments and efforts undertaken to reduce GHG emissions, and in promoting green energy starting with the Biomass Reciprocating Boilers and Biogas Plants.

Much more attention must be directed towards the adverse impacts of fossil fuel usage and minimising this this as about 65% of all CO₂ (eq) emissions still come from burning fossil fuels. The world purchases about 93 million barrels of crude oil per day (equal to about 130.10 million MT per day).

In connection with the above it is important to apply more pressure on mineral oil producers on the impact on greenhouse gas emissions, it is worthwhile mentioning a small country like Norway who has often wished to be seen as the stewards when minimising deforestation and greenhouse gas emissions.

Nevertheless, little Norway today produces about 2 million barrels of crude oil per day. This alone is equal to 913,194 MT of CO₂ emission /day or similar to the CO₂ (eq) emitted from clearing 1,793 hectares of tropical jungles per day or deforestation rate of 650,000 hectares per year. However, no one seems to address this acute problem.

What we therefore need much more of is a balanced approach to what we all have to do to help minimise the impacts of deforestation and greenhouse gas emissions and not just a selected few.

There must be a “commensurate effort” failing which trust will be eroded and goals will not be reached.

Indeed, things should be put in perspective and acknowledgement given to the fact that palm oil production is not the main cause of deforestation. Nevertheless whilst recognising that ongoing initiatives

must be intensified to minimise the impact of not just agriculture but all activities that in one way or the other contribute to deforestation and global warming.

United Plantations’ Carbon Footprint Initiatives

Since 2005, UP has actively been pursuing means of identifying ways to reduce its Greenhouse Gas (GHG) emissions and with that its reliance on fossil fuels.

Life Cycle Assessment (LCA)

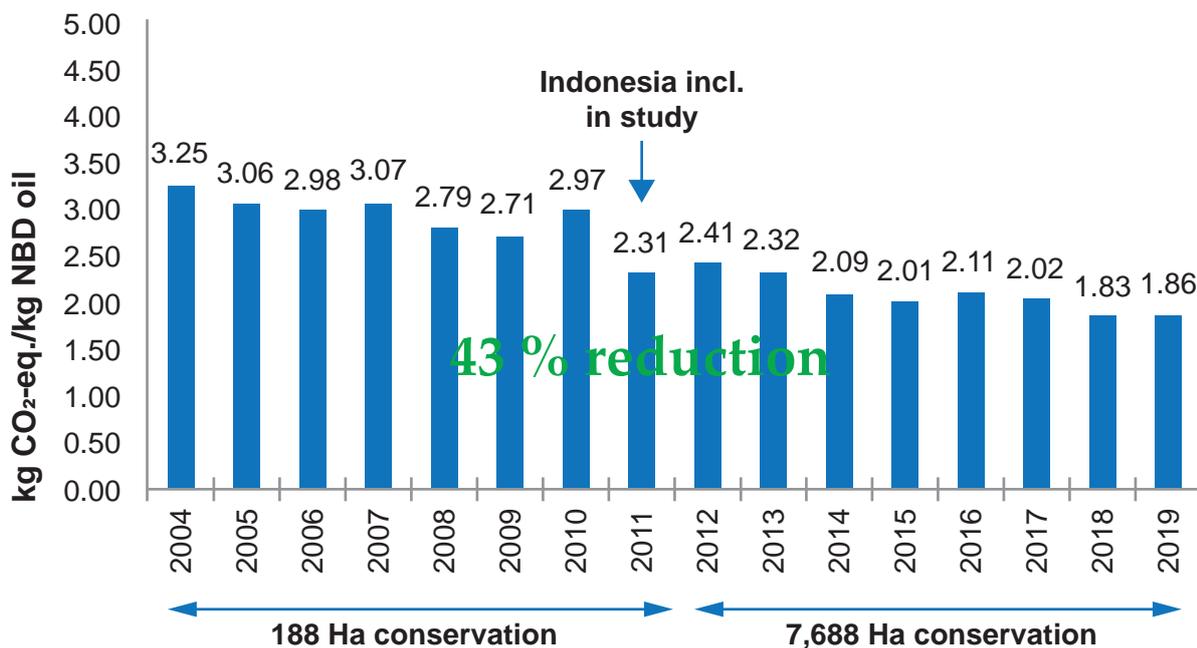
In 2006, following the completion of the world’s first peer reviewed Life Cycle Assessment (LCA) study on the “cradle to grave” production of 1 MT of refined palm oil, various areas were identified within our production chain, which could mitigate GHG emissions.

For example, the world’s first comprehensive LCA in accordance with ISO 14040 and 14044 International Standards on palm oil was finalized in 2008 and subsequently underwent a critical panel review.

Further annual updates to this LCA were carried out by 2.0-LCA Consultants involving Dr. Jannick Schmidt from Aalborg, Denmark with the latest update undertaken in the period January to February 2020 thereby providing management with a detailed and clear overview of the development in the Company’s efforts to reduce its carbon footprint since 2004.

The updated 2020 LCA model incorporated the new EXIOBASE background database and the contributions from indirect land use change, peat emissions and nature conservation have been reviewed in light of new data. These studies indeed helped to identify additional areas in need of further improvement within our Group. Our Company continues to remain at the very forefront in terms of implementing GHG reducing projects within

GHG emissions (incl. iLuc & nature conservation)



Time-series for NBD palm oil at United Plantations Berhad (with iLUC and nature conservation) for year 2004-2019.

the Plantation Industry which will supersede the Kyoto Protocol's ambitions of reducing GHG emissions in industrialized countries by at least 5% below the 1990 levels in the commitment period 2008-2012.

Time series of GHG emissions from palm oil at United Plantations Berhad

Below, time series of GHG emissions from palm oil at UP is presented. The time series for NBD palm oil at UP show reductions at 46% (without iLUC) and 43% (with iLUC) from 2004 to 2019. When including nature conservation, the reduction is now at 43%, based on the reworked assumptions.

Target 2025

With more initiatives and further investment between 2020-2025, our internal goal is to reduce UP's Carbon Footprint per MT of refined palm oil produced by 60% before the end of 2025 when compared to the previous 2004 levels (with iLUC and nature conservation).

Emissions Reductions & Biogas Plants

Significant investments have been made in promoting green energy starting with the Biomass Reciprocating Boiler cum Power Plant and the first Biogas Plants built and commissioned in 2006. These projects combined have since helped to significantly reduce our emissions of CO₂ by 70% and CH₄ by 80% at the respective operating units thereby paving the way for additional green investments. All of our mills are now equipped with Biogas Plants since 2018.

For more information on our LCA assessment, please refer to our website, www.unitedplantations.com/sustainability/.

United Plantations Biogas to Grid Project

Since the UIE biogas plant began operation in 2010, the biogas generated at the mill was either flared or used as a substitute fuel in the mill boiler. Arising from the Energy Commission's approval to supply power from the biogas boilers to the grid, a total of 4,493 MWh of electricity was generated and sold in 2019.

Biomass Reciprocating Boiler

The first Biomass Reciprocating Boiler (BRBI) was successfully commissioned in 2006 and supplied green

steam to Jendarata Palm Oil Mill as well as the Unitata Refinery, thus playing a crucial role in reducing the fossil fuel consumption at the refinery. Since then the company has built and commissioned another 7 biomass reciprocating boilers with the latest unit at UIE (M) installed in 2019.

Biomass boilers in our mills are also equipped with VORSEP dust particle minimizing system, and an automatic fuel feeding system with greater energy efficiency, reduced dust emissions and a lower labour requirement.

Isokinetic Monitoring of Gaseous Emissions from the Palm Oil Mills

In conformance to the Department of Environment's stipulations as well as to monitor the quality of our gaseous emissions, flue gas compositions were regularly checked by certified assessors throughout 2019. The average dust concentration in the flue gasses of three palm oil mills in UP's Malaysian Operation and the Indonesian mill without the VORSEP system were tabulated.

In all Malaysian mills the average dust concentrations were below the limit of 0.15g/Nm³ set by the Department of Environment as per the Environmental Quality Act (Clean Air Regulation) 2014 and the Lada mill emission is within the 0.3g/Nm³ set by the *Peraturan Menteri Negara Lingkungan Hidup No 07 Tahun 2007 in Indonesia*.

VORSEP Dust Collector System

The VORSEP dust collector system was first installed on our Biomass Reciprocating boiler at Ulu Basir Palm Oil Mill replacing the old conventional multi-cyclone dust collector system. The unit was commissioned in June 2015 followed by progressive installation of additional units in the rest of the mills. With the commissioning of the VORSEP system at UIE(M) mill in 2019, all of UP's palm oil mills are now fitted with the VORSEP dust collector system.

These units were installed primarily to meet the DOE's Environmental Quality Act (Clean Air Regulation) 2014 which among others requires a cleaner emission standard from the boiler with the following conditions: -

- i) The dust concentration emitted from the stack should not be more than 0.150g/Nm³
- ii) The smoke should not exceed shade No. 1 on the Ringelmann chart and should be less than 20% opacity

Palm Oil Mill	Average Dust Concentration (g/Nm ³)
Jendarata BRB 2	0.136
Ulu Bernam Boiler 1	0.119
Ulu Basir Boiler 4	0.122
UIE Boiler 1 & 3	0.121
Lada Boiler 1 & 2	0.280

Palm Oil Mill Effluent (POME) and Palm Oil Refinery Effluent (PORE) Treatment

Palm oil mill effluent and palm oil refinery effluent are treated in treatment ponds to reduce their BOD and COD contents before they are used to irrigate the oil palm fields. Only a small fraction of the treated POME and PORE are released into the waterways after they have satisfied the DOE discharge limits.

Biomass utilisation and economic value

In 2019, a total of 566,569 MT of biomass residues were generated through the various field and mill operations of

the Company's Malaysian operations. Almost all of the total biomass generated (99.6%) or 564,531 MT were effectively utilised as organic matter back to the fields, applied as organic mulch in the nursery or as fuel source, thereby enriching our soils and displacing the use of fossil fuels whilst adding value to the biomass generated.

Our Indonesian operations generated a total of 166,466 MT of biomass dry matter in 2019. Even though the quantum is lesser than what is generated in Malaysia, a very high proportion of these biomass (165,959 MT or 99.7%) was utilised through recycling back to the field or as a green energy source with all the added benefits to the environment.

Production and Level of Utilisation of Oil Palm Biomass Residues in UP in 2019

(Dry Matter Basis-Malaysian Operations)

Biomass	Quantity Produced (MT)	Quantity Utilised (MT)	% Utilisation	Method of Utilisation
Trunks and fronds at replanting	85,994	85,994	100	Mulch
Pruned fronds	319,338	319,338	100	Mulch
Spent male flowers	30,710	30,710	100	Organic matter recycled on land
Fibre	68,366	68,366	100	Fuel & mulch in nursery
Shell	38,959	38,959	100	Fuel & mulch for polybag seedlings
POME	27,183	25,145	93	Biogas generation, nutrient source, field irrigation and base for organic fertiliser production
EFB	82,013	82,013	100	Mulch and Fuel
Total	566,569	564,531	-	-
Level of utilisation =99.6%				

(Dry Matter Basis-Indonesian Operations: Lada and Runtu Estates)

Biomass	Quantity Produced (MT)	Quantity Utilised (MT)	% Utilisation	Method of Utilisation
Trunks and fronds at replanting	-	-	-	-
Pruned fronds	88,190	88,190	100	Mulch
Spent male flowers	8,480	8,480	100	Organic matter recycled on land
Fibre	21,478	21,478	100	Fuel & mulch in nursery
Shell	13,217	13,217	100	Fuel & mulch for polybag seedlings
POME	6,765	6,258	93	Biogas generation, nutrient source, field irrigation
EFB	28,336	28,336	100	Mulch and Fuel
Total	166,466	165,959	-	-
Level of utilisation =99.7%				



Biogas capturing facilities have been introduced on all our palm oil mills. Pictured here is the biogas plant at UIE.



A vital part of sustaining soil health is to ensure that the large amount of biomass from the oil palm trunk and fronds is returned to the soil during replanting operations in line with our Zero Burn policy. More than 1,100 Ha of old standing palms have been felled since UP took over Pinehill estate (Taranata) on the 17 August 2019.

Fertilizer Equivalent and Monetary Value of Oil Palm Biomass Residues Recycled on Land in UP in 2019

(Malaysian Operations)

Biomass Residues	Method of Utilisation	Quantity Utilised on Dry Basis (MT)	Fertiliser Equivalent (MT)			
			Urea	Rock Phosphate	Muriate of Potash	Kieserite
Trunks & fronds at replanting	Mulch	85,994	1,075	361	1,383	659
Pruned fronds	Mulch	319,338	7,200	2,342	6,090	3,986
Spent male flowers	Organic Matter	30,710	988	654	1,817	943
EFB	Mulch	33,260	578	244	1,608	370
Digested POME	Biogas generation & Irrigation	25,145	875	553	1,375	1,006
Total (MT)		494,447	10,716	4,155	12,272	6,964
Monetary value (RM)			15,538,433	1,371,011	16,812,543	4,227,144
Total monetary value RM37,949,131						

(Indonesian Operations - Lada and Runtu estates)

Biomass Residues	Method of Utilisation	Quantity Utilised on Dry Basis (MT)	Fertiliser Equivalent (MT)			
			Urea	Rock Phosphate	Muriate of Potash	Kieserite
Trunks & fronds at replanting	Mulch	-	-	-	-	-
Pruned fronds	Mulch	88,190	1,988	647	1,681	1,100
Spent male flowers	Organic Matter	8,480	273	181	502	260
EFB	Mulch	27,823	484	204	1,345	309
Digested POME	Biogas generation & Irrigation	6,258	218	138	342	250
Total (MT)		130,751	2,963	1,170	3,870	1,919
Monetary value (RM)			5,185,171	709,658	6,745,769	1,643,278
Total monetary value RM14,283,876						

With our commitment to sustainability and good agricultural practices, the recycling of field and mill biomass residues back to the oil palm land remains a cornerstone in UP. These measures have been shown to maintain and even improve soil fertility in the long term and enhance palm growth and yield.

In 2019, the total organic matter recycled on land in UP amounted to 494,447 MT of dry matter which is equivalent to 286,779 MT of carbon. At this rate, we are returning more than 14MT of organic matter or over 8 MT of carbon to each hectare of land, over the period of a year, thereby helping to replenish the soil carbon stock which is an important component of soil health.

Upon mineralisation, the organic residues release substantial quantities of previously locked plant nutrients to the soil which is available for palm uptake.

The fertiliser equivalent of the material recycled on land is of the order of 34,107 MT of NPKMg fertiliser which in itself has a monetary worth of RM37.95 million at the prevailing 2019 fertiliser prices.

For our Indonesian operations, a total of 130,751 MT of biomass was recycled onto plantation land in 2019. This is equivalent to adding 75,836 MT of organic matter to enrich the land which on a hectare basis is akin to returning over 15 MT of organic biomass (or close to 9 MT organic carbon) to enrich the land.

On the more sandy soils in Indonesia such inputs will have a significant influence on improving long term soil health. The nutrient content in these recycled biomass is equivalent to 9,982 MT of inorganic NPKMg fertilisers, with a value equivalent to RM14.28 million at 2019 prices.

Recycling of pesticide containers and scheduled wastes

To avoid contaminating the environment and to prevent misuse of pesticide containers and other scheduled wastes we have been collecting and disposing off triple rinsed pesticide containers, spent lubricants, used batteries and spent fuel filters through certified waste managers. The waste managers will either safely recycle these items or dispose of them in accordance with government regulations. There is no deemed hazardous waste under the terms of Basel Convention Annex I, II, III and VIII, that were transported, imported, exported or treated.

Triple rinsed plastic pesticide containers (MT)

	2019	2018	2017
UPB	17	29	25
PTSSS	1.4	1.8	1.9

Spent lubricants (lit)

	2019	2018	2017
UPB	41,661	46,909	38,441
PTSSS	3,760	3,242	5,775

Used batteries (pieces)

	2019	2018	2017
UPB	159	161	263
PTSSS	18	15	9

Spent fuel filters (pieces)

	2019	2018	2017
UPB	4,888	4,021	3,732
PTSSS	267	175	508

Water Impacts

Relates to UP’s measure to preserve and protect water ways and manage the use of water throughout our organisation.

UP fully appreciates that much more can be done in terms of water productivity. In order to maximise the available water resources, United Plantations has, since 1913, gone to great lengths to construct an extensive system of water gates, bunds, weirs, canals and drains hereby enabling us to harvest and optimize the usage of rain water.

In addition, leguminous cover crops are established in all our immature plantings to conserve moisture.

In this context, it is important to mention that except for the nursery areas, none of UP’s planted areas under oil palms or coconuts are irrigated. All our areas are under rain-fed agriculture, thus making use of whatever water which comes naturally from above. We are continuously working to mitigate our water footprint related to mill waste, maintaining buffers along natural waterways, harvesting rainwater, frugal domestic water usage and judicious use of pesticides and weedicides.

The consumptive use of water (evapotranspiration) of these crops ranges from 120-150 mm per month. To meet requirements, the monthly rainfall should equal or preferably exceed this figure, failing which moisture stress would occur. The rainfall in the UP Group ranges from 1,600 to 2,500 mm per year, with the average being 2,000 mm. Monthly distribution is reasonably uniform, but drought does occur when some estates receive less than 100 mm of rainfall over 2-4 months as experienced in 2018. Weirs have been constructed across the collections drains to harvest rainfall and hold back water to raise the water table.

Hydrology and Limnology

Clean water is critical to sustain all kinds of life form on Earth. In rural Indonesia thousands of local residents are dependent on water supplies from lakes and rivers. Maintaining a clean and uninterrupted supply of water constitutes one of the most critical components in sustainable palm oil production.

The Biodiversity team has developed a “Hydrology map” and identified a number of permanent sites for sampling water quality. Using the state-of-the-art equipment, the team measures and records organic, inorganic and physical pollution parameters in the field. Potential trace elements and toxins are measured with a spectrophotometer in the laboratory. In the event of a sudden deterioration in water quality, the team will identify the source of pollution and initiate a process to rectify the problem.

This includes identifying any unusual organic contamination, usually due to empty fruit bunches that mistakenly have slid into a stream or if an unusual high level of inorganic contamination is detected, it is usually a result of excessive wash-out of fertilizer. Such information is communicated to the respective estate manager, allowing them to rectify a potential problem within a very short time period.

In our pursuit to conserve this depleting precious gift, every effort is being done to educate our residents to be frugal on its usage. Old water pipes, water tanks, faulty taps are being replaced from time to time to arrest leakages. We aim to reduce the consumption in the coming years with more awareness programmes.

Domestic Water Consumption

	2019	2018	2017
Malaysian operations (gallons per capita per day)	69*	69	58
Indonesian operations (gallons per capita per day)	71	76	66

*Includes 40 employees of our newly acquired plantation, Tanarata Estate who are temporarily residing at Seri Pelangi Estate while the accommodations at Tanarata Estate are under construction/upgrading.

Erosion Monitoring Plots

To better understand the dynamics of soil, water and nutrient loss that can occur in our property, several

erosion monitoring plots measuring 6m x 20m were set up in one of our estates on slightly sloping land under mature oil palm. Thereafter the amount of soil loss, surface runoff and nutrient losses in each of these fractions are being closely monitored to determine the major routes of soil, water and nutrient loss. Such studies illuminate the areas of major loss through which mitigating measures can be developed to minimise the depletion of these vital natural resources.

Rain Harvesting

As part of our effort to conserve water resources and minimise wastages we have embarked on a programme to fit workers’ housing with tanks to store harvested rain water which is especially beneficial during periods of prolonged dry weather.

Mill water consumption Rate

Water consumption rate in our Indonesian operation has improved over the recent years and is now holding steady whereas the mill water consumption rate in our Malaysian operations has also improved with the phasing out of the older mill and the commissioning of the new Optimill.

Mill water consumption rate in processing fresh fruit bunches (MT water/MT FFB processed)

	2019	2018	2017
Malaysia	1.7	1.5	1.8
Indonesia	1.4	1.2	1.4

Pesticides and Chemical Usage

Conducting our operations under the best principles of agriculture and to reduce chemical and pesticides usage thereby minimising the impact to the natural environment.

UP has a strong commitment to Integrated Pest Management (IPM), and in line with the Principles and Criteria of the RSPO we are continuously working on reducing the usage of pesticides. Our employees’ safety is a top priority and in this connection all sprayers are trained extensively and are required to use full Personal Protective Equipment.

According to CropLife International, a global federation representing the plant science industry, 42% of crop production throughout the world is lost as a result of insects, plant diseases and weeds every year. In the tropics, crop losses can reach as high as 75%.

Careful use of pesticides can deliver substantial benefits for our society through increasing the availability of good quality and more affordable priced food products. However, pesticides are inherently dangerous and it is in everyone’s interest to minimize the risk they pose to people and the environment.

Integrated Pest Management (IPM)

IPM, means a pest management system that in the context of the associated environment and the population dynamics of the pest species, utilizes all suitable techniques and methods in as compatible a manner as possible and maintains the pest population at levels below those causing economically unacceptable damage or loss.

Source: FAO

Our commitment towards continuous improvements has resulted in minimizing the usage of pesticides in relation to other major oil seed crops, primarily through Good Agricultural Practices and improvement in planting materials.

Today, UP’s use of pesticide is 4-6 times lower per tonne of oil produced compared to Rapeseed farmers and about 32-44 times lower compared to Soybean farmers.

Establishing Beneficial Flowering Plants

To date, a total of 275,600 broadleaf flowering plants have been planted in our plantations to encourage parasite and predator activities which is a vital part of our IPM programme.

There has been a steady increase in the number of beneficial plants which were planted in our Malaysian and Indonesian properties over the last few years to function as shelter and food source for the beneficial insects.

	Malaysia	Indonesia
<i>Cassia cobanensis</i>	- 42,871 planted	- 14,782 planted
<i>Tunera subulata/ulmifolia</i>	- 103,853 planted	- 80,331 planted
<i>Antigonon leptosus</i>	- 16,079 planted	- 97 planted
<i>Carambola sp</i>	- 3,580 planted	- 10 planted
<i>Others</i>	- 5,363 planted	- 8,634 planted
Total	171,746 planted	103,854 planted



Antigonon leptosus – one of the beneficial plant being established in our fields.



Pheromone traps aid in monitoring and control of the rhinoceros beetle (*Oryctes rhinoceros*) prevalent in immature oil palm.

Surveillance and Monitoring of Pest Outbreaks

The key to minimizing both the economic impact of pest and environmental impacts from excessive use of pesticides is by regular surveillance and monitoring. Treatment is only carried out when the damage exceeds established critical thresholds. Several census gangs are deployed on each estate to survey the extent of pest infestation. This is coupled with regular aerial reconnaissance in order to track and pre-empt pest build-up thereby more effectively treating potential outbreaks.

Use of biological pesticides and pheromones

First line treatment against leaf pests i.e. Nettle Caterpillar and Bagworm is by biological treatment in the form of *Bacillus thuringiensis*. The use of pheromones to trap Rhinoceros Beetles thus reducing the dependency on chemical pesticides is also adopted on all estates.

Besides trapping out the beetles, pheromone traps also provide management with statistical information of the severity of the beetle problem and supplements

the chemical spraying operations to minimise beetle damage.

Overpopulation of rats, beetles and various kinds of weeds can have profound negative impact on production yield. UP Group attempts to minimize the usage of chemical control-agents where possible, and the BioD undertakes a number of research projects to maximise the usage of biological control agents where possible. For example, leopard cats (*Prionailurus bengalensis*) are one of the key-predators of rats and other small rodents, and preliminary studies on the effect of these cats as rat-controllers in a plantation landscape is ongoing.

The results have been very promising, and UP's biodiversity team is currently exploring ways to enrich the habitat conditions for leopard cats, to maximise the population density and thereby reduce the effect of rat damage. Apart from leopard cats, the team also records ecological parameters along with the effect on rat populations of other predators such as barn owls (*Tyto alba*), Spitting cobras (*Naja sumatrana*) and water monitor lizards (*Varanus v. salvator*).

	United Plantations Palm Oil (Malaysian Operations*)			Soybean**	Sunflower**	Rapeseed**
	2019	2018	2017			
Pesticides / Herbicides (kg per MT oil)	0.70	0.70	0.66	29	28	3.73

*Includes palm oil + palm kernel oil (UP, 2017-2019 - Malaysian operations)
 ** Data from FAO, 1996 - Pesticide data for rapeseed updated in 2010.

	United Plantations Palm Oil (Indonesian Operations*)			Soybean**	Sunflower**	Rapeseed**
	2019	2018	2017			
Pesticides / Herbicides (kg per MT oil)	0.10	0.12	0.14	29	28	3.73

*Includes palm oil + palm kernel oil (UP, 2017-2019 - Indonesian operations)
 ** Data from FAO, 1996 - Pesticide data for rapeseed updated in 2010.

The following pages provide an overview of some of the methods to reduce pesticide usage as well as ongoing research within our biodiversity team and UPRD:

5-Step Integrated Pest Management Programme approach taken to contain and/or control Bagworm outbreak thus limiting the usage of monocrotophos:

1) *Integrated Pest Management*

E.g. planting of beneficial plants to enhance the natural parasitic and predator activities against bagworm. To date more than 275,600 beneficial broadleaf flowering plants have been planted in both Malaysia and Indonesia.

2) *On-going Monitoring*

Census gangs deployed on each estate who take random frond samples in a pre-determined pattern throughout each estate. These fronds are subjected to insect counts and damage assessments by trained personnel.

3) *Aerial Surveillance*

Regular aerial reconnaissance is carried out to better detect, pre-empt and treat potential outbreaks.

4) *Use of biological control agents*

E.g. Bacillus thuringiensis as the first line of treatment against an outbreak.

5) *Final Resort*

As a final resort and only when Steps 1 to 4 have proven to be futile in containing or controlling the natural equilibrium between pest and beneficial predator, our trained personnel intervenes with the specific treatment of trunk injection using monocrotophos.

Monocrotophos

Monocrotophos is a class 1B insecticide which is permitted in Malaysia for trunk injection of palms affected by bagworm. Foliar application usage was disapproved by the Malaysian Government in 1996. Efforts to source and evaluate alternatives for the Class 1B insecticide, monocrotophos, have been ongoing since 2006 and are still being actively pursued together with several multinational chemical companies, amongst others Bayer and BASF (Germany), Syngenta (Switzerland), Cheminova (Denmark) and Sumitomo (Japan) and Rainbow Agrosociences (China).

So far, we have not been able to meet our internal goals of phasing out monocrotophos as the agrochemical industry has not been able to identify an effective and suitable alternative that is able to effectively contain a bagworm infestation which poses a serious threat to the oil palm stands. United Plantations is in the final stages of verifying the efficacy of a safer insecticide that could be a viable replacement for monocrotophos.

Until then monocrotophos will therefore still be used in very limited quantities for trunk injection only and solely as a last resort in the company's 5-Step Integrated Pest Management Programme when all other attempts to contain or control a bagworm outbreak have been exhausted. This is in full compliance with all relevant rules and regulations in Malaysia as well as with the RSPO Principles & Criteria.

In 2019, monocrotophos usage was slightly lower than the previous year due to residual bagworm outbreak on some estates. Prior to this outbreak the Company has successfully reduced its use of monocrotophos as an active ingredient basis by approximately 60% since 2006. Much progress and efforts are being made to continue this positive trend. In this connection, the collaboration with the Centre of Agriculture Biosciences International (CABI) in relation to management of bagworm in oil palm through an integrated ecological approach with biological control agents such as predators and other entomopathogens was formalized in 2011 for a two-year study.

The objective of the study is to develop an effective strategy to manage bagworm pests through the mass breeding and release of biological control agents such as predators complemented with the application of entomopathogens in affected fields. Arising from this collaboration, efforts to rear and propagate a number of predator species in a purpose-built insectary since 2012 are continuing. The eventual benefit of this endeavour may lead to sustainable bagworm control requiring minimal intervention with chemical insecticides.

Bagworm is an endemic pest in Lower Perak and the Federal Government has gazetted this as a "Dangerous Pest" on 15th November 2013. It is an offence under the Plant Quarantine Act 1976 if this dangerous pest is left without any control and can be fined up to RM10,000. Outbreaks of bagworms continue to occur in the properties neighbouring UP in the State of Perak, West Malaysia. This is of great concern as it is important that collaborated effort by the government authorities, neighbouring smallholders and other plantations are put in place in an attempt to eradicate this serious pest.

UP is working closely together with its neighbours as well as the authorities in the form of the Malaysian Palm Oil Board (MPOB) to achieve positive progress on this concerning issue. UP has extended its service to the neighbouring plantations the use of its airstrips for aerial bagworm control and also taking the plantation managers for aerial reconnaissance flights to monitor the extent of bagworm infestations in the region.

As can be seen in the table below, the quantity of agrochemicals (fertilizer nutrients and pesticide/herbicide) per tonne of oil produced in oil palm cultivation at UP over the last three years remain substantially lower than annual oilseed crops such as soybean, sunflower and rapeseed, a reflection on the resource utilization efficiency of the oil palm crop.

Pesticide usage in 2019 is unchanged from the 2018 level. Direct fossil fuel energy consumption was lower in 2019 than in 2018 due to less intensive mill construction activities.

Agrochemical and Energy Inputs in the Cultivation of Oil Palm and Other Oilseed Crops

Input	Per tonne oil basis					
	Oil Palm*			Soybean**	Sunflower**	Rapeseed**
	2019	2018	2017			
Fertiliser nutrients						
Nitrogen (N-kg)	21	19	14	315	96	99
Phosphate (P ₂ O ₅ -kg)	10	10	11	77	72	42
Potash (K ₂ O-kg)	47	44	35	NA	NA	NA
Magnesium (MgO-kg)	8	7	6	NA	NA	NA
Pesticides/Herbicides (kg)	0.70	0.70	0.66	29	28	3.73
Energy (GJ)	0.59	0.76	0.67	2.90	0.20	0.70

* includes palm oil + palm kernel oil (UP, 2017-2019- Malaysian Operations).

** Data from FAO,1996 - Pesticide data for rapeseed updated in 2010.

Biological Control Agents to Substitute for Chemical Insecticides

Leaf eating pest outbreaks in immature oil palms will need to be treated with insecticides.

The use of biological insecticides such as *Bacillus thuringiensis* is encouraged at this young crop stage to minimise collateral damage on beneficial insects in the field as well as to reduce dependency on chemical insecticides.

Our use of biological insecticides is as recorded below although the quantity used is also dependent on the incidence of pest outbreaks which was less prevalent in 2019 than during the previous year.

	2019	2018	2017
Malaysia	90	288	50
Indonesia	0	0	0

Quantity (kg) of *Bacillus thuringiensis* applied in our Malaysian and Indonesian operations.

Mowing of Harvesters' Paths

Blanket weeding is discouraged, soft weeds with shallow root system which do not grow to excessive heights are encouraged outside the weeded palm circle. Harvesters' paths are mowed.

This practice maintains a ground flora which is favourable to natural enemies of crop pests and reduce soil loss.

Harnessing advances in pesticide technology to reduce herbicide inputs in mature oil palm

In the wet tropics, weed species rapidly cover the ground and if left unchecked, will encroach into palm circles to compete with the palms for nutrients and water as well as interfere with field operations. Consequently, herbicides are an important tool to keep the palm circles weed free. Of the total pesticides used in a mature field, herbicides will therefore account for more than half of the total pesticide load.

Thus any improvement in the length of control for weeds will contribute significantly to a reduction in pesticide use for mature palms. Over the years United Plantations has actively co-operated with leading

agrochemical manufacturers to evaluate a range of herbicidal compounds.

Arising from the close collaboration with Bayer CropScience a new compound, Indaziflam, with long lasting weed control was extensively tested in our fields and was found to be able to slash the number of herbicide rounds from four rounds a year with the standard herbicide mix to two rounds a year with the Indaziflam combination. This confers the clear benefit of almost halving the herbicide input in a field and greatly improving labour productivity where this approach has been adopted.

Calibration for Pesticide Application Equipment

The Company engages the services of equipment suppliers to regularly monitor the calibration of the equipment to avoid application error (under and over applications) and safety to operators. Regular training and refresher courses are implemented, all of which are audited by accredited auditors of the RSPO every year.

	2019	2018	2017
Malaysia	3.30	2.91	2.51
Indonesia	0.54	0.69	0.78

Reduction of overall herbicide usage (kg a.i./ha/year) in mature oil palm planting with the introduction of Indaziflam herbicide in 2016 onwards.

Chemical Health Risk Assessment (CHRA)

In line with the Use and Standards of Exposure of Chemicals Hazardous to Health (USECHH) Regulations 2000, UP first appointed a certified assessor to conduct CHRA in 2004, for all chemicals utilized in the respective plantations, oil mills and refinery.

It is being reviewed every 5 years by the assessor as stipulated in the Regulations and annual medical health surveillance is conducted on all spray operators.

As can be seen in table above, the quantity of agrochemicals (fertilizer nutrients and pesticide/herbicide) per tonne of oil produced in oil palm cultivation at UP over the last three years remain substantially lower than annual oilseed crops such as soybean, sunflower and rapeseed, a reflection on the resource utilization efficiency of the oil palm crop.



Rats eat both palm fruits and male flower in the oil palm field. Barn owls (*Tyto alba*) and leopard cats (*Prionailurus bengalensis*) significantly reduce rat population and the usage of rodenticides.

Biological pest control of rats

Rats thrive in the oil palm ecosystem with an abundance of food source (palm shoots, fruit mesocarp, kernels, weevil grubs etc.), as well as plentiful harborage amongst the cut frond heaps. The common rat species encountered in an oil palm field are the Malaysian wood rat (*Rattus tiomanicus*), padi field rat (*Rattus argentiventer*) and the house rats (*Rattus rattus diardii*).

With its prolific reproductive rate, whereby a sexually mature female could conceive multiple times a year and produce an average of 8 pups in each litter, rat populations can mushroom and threaten the oil palm plantings within a short time, given the right conditions.

Various researchers have estimated crop loss caused by rats feeding on fruit mesocarps to be able to reduce oil yield by 5 – 10% (Wood, 1976; Liau, 1990). Badly gnawed male and female inflorescences, as well as young palms killed by rat attacks further contribute to crop loss.

Barn Owls

The Barn owl is a much-loved countryside bird by oil palm planters as it predated on rats, resulting in major reduction of rodent damage. It is also one of the most widely distributed birds in the world.

This bird is the best partner to growers due to its ability to adapt well to oil palm plantations. It survives on a staple diet of 99% rats. It is estimated that a pair of barn owls together with its chicks consume about 800 to 1,000 rats per year.

The barn owls are medium sized (34-36cm) with long legs that have feathers all the way down to their grey toes. The owls have large, round heads without ear tufts and pale heart-shaped facial disc. The owls ingest the rats whole and use their digestive juices to dissolve the

nutrients of the fleshy parts. The tougher indigestible parts such as the bones and skulls are regurgitated out.

Barn owl population in tandem with preys’ availability can be expanded in the plantation by construction of boxes at vantage points – about 5 meters from the ground and shaded by the palms’ canopies. A zinc baffle or collar should be placed on the pole to prevent snakes etc. from predation of the owl’s eggs and new born chicks. These boxes should be inspected regularly and repaired where necessary in order to optimize its’ occupancy.

At United Plantations, the barn owl is the first line of defence against this serious pest. Where owls could not cope with the high rat population, first generation rat baits such as warfarin are employed to selectively bring down the population. Warfarin baits are preferred as they are relatively safer to barn owls than second generation rat baits. Based on the low usage of rodenticides in the past years, we can infer that the barn owl programme has been fairly successful in keeping rats under control, augmented with rodenticide baiting in selected areas.

Leopard cats

Since its formation in 2011, the Biodiversity Division in UP/PTSSS has recorded a surprising number of leopard cats, *Prionailurus bengalensis*, in the estates. The species is common throughout Southeast Asia in undisturbed as well as altered habitats.

They are common in some oil palm estates; however, little is understood about their role as rat predators in a plantation landscape although studies have shown that rats and mice constitute 93% of the leopard cat’s mammalian diet (Rajaratnam et al.,2007). Field observations demonstrate there is a negative relationship between cat numbers and rat population, with high abundance of cats associated with low rat numbers and vice versa (Silmi et al.,2013)

Year	2019	2018	2017
Total Boxes	2,489	2,491	2,393
Total Area Under Owl (Ha)	31,500	32,322	31,308
Box to land ratio in Scheme	12.66	12.98	13.08
% Occupancy in Scheme	52.35	54.16	52.57
Total Planted Area (Ha)	34,226	35,813	34,808
Box to land ratio over Total Planted Area	13.75	14.38	14.55
Rodenticide ai/planted Ha (kg/Ha)	0.0011	0.0008	0.0007

To date, nine individual leopard cats have been collared and continuously tracked for 23 months, during which we collected a total of 1,500 GPS locations. These are used for estimating the respective cats' home-ranges and dispersal patterns, aided by 40 camera traps set up in a 800 m by 800 m grid.

With at least 2-4 individuals/km² the leopard cat density in the palm oil estate is much higher than in the conservation forest with a density of less than 1 individual/km².

The cats are strictly nocturnal and prefer to hide and rest in thick bush, primarily consisting of sword-fern (*Nephrolepis sp*) during day-time, but forage both on the ground and in the palm canopy at night.

Some preliminary results conclude that leopard cats can feed, reproduce and thrive in a palm oil estate, with a mean home range (95% MCP) for male leopard cats 1.39 km² (n = 5; SD = 1.40 km²) and a smaller mean home range for female cats at 1.26 km² (n = 4; SD = 0.36 km²).

In areas where rats constitute the main prey, leopard cats eat an average of 2-3 rats per day. Amphibians, snakes and birds are also on the menu. With a body weight range of 2.5-4.0 kg leopard cats are expected to consume more food than the much lighter barn owl, a factor which may be favourable in its role as a rat control agent (Silmi et al.,2013)

Our observations reveal that leopard cats can reproduce rapidly with some females giving birth to 4 cubs, with reproduction cycle every five to six months.

Fighting the Haze and Preventing Fires

There shall be no use of open burning/fire in new or ongoing operations for land preparation, land management, waste management, or any other reason other than justified and documented cases of phytosanitary emergency.

Zero Burning Policy

We will be conducting a series of community workshops to educate our local communities about the environmental and social consequences of slash-and-burn farming, as well as to promote alternative methods of land clearance. Our goal is the total eradication of fire as a means to clear land by the local communities. This year, we did experience a severe drought in Indonesia. However, the areas burnt were significantly reduced.

There were some isolated fire incidents which burnt approximately 16.50 Ha within our concession (inner ring) and 96.75 Ha at the outer ring adjacent to our concession. However, the fire was immediately extinguished by our ERT in PTSSS.

Hectares Burnt In Fires

	2019	2018	2017
Non Planted	13.28	31.20	6.00
Planted	3.22	0.55	1.16
Total	16.50	31.75	7.16

Outer Ring Range of ≤500 m

	2019	2018	2017
Outer ring ≤500 m (Ha)	96.75 *95Ha in the outer ring of Arut	1 *Small farmer's field	Nil



Fire patrols are conducted regularly in our Indonesian estates during the dry season.



An aerial view of UIE's Kingham-Cooper tree reserve, an oasis of flowering trees and fruits, shelter and food supply for birds and mammals.

Tree Reserves

The Kingham-Cooper Tree Reserve.

This 7.50 hectare area established in 2008 started as a barren piece of land surrounding the Lagoon which supplies UIE Palm Oil Mill with water.

The Kingham-Cooper Tree Reserve had since been planted with several thousand local trees, and now resembles a natural thick jungle, with over 250 diverse species and 12,000 indigenous trees at this area alone.

UIE Main-Office Tree Parks.

Extending beyond the Lagoon, are a number of other fields planted with more diverse trees, emphasis on rare and valuable hardwoods such as the Dipterocarpaceae Family (*Shorea*, *Hopea*, and *Dipterocarpus*).

Additionally, a variety of "food chain" species have been planted to provide food and nesting for birds, habitat for wildlife.

The Anak Macang Riverbank Reserve.

This 5.85 km strip of land is along the southern boundary to Anak Macang River which is not permitted to be cultivated with commercial crops, as regulated by the RSPO, and which has to revert back to natural vegetation.

Since 2011, it has been enriched with a variety of jungle tree species and has become a pleasant, diverse area for biodiversity.

For more information on our tree reserves, please refer to our website, www.unitedplantations.com/sustainability/.



UIE's Kingham-Cooper Tree Reserve and the Anak Macang Riverbank Reserve.



An aerial view of the long and winding Arut river in Central Kalimantan.

Community

Our business provides livelihood to families, small businesses and organisation in and around the plantations resulting in many people depending on our Group. Close bonds with our local communities are therefore a key priority to our organisation. We are committed in promoting socio-economic policies and progress in local communities we operate in.

UP has an obligation to monitor and manage any impact our operations might have on these communities and at the same time ensure that our local communities receive financial, social support and benefit by developing the local communities in which we operate by creating jobs, paying taxes and doing business with local enterprises.

Continuous Stakeholder Engagement

UP has engagements with various stakeholders in and around our areas of operation. Our engagement approach varies for formal to informal. All enquiries by stakeholders are recorded and monitored in order to resolve any ongoing issues as sustainable development cannot be achieved without engagement with stakeholders.

Grievance Resolution

Under our MSPO, ISPO and RSPO framework, we are obligated to deal with issues openly. The respective Principles and Criteria states the need for a commitment to transparency and mutually agreed system for dealing with complaints and grievances shall be in place and implemented. This procedure is given to ensure that local and other interested parties understand the communications and consultation process for raising any issues with UP.

UP accepts its responsibility as a corporate citizen and wants local communities to be aware and involved in the communications and consultation methods it uses, thereby aiming to resolve grievances (including those originating from employees) through a consultative process and realizes that any system must resolve disputes in an effective, timely and appropriate manner that is open and transparent to any affected party.

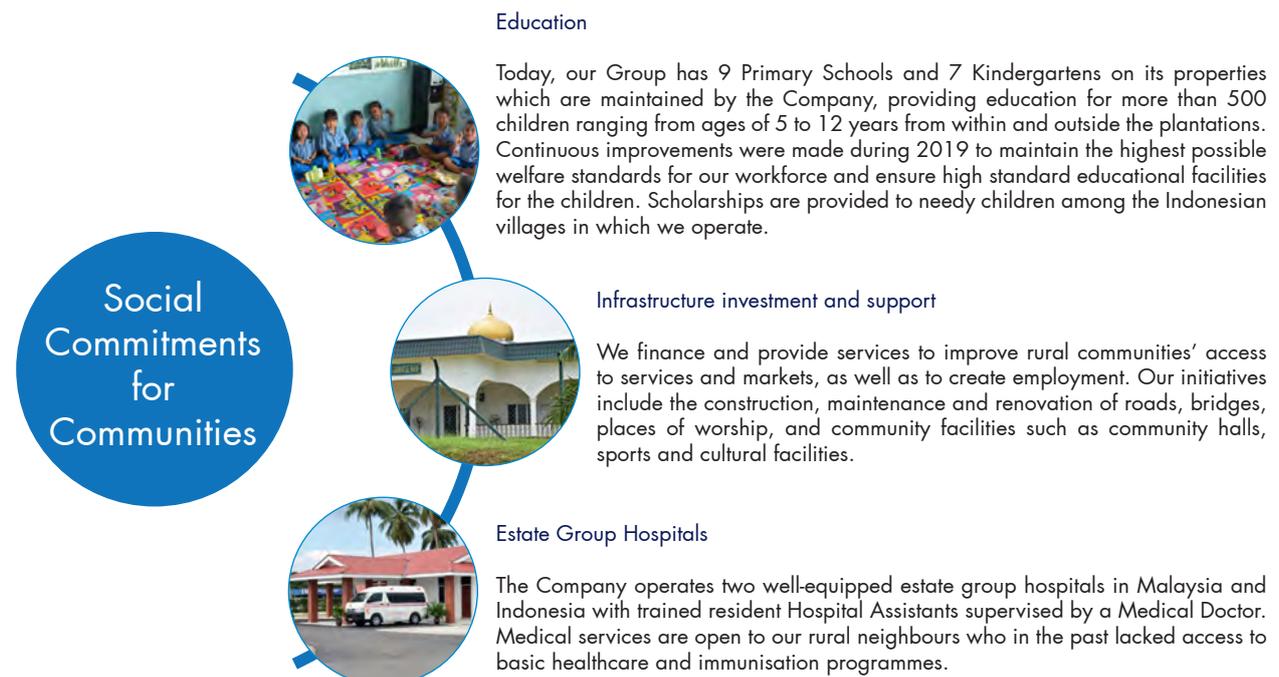
Recognising the value and importance of communication and consultation in clearing up misunderstanding/ conflicts/grievances or raising any issues with UP, the following procedure is adopted, in an effective, timely and appropriate manner that is open and transparent to any affected parties

External Stakeholders

They are Statutory Bodies, NGOs, Local Communities, Smallholders, Contractors, Third Party FFB Suppliers and Services Providers.

Internal Stakeholders

All employees of United Plantations Berhad and their respective Trade Unions.





A range of social amenities and activities to cater to the needs of our employees and stakeholders of the surrounding communities.

Procedure for Handling External Stakeholders' Issues

The Company Secretary of United Plantations Berhad will be responsible for the handling of all enquires and grievances against the Company. The stakeholder may lodge their enquiries/grievances to respective Estate Manager or Head of Department or direct to the Company Secretary. The Company Secretary's address is as follows:

The Company Secretary
 United Plantations Berhad
 Jendarata Estate
 36009 Teluk Intan
 Perak Darul Ridzuan, Malaysia
 Tel : 05-6411411; Ext – 215,334
 Fax: 05-6411876
 Email: up@unitedplantations.com

For further details on our grievance redressal procedures for internal and external stakeholders, please refer to our website, www.unitedplantations.com/sustainability/.

Land Disputes and Free, Prior and Informed Consent (FPIC)

In Indonesia, land disputes are inevitable and part of managing plantations in the country. To minimize land issues, important free, prior and informed consent sessions with stakeholders are conducted as a vital part of sustainable plantation development.

UP has been involved with several thousand land deals with the local community and whilst most cases of disputes have been amicably resolved, there still exists unresolved cases that are in the process of being resolved based on facts and full transparency under our

Standard Operating Procedure (SOP) for Land Disputes Settlement as per FPIC.

Our commitment towards the principles of Free, Prior and Informed Consent (FPIC) and to adhere to these principles in all our negotiations and interactions with stakeholders prior to any development or acquisition of land.

For further details on SOP for Land Disputes Settlement as per FPIC protocols, please refer to our website, www.unitedplantations.com/sustainability/.

Plasma Schemes / Outgrowers Scheme

The Indonesian Government's objective is to ensure the establishment of Plasma Projects equivalent to 20% of a Company's planted area.

At our Indonesian Plantations, we are actively involved with a government project known as the Plasma Scheme, designed to assist smallholders to become independent plantation growers.

Under the Plasma Scheme, UP helps smallholders to develop their land, including land preparation, for cultivation of oil palms. Once developed, the plantation is managed by the Company for one cycle after which it will be handed over to the smallholder for self-management. During the first cycle, proceeds from the Plasma-areas minus development cost, is paid to the farmers by the Company.

We expect the scheme to provide more opportunities for the smallholders and to help alleviate poverty. With this programme, we hope to steer them away from illegal logging, as well as slash-and-burn activities that can have a huge negative impact on environment. In the

Summary of Disputed, Resolved and Settled Cases from 2017 to 2019 (PT SSS)

Year	Resolved/Settled Cases	Estate	Disputed area (Ha)
2017	15	Lada Estate	65.78
2018	2	Lada/Arut Estates	1.33
2019	-	-	-
Total	17	-	67.11

Date Claim Submitted	Cert/SKT	Name of Claimants	Blk/Flds	Hectarage		Nature/Status of Dispute Status of Docs & Facts	Progress To date
				Docs	Claimant's Demand		
15-Sep-14	Cert	Jaka Suherman	88	30 certs @2Ha	39TKD (6 people)	<ul style="list-style-type: none"> Requesting for Plasma Documents incomplete 	<ul style="list-style-type: none"> Last meeting was conducted on 18 December 2019 at the PTSSS's main office. The management of cooperative, KTJ agreed to process 14 of 30 certificates to be included into PTSSS plasma scheme.

early years of plantations development, before the oil palm trees reach maturity, the livelihood of smallholders is supported through employment by the Company.

They typically work as employees on our plantations, while they at the same time get an understanding of oil palm cultivation and best management practices. The Company provides the smallholders with sufficient resources and is committed to buying their FFB at government determined rates.

To assist them, we provide vital training on plantations management practices and financial arrangements.

UP's Commitment to Plasma Projects

As of December 2019, 1,314 Ha of Plasma have been developed for 815 Plasma Scheme smallholders and another approximately 150-200 Ha is expected to be provided and developed for the communities surrounding the Company's properties in 2020.

All 815 Plasma Scheme smallholders are directly managed by the Company. Partnership with the local communities is crucial to achieve success in Indonesia and it is therefore of utmost importance that the local communities also benefit from UP's development.

Smallholders' Field Day

Oil palm smallholders have a critical role in helping us achieve our sustainability goals, as they are part of the supply chain providing an estimated 40% of world palm oil production.

As part of our Company's involvement, UP continuously engages with smallholders. The recent Smallholder's Field Day was held on 16th November 2019. We invited 150 smallholders from local districts to visit our plantations to get a better understanding of good agricultural practices, sustainability initiatives and environmental protection.

We are pleased to inform that 134 smallholders attended the Smallholders Field Day. The smallholders were given training sessions in safe handling of pesticides with appropriate Personal Protective Equipment (PPE), effective use of pre-emergent herbicides for less chemical usage, integrated pest management (IPM) mechanized harvesting in order to assist them with their agricultural interests. Demonstration on fire combat procedures

were carried out to further enhance the awareness of neighbouring smallholders in case of fire incidence and were informed to contact UP for emergency assistance within the close vicinity.

We also invited Malaysian Palm Oil Board (MPOB) to provide briefing on the Good Agricultural Practices (GAP) as per MPOB GAP Manual and MSPO certification for smallholders

Food Security

To ensure local food security, as part of the FPIC process, participatory SIA and participatory land-use planning with local peoples, the full range of food provisioning options are considered. There is transparency of the land allocation process. The intent is to ensure food security and land use choices are considered as part of the formal FPIC process, prior to new developments.

For further details on food security, please refer to our website, www.unitedplantations.com/sustainability/.

Landscape Approach

A landscape approach is about having the community discuss and agree on various sustainability issues that provide an optimal balance between community, commercial and conservation interests.

At United Plantations, we recognize that community engagement, assessment and feedback are an integral part of our global sustainability strategy and initiatives. The community groups which are key to our operations and which have significant influence over the impacts of our business are carefully identified and are engaged at various platforms and intervals throughout the year. The community engagement process which includes a proactive and both formal and informal approach, is carried out to fully understand their sustainability concerns and issues with a view to ensuring that their key interests in these areas are aligned with that of our Group. Partnership with the local communities is crucial to achieve success in Indonesia and it is therefore of utmost importance that the local communities also benefit from UP's development.

For further details on our landscape initiatives, please refer to our website, www.unitedplantations.com/sustainability/.



The erection of the new Multistock Deodoriser No. 3 at Unitata refinery complex.

Marketplace

Through investment in our people, technology and focus on our supply chain, UP is committed to providing high quality certified sustainable and traceable Palm Oil products and services to customers worldwide. We aim for continuous improvement and work towards building long-term relationships through interaction and discussions about sustainability, global, trends, health and nutrition with customers, suppliers, business partners and other stakeholders in the marketplace.

By interactions with customers and other stakeholders, a deep understanding of this responsibility has been developed and provides a healthy avenue for continuous improvement in quality and food safety by minimizing risks throughout the supply chain. Furthermore, UP has gained much knowledge on market trends and have become more capable of responding to them.

Product Quality

Quality is an integral part of UP's corporate culture. It is our strong objective to deliver premium quality products and services that are safe and based on a high level of responsibility.

Quality Policy

It is the Policy of UP to produce quality palm oil, palm kernels, coconuts and their derived products to the total satisfaction of our worldwide valued customers.

Our Quality Philosophy Includes:-

- U**pholding the name and reputation of UP as a top producer of high quality palm products.
- N**urturing a diligent work force who takes pride in contributing to the development of the Company.
- I**nitiating and innovating positive, progressive work ethics, methods and incorporating a winning culture.
- T**raining of personnel is the key to upgrading our skills and keeping in trend with the marketplace.
- E**nsuring that only high quality palm products are produced, to the satisfaction of our customers' needs.
- D**elivering decisive efforts in Research and Development to continuously improve our working methods, efficiency and product quality.

UP recognizes the importance of safeguarding its customers by ensuring the highest standards in quality as well as environmental and social care.

Our quality focus starts from our Research Department and continues through every aspect of our agricultural, milling and downstream activities until the final product is delivered to our customers. The diagrams shown on pages 88 - 90 provide a clear overview of the many steps involved in ensuring palm oil products of high quality.

Certifications for Food Safety, Sustainability and Others

Our Commitment in food safety for sustainable and consistent high-quality products is endorsed by relevant international certification bodies.

Unitata Berhad – Quality Policy



Unitata is committed to producing high quality palm oil products which are safe for human consumption that meet the statutory and legal requirements for the overall satisfaction of her customers.

As part of our commitment to uphold Unitata’s historical standing as a high- quality producer, much emphasis is placed on quality assurance throughout the various stages in the refinery.

This is evidenced through our continuous investments in the latest process technology and sophisticated analytical equipment that provide accurate and timely controls to ensure customer satisfaction on high product quality and food safety.

Edible Oil Refining and Specialty Fats Production

Attention to quality, investment in production facilities and ongoing product development are priorities in order for Unitata to meet challenging and changing customers’ demands.

In order to cater for growing demand of high-quality products, our refinery is equipped with automated manufacturing processes such as Neutralization, Bleaching, Deodorization, Fractionation, Interesterification, and Packaging of specialty fats and oils.

Thorough process controls and a disciplined manufacturing culture, are key to the quality assurance procedure that meet our customers’ demand.

Consumers today have an increased focus on safety and health as well as on food production through transparent and traceable supply chain. The latter two are based on optimum processes that focuses on reducing processing aids, water and energy and the overall GHG footprint. Furthermore, it is important for consumers that social care for employees as well as protection of forests, including High Carbon Stock and High Conservation Value areas are associated with the food they choose to buy.

To keep up with increasing demands on traceability in the supply chain, we have obtained numerous local and international certifications as follows: ISO 9001, HACCP, Halal, Kosher, BRC, FDA, RSPO SCCS, MSPO SCCS, GMP, GMP+ B2 Feed Safety, MeSTI and MPCA. As a requirement for the above-mentioned certifications, Unitata is audited annually by the various certification bodies and by customers. To improve and further strengthen our supply chain transparency, Unitata had been audited under SMETA (Sedex Members Ethical Trade Audit) a platform that encompass four pillars of responsible practices, ie. Labour, Health and Safety, Environment and Business Ethics.

In addition, Unitata has audited and assessed key suppliers of raw materials, packaging, and ingredients. All raw materials, packaging materials and ingredients are certified as food grade.

Furthermore, we have established and validated our process controls to consistently minimize the risk of contaminants and meet acceptable food safety standards.



Task Force meeting on MOSH/MOAH chaired by the CED.

Unitata also stresses on the element of food defence as part of product security. This assures the protection of our products from malicious contamination, adulteration or theft.

All packed products are traceable to its raw materials, additives and packaging materials via batch and code numbers printed on these labels. The labels meet the requirements of the Malaysian Food Act and the requirements of the respective export markets.

Relevant food safety training is of high priority for all employees in order to keep abreast with the increasingly demanding food safety requirements.

LOW 3-MCPD, Glycidyl Esters and MOSH & MOAH

3-MCPD and Glycidyl Esters are contaminants formed during the processing (refining) of edible oils and fats and has recently become a topic of concern for vegetable oil refiners and consumers based on a report published by the European Food Safety Authority (EFSA) in May 2016. The EFSA Panel on Contaminants in the Food Chain (CONTAM Panel) published the results of its assessment of the safety of 3-MCPD and Glycidyl esters with respect to human health. Available evidence from animal studies indicates that kidney toxicity is the most critical health effect of 3-MCPD in rats. Using this data, EFSA established a tolerable daily intake (TDI) for 3-MCPD for humans which represents the maximum amount that can be consumed daily over a lifetime without being harmful to health. It includes a very large margin of safety.

The TDI for 3-MCPD has been calculated as 0.8 micrograms per kilogram of body weight per day ($\mu\text{g}/\text{kg}$ bw per day.)

With the combination of premium quality fruit bunches derived from our own plantations in UP combined with Unitata's processing know-how, we have been able to produce refined palm oil with levels of 3-MCPD and Glycidyl Esters which for over 20 years have been considerably lower than the industry's norm, including the TDI levels mentioned above.

The decades' old sound practices have to-date built a scaffold for research to intensify focus on mitigating contaminants to near non-detection. Whilst the majority of refineries as time passed opted for easier and cheaper refining methodologies, Unitata has firmly stood by her charter to place quality above all else and maintained her position as a leader within the refining industry when it comes to sourcing the highest possible quality of palm components.

The company's decision to invest in a modern laboratory, the Nair's Wing, was an integral part in securing the background knowledge for mitigation work. In June 2016, collaboration work was initiated by the American Oil Chemist Society in developing statistical measurements for a new analytical method called AOCS Cd30-15: Analysis of 2- and 3-MCPD Fatty Acid Esters and Glycidyl Fatty Acid Esters in Oil- Based Emulsions.

Unitata was one of the 17 internationally recognised laboratories, after a screening process, to participate in this collaboration. The new method has been endorsed and included in the AOCS compendium of Official Methods in July 2017.

As part of establishing credence on the accuracy and precision over the analytical protocols the laboratory voluntarily and successfully participated in proficiency Performance Assessment Scheme (FAPAS) held in September 2017.

Further improvements and fine tuning of the Laboratory equipment enabled an even greater level of quality assessment.

MOSH & MOAH

Of nearly equal repute in being a contaminant to final oils and fats is the new and emerging contaminant called Mineral Oil Hydrocarbons (MOH). It encompasses two main sub groups namely saturated hydrocarbons, generally present at a ratio of 80/20 with MOAH trailing behind MOSH.

MOSH is believed to accumulate in human tissues and cause adverse effects to the liver while MOAH, the greater menace of the two, is reported to be genotoxic carcinogens-causing damage to the DNA leading to cancer. Hitherto, there has been no binding threshold limits set by the EU legislature save for Germany who is leading the way in drafting out their own national plan.

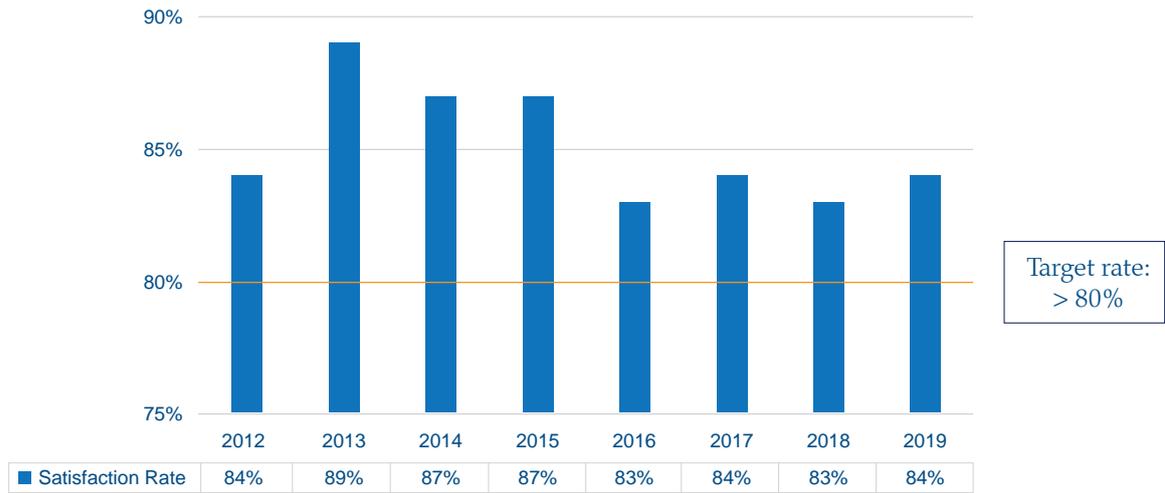
Regulations from member states such as Germany quite often end up being adopted by the greater European trend which we have seen in the past. Currently, customers favour suppliers whose thresholds, through consensus, are guided by the rule as low as reasonably achievable, (ALARA).

While not compelled by legislation it remains chiefly fiduciary to be prepared for the future challenge. In this respect a task force on MOSH/MOAH chaired by our CED was set up in 2018 to undertake the study of this subject in view of meeting the ALARA levels. Since then, baseline occurrence of the contaminant has been drawn and ensuing mitigation efforts have been carried out both through the mill and the refinery.

As months progressed, it became convincingly clear that the adage "we cannot control what we cannot measure" was becoming the motivation to have the analytical capability in-house. Hence, in 2019 the necessary instrumentation was purchased. The committee continues to meet on a quarterly basis to monitor the levels within the group.

As a result of our stringent quality controls and assessments, UP and Unitata are able to meet stringent customer demand for oils used in the production of infant formulas. We are committed to further reduce the levels of these contaminant to the benefit of the customers globally.

Customer Satisfaction Survey: Y2012 till Y2019



Customer Satisfaction

At Unitata, the annual customer satisfaction survey is used to measure how our finished products meet our customers’ expectations. This annual survey is an important measure in relation to our continuous improvement attitude and provides us with an important understanding of our service and collaboration with our customers based on their valuable feedback.

The survey focuses on three key areas which are:

- (i) Quality of products
- (ii) Quality of service
- (iii) Delivery timeliness

The results are analysed and tabulated in an appropriate graphical form for presentation at the management review meetings as well as during the various certification audits throughout the year.

Besides that, Unitata also adopts an on-going communication method with customers to keep them engaged with their products.

Regular communication with customers enables Unitata to develop products and provide the necessary service to ensure a continuous customer satisfaction which cannot be taken for granted in the competitive business of refining.



Operation meeting amongst the UniFuji team.

Sustainability and Traceable Supply Chains

Our Commitment to ensure that the certified sustainable palm oil and palm kernel oil used in the production of finished goods actually came from sustainable sources.

Traceability at UP

In the following section, we will be providing an overview on both our upstream (Plantations) and downstream (Refining) business activities in relation to our focus on improving traceability in our supply chain for the benefit of our global customers and stakeholders in general.

As an important part of UP's traceability focus, we strive to ensure that our supply chain (direct and indirect suppliers) live up to our Group's commitment towards the No Deforestation, No Peat and No Exploitation (NDPE) Policy.

The interest for certified sustainable and segregated palm oil is increasing as many global brand manufacturers have committed to only use RSPO certified and segregated palm oil solutions. Traceability is therefore important in order to ensure that the certified sustainable palm oil and palm kernel oil used in the production of finished goods actually come from sustainable sources.

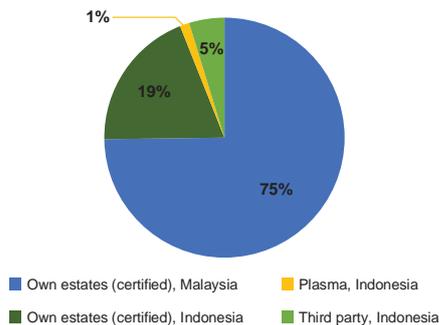
(a) Upstream Operations

All CPO sourced in Malaysia is RSPO certified under the Supply Chain model of Identity Preserved (IP). In Indonesia, we have undergone RSPO certification for part of our plantations (with HGU certificates) and have successfully achieved RSPO certification for these areas (6,712.12 Ha) in 2018. Currently the mill is RSPO certified under the Supply Chain model of Mass Balance (MB).

Full certification and production of RSPO certified and segregated palm oil traceable to the mill and plantations is expected to be reached in 2022 for our Indonesian operations in tandem with the issuance of land use certificates by the local Government authority for our properties (Inti) and Plasma land.

In this connection, we are increasing awareness by retraining and carrying out audits within all operational areas of our group. The results of these measures will be monitored and incorporated in our future reports or Company Website as part of our continuous improvement commitment.

Origin of FFB Processed at UP Mills



UP's Mills	Percentage from own plantations (%)	Percentage from third party suppliers (%)	Traceable to plantations (%)
UIE	100	0	100
Jendarata	100	0	100
Ulu Bernam Optimill	100	0	100
Ulu Basir	100	0	100
Lada (PTSSS)	76.13	23.87	100

The location of UP owned mills is tabulated below:

Name of Mills	GPS Coordinates	
	Latitude	Longitude
UIE	N 4°26'53"	E 100°43'11"
Jendarata	N 3°51'14"	E 100°58'06"
Ulu Bernam Optimill	N 3°46'19"	E 101°13'14"
Ulu Basir	N 3°43'28"	E 101°15'21"
Lada (PTSSS)	S 2°35'24"	E 111°46'16"

The location of third-party FFB suppliers for PTSSS is tabulated below:

Name of FFB Suppliers	GPS Coordinates	
	Latitude	Longitude
PT. MML	540527	9756490
Koperasi Tani Bahagia	600918	9678406
Koperasi Karya Tunggal Jaya	589868	9728251
Bapak Iswanto	591276	9708506

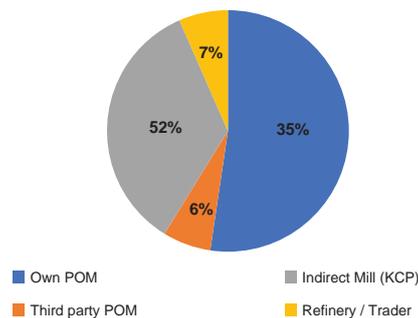
As at 31 December 2019.

(b) Downstream Operations

One of Unitata's key commitments to its customers is to ensure that our finished products can be traced back to its origins, namely palm oil mills and further to the plantation level where possible. Unitata is currently in a favourable position to meet this growing demand due to the direct link with UP's supply of RSPO certified sustainable and segregated palm oil traceable to the plantations.

The traceability of all our raw materials – CPO, CPKO, PPO, and PPKO sourced during 2019 is summarised in the chart below:

Origin of raw material (in %) sourced at Unitata Bhd.



Origin of raw material sourced at Unitata Bhd. (%)			
Own POM	Third party POM	Indirect Mill (KCP)	Refinery/ Trader
52.34%	6.45%	34.64%	6.57%

Percentage of all palm oil products handled/traded/processed (tonnes) that are RSPO-certified is 58.79% (52.34% + 6.45%)

In Malaysia, 100% of the Crude Palm Oil (CPO) used at our Unitata refinery can be traced back to the mills and plantations. 100% of the CPO produced in Indonesia is traceable to plantations and is sold to neighbouring refineries as we don't have any downstream operations in the country.

All Crude Palm Kernel Oil (CPKO) derived from UP's own production of Palm Kernel (PK) can be traced back to the plantations. However, as the use of CPKO at our refinery exceeds the volume of CPKO derived from our own PK production, we source significant volumes of CPKO from external Kernel Crushing Plants (KCP) of which the main portion only can be traced back to the Palm Oil Mills (POMs).

Going forward, we will be working with third party suppliers to increase the percentage of CPKO that can be traced back to the plantations in line with increased customer demand for traceability.

Our assurance for the level of traceability is based on our ability to identify the parent company, the mill name, mill coordinates, mill certification status from suppliers and plantations from where the crop (FFB) is produced.

The summary on the number of direct supplier mills supplying CPO and PK is tabulated below:

Raw material	Number of supplying mills	Traceable to plantations	Numbers of supplying mills sourced from own plantations	Percentage sourced from own plantations
CPO	own mills (4)	100%	own mills (4)	100%
	third party mills (4)	100%	third party mills (4)	100%
PK	own mills (4)	100%	own mills (4)	100%
	third party mills (11)	100%	third party mills (11)	100%

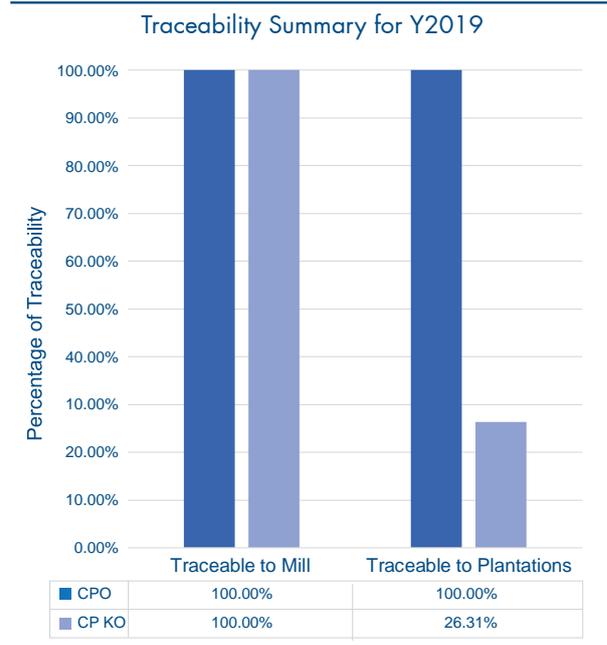
*All of the above own-and third-party supplying mills 100% source from their own plantations. Updated as at 31st December 2019.

The summary on the number of indirect supplier mills supplying PK to Kernel Crushing Plants (KCPs) from which we derive CPKO used at Unitata is tabulated below:

Raw material	Number of KCPs	Number of supplying mills	Traceable to mills (%)
PK	7	122	100

For further details of our direct and indirect supplier mills please refer to www.unitedplantations.com.

The percentage of traceability for Unitata is summarised in the below chart:



The traceability for overall combined volume sourced at Unitata for CPO, CPKO and refined products (from external refineries) is tabulated below:

Summary of the Traceability	
Traceable to Plantations	58.79%
Traceable to Mill	100.00%

*Updated as at 31st December 2019.

The percentage of derivatives sourced from intermediary traders/refiners is tabulated below:

	Refinery / Trader
Percentage	6.57%

*Updated as at 31st December 2019.

Evaluation of Suppliers' Sustainable Commitment

As a part of our sourcing policy and continuous improvement focus, we engage with suppliers to improve practices on the ground and strengthen our supply chain and thereby ensure positive developments in the sustainable palm oil production journey. As an important step towards improving our sustainability within economic, environmental and social areas of our business, we have invited our suppliers to join us along the journey.

Our aim is to improve sustainability in our supply chain and ensure that our suppliers join us on this journey through close collaboration. Our approach to engagement includes conducting meetings, self-assessment questionnaires (SAQ), supplier audits, on-site verification and follow-up related to food safety as well as MSPO and RSPO certifications. At the same time, we also assist our suppliers to improve the scores of SAQ to meet the commitment in our Responsible Palm Oil Sourcing Policy and Code of Conduct.

(a) Downstream Operations

At Unitata, we have developed a Self-Assessment Questionnaire (SAQ) since 2019 which is used annually in our engagement with suppliers. This enables us to understand the current status of suppliers and their commitments to adhere to our Responsible Palm Oil Sourcing Policy. Through this engagement, we categorize them as high risk, medium risk and low risk suppliers for further engagement.

The SAQ is sent directly to the suppliers of raw material below:-

- Crude Palm Oil
- Crude Palm Kernel Oil
- Processed Palm Oil
- Processed Palm Kernel Oil

Our Responsible Palm Oil Sourcing Policy is communicated to the above suppliers and it is expected that our suppliers live up to our policies and code of conduct across their entire operations in order to minimize and mitigate sustainability risks.

Site visits are also conducted at a planned interval for further improvements. Where a supplier in our supply chain is categorized as high risk supplier based on SAQ, we will engage with the supplier to agree a reasonable time-bound action plan and further engagement to improve their scores of SAQ to meet the commitments in our Responsible Palm Oil Sourcing Policy.

In addition to the above, we also carry out supplier audits on food safety and quality to evaluate risk materials, supplier’s management systems, obtain their certificates to ascertain food safety and quality standards, as well as evaluate their hygiene and sanitation compliance.

(b) Upstream Operations

Similar to our downstream operations, we also have Self-Assessment Questionnaires (SAQ) to evaluate our suppliers within the upstream business area. Through engagement, we discuss findings and explain and promote policies on health and safety, workers’ rights as well as our expectations on adherence to our code of conduct and policies of sustainable palm oil.

In Indonesia, we visit our third party FFB suppliers and have training sessions for smallholders and plasma farmers to improve good agricultural practices and promote sustainable palm oil policies and its implementation on ground. The smallholders were given training sessions in safe handling of pesticides with appropriate Personal Protective Equipment (PPE), effective use of pre-emergent herbicides for less chemical usage, integrated pest management (IPM) and mechanized harvesting in order to assist them with their agricultural interests. In addition, demonstration on fire combat procedures were carried out to further

enhance the awareness of neighbouring smallholders in case of fire incidence and were informed to contact UP for emergency assistance within close vicinity. We also explain UP’s company policies specifically on our No Deforestation, No Peat and No Exploitation (NDPE) commitment as well as our suppliers code of conduct.

In the event that any suppliers violating or breaching the above policies or our Supplier Code of Conduct and thereby is viewed as a high-risk supplier (self-assessment scores below 50%), UP/Unitata shall immediately request for corrective measures to be implemented with a 60 days time-bound action plan and further engagement to ensure the suppliers live up to our Responsible Palm Oil Sourcing Policy. We will moreover through dialogue and co-operation, encourage, and coach the supplier to implement the action plan by providing necessary support to see how challenges can be overcome and implemented for positive change. If a supplier is unable or unwilling to take the necessary actions to conform to the expectations outlined in our policy, UP/Unitata will as a last resort terminate its commercial relationship with the supplier.

The process to engage and assess our suppliers as indicated in the flowchart below:

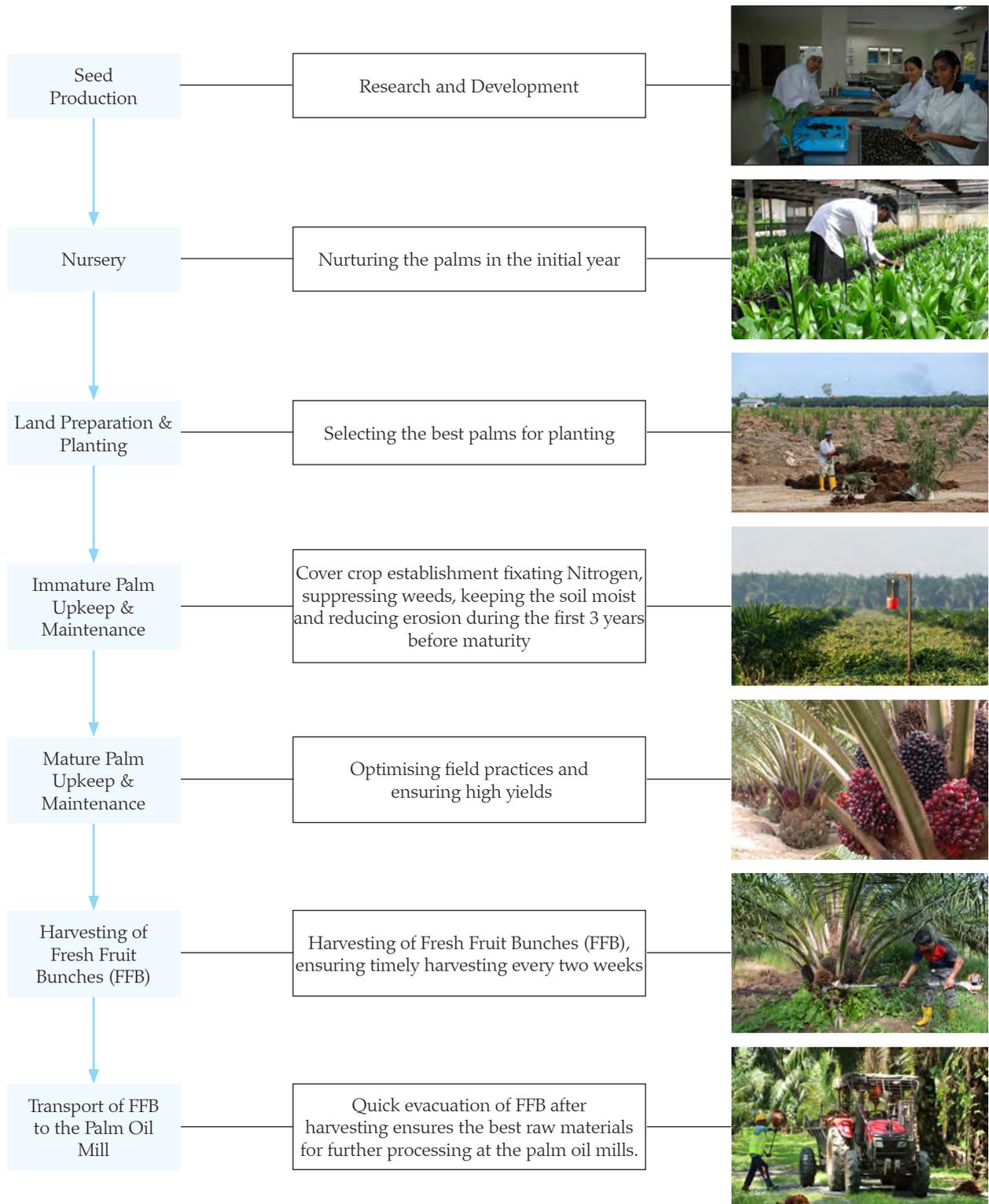


Percentage of suppliers (FFB, CPO, CPKO and processed palm oil) that have been self-assessed to the key elements of Responsible Sourcing:

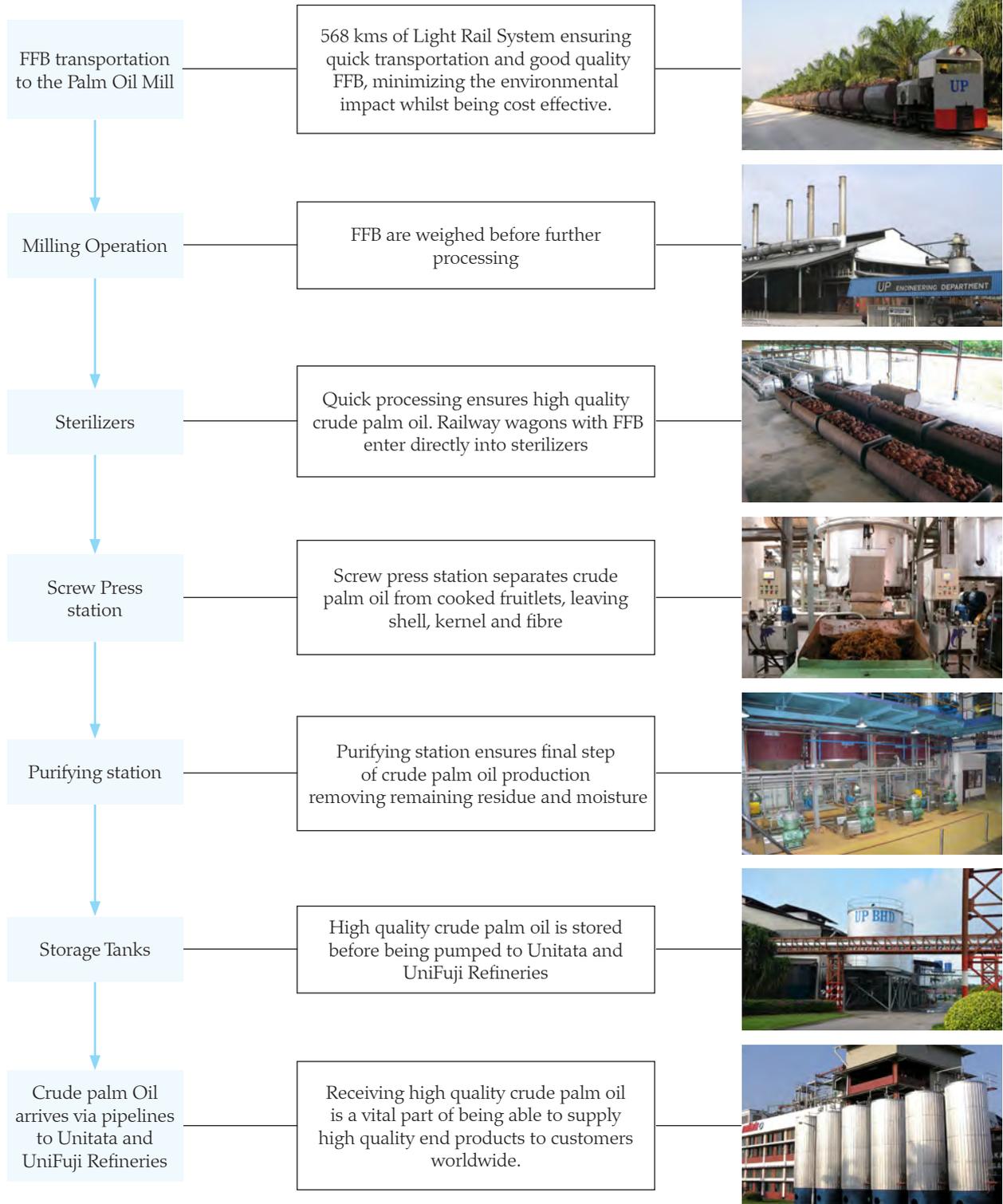
Suppliers’ Assessment	Upstream	Downstream
Percentage of suppliers assessed	100%	100%
Low risk supplier	100%	93%
Medium risk supplier	0%	7%
High risk supplier	0%	0%

Commitment to quality

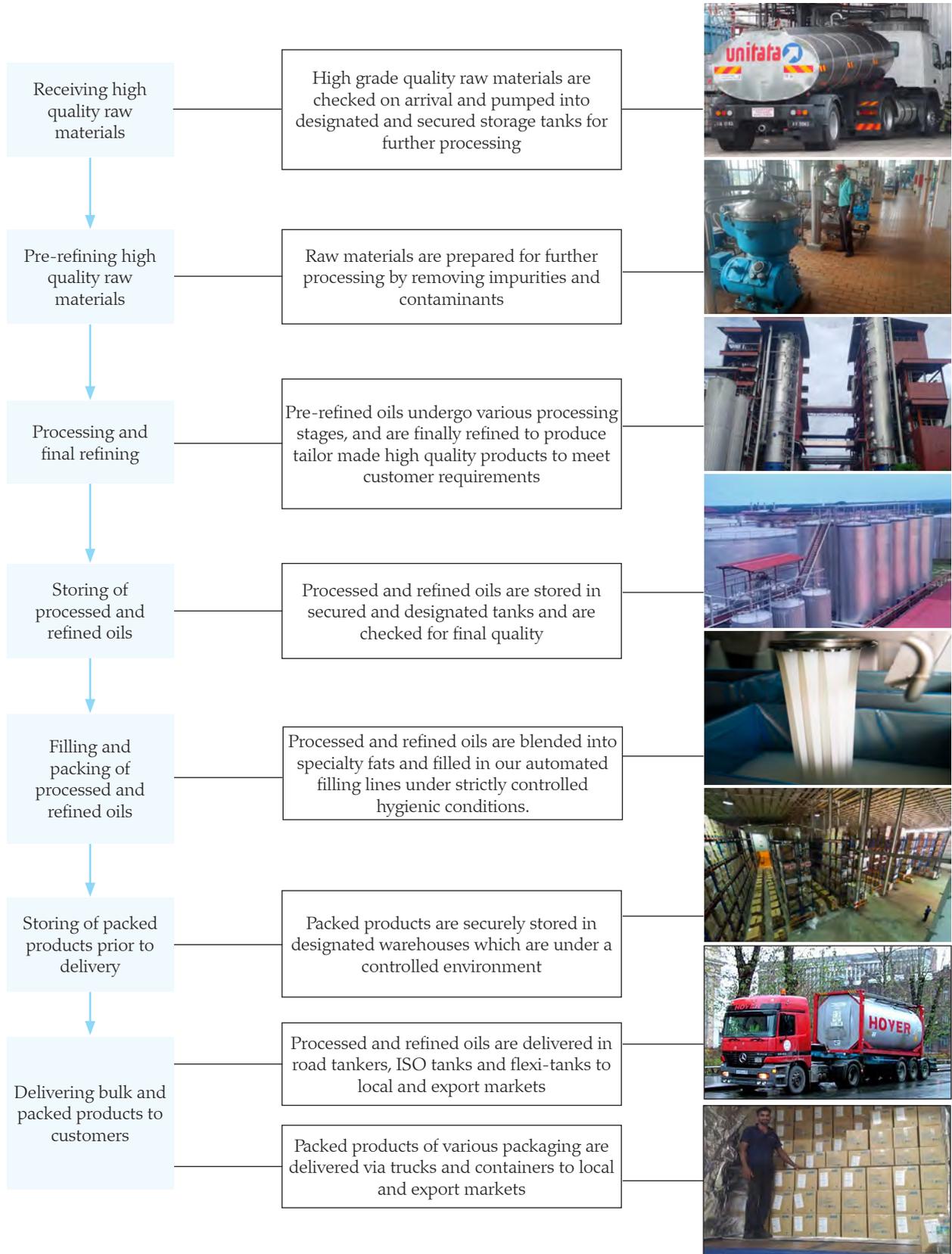
Good agricultural practices



Quick evacuation and processing at the palm oil mill



Food safety and quality focus at the refinery



Glossary

Biodiversity (BioD)	The diversity (number and variety of species) of plant and animal life within a region.
Biological oxygen demand (BOD)	The amount of oxygen used when organic matter undergoes decomposition by micro-organisms. Testing for BOD is done to assess the amount of organic matter in water.
Carbon Footprint	A measure of the total amount of greenhouse gases, including carbon dioxide, methane and nitrous oxides, emitted directly or indirectly by an organisation, event, product or person.
Child Labour	According to the International Labour Organization (ILO) core labour standards, minimum age should not be less than 16 years old.
CO ₂ Equivalents	Carbon dioxide equivalents (CO ₂ eq) provide a universal standard of measurement against which the impacts of releasing (or avoiding the release of) different greenhouse gases can be evaluated.
Crude Palm Oil (CPO)	Oil produced from oil palm fruits in milling process.
Creating Shared Value (CSV)	A responsibility to manage our resources resourcefully and engage in activities that optimize return for shareholders and the society we operate in.
Deforestation	Defined by UP as direct human-induced conversion of forest to non-forests, with an exception for small scale low intensity subsistence conversion by indigenous peoples and forest dependent traditional communities (consistent with RSPO P & C as well as Indonesian laws, Environmental Impact Assessments (EIA) and High Conservation Value Assessment (HCV).
Effluents	Water discharged from one source into separate body of water, such as mill process water.
ERT	Emergency Response Team
Forced Labour	A person who is coerced to work under the threat of violence, intimidation, or undue stress of penalty.
Free, Prior and Informed Consent (FPIC)	The principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or otherwise use.
Fresh fruit Bunches (FFB)	Bunch harvested from the oil palm tree. The weight of the fruit bunch ranges between 10 kg to 40 kg depends on the size and age.
Global Reporting initiative (GRI)	A multi-stakeholder standard for sustainability reporting, providing guidance on determining report content and indicators.
Greenhouse Gas (GHG) emissions	Greenhouse gas or carbon emissions are gases in an atmosphere that absorb and emit radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect. The primary greenhouse gases in the Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.
HRESH	Human Resources Environment Safety and Health
High Conservation Value (HCV)	The concept of High Conservation Value Forests (HCVF) was first developed by the Forest Stewardship Council (FSC) in 1999 as their ninth principle. The FSC defined HCVF as forests of outstanding and critical importance due to their environmental, socio-economic and cultural biodiversity and landscape value.
High carbon stock (HCS)	The HCS Approach is a methodology to avoid deforestation in land development. The approach stratifies the vegetation on an area of land into different classes using analyses of satellite images and field plot measurements. Each vegetation class is validated through calibrating it with carbon stock estimates in the above-ground tree biomass.
Hak Guna Usaha (HGU)	The right to enjoy immovable property of another person with the obligation to pay the annual income to the landowner.
ILO (International Labour Organisation)	Is a tripartite world body representative of labour, management and government, and is an agency of the United Nations. It disseminates labour information and sets minimum international labour standards called "conventions", offered to member nations for adoption.
Integrated Pest management (IPM)	A pest management system that in context of the associated environment and the population dynamics of the pest species utilizes all suitable techniques and methods in as compatible a manner as possible and maintains the pest population at levels below those causing economically unacceptable damage and loss.
IUCN Red List	Based in Switzerland, the International Union for Conservation of Nature and Natural Resources (also known as The World Conservation Union) is an organisation involved in the preservation of natural resources. IUCN publishes the Red Data Book, which lists the endangered species of every nation.
Identity Preserved/ IP	Certified sustainable palm oil is physically separated from other certified and non-certified palm oil throughout the supply chain, i.e from the RSPO mill through to the end-user.
Oil Extraction Rate	The amount of oil extracted from oil palm fruit at a mill. Crude palm oil (CPO) is extracted from the flesh; palm kernel oil (PKO) from the nut.
Mass Balance	Certified sustainable palm oil and non-certified palm oil is mixed to avoid the cost of keeping the two quantities controlled. The mass balance system is constructed in such a way that volumes of RSPO certified products shipped will never exceed volumes received by the end-user.
Mature Oil Palm	After planting, the oil palm tree is classified as immature until fresh fruit bunches are produced, which is approximately 30 months later, whereupon the oil palm tree is classified as mature.
MOSH	Mineral Oil Saturated Hydrocarbons
MOAH	Mineral Oil Aromatic Hydrocarbons
Non-governmental organisation (NGO)	Is used in this report to refer to grassroots and campaigning organisations focused on environmental or social issues.
Palm oil Mill effluent (POME)	By-product of processed fresh fruit bunch (FFB).
Peat	Peat is an accumulation of partially decayed vegetation matter. Peat forms in wetlands or peat lands, variously called bogs, moors, muskegs, pocosins, mires, and peat swamp forests.
Plasma schemes	A programme initiated by the Indonesian government to encourage the development of smallholders' plantations with the assistance and cooperation of plantation companies (the nucleus) which assist and support the surrounding community plantations (the plasma).
Palm Kernel (PK)	Seed of the oil palm fruit, which is processed to extract palm kernel oil and other by-products.
Roundtable on sustainable palm oil (RSPO)	A non-governmental multi-stakeholder organisation based in Kuala Lumpur, Malaysia. The organisation has developed a certification scheme for sustainable palm oil.
Social Impact Assessment	A process of analysing, monitoring and managing the intended and unintended, both positive and negative social consequences of planned interventions (policies, programs, plans, projects) and any social change processes invoked by the interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.
Segregated/ SG	Certified sustainable palm oil is physically separated from non-certified palm oil throughout the entire supply chain.
Stakeholders	Any group or individual who are affected by or can affect a company's operations.
Sustainability	A term expressing a long-term balance between social, economic and environmental objectives. Often linked to Sustainable Development which is defined as "Development that meets the need of current generations without compromising the needs of future generations"
Traceability	Traceability is the capability to track sustainable palm oil along the entire supply chain.
Toxicity	Toxicity measures the degree to which a substance is harmful to living organisms.



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Independent Limited Assurance Report

Relating to United Plantations Berhad's Annual Report for the year ended 31 December 2019.

To the Directors of United Plantations Berhad

We, KPMG PLT, have been engaged by United Plantations Berhad ("United Plantations" or "UP") and are responsible for providing a limited assurance conclusion in respect of the Selected Sustainability Information for the year ended 31 December 2019 to be included in the Annual Report 2019 ("the Report") as identified below ("the Selected Sustainability Information").

Management's Responsibilities

The management of United Plantations ("Management") is responsible for the preparation and presentation of the Selected Sustainability Information in accordance with Management's calculation methodologies and the information and assertions contained within it and for establishing and maintaining appropriate performance management and internal control systems from which the reported performance information is derived.

Management is responsible for preventing and detecting fraud and for identifying and ensuring that United Plantations and its subsidiaries (hereinafter referred to as UP Group, which includes UP operations in Malaysia and Indonesia) complies with laws and regulations applicable to its activities.

Management is also responsible for ensuring that staff involved with the preparation and presentation of the description and Report are properly trained, information systems are properly updated and that any changes in reporting encompass all significant business units.

Our Responsibilities

Our responsibility is to carry out a limited assurance engagement and to express a conclusion based on the work performed. We conducted our engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000 Assurance Engagements other than Audits or Reviews of Historical Financial Information issued by the International Auditing and Assurance Standards Board. That Standard requires that we plan and perform the engagement to obtain limited assurance about whether the Selected Sustainability Information is free from material misstatement.

Selected Sustainability Information

Selected Sustainability Information includes the following data for the year ended 31 December 2019:

- Total average earnings per worker per month;
- Lost time injury frequency rate;
- Fatal accident rate;
- Domestic water consumption;
- Mill water consumption in processing fresh fruit bunches ("FFB");
- Usage of pesticides / herbicides;
- Local and international certifications, and Roundtable on Sustainable Palm Oil ("RSPO") certifications;
- Area planted on peat (hectareage as per the peat soil map from United Plantations Research Department ("UPRD"));
- Percentage of suppliers (FFB, Crude Palm Oil ("CPO"), Crude Palm Kernel Oil ("CPKO") and processed palm oil) that have been self-assessed to the key elements of UP's Responsible Sourcing Policy; and
- The description given by UP in the "Evaluation of Suppliers' Sustainable Commitment" section of this Report regarding UP's suppliers' engagement and assessment/programme to support suppliers (FFB, CPO, CPKO and processed palm oil).

The boundary of the Selected Sustainability Information included in the Annual Report 2019 represents the entire UP Group, except for:

- Operations in UniFuji Sdn Bhd, Malaysia, except for Lost Time Injury Frequency Rate and Fatal Accident Rate;
- Operations in PT Surya Sawit Sejati, Indonesia, for Lost Time Injury Frequency Rate and Fatal Accident Rate; and

- Operations in Tanarata Estate, Malaysia, except for Lost Time Injury Frequency Rate and Fatal Accident Rate.

Procedures Performed over Selected Sustainability Information

A limited assurance engagement on the Selected Sustainability Information consists of making inquiries, primarily of persons responsible for the preparation of information presented in the Report, and applying analytical and other evidence gathering procedures, as appropriate. These procedures include:

- Interviews with Senior Management and relevant staff at corporate and operating sites;
- Inquiries about the design and implementation of the systems and methods used to collect and process the information reported, including the aggregation of source data into the Selected Sustainability Information;
- Visits to 5 operating sites¹, selected on the basis of a risk analysis including the consideration of both quantitative and qualitative criteria; and
- Comparing the information presented in the Selected Sustainability Information to corresponding information in the relevant underlying sources to determine whether all the relevant information has been included in the Selected Sustainability Information and prepared in accordance with Management's calculations methodologies.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement and consequently the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Accordingly, we do not express a reasonable assurance opinion.

Our independence and quality control

We have complied with the independence and other relevant ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

KPMG PLT applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Inherent limitations

Due to the inherent limitations of any internal control structure it is possible that errors or irregularities in the information presented in the Report may occur and not be detected. Our engagement is not designed to detect all weaknesses in the internal controls over the preparation and presentation of the Report, as the engagement has not been performed continuously throughout the period and the procedures performed were undertaken on a test basis.

Our conclusion

Our conclusion has been formed on the basis of, and is subject to, the matters outlined in this Independent Limited Assurance Report.

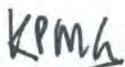
We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Based on the procedures performed and evidence obtained, as described above, nothing has come to our attention that would lead us to believe that the Selected Sustainability Information included in the Report for the year ended 31 December 2019, is not presented, in all material respects, in accordance with Management's calculation methodologies.

Restriction of use of our Independent Limited Assurance Report

Our Independent Limited Assurance Report should not be regarded as suitable to be used or relied on by any party wishing to acquire rights against us other than United Plantations, for any purpose or in any other context. Any party other than United Plantations who obtains access to our Independent Limited Assurance Report or a copy thereof and chooses to rely on our Independent Limited Assurance Report (or any part thereof) will do so at its own risk. To the fullest extent permitted by law, we do not accept nor assume responsibility and deny any liability to any party other than United Plantations for our work, for this Independent Limited Assurance Report, or for the conclusions we have reached.

Our Independent Limited Assurance Report is released to United Plantations on the basis that it shall not be copied, referred to or disclosed, in whole (save for United Plantation's own internal purposes) or in part, without our prior written consent.



KPMG PLT
Petaling Jaya
22 February 2020

¹ Ulu Bernam Optimill, Lima Blas Estate, Seri Pelangi Estate, Kuala Bernam Estate and Sungei Bernam Estate