

ESG Review

ENVIRONMENTAL SUSTAINABILITY

Why it matters?

It is our responsibility to preserve and protect the environment for the present as well as future generations. For HEINEKEN Malaysia, this means having bold and progressive measures in place to drive positive change through our environmental endeavours guided by HEINEKEN’s sustainability strategy, Brew a Better World.

We strive to minimise our impact on the environment via our BaBW 2030 Strategy where we are committed to reaching set goals such as achieving net zero carbon emissions in production and across our value chain.

We are also maximising circularity through recycling and reusing, contributing to healthy watersheds through water stewardship projects and practising sustainable resource use of electricity and natural gas.

LINKAGES BETWEEN MATERIAL SUSTAINABILITY MATTERS AND BaBW AMBITION AREAS

Material Matters	Ambition Areas
Climate Resilience & Energy Efficiency	Reach Net Zero Carbon Emissions
Waste and Effluent Management	Maximise Circularity
Water Stewardship	Towards Healthy Watersheds
Resource Use	

CONTRIBUTION TO UN SDGs



ENVIRONMENTAL PERFORMANCE OVERVIEW

Transitioned to **100%** green electricity in March 2022

Reduced absolute carbon emissions at our production by **49%** compared to 2018 baseline

Carbon emission intensity at production reduced by **56%** to 5.18 kgCO₂e/hl

Increase in biogas production by **54%** from 2021

100% production waste is recycled and upcycled

100% of wastewater treated beyond the standards required by DOE

85% of reduction in absolute Scope 2 emissions and Scope 2 emission intensity lowered by **87%** compared to 2018 baseline

OUR DECARBONISATION PATHWAY: REACHING NET ZERO CARBON EMISSIONS

The impact of climate change is evident in the extreme fluctuations in weather all around the world. In Malaysia, the flooding that started in early 2022 was listed by the World Economic Forum (WEF) as a disaster fuelled by the climate crisis.

HEINEKEN Malaysia is playing its part in achieving the global agenda of reducing GHG emissions by 43% by 2030 as urged by the Intergovernmental Panel on Climate Change (IPCC) to meet the Paris Agreement goal of limiting global warming to 1.5°C.¹

The Group considers climate change a risk to our operations as the nature of our business depends largely on resources such as energy, water and supply of key ingredients. In our efforts to mitigate and adapt to climate change, the Group has set high standards by committing to achieve net zero carbon emissions across our value chain by 2040 with an intermediate goal to achieve net zero carbon emissions in production and 30% reduction in the value chain by 2030.

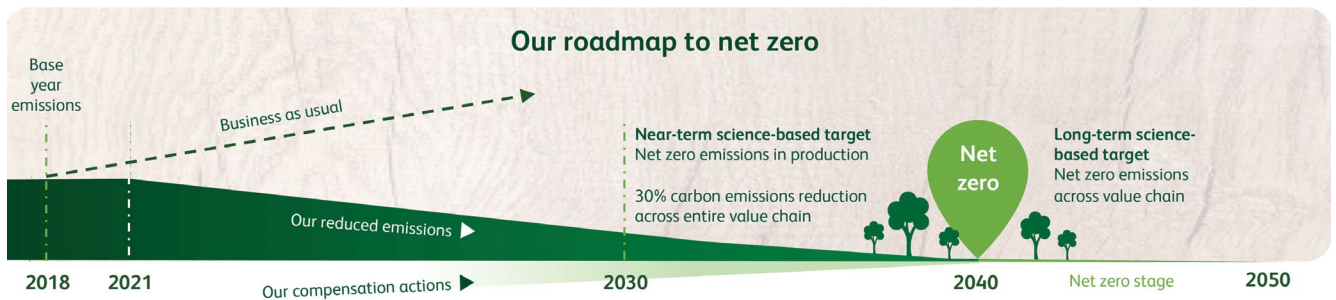
Our emission reduction targets have been validated by the Science Based Target Initiative (SBTi) which is essentially based on climate science. To maintain transparency and accountability, the Group tracks and reports our progress against our targets annually.

¹ Climate Change 2022, Mitigation of Climate Change, Sixth Assessment Report of the Intergovernmental Panel on Climate Change (“IPCC”)

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Our Net Zero Roadmap

We have developed our roadmap to net zero carbon as the foundation of our journey in decarbonisation across our production and value chain. HEINEKEN Malaysia's Sustainability Committee is responsible for implementing the roadmap to reduce our carbon emissions.



Our 2018 emissions are the baseline against which future emission reductions will be measured. To expedite our journey, we have set production innovation and efficiency as our focal points to reduce total energy demand and consumption. Where possible, we accelerated green energy adoption by deploying renewable energy technologies. We are guided by the TCFD Recommendations to improve our climate-related disclosures for better climate resilience and to communicate effectively the critical impacts of climate change on our business. These also assist us in shaping our action plans to mitigate the identified climate risks and leverage new opportunities.

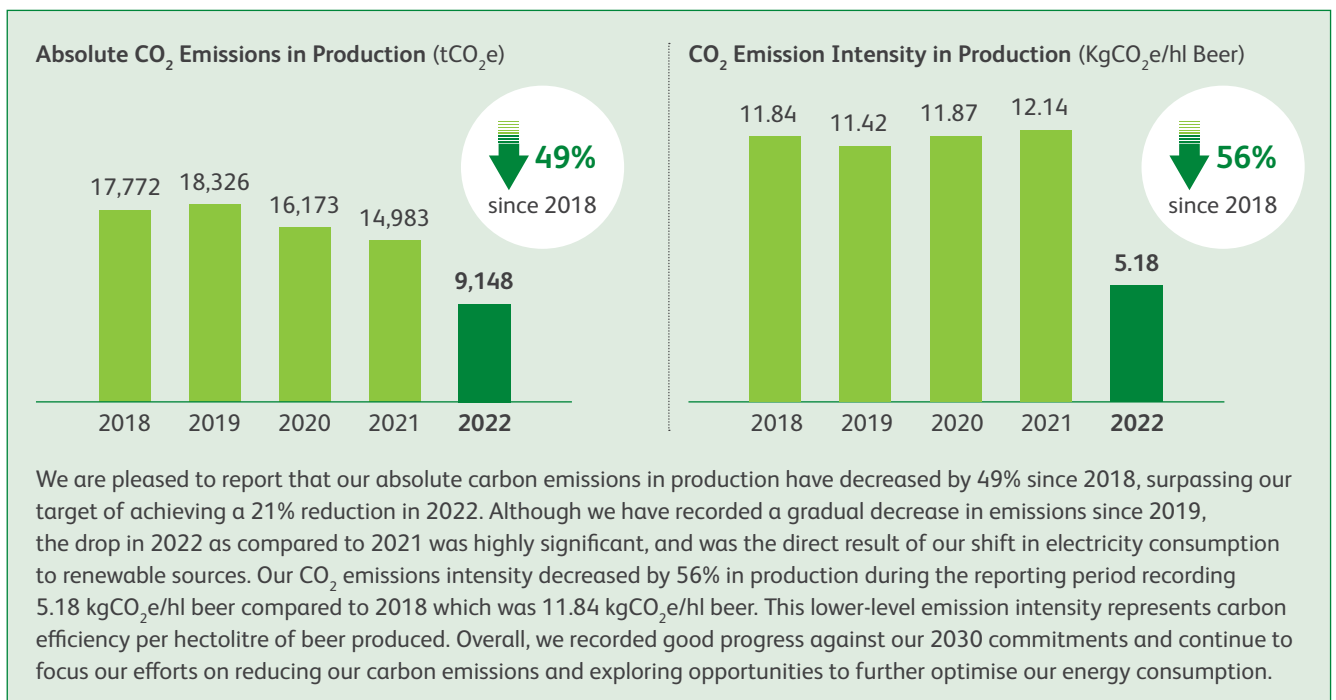
DRIVING DECARBONISATION

Since 2018, HEINEKEN Malaysia has undertaken various initiatives to achieve carbon neutrality in our production. Some of our key energy-saving initiatives include utility upgrades and production process improvements as well as cooling plants

and CO₂ plant upgrades. The utility upgrade project improved cooling plant electricity consumption by 1kwh/hl.

We have also installed insulation on various components of the brewery including steam boilers, hot water tanks and fermentation tanks to reduce heat loss and improve energy conservation. We continue to procure energy efficient and environmentally friendly refrigeration equipment as part of our initiatives to reduce our carbon footprint. In 2022, we procured 202 green fridges.

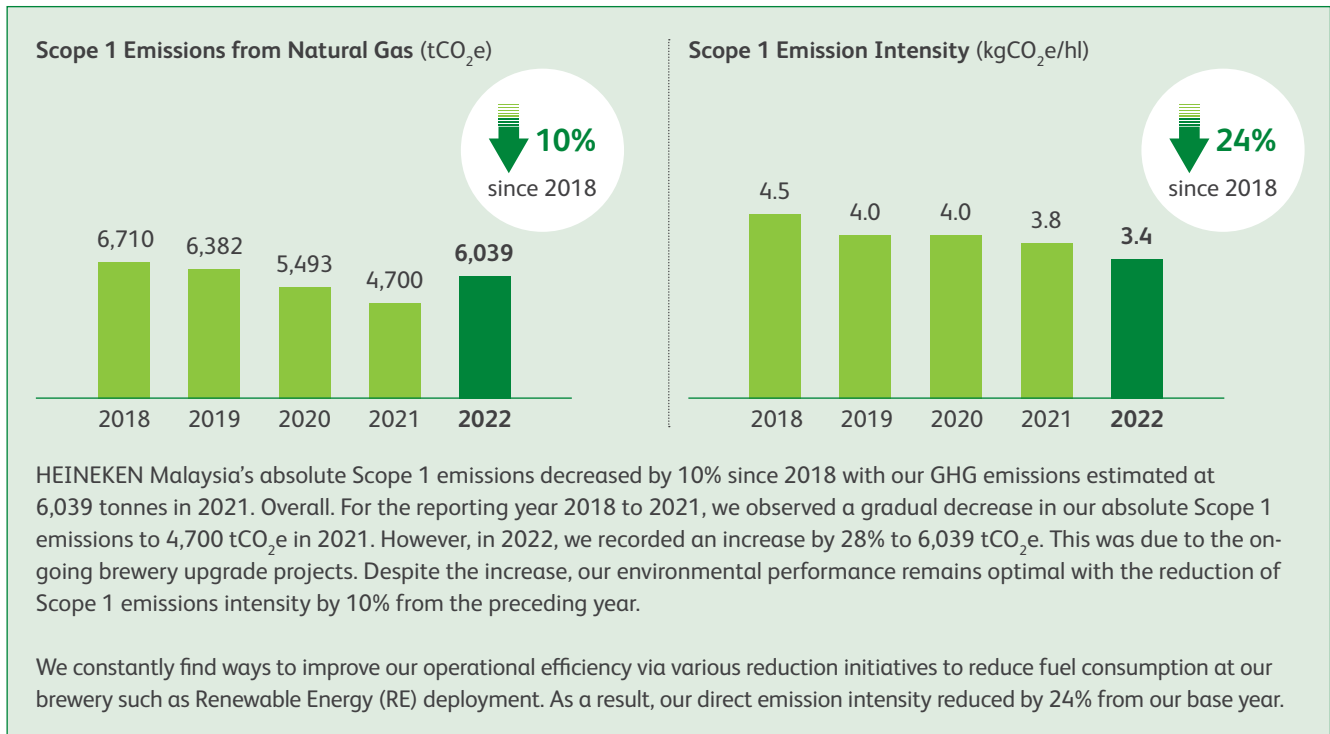
In March 2022, the Group partnered with Tenaga Nasional Berhad (TNB) in the Green Electricity Tariff (GET) programme and has transitioned to 100% renewable electricity. The GET programme is an initiative by the Malaysian government in line with our nation's initiatives to achieve net zero GHG emissions by 2050.



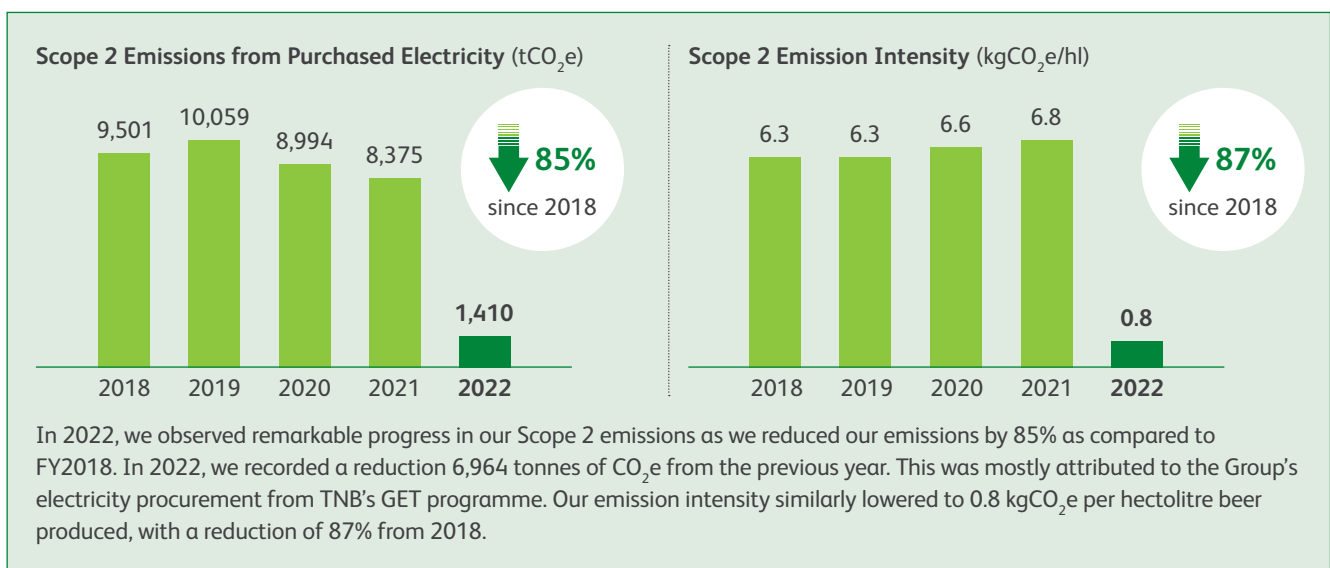
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Direct (Scope 1) and Indirect (Scope 2) GHG Emissions

In 2022, we disclosed our Scope 1 and Scope 2 emissions to track and monitor the source of GHG emissions to help build better reduction strategies. Scope 1 emissions from our brewery are direct emissions from the combustion of fossil fuel. At HEINEKEN Malaysia, the source of fuel is natural gas.



Scope 2 emissions are GHG emissions that are indirectly generated from the consumption of purchased electricity.



* **Green Electricity Tariff, or GET**, is the Government initiative to provide the option of green electricity sourced from renewable energy supplies to any electricity consumer to reduce their carbon footprint. This GET programme is a part of the nation's initiatives to achieve net-zero GHG emissions by the year 2050. GET subscribers will be supplied with green electricity coming from Solar and Hydro generators. On top of that, the green electricity is backed by Malaysia Renewable Energy Certificates (mREC) which are based on international REC standards.

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ENERGY MANAGEMENT

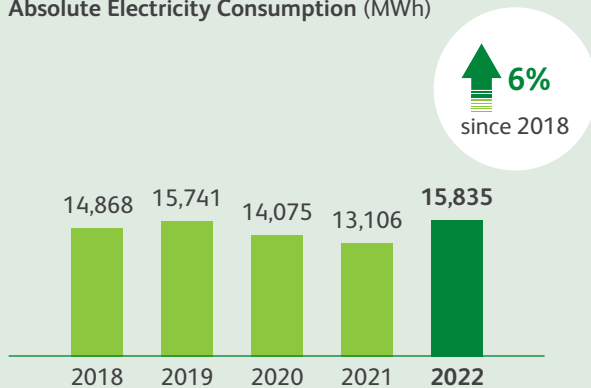
HEINEKEN Malaysia’s energy usage mainly comprises thermal energy and electricity consumption. Natural gas is the primary source of thermal energy in our brewery and is used for various processes such as boiling, cooling and sterilisation. Electricity is mainly utilised to power pumps and motors, refrigeration systems for fermentation as well as storage and machinery operations.

We work to improve our energy consumption in the short-term while simultaneously pursuing long-term solutions. Our target is to launch our on-site solar power generation which is expected to replace approximately 15% of our electricity, with an expected launch later in 2023. Apart from the deployment of renewable energy technologies, we are in the midst of exploring the feasibility of Virtual Power Purchase Agreements to be included in our net zero carbon roadmap beyond 2025, a procurement mechanism that enables organisations to purchase renewable energy from offsite projects.

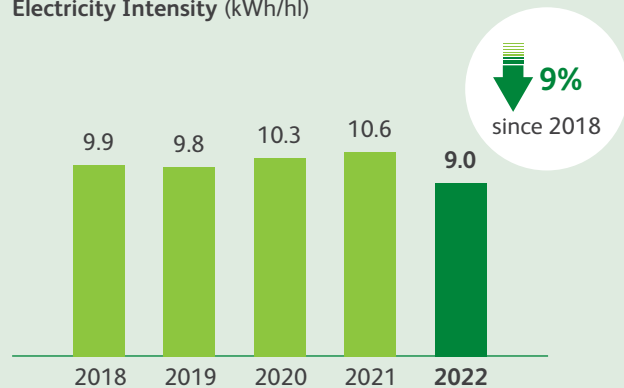
Procured Electricity

In 2022, HEINEKEN Malaysia’s total energy consumption increased by 21% to 15,835 MWh from 13,106 MWh in 2021. The increased energy expenditure is attributed to increased production at our brewery which rose by 43%. Our electricity intensity has reduced from 10.6 kWh/hl to 9.0 kWh/hl in 2022, increasing our efficiency by 16%.

Absolute Electricity Consumption (MWh)



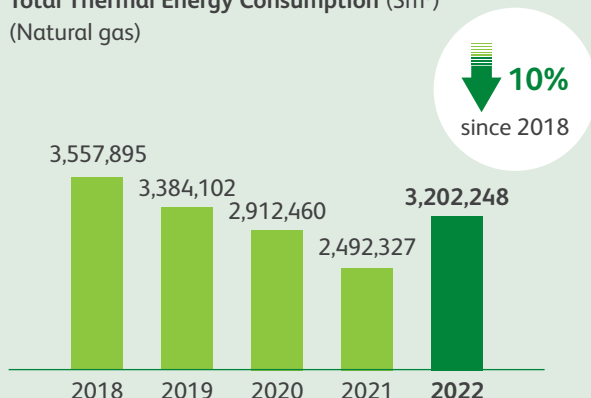
Electricity Intensity (kWh/hl)



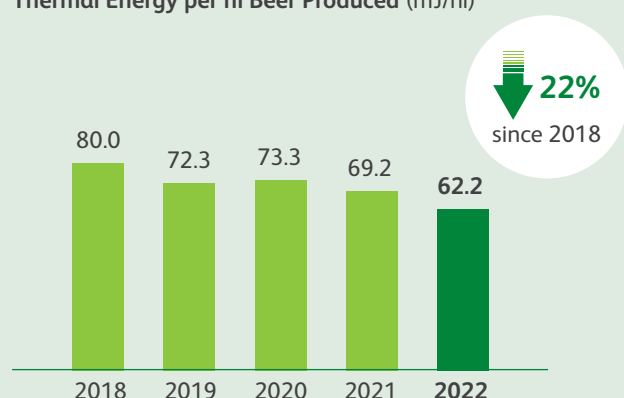
Thermal Energy

Our natural gas consumption reduced by 10% in comparison with our baseline year and energy efficiency improved by 22% to 62.2 mJ/hl in 2022 from 80.0 mJ/hl in 2018. HEINEKEN Malaysia’s continuous efforts in optimising fuel consumption include our brewery insulation project which reduces heat loss significantly and increases thermal energy generation from the wastewater treatment plant. We are currently looking into more opportunities to reduce reliance on non-renewable energy sources.

Total Thermal Energy Consumption (Sm³) (Natural gas)



Thermal Energy per hl Beer Produced (mJ/hl)



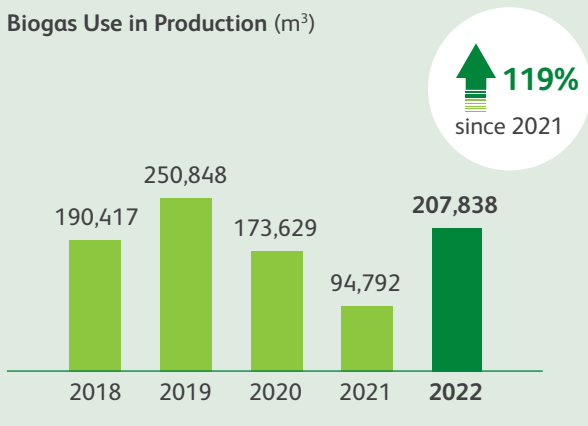
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Energy from Biogas

We aspire to leverage clean energy and sustainable energy sources and aim to replace 25% of thermal energy through an increase in biogas² recovery projects to meet our target of achieving an 86% reduction in CO₂ emissions by 2025. Hence, we are constantly exploring measures to decarbonise our thermal energy consumption.

In 2022, Biogas use in our production increased by 119% to 207,838 m³ and 5% of our thermal energy is generated from our wastewater treatment plant.

Biogas Use in Production (m³)

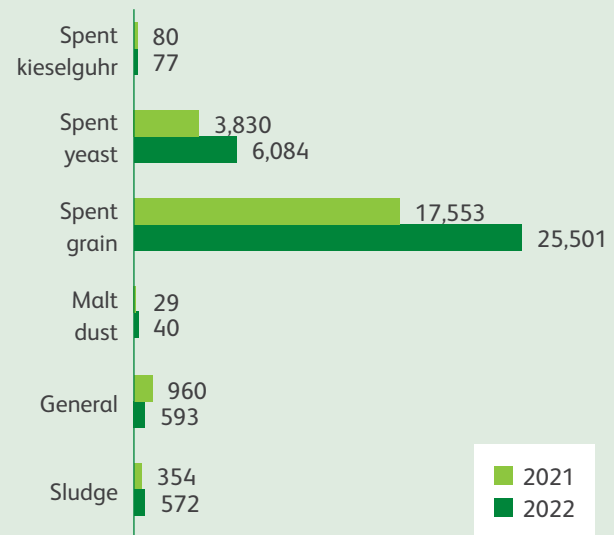


² Biogas is defined as a gas produced by the anaerobic digestion or fermentation of indigenous organic matter under anaerobic conditions including but not limited to manure sewage sludge municipal solid waste and biodegradable waste.

oil, which are sources of protein for animal feed. These insect proteins are then used to feed pets and farm animals, in particular, swine, and also as a substitute for fish meals.

We are constantly looking at how our organic wastes can be converted into biogas using the right technologies before further upgrading into biomethane to substitute up to 50% of HEINEKEN Malaysia, Sungei Way Brewery’s thermal energy requirement.

Total Organic Wastes (Tonnes)



MAXIMISE CIRCULARITY

HEINEKEN Malaysia is committed to conserving our natural resources and reducing the consumption of raw materials by adopting waste circularity within our operations where we reduce material use, redesign materials and products to be less resource intensive, and recapture “waste” as a resource to manufacture new materials and products.

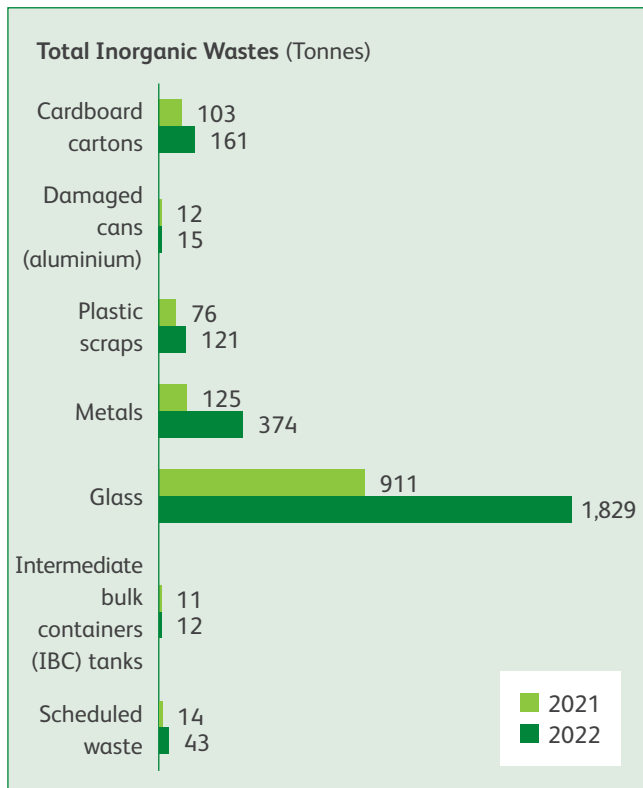
We segregate our waste and aim for zero waste sent to landfill from our operations including our brewery by 2025. The majority of our waste consists of biodegradable co-products such as spent grain, yeast and kieselguhr which have commercial value from reuse in other industrial applications. HEINEKEN Malaysia is working with two contractors to process the spent grains as cattle feed while another is for a bioconversion process that transforms the spent materials into a protein component for livestock feed. The bioconversion process utilises our spent grain from our operations to cultivate black soldier flies. The larvae of black soldier flies are then processed into two main ingredients, insect meal, and insect

In 2022, we produced a total of 32,868 tonnes of organic waste of which spent grain accounted for 78% of the organic waste.

In 2022, our biogas recovery from the wastewater treatment plant generated 5 million megajoules of thermal energy for our brewery in Petaling Jaya. This represented 5% of our total thermal energy needs. We aim to increase our biogas recovery by 2025 to replace 25% of our thermal energy needs, using heat pumps as well as exploring other innovative methods of decarbonising our thermal energy generation, which currently comes from boilers fueled by liquified natural gas (LNG).

We are constantly looking for opportunities to improve the recyclability of our inorganic waste which comprises glass, metals, plastic scraps, cardboard cartons and damaged aluminium cans. The waste is managed and disposed of through our recycling company, a certified waste management partner.

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In 2022, we produced a total of 2,555 tonnes of inorganic waste. 72% of our inorganic waste consisted of glass.

As for our contribution towards the eradication of plastic waste, we have successfully eliminated single-use plastics in the primary packaging of our products by procuring scale efficient and sustainable packaging. However, we still use plastic wrap for our multi can packs where plastic film wrap is used to pack our 24-pack cartons together. We will continue to explore innovative packaging solutions to shift to recyclable materials such as paper collars made from recyclable paperboard.

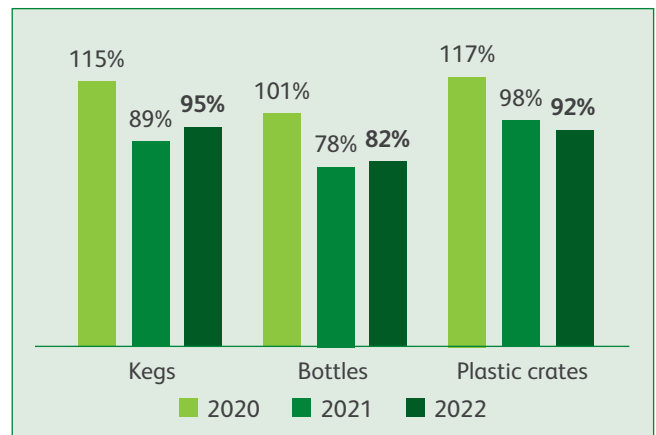
We generated a total of **35,423** tonnes of waste in 2022, of which 100% were recycled.

Generated **RM1.9 million** in revenue.

PACKAGING WASTE

Our packaging material represents the largest component of our global footprint. In Malaysia, we apply the reduce, reuse and recycle method in managing our bottles, kegs and crates waste. We work with our trade partners through a deposit system and to ensure reusable kegs, bottles and crates are returned to the brewery. Over the years, we have worked to improve our packaging materials to be thinner, lighter yet durable so fewer resources are used.

We utilise returnable packaging materials such as bottles, crates and kegs to distribute our end products to our customers and consumers. We are cognisant of the environmental impact of our packaging waste and are committed to innovating the materials we use as well as increasing the rate of recycling and reusing our packaging materials. In 2022, our 12-month moving average on the return rates are as follows:



In 2022, the returned kegs, bottles and plastic crates are at 95%, 82% and 92% respectively. We continue our efforts to increase the circulation of returned materials in our production.

TOWARDS HEALTHY WATERSHEDS

Water is an essential resource in our operations; we are thus committed to minimising our water footprint throughout our value chain to ensure water security. As a responsible brewer, we continue to play our part in safeguarding this shared precious resource by taking the lead in our water conservation efforts. We embarked on various water optimisation efforts through the three key principles of our water triangle: Water Balancing, Water Circularity and Water Efficiency.


Our 2030 water strategy involves three ambition areas which include reducing water consumption, maximising water circularity and treating wastewater as well as balancing water use through watershed protection programmes. Our approach to managing water goes beyond internal management, where we not only practise responsible water usage and wastewater management, but also commit to long-term water security for the community.

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Our 2030 water strategy, Towards Healthy Watersheds, looks beyond traditional water metrics and prioritises the health of local watersheds, especially in water-stressed areas.

Our Commitments



Water Efficiency


Reduce average water usage to 2.6hl/hl in water-stressed areas and 2.9 hl/hl worldwide by 2030



Water Circularity

Treat 100% of wastewater of breweries by 2023

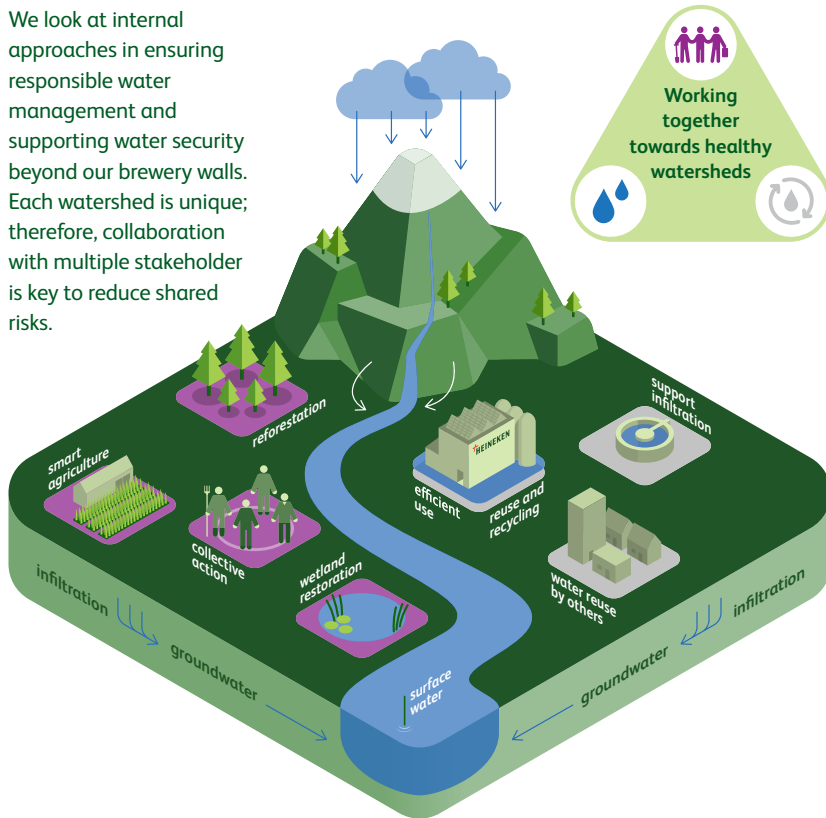
Maximise reuse and recycling in water-stressed areas by 2030



Water Balancing

Fully balance water used in our products in water-stressed areas by 2030, through water balancing programme and collective action

We look at internal approaches in ensuring responsible water management and supporting water security beyond our brewery walls. Each watershed is unique; therefore, collaboration with multiple stakeholder is key to reduce shared risks.



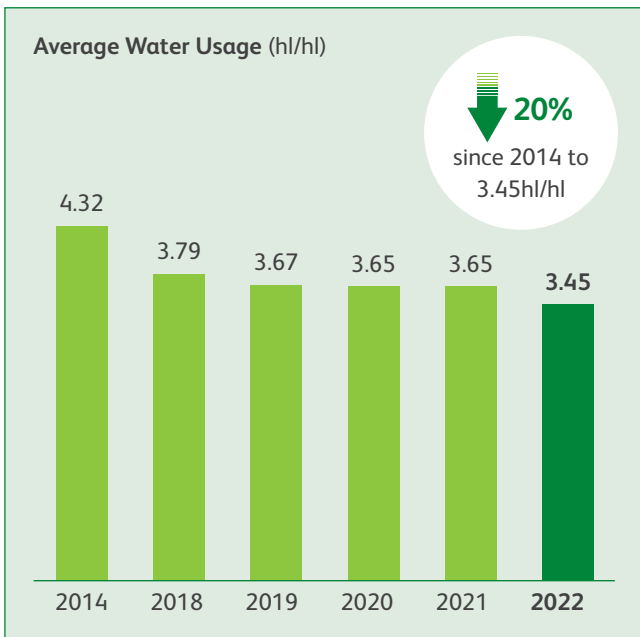
WATER EFFICIENCY

We strive to maximise water efficiency by eliminating the wastage of water within our brewing operations through the practice of responsible water management. Our water-saving efforts are focused on optimising usage by maximising water circularity.

In 2022, we recorded average water usage of 3.45 hl/hl, a reduction of 5% compared to the previous year and a 20% reduction from our baseline year in 2014. This value is higher than our target for 2022 of 3.16 hl/hl and can be attributed to the indirect impact of our brewery upgrading project during the financial year which required additional cleaning cycles and caused irregularities in production planning and packaging line downtimes.

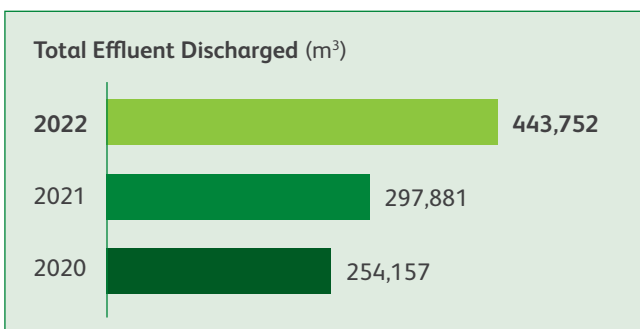
There was a decreasing pattern seen from previous years and we continue to strive to meet our BaBW 2030 commitment of reducing water usage to 2.6 hl/hl by 2030. Our future plans for improvement include introducing the new cleaning-in-place (CIP) process that utilises less water. We are also exploring efficiency improvements in the packaging and bottling line of our brewery and recycling water from carbon filter regeneration for general cleaning purposes. Flow meters will be installed to quantify and monitor progress on reused and recycled water.

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WATER CIRCULARITY

In line with our efforts to protect our water resources, we are conscious of the impact we pose from the discharge of our wastewater. We monitor and track our effluent discharge to ensure our wastewater is within the regulatory standards. In 2022, we recorded a 49% increase in the total volume of effluent discharged. This increase can also be attributed to the increased demand for our production during the financial year, despite practising strong circularity throughout our operations.



We are pleased to report that we have achieved our BaBW ambition of treating 100% of wastewater, a standard that we have maintained since 2018. Our brewery is equipped with a wastewater treatment plant with a capacity of 780 million litres per year and we maintain stringent compliance with the Environmental Quality Act 1974, and the Environmental Quality (Industrial Effluent) Regulations 2009 Fifth Schedule when discharging our wastewater. We continue to treat our wastewater 100% beyond the standards prescribed by the Department of Environment. In 2022, we recorded zero non-compliance relating to wastewater standards and regulations.

WATER BALANCING

We aim to balance the amount of water used in our products with our local watersheds through investing in water stewardship projects. For every 1 litre of water in our beers and ciders, we target to balance 1.5 litres of water in our watersheds. We reached this goal in 2020 and continue to maintain it to where we have balanced 203% of our targeted water volume. The percentage of water balanced in 2022 (203% vs target) is relatively lower than in 2021 (289% vs target) due to the recovery in business operations post-pandemic resulting in higher production volumes in 2022, which increased the target balancing volume.

Safeguarding our local watersheds is one of our top priorities. We have embarked on various water conservation projects and will continue to contribute over the years. Our efforts have had a positive impact on improving water security through our third-party verified water balancing results. Our water balancing volumes are quantified and verified in line with the Volumetric Water Benefit Accounting (VWBA) framework by the World Resources Institute; volumetric benefit evaluation is independently verified by LimnoTech, a leading water sciences and environmental engineering firm based in the United States.

Our water conservation programmes are carried out through our Working Actively Through Education and Rehabilitation (W.A.T.E.R Project) which is the flagship initiative of the SPARK Foundation in collaboration with the Global Environment Centre, Government agencies and local communities. SPARK Foundation is the corporate social responsibility arm of HEINEKEN Malaysia which was established in 2007 and has since provided support in the areas of environmental protection and educational enrichment.



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HEINEKEN Malaysia Target:

Balance Volume (m³) = Water Intake (m³) – Treated Effluent (m³)

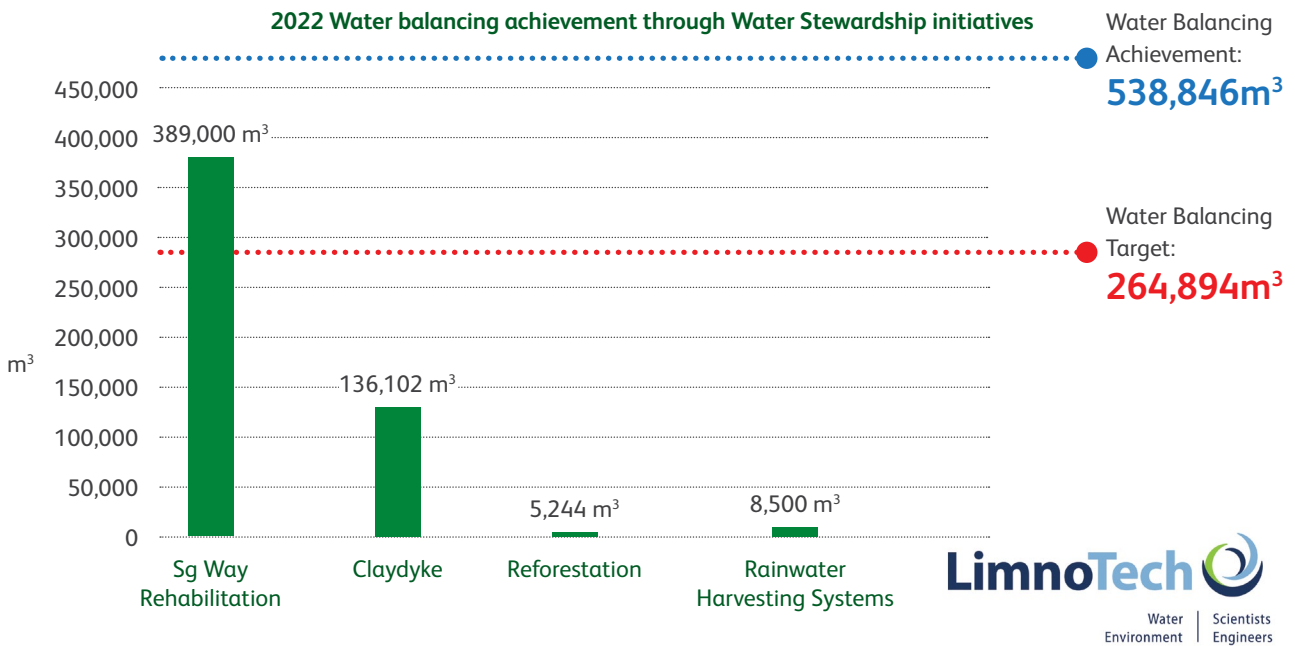
Balancing amount to be more than water used in our products

1.5 litre of water is replenished for every 1 litre of product. 0.5 litre accounts for unavoidable losses from evaporation and moisture

Target Water Balancing 2022 (1.5 x water used in our products)



In 2022: HEINEKEN Malaysia achieved 203% of our target water balancing volume



Water Balancing volumes are measured & quantified in line with the Volumetric Water Benefit Accounting (VWBA) framework by the World Resources Institute.

HEINEKEN Malaysia's water balancing volumetric benefit evaluation is independently verified by LimnoTech, a leading water sciences and environmental engineering consulting firm based in the United States.

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Sungai Way River Rehabilitation

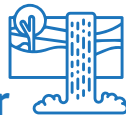
WHERE



Sungai Way river
Petaling Jaya

WHY

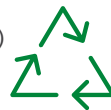
Located next to HEINEKEN Malaysia's Sungai Way Brewery, this is where our **treated wastewater is discharged**



WHAT

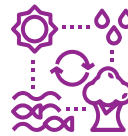
Transformed

water quality from Class IV-V (extremely polluted) to Class III (suitable for living organisms)



HOW

- Pollution reduction: point source mapping, rubbish traps, solid waste monitoring
- Water quality improvement: food oil grease (FOG) traps systems and biological treatment
- River within river concept/ Constructed wetlands to improve quality of water in the river



RESULTS

Reduction in pollution

- Improved habitat and biodiversity



VOLUMETRIC WATER BENEFIT

389,000 m³
(389 million litres)



Clay Dyke for Water Retention

WHERE



Raja Musa Forest Reserve
Hulu Selangor

WHY

Sungai Selangor watershed as a key water resource



WHAT

Constructed **305-metre clay dyke** at Raja Musa Forest Reserve



HOW

- Built 4-5 metres vertical wall of clay below the peat surface to prevent peatland fires by promoting wetter soil conditions
- Blocks water flow from the peatlands into disused mining ponds, effectively raising the water table in the areas upgradient to the dyke



RESULTS

- Increase in soil water retention
- Decrease in the risks of peatland fires
- Restoration of peatland, contributes to the long-term sustainability of the watershed



VOLUMETRIC WATER BENEFIT

136,102 m³
(136 million litres)



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Reforestation of Degraded Peatland

WHERE



Raja Musa Forest Reserve

Hulu Selangor

WHY

Prevent peatland fires

by promoting wetter soil conditions



WHAT

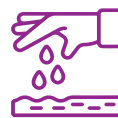
1,200 trees planted

and maintained on two hectare of degraded peatland



HOW

- Open planting techniques
- Cleared invasive weeds and plants



RESULTS

- Prevent further degradation of the peat
- Increased soil water retention



VOLUMETRIC WATER BENEFIT

8,500 m³
(8.5 million litres)



Rain Water Harvesting for Local Communities

WHERE



Klang Valley

WHY

Help communities

get access to alternative water sources to reduce reliance on treated water



WHAT

23 Rainwater Harvesting Systems

consists of an interconnected rooftop area that serves as a catchment for the rainwater and storage tanks to collect and store rainwater

HOW

- The rainwater collected serves as non-potable water supply including cleaning, landscaping and irrigation
- Increase water availability in the local community to reduce wastage on treated water and stress on our water resources



RESULTS

- Reduced demands on treated water source
- Rainwater harvesting systems are linked to 10 community farming projects which helps in supplementing income and food



VOLUMETRIC WATER BENEFIT

5,244 m³
(5.2 million litres)



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TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

Extreme weather conditions have become increasingly frequent due to climate change, disrupting supply chains and business operations. HEINEKEN is aware of our responsibility in mitigating climate change and we strive to help prevent the current climate crisis from reaching a point of no return. The Brew a Better World 2030 Strategy guides HEINEKEN's effort to lower our carbon footprint in support of the Paris Climate Agreement.

In addressing climate change, there are climate-related possibilities and risks, with the risks being subdivided into physical risks and transition risks. The TCFD recommendations help us analyse and strengthen our resilience, as well as identify the significant effects of climate change on our business. Consequently, we additionally review our action plans to minimise these threats and capitalise on the opportunities.

2022 will be a landmark year for HEINEKEN Malaysia, as we began our TCFD journey by including climate-related disclosures alongside our ESG disclosures. Adopting TCFD recommendations will assist HEINEKEN Malaysia in assessing risks and opportunities and reporting on meaningful climate-related disclosures pertaining to governance, strategy, risk management, metrics, and targets.

CORE ELEMENTS	OUR DISCLOSURES	REFERENCE
GOVERNANCE		
Describe the Board's oversight of climate-related risks and opportunities.	<p>The Board is HEINEKEN Malaysia's highest governance level and is responsible for overseeing and ensuring that the Group's sustainability strategy aligns with our strategic direction and long-term objectives. They also review and approve Annual Sustainability plan, targets, quarterly progress against the targets set with regards to HEINEKEN'S global Brew a Better World 2030 commitments which include climate-related targets as well as the adoption of policies that address climate-related risk issues.</p> <p>Additionally, our Board is vigilant and up-to-date on climate-related concerns, constantly seeking to further their knowledge and awareness of climate-related risks and opportunities. The Board participated in ESG sessions, which included "Principles and Methodology of Task Force on Climate Related Financial Disclosure Reporting," and underwent training on climate governance in 2022.</p>	<p>Sustainability Governance Structure, page 41-42</p> <p>Corporate Governance Overview Statement, page 90</p> <p>ESG Board training, page 76</p>
Describe management's role in assessing and managing climate-related risks and opportunities.	<p>The Sustainability Committee, chaired by the Managing Director of HEINEKEN Malaysia, assesses and manages initiatives within each ambition area of our BaBW strategies, which include climate-related KPIs under the environmental sustainability pillar. The committee chairperson reports the Group's progress updates on the sustainability initiatives that tackle climate-related risks and opportunities to the Board regularly and is supported by a secretariat led by the Corporate Affairs and Legal Director (CAL) and sponsors.</p> <p>Area owners from various functions under respective BaBW pillars implement initiatives towards 2030 commitments that address climate-related risks and opportunities.</p>	<p>Sustainability Governance Structure, page 41-42</p> <p>Corporate Governance Overview Statement, page 90</p>
Strategy		
Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	The major potential climate-related risks faced by HEINEKEN Malaysia are related to energy, water usage, supply of key ingredients and floods.	Risk management page 52-53

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CORE ELEMENTS	OUR DISCLOSURES	REFERENCE
STRATEGY (CONTINUED)		
Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	<p>The extreme weather conditions due to climate change such as fluctuations in global temperature and natural disasters (i.e., flooding and wildfires) pose significant impacts on our operations. GHG emissions are the main driver of climate change and we are cognisant that high energy consumption at our production leads to increased GHG emissions which exacerbate the effects of climate change especially in the country we operate in. This has given the Group an opportunity to venture into the deployment of renewable energy.</p> <p>Water is an integral component of our operations. Disruption in water supply is a significant potential impact of climate change and may result in disruption in the brewing process, reduced efficiency and potentially inferior beer quality. The supply of our key ingredients is also at risk as it is crucial for our brewery to produce high-quality beer. Changes in the temperature and precipitation patterns may affect the quality of our raw materials such as barley. It may further affect the timeliness and cost of our key ingredient supply.</p> <p>Additionally, floods are also a common impact of climate change that can have a significant impact on operations which may lead to potential shutdowns and financial losses.</p>	Risk management page 51-53
Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	<p>In FY2021, we adopted the HEINEKEN's global BaBW strategy, which incorporates science-based targets approved by SBTi to achieve net zero carbon emissions across the value chain by 2040, in line with the Paris Agreement's goal of limiting global warming to 1.5°C. Our path to net zero carbon emissions necessitates substantial adjustments to our operations, and we are committed to evaluating our impact on climate change continuously.</p> <p>We plan to assess our climate-related risks and opportunities in-depth across the key ESG risks to identify potential impacts and mitigation measures. As such, we aim to integrate the outcome of our risk assessments into our business strategies. We believe that adopting the TCFD recommendations will assist us in reporting our climate-related impacts and maintain transparency in our reporting to provide our stakeholders with robust information on climate-related risks and opportunities over the short, medium, and long term.</p>	Our Decarbonisation Pathway: Reaching Net Zero Carbon Emissions, page 54-55
RISK MANAGEMENT		
Describe the organisation's processes for identifying and assessing climate-related risks.	<p>Risk management is an integral part of HEINEKEN Malaysia's business operations and is at the core of our business framework. The Group's key sustainability risks and opportunities including climate risks are identified via our comprehensive risk management framework which is supported by the EverGreen strategy. The Group's ESG-related risks and opportunities, including climate-related issues, are assessed based on the impact and likelihood of occurrence. The Management approached to mitigate the identified risks are determined periodically.</p> <p>Our refreshed materiality assessment also supports HEINEKEN's Risk Management Framework and allows the Group to identify relevant topics in which climate change is also recognised as a risk.</p>	<p>Statement on Risk Management and Internal Control, page 101-103</p> <p>Risk Management, page 51</p> <p>Materiality Assessment, page 45-46</p>

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CORE ELEMENTS	OUR DISCLOSURES	REFERENCE
RISK MANAGEMENT (CONTINUED)		
Describe the organisation's processes for managing climate-related risks.	<p>The Group has implemented the BaBW strategy where annual KPIs are set to achieve our 2030 targets which include climate-related ambitions. HEINEKEN is accelerating RE adoption to reduce our carbon footprint. We are guided by the TCFD Recommendations to assist us in shaping our action plans to mitigate the identified climate risks and leverage new opportunities. In addition, we are also constantly looking for opportunities to tackle the impact of flooding at our operations.</p> <p>We have also developed a Sustainability Policy to act as guidance to the Group and our stakeholders in embedding sustainable practices throughout our operations and value chain and to communicate our commitments in addressing ESG risks including climate-related risks and opportunities across our operations.</p>	<p>Our Decarbonisation Pathway: Reaching Net Zero Carbon Emissions, page 54-58</p> <p>Sustainability policy, page 39</p>
Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management	The Group conducts an annual risk assessment where the members of the Management Team are engaged to identify and review key risk areas within their respective functions. The Management Team ensures the adequacy and effectiveness of action plans to manage the risks are identified.	Risk Management, page 51-53
METRICS AND TARGETS		
Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	<p>Our Brew a Better World 2030 targets serve as our compass and provide the metrics to measure our sustainability performance. We have set 2018 emissions as our baseline to track our progress and journey towards emissions reductions. We also monitor our performance against the UN SDGs.</p> <p>We are also guided by the TCFD recommendations in assessing our climate-related risks and opportunities.</p>	Our Brew a Better World 2030 Targets and Progress: Environment Sustainability, page 68
Disclose Scope 1, Scope 2, and if appropriate Scope 3 greenhouse gas (GHG) emissions, and the related risks.	We disclosed our Scope 1 and 2 emissions for 2022, tracked based on our 2018 baseline year and continue to monitor our emissions performance in the following years.	Our Decarbonisation Pathway: Reaching Net Zero Carbon Emissions, page 56
Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	<p>Short-term: We are aiming to achieve an 86% reduction in CO₂ emissions by 2025</p> <p>Long-term: We are committed to achieving net zero carbon emissions in production by 2030 and across our value chain by 2040.</p> <p>We monitor our environmental performance and are continuously tracking, monitoring, and reporting our progress against the set KPIs.</p>	Our Decarbonisation Pathway: Reaching Net Zero Carbon Emissions, page 54-58

ESG Review

ENVIRONMENTAL DATA SUMMARY TABLE 2022

The table provides overview of the environmental performance of our operations.

Performance indicator	Unit	2018	2019	2020	2021	2022
Thermal Energy Consumption	Sm ³	3,557,895	3,384,102	2,912,460	2,492,327	3,202,248
Thermal Energy Intensity	mJ/hl	80.0	72.3	73.3	69.2	62.2
Biogas Use in Production	m ³	190,417	250,848	173,629	94,792	207,838
Electricity Consumption	MWh	14,868	15,741	14,075	13,106	15,835
Electricity Intensity	kWh/hl	9.9	9.8	10.3	10.6	8.9
Average Water Usage	hl/hl	3.79	3.67	3.65	3.65	3.45
Effluent Discharged	m ³	267,607	278,564	254,157	297,881	443,752
Water Balancing	m ³			545,406	534,396	538,846

* Water balancing calculation was only verified by LimnoTech from year 2020.

Greenhouse gas and intensity emissions

Performance indicator	Unit	2018 (base-year)	2019	2020	2021	2022
Absolute CO ₂ Emissions in Production	tonnes CO ₂ e	17,772	18,326	16,173	14,983	9,148
CO ₂ Emissions Intensity in Production	kgCO ₂ e/hl	11.84	11.42	11.87	12.14	5.18
Scope 1 GHG Emissions (Natural Gas)	tonnes CO ₂ e	6,710	6,382	5,493	4,700	6,039
Scope 1 Emissions Intensity	kgCO ₂ e/hl	4.5	3.9	4.0	3.8	3.4
Scope 2 GHG Emissions (Purchased Electricity)	tonnes CO ₂ e	9,501	10,059	8,994	8,375	1,410
Scope 2 Emissions Intensity	kgCO ₂ e/hl	6.3	6.3	6.6	6.8	0.8
Total GHG Emissions Scope 1, 2	tonnes CO ₂ e	16,211	16,441	14,487	13,075	7,449

OUR BREW A BETTER WORLD 2030 TARGETS AND PROGRESS: ENVIRONMENT SUSTAINABILITY

Ambition Areas	Our Brew a Better World Global Commitments	Our 2022 Progress
Reach Net Zero Carbon Emissions	Net zero carbon emissions in production by 2030.	<ul style="list-style-type: none"> Absolute CO₂ emission reduction of 49% compared with 2018 baseline. Scope 1 emission reduction of 10%. Scope 2 emission reduction of 85%.
	Net zero across the value chain by 2040. 30% absolute reduction by 2030 across our value chain.	<ul style="list-style-type: none"> Ongoing carbon footprint assessment across our value chain to identify suitable pathways to net zero.
Maximise Circularity	Zero waste to landfill for all production sites by 2025.	<ul style="list-style-type: none"> Zero waste to landfill achieved since 2017.
	Turn waste into value and close material loops throughout the value chain.	<ul style="list-style-type: none"> Circularity strategies and targets under development.
Towards Healthy Watersheds	Fully balance* water used in our products in water-stressed areas. * For every 1 litre of water in our products, we aim to balance 1.5 litres of water through water stewardship projects.	<ul style="list-style-type: none"> 203% water balanced in 2022.
	Reduce average water usage to 2.6 hl/hl in water-stressed areas and 2.9 hl/hl globally.	<ul style="list-style-type: none"> Reduced average water usage by 20% from our baseline year of 2014.
	Treat 100% of wastewater from breweries.	<ul style="list-style-type: none"> 100% of wastewater treated beyond the standards required by the Department of Environment.