



RENEWABLE FIBRE **SUSTAINABLE FUTURE**



SUSTAINABILITY REPORT
2022

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ABOUT THIS REPORT

[GRI 2-2, 2-3, 2-5]

Welcome to Asia Pacific Rayon's (APR) fourth annual sustainability report. The report covers performance data and progress from January to December 2022 and includes historical data where relevant.

Its scope covers the operations of our viscose staple fibre mill (APR) and our viscose rayon manufacturing facility (APY) in Pangkalan Kerinci, Riau, Indonesia. Other than human resource figures, the data presented herein does not include our Jakarta and Singapore offices. Where possible, we have sought to frame our performance within the context of the unique social and environmental conditions in Pangkalan Kerinci.

This report is complemented by the sustainability-related disclosures published on [our website](#) and social media platforms. It has been prepared in accordance with the Global Reporting Initiative Standards, referenced throughout as [GRI XXX-XX]. The full GRI Content Index is available [here](#). Performance data is also mapped against the European Union Best Available Techniques (EU BAT) Polymer BREF and Zero Discharge of Hazardous Chemicals (ZDHC) Man-made Cellulosic Fibres (MMCF) guidelines.

We have not sought third-party assurance for this report but will explore the possibility of incorporating an external audit in future reports based upon feedback from our stakeholders.



APR website

THEME RATIONALE

This report is themed **Renewable Fibre, Sustainable Future**. Since launching in 2019, APR has focused on building a foundation as a sustainable Indonesian viscose manufacturer in our domestic and international markets. Our sustainability initiatives are helping the company establish itself as a leader in sustainable viscose production as we push the boundaries of what the industry can achieve. By investing in innovative solutions, next-generation fabrics, textile circularity, and supporting restoration of natural landscapes, we hope to transform the entire viscose sector.

¹ While APY is a separate entity, it is managed by APR, and its activities are included in the scope of this report. Unless otherwise stated, every mention of APR includes our APY business.



STATEMENT FROM THE DIRECTOR

[GRI 2-22]



It is our fondest wish that APR, the textile industry, and the Indonesian government will collaborate on a national roadmap that will address systemic issues and remove barriers to establishing a sustainable textile industry.

DEAR STAKEHOLDERS,

I am pleased to present our **2022 Sustainability Report** titled *Renewable Fibre, Sustainable Future*, documenting APR's efforts, achievements, and progress as we continuously strive to create value for our stakeholders, drive innovation in sustainable fibre manufacturing, and establish the Indonesian textile industry as an internationally-recognised viscose staple fibre producer.

APR2030 PROGRESS

Two years into our journey, I am proud of our progress towards our 2030 sustainability goals. We have remained steadfast in our efforts because we designed the foundational pillars of APR2030 to see us through the decade, and they remain unchanged.

Thanks to the firm commitment and dedication of APR team, our operational performance continues to improve: we reduced greenhouse gas emission intensity by 88%, sulphur emission intensity by 55%, water consumption intensity by 35%, hazardous waste intensity by 28%, and energy intensity by 18.6% against our 2019 baseline. Remarkably, we achieved these results during the first year of our 300,000-tonne increased production capacity.

We continue to invest in reducing solid waste to landfill and science-backed research to promote circularity for the benefit of APR, our customers, and the industry. In 2022, we successfully trialled the use of 20% recycled textile into our raw feedstock. Over the next eight years, we plan to mainstream this innovation at our operations and for our customers in what promises to be an exciting but challenging journey. To help achieve this goal, we launched waste recycling programmes with partners like Matahari and continue to invest in research on recycled textiles.

PROMOTING NATIONAL INFRASTRUCTURE

Our biggest challenge is to grow the market for sustainably produced viscose staple fibre (VSF). With a 51% market share, APR is now the leading VSF player in Indonesia. At the same time, we must focus on the bigger picture by supporting the expansion and improvement of Indonesian manufacturing and recycling infrastructure. A major challenge facing the Indonesian industry is the reliance on imported fabric that is more cost attractive. However, the Indonesian government and visionary companies like ours recognise that we have the resources, skills, and know-how to thrive as a sustainable fibre-producing nation on the international stage.

To succeed as a sustainable fibre producer and a global textile player, Indonesia needs a clear and comprehensive national roadmap for the long term development plan of our textile and clothing industry, covering sustainable fashion, modest wear, and circular textiles.

A clearly defined national vision with robust supporting policies and infrastructure would give upstream, midstream, and downstream players a structure to build local capacity and capability, and become world-class producers and suppliers. Such a framework would allow Indonesia to compete with countries like Vietnam, Bangladesh, Pakistan, and India, whose exports have surpassed ours for several years. This roadmap could also address emerging issues like textile waste dumping from other countries and integrating our own waste into local supply chains.

SHARING THE RTL VISION

Over the next two years, our goal is to promote collaborative discussions towards a national sustainability roadmap. We are especially committed to Rantai Tekstil Lestari (RTL), a cross-commodity, multi-stakeholder association established in 2021 to promote sustainability in the Indonesian textile and fashion industries.

While RTL's journey has just begun, we are moving in the right direction towards meaningful change. RTL was established by a group of concerned industry experts who recognise the need to promote sustainable fabrics to the young consumers who comprise a growing segment of our market. We are also uniting local industry players on a common front to address the concerns of international stakeholders. Among other things, RTL aims to bridge any gap between Indonesian and international standards by engaging with various stakeholders to build an impactful sustainability movement in our textile and fashion industries.

EDUCATION AND ENGAGEMENT INITIATIVES

To increase demand for sustainable textiles, the industry must find creative and innovative ways to engage consumers and end-users, including small- and medium-sized enterprises (SMEs). APR addresses these groups through the Jakarta Fashion Hub (JFH) and textile hub programmes in Riau, including *Rumah Batik* and *Melayu Merindu*. These initiatives target young people, entrepreneurs, and businesses working in the fashion community and those interested in the textile industry at large.

In 2022, APR signed an memorandum of understanding (MOU) with seven universities, a first for the Indonesian textile industry. We will conduct joint research on sustainable viscose rayon while mentoring local micro-, small-, and medium-sized enterprises in the fashion sector. An initial collaborative project with *Universitas Kristen Maranatha* in Bandung will promote viscose rayon for Lasem batik, a traditional craft in the coastal area of Central Java. Introducing artisans to this sustainable textile will empower them to modernise their craft and transform it into an economically viable activity that supports their livelihoods.

We continue to host and sponsor events promoting sustainable VSF at the JFH, including Jakarta Muslim Fashion Week, Muslim Fashion Festival (MUFFEST), and Fashion Revolution.

I hope that APR can inspire a shared vision that will benefit every stakeholder in our value chain. It is our fondest wish that APR, the textile industry, and the Indonesian government will collaborate on a national roadmap that will address systemic issues and remove barriers to establishing a sustainable textile industry.

Basrie Kamba,
President Director



REPORT HIGHLIGHTS

OUR OPERATIONAL FOOTPRINT



Upgraded VSF mill capacity from 240,000 t to 300,000 t



Completed GHG inventory of APR's entire value chain, including Scope 3 emissions

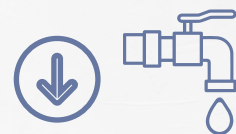
Reduced GHG emission intensity by 88% since 2019



Externally assured data on GHG, energy, water, and chemicals for 2019–2022

Reduced energy intensity by 18.6% since 2019

Reduced water consumption intensity by 35% since 2019



Improved total sulphur recovery rate to 93.3% recovery rate compared to 89.2% in 2019

Reduced sulphur emission intensity by 55% since 2019



Reduced hazardous waste intensity by 28% since 2019

POLICIES AND PRACTICES



Revised APR Sustainability Policy



Published new Human Rights Policy



Conducted comprehensive materiality assessment

100% CERTIFIED SUSTAINABLE SOURCING



100% traceability to plantation



New supplier engagement programme on APR's sustainability standards

NEW CERTIFICATIONS AND LABELS



Received OK Biodegradability Marine certification from TÜV Austria Belgium



Received 3 ISO certifications for integrated management systems at APY

NEW MEMBERSHIPS AND PARTNERSHIPS



Inaugurated Rantai Lestari Tekstil (RTL), formed in 2021

Joined the Science-Based Targets Initiative (SBTI)



APR INNOVATIONS



Successfully trialled 20% recycled textile in feedstock

Launched new textile waste recycling programme with Matahari department stores

Inaugurated RGE-NTU Sustainable Textile Research Centre (SusTex) in Singapore

AWARDS AND RECOGNITIONS



APY received Indonesian government's Primaniyarta Award

APR received a National Lighthouse Industry 4.0 Award



Improved CDP scores on Climate (B) and Water (B-)



Maintained our EcoVadis Silver rating



SUPPORTING LOCAL, SUSTAINABLE FASHION



Continued programmes to grow Riau's textile hub

Helped batik SMES generate > IDR 259 million through APR's Rumah Batik programme support



Promoted APR viscose with Lasem batik in Central Java

PROSPERING WITH COMMUNITIES



Health

- Supported 32 *posyandu* health centres and trained 31 *posyandu* cadres
- Distributed supplementary feeding packages to 1,254 toddlers and 109 malnourished expectant mothers

Education

- Signed MOU with 7 universities for research and collaboration
- Awarded 2 textile-related scholarships
- Sponsored 10 general scholarships

Eradicating poverty

- Expanded support of SMEs through the *Melayu Merindu* campaign in partnership with API-RIA

A FOCUS ON OUR EMPLOYEES



Achieved HIGG FSLM score of 84.5%, verified for the first time



Reduced lost time injury frequency rate by 70.8% compared to 2019

Women comprised 25% of our workforce





Increased average annual training hours for women mill employees from 3.38 to 10.99






TARGETS AND PROGRESS

This section summarises our 2022 progress against our commitments and targets under our [APR2030](#) agenda. Due to APR and APRIL's unique supply chain integration, some of our APR2030 targets build on APRIL's commitments. We believe our combined resources and actions will have a greater positive impact on the ground.

APR2030 TARGETS AND PROGRESS

TARGET	TARGET YEAR	APR2030 TARGET	STATUS AS OF DECEMBER 2022
CLIMATE AND NATURE POSITIVE  			
Complete Scope 3 GHG emission inventory	2022		Achieved
Halve product carbon intensity (against 2019 baseline) based on the cradle-to-gate LCA approach	2030	✓	On track
Continue to source 100% renewable energy supply year-on-year	2030	✓	Achieved
Support the achievement of net-zero emissions from APRIL's land use	2030	✓	On track See APRIL's 2022 sustainability report for their progress
Contribute to conservation and wildlife habitat protection in Indonesia	Ongoing	✓	Ongoing Completed needs analysis in 2022. Currently designing programmes promoting women leadership in conservation in Indonesia.
CLEAN MANUFACTURING  			
Meet all EU BAT Polymer BREF criteria	2023	✓	On track Met all criteria except for hazardous waste and noise levels at the fence
Meet ZDHC MMCF guidelines' aspirational levels	2025	✓	On track Already met aspirational levels for chemical oxygen demand (COD)
Increase total sulphur recovery rate to >95%	2030	✓	On track Achieved 93.3% recovery rate
Reduce process water consumption intensity by 50% against 2019 baseline	2030	✓	On track Achieved 35% reduction against 2019 baseline

APR2030 TARGETS AND PROGRESS

TARGET	TARGET YEAR	APR2030 TARGET	STATUS AS OF DECEMBER 2022
Reduce solid waste to landfill by 80% against 2019 baseline	2030	✓	On track Achieved 4% reduction against 2019 baseline
CIRCULARITY   			
Incorporate 20% recycled textile in VSF production	2030	✓	On track Successfully completed trials at APR pilot plant
Determine the feasibility of establishing Indonesia's first industrial-scale recycled textile facility	Ongoing	✓	Progress made Exploring opportunities through research and partnerships
Determine the feasibility of establishing urban textile recycling centres in Singapore and Indonesia	Ongoing	✓	Progress made Research to begin at newly established RGE-NTU SusTex
INCLUSIVE PROSPERITY   			
Eradicate extreme poverty within 50km radius of our operations in partnership with APRIL	Ongoing	✓	Ongoing In 2022, APRIL signed an MOU with the Riau provincial government to support initiatives that are aligned with the government's poverty reduction acceleration strategies. Key focus areas are: improvement of social protection, improvement of access to essential services, community empowerment, and inclusive economic development. Read more in APRIL's 2022 sustainability report.
Increase access to primary healthcare services for targeted villages within our operations	Ongoing	✓	Progress made Together with APRIL, we engaged with a consultant to review the state and quality of services for surrounding communities
Expand programmes that promote traditional craftsmanship	Ongoing	✓	Progress made Continued outreach through <i>Melayu Merindu</i> ; supported new Lasem batik programme in Central Java



TARGETS AND PROGRESS

TARGET	TARGET YEAR	APR2030 TARGET	STATUS AS OF DECEMBER 2022
Create a regional textile hub in Riau	Ongoing	✓	Progress made Continued engagement programmes with women, SMEs, and youth
Advance gender equality across the value chain	Ongoing	✓	Progress made Continued entrepreneurship programmes for women in Riau
OTHER TARGETS			
Achieve an 80% score on Higg Facility Environmental Module (FEM)	2022		Achieved
Obtain STeP by OEKO-TEX® certification for APY	2022		Achieved
Achieve zero workplace fatalities	Ongoing		Achieved



ABOUT APR

[GRI 2-1, 2-6]

OPERATIONS AND PRODUCTION

PT Asia Pacific Rayon (APR) is a leading producer of viscose rayon, a bio-based and biodegradable textile made from renewable wood-based fibre. We operate a viscose staple fibre (VSF) mill in Pangkalan Kerinci, in the Riau province of Indonesia. **In 2022, we upgraded our mill capacity from 240,000 to 300,000 tonnes. As a result, VSF production increased 23% from 229,957 tonnes in 2021 to 282,160 tonnes in 2022**, improving our ability to respond to market demand.

We also operate Asia Pacific Yarn (APY), a 7,552-tonne capacity state-of-the-art downstream yarn spinning facility next to our mill, which sources VSF exclusively from APR. **Yarn production has steadily increased from 4,340 tonnes in APR's first year of operation to 7,471 tonnes in 2022, reaching its full capacity.**

Our high-quality VSF and yarn are sold to yarn spinners, fabric makers, and garment manufacturers in Indonesia and 16 other countries, including Turkey, Pakistan, Bangladesh, India, Sri Lanka, and Vietnam.



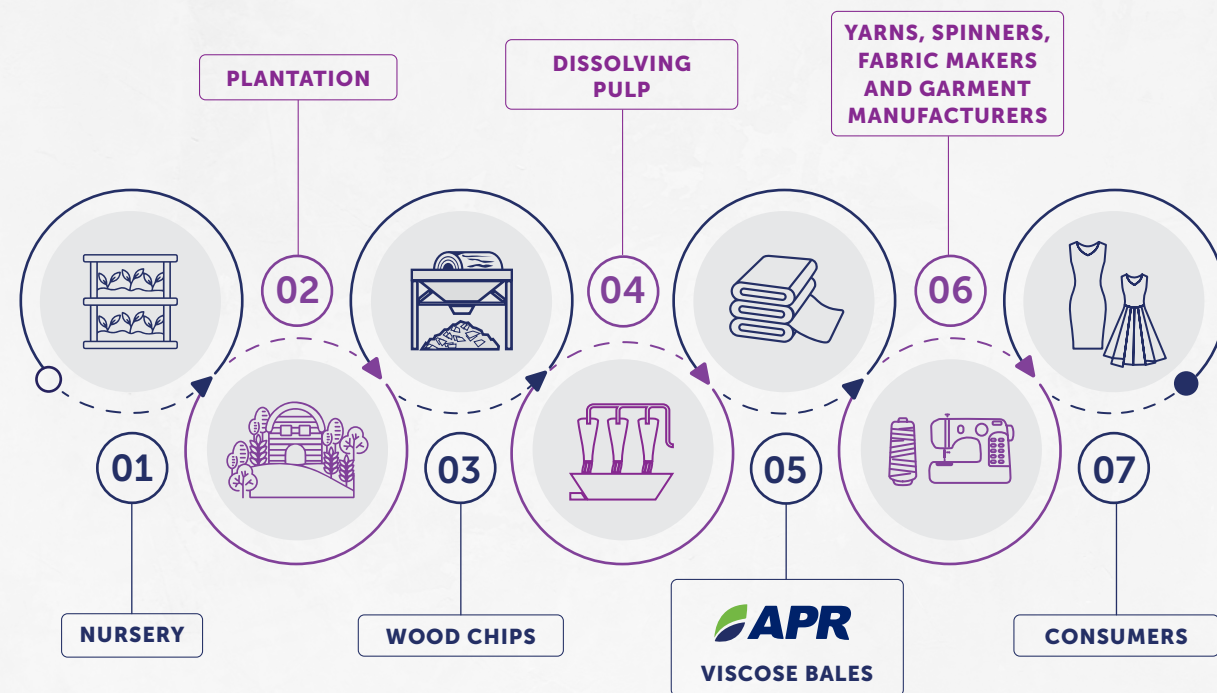
Our manufacturing facilities are supported by a dedicated research and development (R&D) centre equipped with a pilot plant and world-class laboratories. The centre develops new products, tests new yarns and fabrics, and supports Indonesia's textile industry by enhancing APR's ability to produce high-quality VSF.

Headquartered in Jakarta, APR is a privately held company and a member of the Royal Golden Eagle (RGE) group of resource-based manufacturing companies. We operate a sales and coordinating office in Singapore and **leverage the infrastructure and strengths of the APRIL Group to our competitive advantage. The integrated facilities at our Kerinci complex enable our operations to maximise resource efficiency and adopt sustainable production practices that meet and exceed recognised standards.**



ABOUT APR

VISCOSE VALUE CHAIN



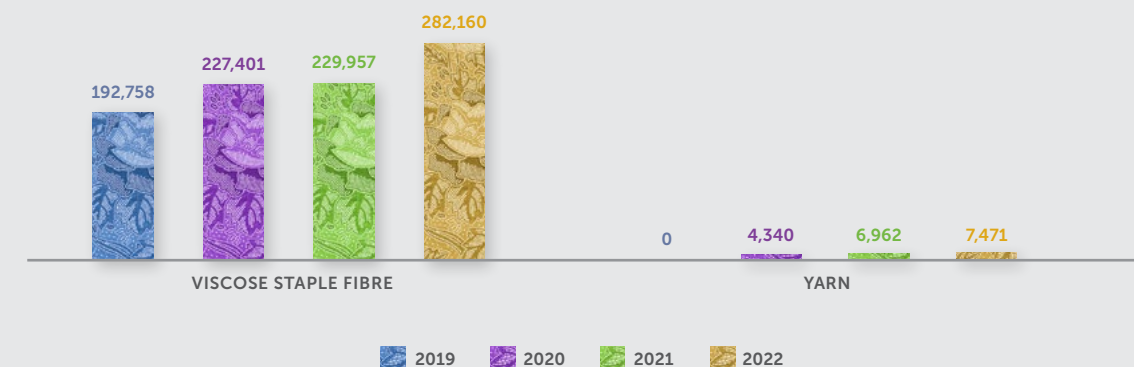
USES AND MARKETS

Viscose rayon is a man-made cellulosic fibre (MMCF) belonging to the second-largest cellulosic fibre group after cotton. Made with natural wood cellulose from fast-growing trees like acacia and eucalyptus, it is superior to other synthetic fabrics due to its bio-based and renewable properties. APR produces a diversified range of viscose rayon by innovating and responding to market demand.

Our viscose is versatile and is increasingly the fabric of choice in modest wear, which is gaining popularity in Muslim-majority nations. The adoption of non-woven viscose fibre is also increasing in the domestic and international markets for manufacturing baby wipes, dry and wet wipes, beauty masks, and other hygiene products. In 2022, 45% of our VSF was sold on the Indonesian domestic market, while 55% was exported to international markets. We primarily produce yarn for export markets, accounting for 90% of our total yarn sales. In honour of this achievement, **APR received the Indonesian government's Primaniyarta Award in 2022, recognising APY's excellence as a producer and exporter of viscose yarn.**

While the global textile industry performed strongly in the first half of 2022, it faced difficulties in the second half, primarily due to supply chain disruptions caused by the lingering effects of the COVID-19 pandemic in countries like China, rising inflation rates, and unfavourable exchange rates resulting from energy pricing in Europe. Nevertheless, APR swiftly adapted to these changing economic conditions. We continued to make customer service a core focus area, constantly communicating with customers and establishing local presence in our foreign markets. Maintaining stability and delivering high-quality products were our priorities, despite lower profits.

VSF AND YARN PRODUCTION 2019–2022 (t)



SALES BY PRODUCT BY MARKET 2022

VSF (%)

TOTAL: 279,202 t



VISCOSE YARN (%)

TOTAL: 6,469 t



APY Primaniyarta Award



APY Primaniyarta Award



Why Viscose



ABOUT APR

SUPPORTING LOCAL, SUSTAINABLE FASHION

[GRI 3-3, 203-1]

APR supports the Indonesian government's vision of a stronger domestic textile industry. On top of meeting local demand, we work collaboratively in the region to promote the adoption of local textiles and sustainable fashion.

RECOGNITION FOR SUPPORTING LOCAL PRODUCTION

Our current production capacity helps Indonesia meet the country's demand for competitively priced raw materials, reducing reliance on imports. **In 2022, Indonesia's Ministry of Industry honoured APR with a National Lighthouse Industry 4.0 Award for serving as a role model in the country's Industry 4.0 transformation.** The award followed a Ministry assessment of APR's supply chain traceability, the deployment of new and renewable energy sources at our operations, and the integration of app-based technology at our operations, production facilities and logistics and human resources divisions. This award highlights how closely APR's sustainability strategy is aligned with the national agenda.



APR Lighthouse Award

THE INDONESIAN TEXTILE LANDSCAPE AND APR'S CONTRIBUTIONS

Commentary by Dody Widodo,
Secretary General | Ministry of Industry, Indonesia

The textile and clothing industry is one of the biggest in Indonesia, creating nearly six million jobs². It is highly dependent on cotton fibre as its primary raw material, of which 95% is imported. However, companies like APR supply alternative raw materials such as rayon, a naturally sourced, man-made fibre that is a cost-effective alternative to cotton. Rayon shares many properties with cotton fibre and is easily biodegradable, unlike polyester and nylon. Its production will lead to a more environmentally friendly textile industry aligned with our national sustainability plan. It can support upstream, intermediate, and downstream textile production, helping the country reduce our reliance on imported cotton.

The Indonesian Ministry of Industry and APR's priorities are closely aligned. APR supports a sustainable and green textile industry, thus contributing to the roadmap of the 2015-2035 National Industry Development Master Plan (RIPIN). As one of the top five rayon producers in the world, APR provides robust support to the Indonesian textile industry. The company's excellent infrastructure, financial stability, and accountability have set the benchmark for sustainability in Indonesia, making APR an example that other textile producers can follow.

About: Dody Widodo is the Secretary General of the Indonesian Ministry of Industry, supporting the Minister's outreach efforts across sectors, especially in matters of national development planning. He also assists with communications, finance, harmonising laws and regulations, and co-operating with other ministries.

² Data from Bank of Indonesia (BI), 2022.

RANTAI TEKSTIL LESTARI: MOBILISING INDONESIAN SUSTAINABLE TEXTILE CONSERVATIONS

One of APR's focus areas in 2022 was supporting the Sustainable Textile Chain, or Rantai Tekstil Lestari (RTL), a cross-commodity, multi-stakeholder association set up in 2021 to promote sustainability in the Indonesian textile and fashion industries. RTL members include small- and large-scale textile producers and manufacturers, fashion designers, academics, and civil society organisations. Government involvement is crucial to achieving the organisation's agenda of addressing the challenges faced by the industry, including unclear policies and a lack of incentives and support. APR President Director, Basrie Kamba, chairs the RTL.

RTL was formed to increase awareness of the sustainability market and sustainable fashion opportunities in Indonesia. RTL is uniquely positioned to provide a platform that connects major industry players with small and medium-sized enterprises (SMEs), bridging knowledge gaps in best practices, including how to produce fabrics sourced from deforestation-free wood pulp, thus protecting forest landscapes.

RTL also serves as a united front to respond to the concerns of external stakeholders, including international ones. An industry-level agreement addressing perceived risks allows a collective response to challenges in external markets. One example is countering negative perceptions about products grown or traded in Indonesia, including 'red flags' due to our industry's sourcing risks linked to deforestation and negative environmental impacts. Another example is countering the perception that Indonesia is a popular destination for textile waste when, in fact, the country has made textile dumping illegal.

RTL rolled out a number of awareness and engagement programmes in Q3 and Q4 2022, including hosting two online workshops on circular fashion and sustainable packaging anchored around the G20 Summit. In 2023, we are building momentum by hosting more conversations and events, promoting RTL on the world stage, and inviting international stakeholders to visit our members' operations in Indonesia to showcase their sustainability efforts.



RTL

RTL'S VITAL ROLE IN THE INDONESIAN TEXTILE LANDSCAPE

Commentary by Fitrian Ardiansyah,
Former Chairperson of IDH (The Green Trade Initiative)

RTL is an essential platform for Indonesia's textile industry. In the past, Indonesian textile companies addressed sustainability as individual entities, competing with each other and textile producers and companies in Vietnam, Pakistan, and India, countries that promote and produce sustainable textiles more actively. RTL was formed as a collective response to ongoing and increasing pressure from European, American, and other international buyers to produce sustainable textiles, fabrics, and apparel. Our platform showcases and shares best practices, helping Indonesian textile producers overcome implementation gaps and standardise processes across the industry.

APR's participation in RTL will help create a collaborative space that promotes discussions across sectors and commodities. Individual companies harm the entire industry by sourcing raw materials and producing textiles without following environmental regulations or adhering to sustainability standards. As a member of RTL, APR can help other companies meet the challenges of sustainable production.

I hope that APR will lead by example and participate in future initiatives like pilot projects showcasing and sharing the company's sustainability practices and policies. In assuming a leadership role, APR can significantly contribute to eliminating deforestation, protecting landscapes, and improving productivity and sustainability across the industry.

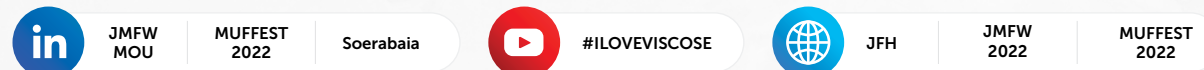
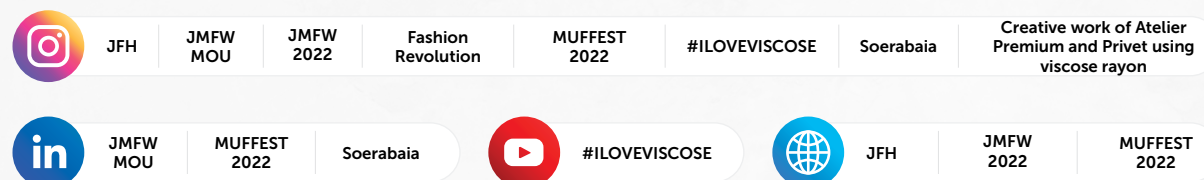
About: Fitrian is the former Chairperson of IDH Indonesia (The Green Trade Initiative). He has more than two decades of experience in ecological and environmental economics, natural resource management, integrated spatial and land use planning, sustainable commodities, sustainable forest management, and climate change and energy. IDH and APR are two of the seven founding members of RTL.



ABOUT APR

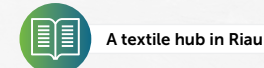
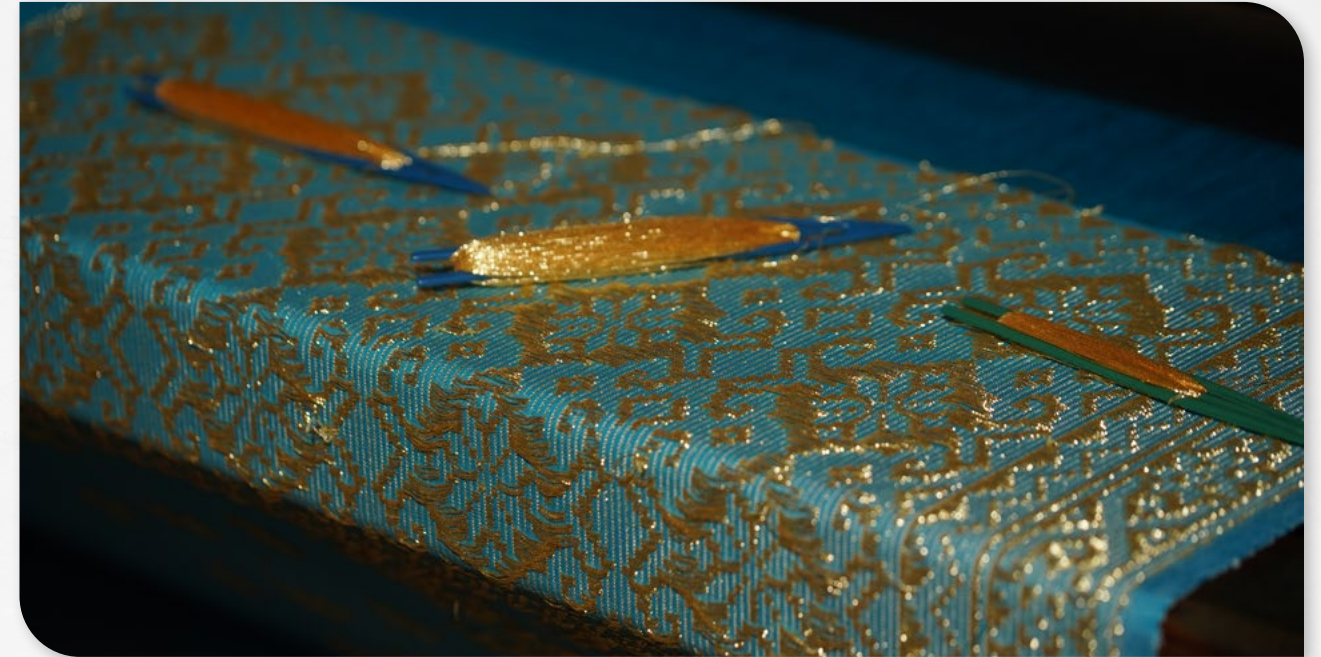
JAKARTA FASHION HUB

APR's Jakarta Fashion Hub (JFH) was launched in 2020 as a platform for brands, designers, influencers, photographers, and like-minded individuals interested in becoming part of the Indonesian fashion landscape. This collaborative space serves as a catalyst that connects the design community to producers of different fabrics and fabric blends that use sustainable viscose. A key JFH mandate is supporting local producers, designers, and artisans. JFH operates dedicated campaigns, including Everything Indonesia, to support government initiatives promoting domestic products. Through JFH, we host, sponsor, and participate in fashion events year-round, including Jakarta Muslim Fashion Week, Muslim Fashion Festival (MUFFEST), and Fashion Revolution.



CHAMPIONING LOCAL FASHION IN RIAU

As demand for sustainable apparel increases, APR has a real opportunity to drive change in Riau while contributing to the economic and cultural development of the region. One of APR's key ambitions is to develop a textile hub – or centre of excellence – that will be fully operational by 2030. This initiative is supported by close collaboration with peers, industry partners and local associations in Riau.



NEW PROGRAMME WITH MATAHARI

Supporting the government's vision of a stronger domestic textile industry, APR works closely with downstream players to raise awareness and share knowledge on sustainable textiles and their potential use in local fashion. **In 2022, we partnered with PT Matahari Department Store Tbk, one of the largest fashion retailers in Indonesia, with 132 outlets. Our joint programme encourages customers to trade in used denim for a discount. We rolled out 'Nevada Denim Trade-In' bins at the Supermal Karawaci (Tangerang), Metropolitan Mall (Bekasi) and Ciputra Mall (Jakarta) stores as part of the chain's overall sustainability initiatives. This partnership was supported by joint training sessions on selecting raw materials and developing new products while promoting products made in Indonesia.**



APPROACH TO SUSTAINABILITY

[GRI 2-23, 2-24]

As a young company that began operations with sustainability at our core, we are uniquely positioned to become an industry leader. We are able to drive responsible practices at a time when fashion-industry demand for sustainable products is at its highest, embedding sustainability in our policies, procedures, and approaches to everything we do.

As part of the Royal Golden Eagle (RGE) Group of companies, our business philosophy is underpinned by RGE Group's Forestry, Fibre, Pulp and Paper Sustainability Framework³ and 5C principles. Everything we do must be good for the Community, Country, Climate, and our Customers, and only then can it be good for the Company. These values unite APR employees of diverse cultures, ages, and backgrounds in realising a singular purpose.

STRENGTHENED POLICY COMMITMENTS

APR continues implementing policies and practices that guide our approach to responsible production. To keep up with the constantly evolving environmental and social challenges facing the industry, **we updated our Sustainability Policy in August 2022.** This revised policy better aligns with industry requirements, stakeholder expectations, and recent APR strategy-related developments. We have communicated our updated commitments to all internal and external stakeholders and incorporated the new policy into employee training, specifically when onboarding employees and offering annual refresher courses.

OVERVIEW OF POLICY UPDATES



GENERAL INCLUSION AND UPDATES

- Reflecting APR's current state of affairs, including alignment with our APR2030 strategy
- Iterating existing commitments, e.g., on gender equality, using block-chain for traceability, and promoting circularity in the textile and apparel industry



ENVIRONMENTAL AND CLEAN MANUFACTURING

- Solidifying commitments on emission targets to be backed by science
- Adding to our decarbonisation strategy and actions to combat climate change



HUMAN RIGHTS

- Linking to our newly published Human Rights Policy
- Adding a supplier requirement to adhere to our Human Rights Policy



SOURCING AND SUPPLIERS

- Including more sources considered 'unacceptable' by APR
- Increasing alignment to existing guidelines, such as Canopy's policy requirements



CONSERVATION IN SUPPLY CHAINS

- Adding a statement encouraging suppliers to advance science-based conservation efforts to protect critically endangered forests in our sourcing areas

NEW HUMAN RIGHTS POLICY 2022

In addition to strengthening our policy commitments, APR published a dedicated Human Rights Policy in 2022, following an assessment of our human rights practices and procedures. While APRIL and APR were jointly assessed, this resulting policy is catered to APR's operations and stakeholders.



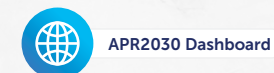
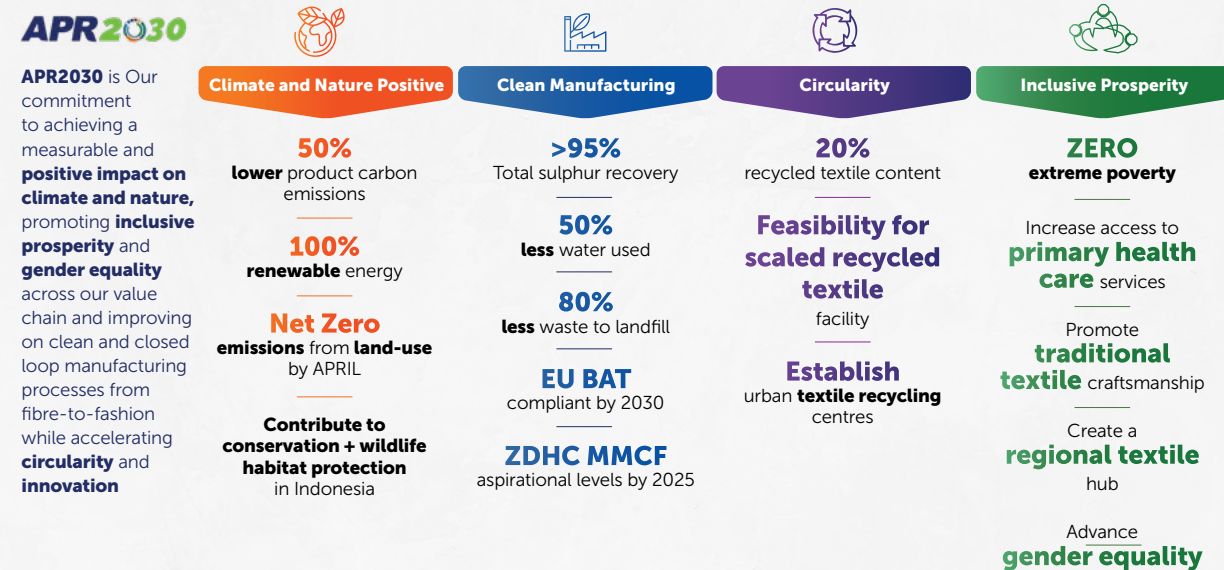
The new policy applies to all APR and APY employees. It supports engagement with our suppliers and others in the value chain on meeting national and international human rights standards. The policy was rolled out and communicated to all relevant stakeholders in 2022 through employee workshops and other initiatives, and it will be included in annual policy refreshers.

³ Available [here](#)



APPROACH TO SUSTAINABILITY

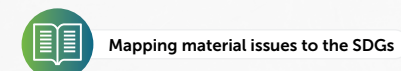
In November 2021, we launched our ambitious Asia Pacific Rayon 2030 (APR2030) sustainability agenda, covering four main pillars and the corresponding targets for the next ten years. In 2022, we continued implementing its measures and key performance indicators (KPIs) to meet our goals. We have included updates on our progress in this sustainability report.



APR2030 Dashboard

CONTRIBUTING TO THE SDGs

APR2030 has identified the ten Core, Catalytic, and Contributed Sustainable Development Goals (SDGs) most relevant to our business. In 2021, we mapped these goals to the core pillars of APR2030. In 2022, we further aligned these goals to our revised material topics and the 17 specific SDG targets we contribute to.



Mapping material issues to the SDGs

MATERIALITY REVISION IN 2022

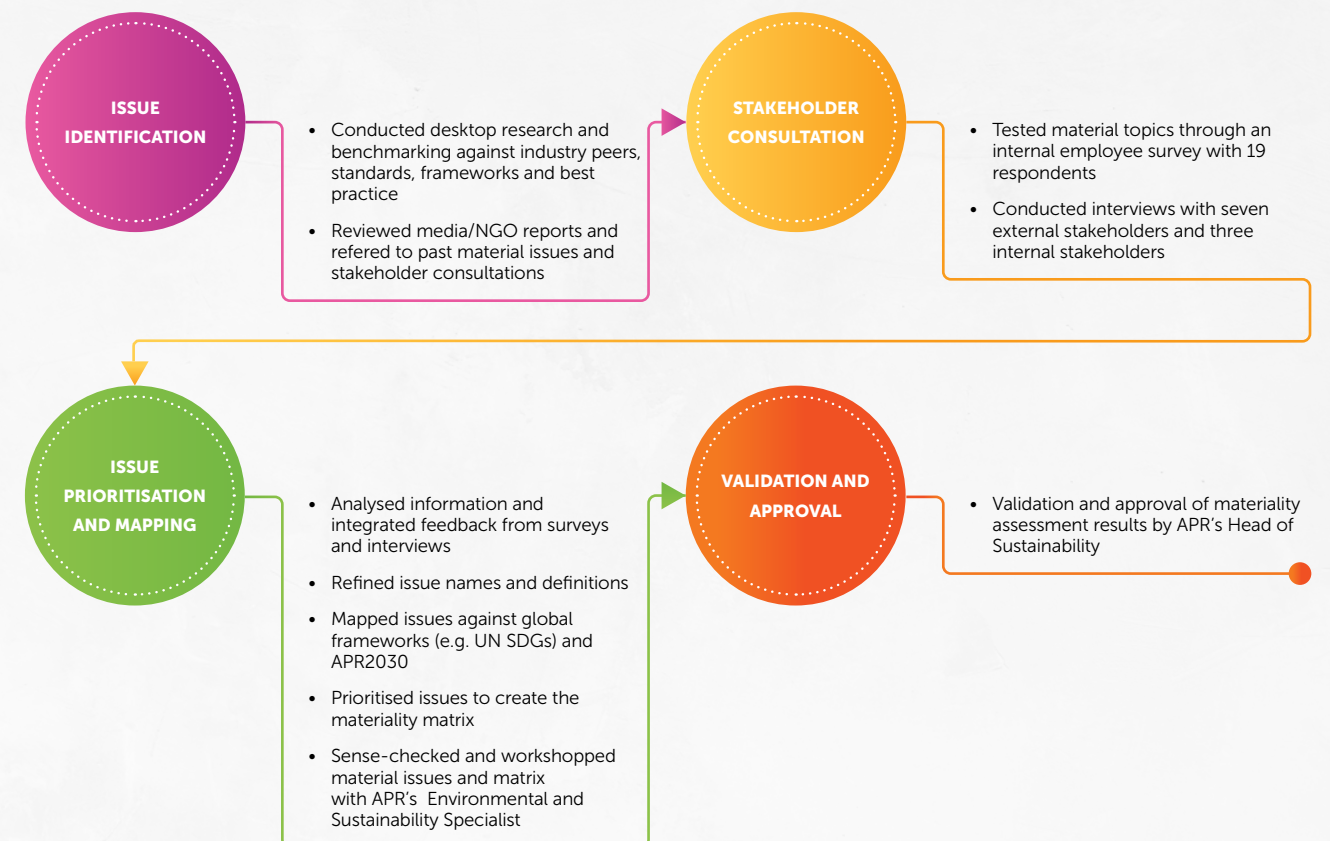
[GRI 3-1, 3-2]

Materiality assessments are the foundation of robust sustainability reporting, helping us prioritise the focus areas of our sustainability strategy while responding to stakeholder needs. Our first materiality assessment was conducted when we began operations in 2019, and its results helped shape the formative years of our sustainability strategy and reporting. **In 2022, we conducted a new materiality assessment to update the earlier study and ensure our focus areas and sustainability strategy reflected the latest industry developments and APR2030.**

We identified 23 material issues, including ten that carried over from the previous materiality assessment or were revised. We also identified 11 new topics in response to current and emerging needs and priorities. See [2022 Material issues](#) for a complete list of these issues and their definitions.

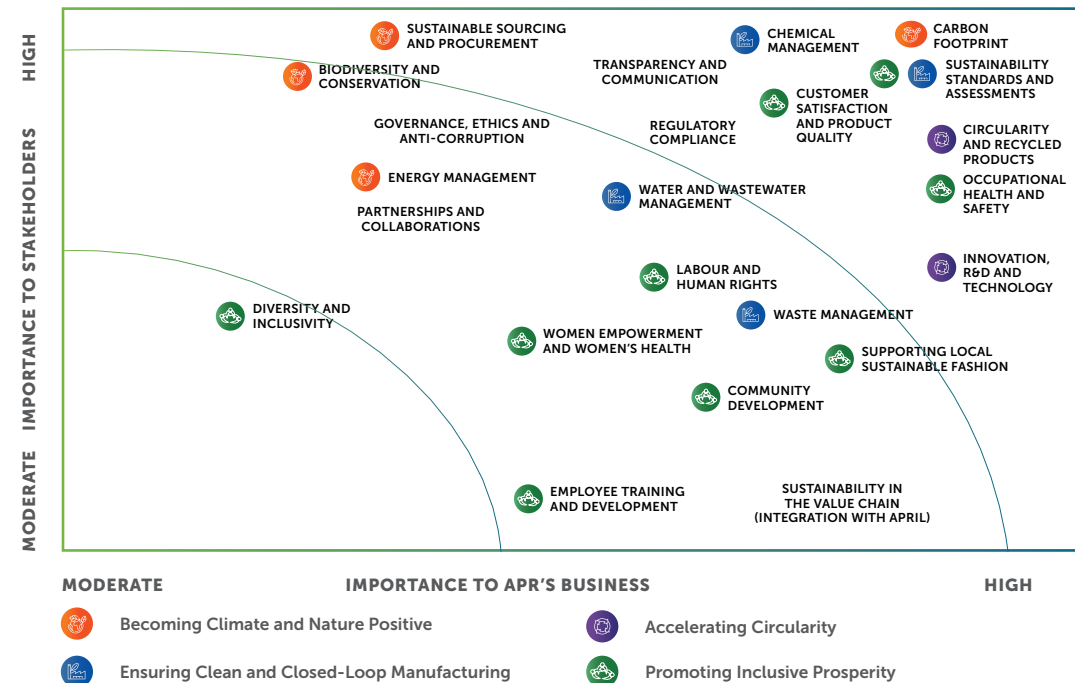
Each material issue was mapped to and aligned with our APR2030 sustainability strategy and the [United Nations Sustainable Development Goals \(SDGs\)](#). The new materiality assessment identified a wider range of topics that reflect APR's increased dedication to promoting and implementing sustainability in our operations.

MATERIALITY PROCESS



APPROACH TO SUSTAINABILITY

MATERIALITY MATRIX 2022



CHANGES TO MATERIAL TOPICS

Revised topics (merged or changed)	Updated topics
<p>Carbon footprint – Split from 2019 material topic 'Climate change' into 'Carbon footprint' and 'Energy management'.</p> <p>Employee training and development – Split from 2019 material topic 'Employment, labour practices and people development' to 'Labour and human rights' and 'Employee training and development'.</p> <p>Energy management – Split from 2019 material issue 'Climate change' into 'Carbon footprint' and 'Energy management'.</p> <p>Labour and human rights – Split from 2019 material issue 'Employment, labour practices and people development' into 'Labour and human rights' and 'Employee training and development'.</p>	<p>Chemical management – Update of material topic name from 'Chemical management, use and recovery, and related air emissions'.</p> <p>Governance, ethics, and anti-corruption – Update of material topic name from 'Business, ethics and anti-corruption'.</p> <p>Innovation, R&D and technology – Update of material topic name from 'Innovation'.</p> <p>Sustainable sourcing and procurement – Update of material issue name from 'Sustainable pulp sourcing and traceability'.</p> <p>Waste management – Update of material topic name from 'Waste' to 'Waste management'.</p> <p>Water and wastewater management – Update of material topic name from 'Freshwater and wastewater management'.</p>
New topics	Updates to importance
<ul style="list-style-type: none"> Biodiversity and conservation Circularity and recycled products Customer satisfaction and product quality Diversity and inclusivity Partnerships and collaboration Regulatory compliance Supporting local sustainable fashion Sustainability in the value chain (integration with APRIL) Sustainability standards and assessments Transparency and communication Women empowerment and women's health 	<p>Governance, ethics, and anti-corruption (↑ internal and external)</p> <p>Water and wastewater management (↑ internal and external)</p> <p>Sustainable sourcing and procurement (↑ internal and ↓ external)</p> <p>Innovation, R&D and technology (↓ internal and ↑ external)</p> <p>Waste management (↓ internal and external)</p>

LEVERAGING ON THE APRIL-APR INTEGRATION

[GRI 2-6, 3-3]

Sharing integrated facilities with APRIL at Pangkalan Kerinci allows us to leverage our joint infrastructure and existing strengths to meet our shared sustainability commitments. Our sustainability strategies share foundational goals we build on to address sector- and industry-specific needs.

This unique model enables us to support each other's initiatives, working together to improve operational efficiencies through joint community programmes and increasing our impact on the ground. Common areas include our decarbonisation roadmaps based

on a value-chain approach instead of a gate-to-gate approach and operational and energy efficiencies resulting from re-using facility by-products as raw materials and power sources in our production processes. We jointly create and implement community initiatives addressing sector-relevant concerns that resonate with key stakeholders. For example, APR and APRIL empower women in surrounding communities through two complementary initiatives: APRIL contributes to conservation efforts, while APR focuses on promoting women entrepreneurs and artisans in fashion and textiles.



APPROACH TO SUSTAINABILITY

THE BENEFITS OF INTEGRATION

Commentary by Eduward Ginting, Chief Operations Officer | PT Riau Andalan Pulp and Paper (RAPP)

APR is independent of APRIL as a business entity, and each company has separate sustainability objectives, with different KPIs, QPC (quality, productivity, and cost) metrics, and scorecards. However, the two companies operate interdependently, which is one of our greatest strengths, allowing both to meet their respective sustainability and performance targets. For example, our APR2030 and APRIL2030 strategies address the same concerns, including waste reduction and decarbonisation.

Our Kerinci complex is the largest integrated pulp-and-paper and rayon facility in the world, giving APR a competitive edge because we share utility and raw material costs with our sister company. The resulting efficiencies, including lower purchasing and drying costs, make us one of the textile industry's most cost-competitive viscose staple fibre (VSF) manufacturers.

Our ability to leverage APRIL's existing expertise is another competitive advantage. Our sister company digitised operations nearly 20 years ago and embraces operational best practices. When we launched APR three years ago, we leaned on APRIL's experience, reaching operational excellence earlier and catapulting ourselves to the forefront of the industry. Our integration also gives the company access to a wider range of sustainability expertise. This allows APR to benefit from APRIL's decades of experience in sustainability, and to accelerate its own sustainability journey.

About: Eduward Ginting is the Chief Operations Officer at the Kerinci complex, overseeing the utility plant and the pulp, paper, and APR mills.

GOVERNANCE AND RESPONSIBLE PRACTICES

[GRI 2-9, 2-11, 2-12, 2-13, 2-16, 2-26, 3-3, 205-3]

The APR leadership team is responsible for our sustainability plan and strategy with guidance from APR's President Director and the RGE Executive Management Board. Our Operations Manager oversees the implementation of the sustainability plan at the operational level while the Head of Sustainability implements our sustainability strategy.

APR complies with the RGE Global Code of Conduct, which guides and upholds our ethical and professional business conduct rules, including our commitment to zero tolerance for corruption, in compliance with applicable legal requirements. The Code of Conduct is available to all employees, who receive annual refresher training on our policy commitments.

APR suppliers must adhere to our Code of Procurement Ethics, which details our values, principles, and commitments in line with RGE's Sustainability Framework and APR's Sustainability Policy. Our procurement department audits suppliers to ensure they respect their obligations against these commitments, reporting its findings to the APR leadership team.

APR LEADERSHIP TEAM

Basrie Kamba
APR President Director

Saleel Nayek
Director, Operations

Djarot Handoko
Head of External Affairs

Susan Slabbert
Head of Sustainability

Tapán Sannigrahi
VP, Product and Business Development

Sachin Malik
Global Head of Sales

WHISTLEBLOWING AND GRIEVANCES

[GRI 2-25]

Employees can report breaches to the Code through their reporting manager or human resources representative as a first point of contact. A confidential internal audit hotline is also available for reporting misconduct and whistleblowing purposes. We promptly and fairly process all reported breaches in compliance with our legal obligations and impose appropriate penalties or disciplinary actions as cases warrant. All critical grievances raised are reported to APR's senior management team.



APR Grievance Procedure

Our grievance procedure provides a comprehensive feedback mechanism for internal and external stakeholders to report alleged APR policy breaches, concerns, and complaints and is available on our website. The APR Grievance Committee oversees all grievances, except human rights-related grievances, which are managed by an Independent Advisory Committee. These bodies process grievances and provide feedback in a fair, transparent, and accountable manner, focusing on arriving at a mutual agreement between the parties involved.

There were no grievances or corruption cases reported in 2022.

REGULATORY COMPLIANCE

[GRI 2-27, 3-3]

We comply with all regulatory frameworks and requirements applicable to our operating license, including installing equipment that provides real-time environmental updates for government reporting. We installed the SPARING wastewater monitoring system in 2020 and an air emissions monitoring system in 2022, as required by new government regulations.

We had no regulatory or environmental non-compliance during the reporting period.

PARTNERSHIPS AND ENGAGEMENT

[GRI 2-28, 2-29, 3-3]

Building constructive partnerships and engaging with stakeholders openly and transparently drive our sustainability efforts in alignment with our APR2030 commitments. See our [stakeholder engagement approaches](#) for a list of stakeholder groups and engagement methods.

APR participates in several industry platforms, contributing to pioneering discussions and learning from best practices to meet shared sustainability goals. We are a signatory or member of several leading industry agreements and associations, including the Zero Discharge of Hazardous Chemicals (ZDHC) Foundation, Textile Exchange, Sustainable Apparel Coalition (SAC) and the United Nations Convention

on Climate Change (UNFCCC) Fashion Industry Charter. We are members in good standing of local associations such as the Indonesia Business Council for Sustainable Development, Asosiasi Pertekstilan Indonesia (API), Indonesian Fiber and Filament Yarn Producers Association (APSYFI), and Rantai Tekstil Lestari (RTL).

We continue to engage in bilateral partnerships, working with peers and contributing to initiatives that help us maximise our impact.



APPROACH TO SUSTAINABILITY

TRANSPARENCY AND COMMUNICATION 2022 ACTIVITIES

[GRI 2-14, 3-3]

Transparency is crucial to building trust and long-term relationships. We are committed to keeping our stakeholders informed and updated on our sustainability practices and progress towards our goals. Our annual sustainability reports provide a comprehensive overview of our sustainability practices, targets, and achievements. They are reviewed and approved by APR's leadership team and RGE's executive team. In 2022, we revamped our website, simplifying navigation on all sustainability-related pages. We also distribute quarterly newsletters to relevant stakeholders, updating them on our sustainability-related progress.

As part of our commitment to transparency and improving our sustainability practices, we continue to engage with Canopy⁴ and strive to improve our score on Canopy's Hot Button Ranking and Report. This rating is often the go-to source for information on our sustainability performance for stakeholders – especially end-users and consumer brands – who are not direct customers and with whom we have no immediate contact.

Our 2022 sustainability policy updates align with Canopy requirements. APR is using Canopy's Dissolving Pulp Mill Classification tool to assess risks at our mills. We have voluntarily applied to be audited by CanopyStyle Audits every year since 2020 but have yet to receive approval to proceed. Nevertheless, in 2022, we signed a public letter responding to Canopy's call for MMCF producers to adhere to the Convention on Biological Diversity and support conserving at least 30% of the world's forests by 2030. We continue engaging with Canopy and will keep our stakeholders updated on our progress.

⁴ Canopy is an international environmental not-for-profit organisation that works with companies to make fibre supply chains more sustainable and protect the world's remaining Ancient and Endangered Forests.

INDUSTRY DISCUSSIONS



Helped revise **Zero Discharge of Hazardous Chemicals (ZDHC) Man-made Cellulosic Fibres (MMCF) guidelines** on viscose filament and lyocell. While these guidelines do not directly apply to APR, we contributed to this initiative to benefit the wider industry.

Maintained an **active role in UNFCCC working groups**, especially on raw materials and decarbonisation



Celebrated sustainable fashion programmes in Singapore with the **Singapore Fashion Council (formerly the Textile and Fashion Federation (TaFF))** on 6 July 2022 through the RGE Group



Participated in the **Sustainability Innovation Challenge** through **Enterprise Singapore** to explore potential sodium dichromate substitutes and a novel process to completely replace our existing spinneret cleaning process.



Participated in the **Textile Exchange Conference** in Colorado in November 2022

Participated as a **panellist at the Indonesia Development Forum** in Bali on 22 November 2022, contributing to discussions on sustainable fashion and Indonesia's textile industry



EVENTS



Participated in **Muslim Fashion Festival** on 21-22 April 2022



Participated in **Indonesia Sharia Economic Festival (ISEF)** on 4-9 October 2022



Participated in **Jakarta Fashion Week** on October 24-30 October 2022



Participated in **Jakarta Muslim Fashion Week** on 20 – 22 October 2022



Participated in the **12th Indonesia Green Environment Day Forestry Expo** in July 2022



Participated in **Indo Intertext in August 2022**, Indonesia's largest textile and apparel industry trade show



Hosted the **APR Gala Dinner** for more than 200 key stakeholders in September 2022



Sponsored the annual **Singapore fashion design competition, Singapore Stories**, in December 2022 (through RGE)



Organised, hosted, and participated in events promoting Indonesian sustainable fashion through **Jakarta Fashion Hub**



PARTNERSHIPS



Collaborated in **technical feasibility studies on waste utilisation and recycling**



Partnered with the **Matahari department store chain** to conduct joint training on raw materials and Indonesian products and to promote textile recycling at its retail locations



Partnered with Bandung-based **Maranatha Christian University** to conduct a workshop with 40 batik makers in **Lasem, Central Java**

See also:



APPROACH TO SUSTAINABILITY

SUSTAINABLE STANDARDS AND ASSESSMENTS

[GRI 3-3, 417-1, 417-2]

APR strives to be a world-class VSF facility. We continue to meet and exceed many requirements of the European Union Best Available Techniques (EU BAT) Polymer BREF and ZDHC MMCF guidelines, above and beyond local regulations. We also submit to annual assessments by the Sustainable Apparel Coalition and other environmental, social and governance (ESG) reviews, including EcoVadis and CDP.

We seek out third-party certifications to confirm our sustainable production and system management approaches satisfy international markets that require independent audits of

our operations, including how we manage hazardous chemicals. We strive to improve the quality of our VSF and yarn by adhering to standards that include the OEKO-TEX®, FKT, and OK biodegradability labels.

In 2022, we assessed all our products (100%) for compliance with marketing and labelling requirements and found they adhered to all voluntary codes in effect.

There were no non-compliances with regulations or voluntary codes pertaining to product or service information and labelling in 2022.

2022 Achievements:



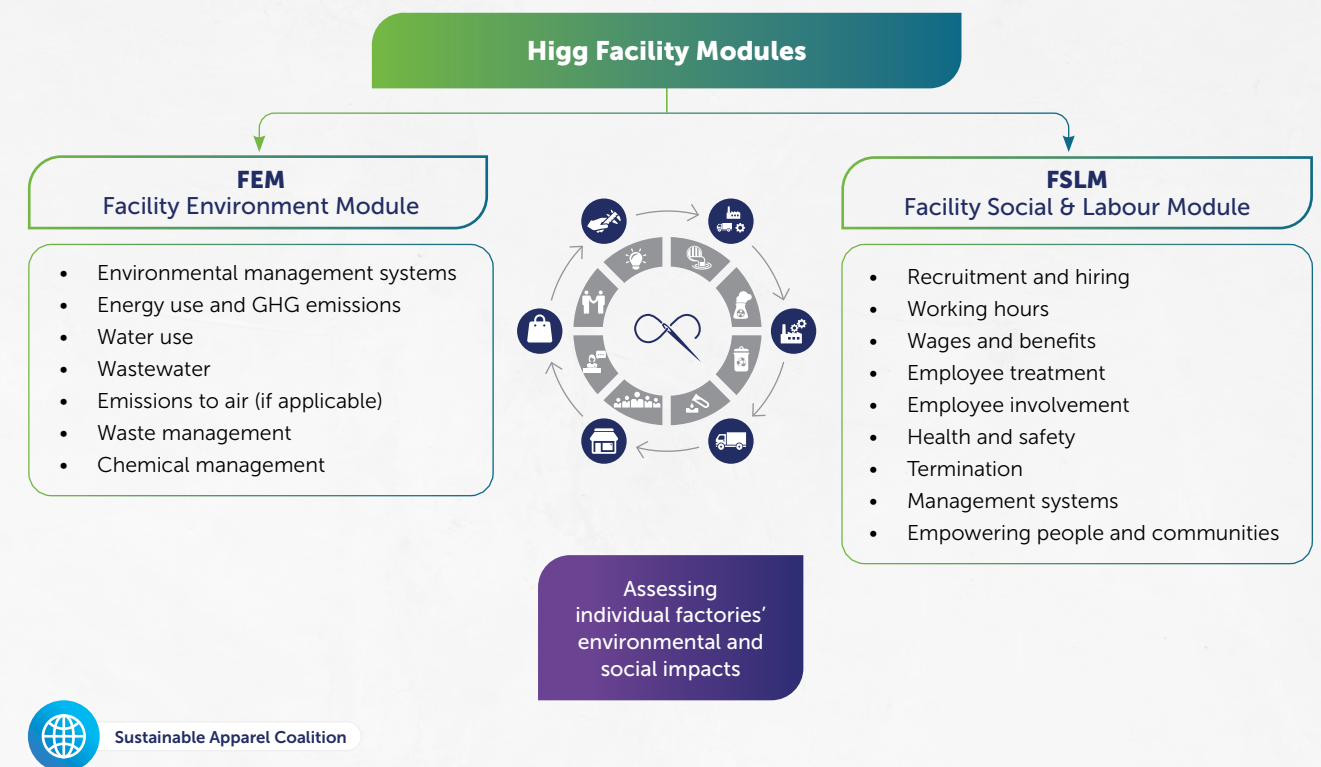
UPHOLDING THE HIGHEST STANDARDS WITH HIGG FEM AND FSLM

The Sustainable Apparel Coalition's Higg Index is a suite of tools that measures environmental and social impacts across the life cycle of apparel and footwear products. APR voluntarily subscribes to its Facility Environmental Module (FEM) and Facility Social & Labor Module (FSLM). The Higg Index is an industry-leading platform incorporating guidance from the ZDHC Foundation, Sedex, the Social and Labor Convergence Program (SCLP), and other science-based initiatives. It is also a way of comparing our performance to other industry peers.

By verifying our annual assessments, we know APR's strengths include our energy efficiency initiatives and targets, employee treatment, and employee benefits.

We have also identified performance gaps and are trying to understand why they occur and how we can remedy them. For example, we discovered that optimising certain activities, like waste management, at the Kerinci complex by sharing them with APRIL prevents us from being assessed as a standalone company. We are therefore looking to create a separate APR-only waste-management process in 2023. We have also established action plans to close other gaps, such as promoting Higg standards to our suppliers, improving chemical management, and better safeguarding the rights of contractors. We use the Higg Index modules to inform our continuous improvement plans and aim to improve our scores year-over-year.

Higg facility assessments



C2C MATERIAL HEALTH CERTIFICATION

In 2022, we applied for a Cradle to Cradle (C2C) Certified Material Health Certificate™, which verifies that the chemicals and materials used in our products prioritise protecting human health and the environment. The certification process is rigorous. To ensure impartiality and credible results, our VSF was independently tested and verified by a body that did not directly engage with APR. In 2023, we proudly achieved Silver certification.



CLIMATE AND NATURE

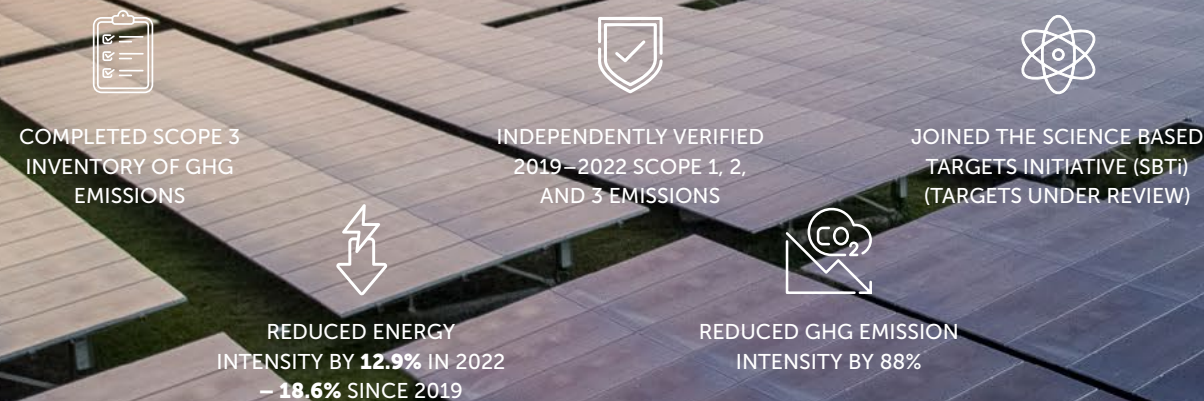
The fashion industry generates 1.7 billion tonnes of carbon emissions annually,⁵ representing an astonishing 10% of global emissions.⁶ Viscose alone accounts for approximately 88% of the greenhouse (GHG) impacts of man-made cellulosic fibres (MMCF).⁷ Therefore, meeting the Paris Agreement goal of reducing emissions by 45% of 2010 levels by 2030 and net zero by 2050 is a monumental task for the industry.

APR takes this sector-wide commitment seriously and continues to support industry pledges, including the MMCF 2030 Vision, Textile Exchange 2030 Climate+ Strategy, United Nations Framework Convention on Climate Change (UNFCCC), Fashion Industry Charter for Climate Action, and Sustainable Apparel Coalition (SAC) Decarbonization Program launched in 2022.

APR's approach is to optimise efficiencies and reduce our environmental footprint while supporting the efforts of our primary supplier, APRIL, to reduce emissions and implement biodiversity initiatives. We report annually on our carbon footprint and remain transparent on our climate-related risks by responding to the CDP climate change questionnaire, a global disclosure tool for investors.



2022 HIGHLIGHTS



⁵ WWF Changing fashion: The clothing and textile industry at the brink of radical transformation (2017); Available [here](#). [Accessed 5 April 2023]
⁶ World Bank How Much Do Our Wardrobes Cost to the Environment? (2019); Available [here](#). [Accessed 5 April 2023]
⁷ Against the 2019 GHG impact of MMCFs, which is estimated to be around 33 million tonnes CO₂e, Textile Exchange Material Pathways: Accelerating action towards Climate+ goals (2023); Available [here](#). [Accessed 10 May 2023]



CLIMATE AND NATURE

CARBON FOOTPRINT

[GRI 3-3, 305-1, 305-2, 305-3, 305-4, 305-5]

APR emissions

We calculate our greenhouse gas (GHG) emissions using the GHG Protocol, the world's most widely used greenhouse gas accounting standard. We annually measure our direct emissions (Scope 1) from sources owned by APR, including fuel combustion at our chemical plant and vehicle emissions. We also measure indirect emissions (Scope 2) associated with purchased electricity, steam, heat, and cooling.

In 2022, APR adopted the GHG Protocol's updated guidance on Scope 2 emissions. We are now reporting our Scope 2 emissions using a market- and location-based approach known as 'dual reporting'.

Our Scope 1 and 2 (market-based) GHG emissions decreased by 80% from 227,982 tonnes of carbon dioxide equivalent (t CO₂e) in 2019 to 40,130 t

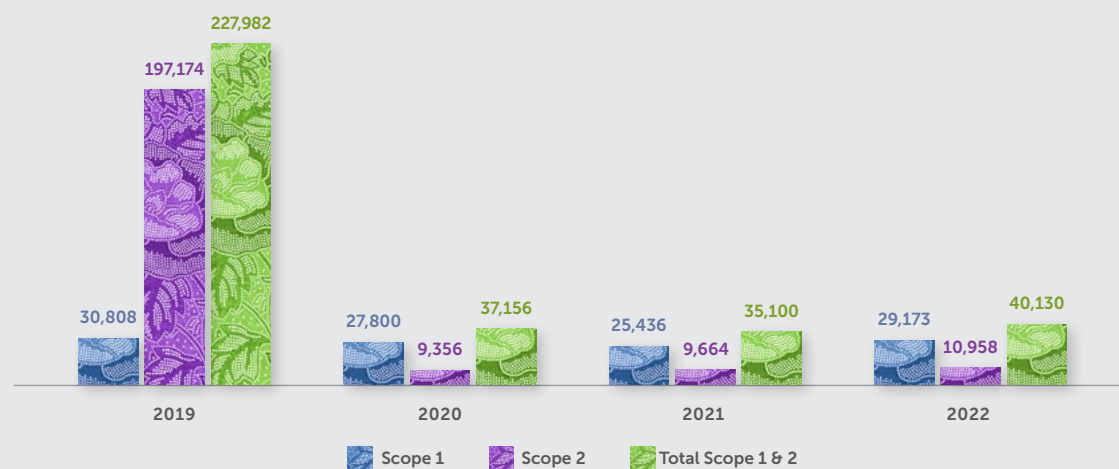
CO₂e in 2022. This drop led to a reduction in GHG emission intensity of 88% – from 1.18 t CO₂e per tonne of VSF produced (t CO₂e/t VSF) to 0.14 t CO₂e/t VSF and was due to a significant reduction in Scope 2 emissions in 2020, resulting from our renewable energy purchase agreement with utility PT Riau Prima Energi (RPE). We expect our GHG emissions intensity to further stabilise when our newly-expanded operations reach their targeted capacity.

Our location-based emissions totalled 146,138 t CO₂e, a 26% reduction from 2019. See [Base data](#).

Our biogenic emissions – i.e., those from natural sources – account for 50% of our emissions portfolio.

ABSOLUTE SCOPE 1 AND 2 GHG EMISSIONS 2019–2022 (t CO₂e)

Market-based emissions

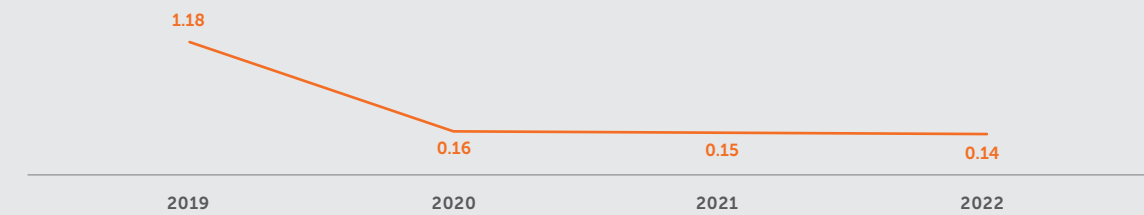


Notes:

1. Data for 2019 to 2021 has been restated following third-party verification and re-categorisation of Scope 2 in line with the GHG Protocol guidance.
2. Location-based emission data available in the [Base data](#) section.
3. Data from APY is excluded, as it accounts for less than 1% of our total energy footprint.

SCOPE 1 AND 2 GHG EMISSIONS INTENSITY 2019–2022 (t CO₂e/t VSF)

Market-based emissions



Notes:

1. Data for 2019 to 2021 has been restated following third-party verification and re-categorisation of Scope 2 in line with the GHG Protocol guidance.
2. Location-based emission data available in the [Base data](#) section.
3. Data from APY is excluded, as it accounts for less than 1% of our total energy footprint.

In 2022, we completed our Scope 3 inventory, a comprehensive overview of all emissions linked to APR. We determined that 95% of our total emissions result from activities beyond our control (Scope 3), primarily downstream emissions. These activities include using sold goods (77.6%) and processing sold products (14.1%) and purchased goods and services (1.5%). The GHG Protocol is finalising its guidance for assessing land use change and plantation land management when accounting for and reporting GHG emissions and removals. As a result, we will revisit our Scope 3 emissions from upstream sources to determine suppliers' significant hotspots. We will then work with them on emission reduction programmes.

ADOPTING SCIENCE-BASED TARGETS

In 2022, APR officially signed up for the Science Based Targets Initiative (SBTi), affirming our commitment to science-based targets and a 1.5°C Pathway for Scope 1, 2 and 3 emissions, achieving net zero no later than 2050. Our targets adhere to Apparel and Footwear Sector guidelines developed for the SBTi by the World Resources Institute (WRI). We will announce our targets in 2023, ensuring we meet our commitments as a signatory of the UNFCCC Climate Charter and SAC Decarbonization Program.



Reducing product carbon intensity in the value chain

To meet our commitment of halving product carbon intensity by 2030 against our 2019 baseline, we conduct periodic life cycle assessments (LCA) that are peer-reviewed by experts. We completed our first assessment in 2020, thoroughly analysing our value chain and pinpointing our primary and most intense hotspots, including energy and chemical consumption. We take a value-chain approach in these studies to best reflect the reach of our impact. Our first study concluded that APR must reduce our total emission intensity by 36% to achieve our 50% cradle-to-gate target.

Our decarbonisation strategy

Our decarbonisation strategy starts with what we can achieve at our operations and extends to the rest of our value chain.



SUPPLIERS

- Progressing towards a 50% reduction target in product carbon intensity, complemented by APRIL's emission reduction plans relating to land use.

APR OPERATIONS

- Operating with the most energy-efficient technologies available
- Using 100% renewable energy
- Exploring waste reduction and closed-loop processes at our Kerinci complex
- Improving chemical processes, e.g., reducing caustic soda consumption in 2022

DOWNSTREAM

- Exploring collaborating with customers and end-users, e.g., promoting biodegradable blends downstream and pairing cotton with rayon instead of more carbon-intensive polyester



CLIMATE AND NATURE

ENERGY MANAGEMENT

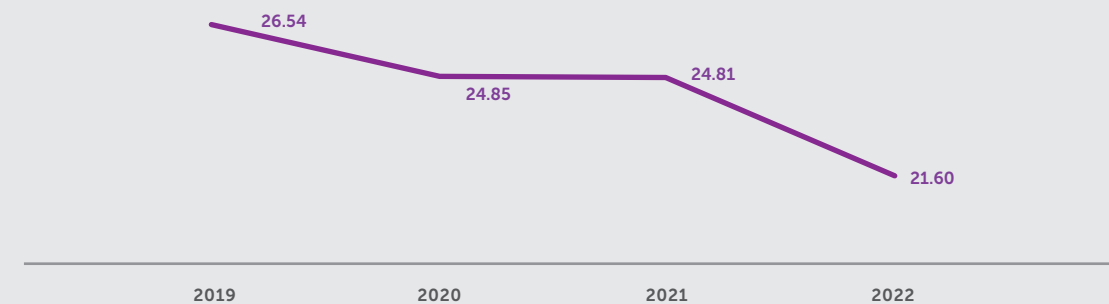
[GRI 3-3, 302-3, 302-4]

APR's robust energy monitoring and measurement system tracks every department's electricity and steam consumption, reviewing both annually against planned reduction goals based on the European Union Best Available Techniques (EU BAT) Polymer BREF standard. Since commencing operations, we have strived to optimise our energy processes and reduce our energy intensity, **achieving a 12.9% reduction in 2022 compared to 2021 and 18.6% since we launched in 2019**. We achieved these reductions despite increasing our mill capacity by switching to variable speed drives, improving our heat recovery initiatives, and

maintaining energy efficiency measures already in place.

We continue to explore innovative ways to improve our energy footprint. In 2023, APR will conduct an energy audit to identify gaps and ways to further improve our energy efficiency. Following a 2021 feasibility study, APR is also in the process of installing a turbine at our facility to capture surplus high-pressure steam formed during the VSF production process to generate electricity, which we aim to have up and running in 2024.

ENERGY INTENSITY 2019–2022 (GJ/t VSF)



Note: Data excludes APY, which accounts for less than 1% of our energy footprint.

APR has used 100% renewable energy to power our VSF production and significantly reduce GHG emissions since 2020. We purchase power from PT RPE at the Kerinci complex, which operates multi-fuel and chemical recovery boilers that can supply more than 100% of our energy needs. **We calculate our total energy needs using a mass balance approach based on the energy required to produce one tonne of VSF.**

PT RPE continues to add to the renewable energy sources that feed the APR and APRIL integrated energy network, increasing the power supplied by solar panels from one megawatt (MW) in 2021 to 11 MW in 2022. Notably, RPE secured a permit to install these panels over an old landfill at our operations, a first in Indonesia. We plan to add enough panels to supply 50 MW by 2025.

PT RPE INCREASES BIOMASS RATIO

In Q4 2022, RPE launched a project to increase the biomass load of one of its multi-fuel boilers, boosting its biomass/coal ratio beyond the original design capacity, exceeding the target volume, and increasing biomass consumption without losing energy or impacting boiler performance. This project increased biomass use by 130,000 tonnes in 2022, roughly 2% more than in 2021.

SUSTAINABLE SOURCING AND PROCUREMENT

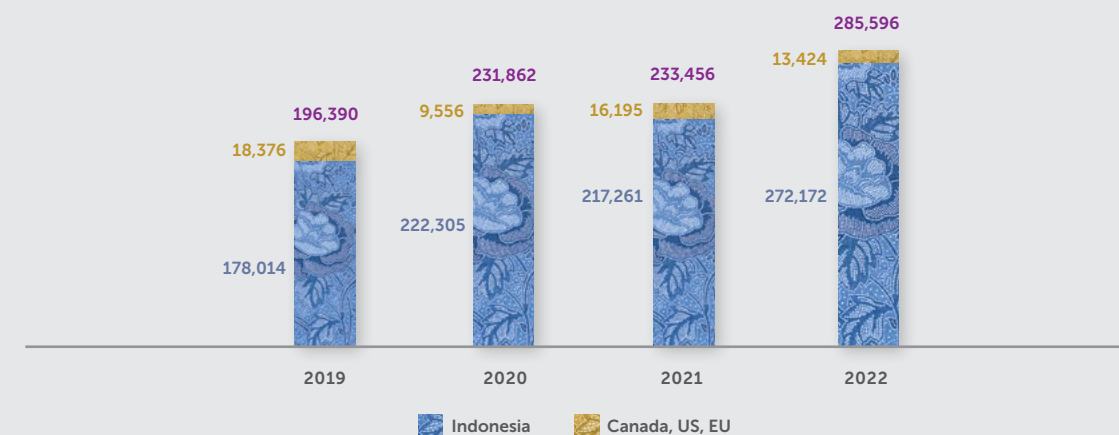
[GRI 2-6, 3-3, 204-1, 301-1, 308-1, 308-2, 414-1, 414-2]

Dissolving wood pulp

APR sources 100% renewable dissolving wood pulp (DWP) as raw material to produce VSF from four direct suppliers. In 2022, we sourced 285,596 tonnes of DWP, an increase of 22% over the previous year, due to our expanded mill capacity. Of this total, **95% was sourced locally** from two Indonesian pulp suppliers (APRIL and PT Toba Pulp Lestari). The remaining 5% originated in Canada and the United States. There were no new suppliers in 2022.

Sourcing from certified suppliers is critical to our activities as a sustainable viscose brand and is guided by APR's [Pulp Sourcing Policy](#) commitments. In 2022, we **continued exclusively sourcing materials from Programme for the Endorsement of Forest Certification (PEFC™) certified suppliers.**

DWP SOURCED BY REGION 2019–2022 (t)



Follow our Fibre

Because we source from very few suppliers, we have maintained 100% traceability to plantation from Indonesian sourcing regions and have achieved 90% traceability to plantation in other regions based on available information from our international suppliers⁸. We feed supplier information into APR's customised tracking platform, [Follow our Fibre](#), which uses blockchain technology powered by [GEORA](#) to trace our viscose fibre from nursery to bale. Customers can easily scan QR and bar codes on the bales they receive to track our products back to the wood pulp's source of origin.

We are in the process of integrating all APY products onto the platform to improve our traceability efforts.

Chemicals, oils and packaging

Chemicals, oils, and other materials for processing VSF and yarn comprise 22% of our procurement budget. We also source a small amount of packaging material, including plastic and cardboard, for wrapping and delivering viscose bales to customers.



⁸ Traceability to plantation data has been restated to differentiate between domestic and international sourcing regions.



CLIMATE AND NATURE



Supplier assessments and engagement

APR suppliers must comply with our sustainability policy and Code of Procurement Ethics (COPE) commitments and submit mandatory risk assessment questionnaires. Our procurement team assesses all suppliers annually, performing due diligence by evaluating their internal policies and management systems against our environmental and social requirements, including the new Human Rights Policy. The assessment process includes supplier site visits by our teams as required. When we identify non-compliances, we work with suppliers to address and rectify issues through clear, time-bound corrective action plans that bring them into compliance. Suppliers who show no interest in following these plans or fail to make significant progress will be subject to our cessation of business protocol.

Thanks to tight integration, APR's sustainable sourcing processes are aligned with APRIL's, ensuring all DWP sourced from our sister company's mill meets the stringent requirements of our Pulp Sourcing Policy on certified plantations, no deforestation, human rights, continuous improvement and transparency. In 2022, all suppliers – local and international – were assessed against and complied with our policy commitments.

APR trains suppliers and contractors on existing and new requirements to help them meet our sustainability standards. In December 2022, we hired an external consultant to engage with four suppliers and contractors, including chemical and oil suppliers, on Higg FEM and FSLM requirements. A total of 41 participants attended the training.



APR'S ROLE IN BIODIVERSITY CONSERVATION

[GRI 3-3, 304-1]

APR does not operate near protected areas. Nevertheless, our decade-long APR2030 strategy commits us to supporting our primary supplier in restoring natural landscapes. APRIL's long-term conservation and restoration plans for the landscapes surrounding our shared operations comprise a 1-for-1 commitment to conserving natural forest areas equal in size to its forestry plantation areas, including the Restorasi Ekosistem Riau (RER) project.

CELEBRATING 10 YEARS OF PROGRESS IN RESTORASI EKOSISTEM RIAU (RER)

Established in 2013 by APRIL, RER is a remarkable collaborative project that unites various stakeholders with a common goal of restoring and conserving ecologically significant peat forest areas on the east coast of Sumatra. The project covers over 150,600

hectares of intact peat forest on the Kampar Peninsula and nearby Padang Island. It is home to over 800 animal and plant species.

Over a decade, more than 70 mammalian species have been identified within RER forests on the Kampar Peninsula alone, highlighting the project's vital role in protecting the ecosystem and local biodiversity. APR recognises APRIL's positive impact on surrounding landscapes and will continue contributing resources to RER and other APRIL conservation initiatives.

In 2022, APR completed a needs analysis to identify other opportunities for biodiversity protection and conservation programmes. One potential area for further development is helping to empower women to become leaders for conservation projects.



Restorasi Ekosistem
Riau



CLEAN MANUFACTURING

Adopting clean and closed-loop manufacturing processes is a significant part of minimising our environmental impact and a central pillar of our APR2030 strategy. Our efforts include capturing and re-using chemicals and chemical by-products, reducing and eventually eliminating the use of hazardous substances in our production processes, treating and recycling wastewater, practising proper waste management, and implementing air pollution control methods.

Our efforts and processes comply with local regulations. They also align with various international and industry standards, guidelines, and best practices, including the World Health Organization (WHO) guidelines, the OEKO-TEX® STeP standard Annex 5, the 2007 European Union Best Available Techniques (EU BAT) Reference Document on the Production of Polymers, the Zero Discharge of Hazardous Chemicals (ZDHC) Man-made Cellulosic Fibres (MMCF) guidelines, the ZDHC Manufacturing Restricted Substances List (MRSL) v3.0, and the Higg Facility Environmental Module (Higg FEM). In 2022, we contracted an independent third party to assure our chemical recovery data ahead of new requirements coming into effect.

Current EU BAT standards are under review, and the industry can expect stricter provisions once the revisions are finalised. We will invest in the necessary infrastructure, including plant and technology upgrades, to meet the requirements of the updated sustainability standards.

2022 HIGHLIGHTS



ACHIEVED ZDHC
ASPIRATIONAL LEVEL
FOR CHEMICAL OXYGEN
DEMAND



REDUCED WATER
CONSUMPTION
INTENSITY BY **14%**
SINCE 2021; AND **35%**
SINCE 2019



REDUCED SULPHUR
EMISSION INTENSITY
BY **4%** SINCE 2021
(MORE THAN 55% SINCE
2019). ACHIEVING A
93.3% TOTAL SULPHUR
RECOVERY RATE;
ACHIEVED ZDHC
PROGRESSIVE LEVEL
FOR TOTAL SULPHUR
RECOVERY



DECREASED WASTE
PRODUCTION BY 6%,
LOWERING TOTAL
VOLUME OF WASTE
TO LANDFILL BY 4%
SINCE 2019



REDUCED TOTAL
HAZARDOUS WASTE
INTENSITY BY **6.4%**
SINCE 2021 AND **27.8%**
SINCE 2019

MEET ZDHC MMCF
GUIDELINES'
'ASPIRATIONAL
LEVELS'
BY 2025

**APR
2030**

**50%
REDUCTION
IN PROCESS
WATER
CONSUMPTION
INTENSITY BY
2030 (AGAINST
2019 BASELINE)**

MEET ALL
CRITERIA
SET OUT IN
THE EU BAT
POLYMER
BREF BY 2023

**80% REDUCTION
IN SOLID WASTE TO
LANDFILL BY 2030
(AGAINST 2019 BASELINE)**

CORE GOALS:



APR progress against EU BAT BREF and ZDHC MMCF 2022

CONSUMPTION (t/VSF)	UNIT	2022	EU BAT	ZDHC
Energy	GJ	21.60	20–30	
Process water	m ³	32.31	35–70	
Pulp	t	1.01	1.035–1.065	1.010–1.065
Carbon Disulphide (CS ₂)	kg	73.16	80–100	80–100
Sulphuric acid (H ₂ SO ₄)	t	0.67	0.6–1.0	0.65–1.03
Caustic Soda (NaOH)	t	0.54	0.4–0.6	0.45–0.6
Zinc (Zn)	kg	2.62	2–10	2–10
Spin finish	kg	4.71	3–5	3–5.3
Sodium hypochlorite (NaOCl)	kg	41.18	0–50	0–70
EMISSION PER TONNE (t/VSF)	UNIT	2022	EU BAT	ZDHC
Sulphur (S) to air	kg	13.80	12–20	F(35) P(20) A(12)
Sulphate (SO ₄ ²⁻) to water	kg	134.87	200–300	
Zinc (Zn) to water	g	27.48	10–50	F(150) P(60) A(18)
Chemical oxygen demand	g	2,929.64	3,000–5,000	F(7,200) P(6,000) A(3,600)
Total suspended solids	mg/L	41.16		F(50) P(15) A(5)
Hazardous waste	kg	69.33	0.2–2	
Noise at the fence	dBA	78.93	55–70	
RECOVERY RATES	UNIT	2022	EU BAT	ZDHC
Total sulphur (S)	%	93.35		F(85%) P(92%) A(95%)
Sodium Sulphate (Na ₂ SO ₄)	%	56.84		F(50%) P(60%) A(70%)

Notes:

- We have met targets in **Green cells** and are on track to meet targets in **yellow cells**.
- ZDHC stipulates Foundational (F), Progressive (P), and Aspirational (A) levels for some parameters.



CLEAN MANUFACTURING

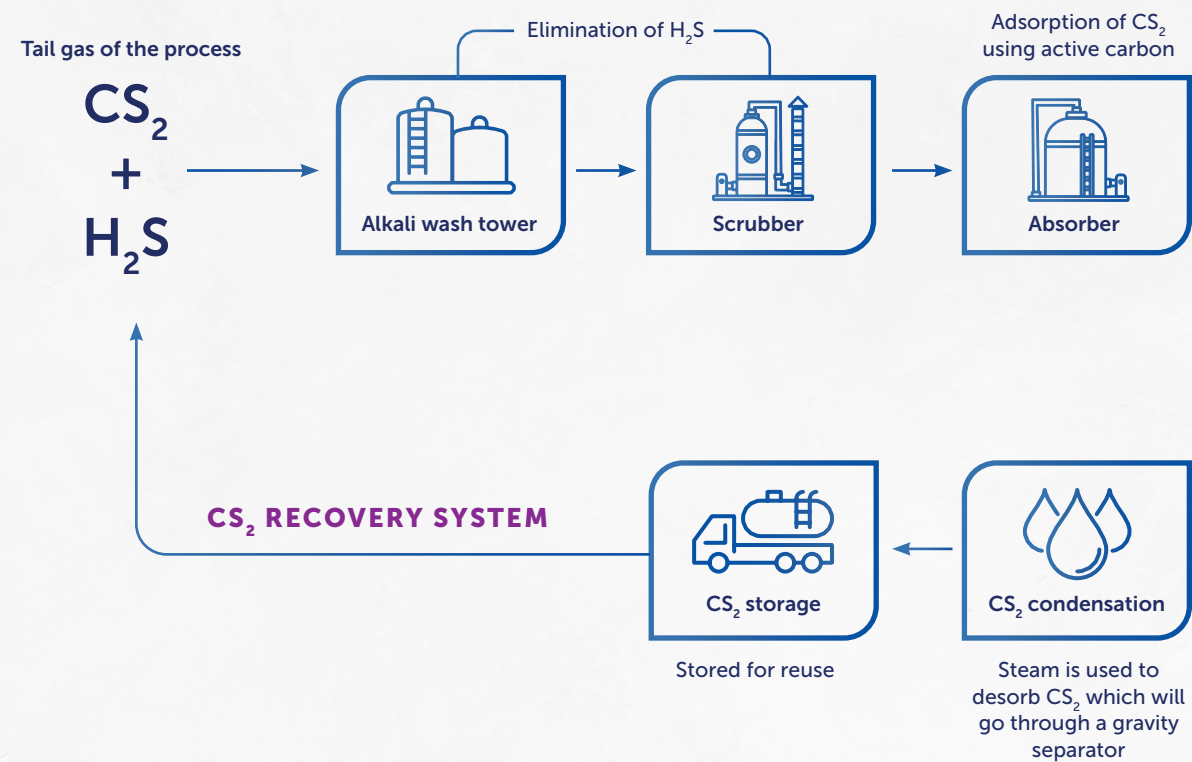
CHEMICAL MANAGEMENT AND RECOVERY

[GRI 3-3, 305-7]

Sulphur emissions and recovery

Viscose staple fibre (VSF) production is a multi-step process involving the chemical modification and transformation of dissolving wood pulp (DWP) into viscose fibre. The process includes preparing DWP with caustic soda (NaOH), treating it with carbon disulfide (CS₂), and spinning it in a sulphuric acid bath to produce VSF.

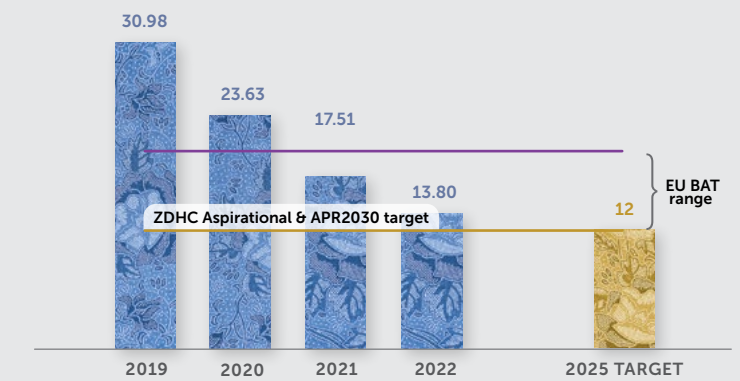
To minimise our environmental impact while maximising the recovery of valuable resources, we recover sulphur via a wet process that converts sulphur-rich gas into sulphuric acid using a CS₂ recovery system comprising a CS₂ gas condensation and a CS₂ recovery plant. These mechanisms capture H₂S and CS₂ gases produced during manufacturing and convert them into liquid CS₂ for reuse.



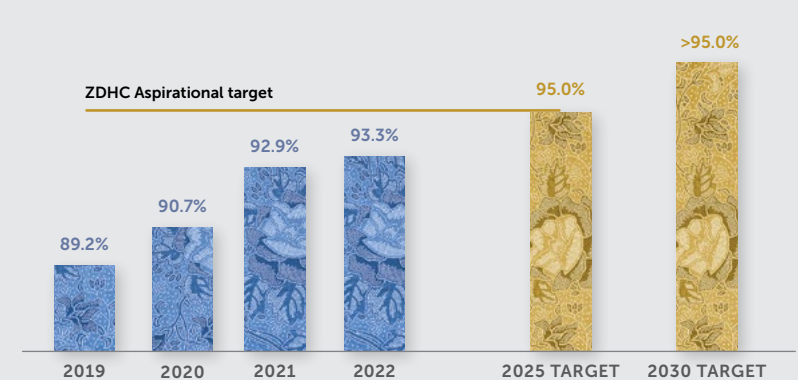
Building on our year-on-year improvement since 2019, our 2022 sulphur emission intensity was 13.8 kilograms per tonne of VSF (kg/t VSF), a reduction of nearly 4% from 2021 and **more than 55% against our 2019 baseline of 30.98 kg/t VSF**. This reduction is due to our third CS₂ recovery system being fully operational for the entire year.

As a result, we surpassed ZDHC's sulphur recovery progressive level of 92%, achieving a recovery rate of 93.3%. We are on track to reach 12 kg/t VSF sulphur emission intensity and more than 95% total sulphur recovery by 2030, in line with our APR2030 targets and ZDHC aspirational levels.

SULPHUR EMISSION INTENSITY 2019–2022 (kg/t VSF)



TOTAL SULPHUR RECOVERY RATE 2019–2022 (%)



CLEAN MANUFACTURING

Sulphate recovery

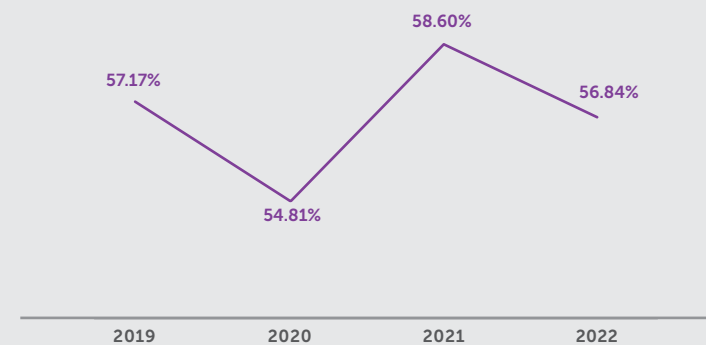
Sodium sulphate is a by-product of the chemical reaction between caustic soda and sulphuric acid during VSF production. It is a versatile and valuable chemical with a wide range of applications, and we recover it through a simple evaporation process. In 2022, our recovery rate fell slightly from 58.60% to 56.84% as a result of longer planned maintenance shutdowns and commissioning activities for newly installed tanks.

Recovered sodium sulphate is sold to third parties worldwide and re-purposed for various industrial processes. In 2022, we began supplying the remaining recovered sodium sulphate to our sister company APRIL for use as a bleaching agent at the Kerinci complex pulp mill, reducing the amount of purchased sodium sulphate by six million tonnes in a prime example of how APR and APRIL integration promotes and strengthens circularity.

Our chemical recovery efforts are aligned with ZDHC guidelines. Although it is not mandatory, we rigorously collect data and document management processes and are prepared to submit reports and data through the ZDHC Gateway as needed.

In addition to improving chemical recovery, we are looking to phase out and replace other hazardous chemicals in our production processes, like sodium

SODIUM SULPHATE (Na₂SO₄) RECOVERY 2019–2022 (%)



dichromate, traditionally mixed with sulphuric acid to produce a chromic acid solution for spinneret cleaning at our plants. The use of sodium dichromate in manufacturing is restricted as it contains the toxic heavy metal chromium on the ZDHC Manufacturing Restricted Substances List (MRSL).⁹ In 2022, APR enrolled in the Sustainability Innovation Challenge through Enterprise Singapore to scout for sodium dichromate substitutes or a new cleaning process that can completely replace our current spinneret cleaning process. We expect to finalise and announce the results of this challenge in 2023.



Sustainability
Innovation Challenge

⁹ Based on the ZDHC MRSL guidance sheet on heavy metals. Available [here](#)

WATER AND WASTEWATER MANAGEMENT

[GRI 3-3, 303-1, 303-2, 303-5]

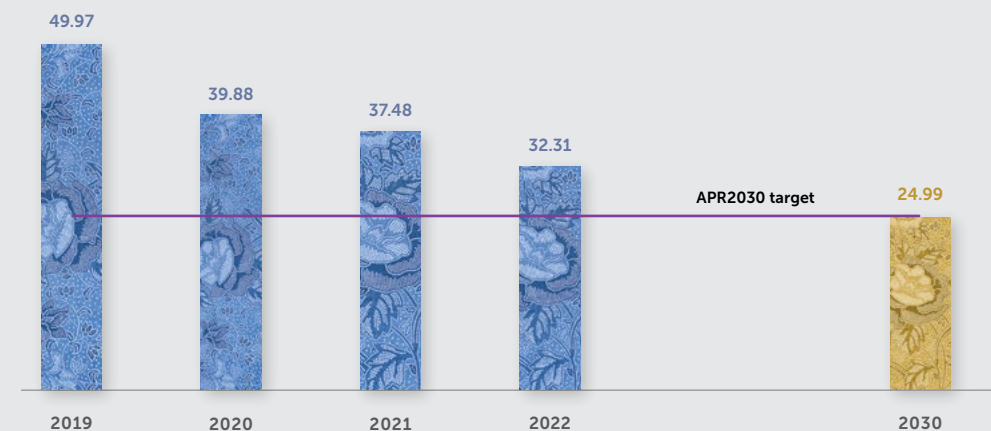
We continue to purchase and utilise processed water from PT Riau Prima Energi (RPE), licensed by the Indonesian government to source water from the Kampar River for industrial use. In pursuing our target of reducing water consumption by 50% against our 2019 baseline by 2030, we are accelerating our efforts to improve our water efficiency.

Our annual water consumption intensity levels have steadily declined since our first year of operations, with a cumulative reduction of 35% to 32.43 cubic metres per tonne of VSF processed (m³/t VSF) in 2022. These figures can be attributed to improved efficiency, increased production, and our new domestic wastewater (grey water) treatment plant, inaugurated in August 2022, in line with new government regulations to complement our existing septic tank. The new domestic wastewater treatment plant utilises a moving bed biofilm reactor (MBBR) system and has recycled more than 3,900 m³ of water from September to December 2022. The recycled water is reused at our cooling towers, reducing our dependence on river water purchased from PT RPE and lowering our water consumption intensity.

We also employ an effective wastewater treatment system that collects and processes all wastewater at our mill operations. We assess wastewater quality by sampling it at multiple strategic points twice daily before it is discharged into the Kampar River. We also sample river water at upstream and downstream discharge points monthly to monitor overall river conditions. We continue to use our digital wastewater monitoring system (SPARING) to forward real-time updates to the Indonesian Ministry of Environment and Forestry's servers and make our wastewater data publicly available through the [ZDHC Wastewater Gateway](#). We achieved the ZDHC aspirational level for chemical oxygen demand (COD) in 2022 and aim to reach the ZDHC aspirational levels for zinc-to-water and total suspended solids (TSS) by 2025. We are actively engaging with technology and solution providers to explore the options that will further improve our wastewater COD, biological oxygen demand (BOD) and TSS levels.

PROCESS WATER CONSUMPTION INTENSITY 2019–2022

(m³/t VSF)



CLEAN MANUFACTURING

WASTE MANAGEMENT

[GRI 3-3, 306-1, 306-2, 306-3, 306-4, 306-5]

APR's waste management approach adheres to the 3R principles of reduce, reuse and recycle. Our waste management system was initially shared with our sister company APRIL but was retooled and separated in 2022. Although it seems less efficient, separating our waste management approaches increased transparency, strengthening APR's reporting on our circularity initiatives, especially against standards like the Higg Facility Environmental Module (Higg FEM).

Solid waste

We produced 17,930 tonnes of waste in 2022, compared to 18,284 tonnes in 2019 – a reduction of 6% since our first year of operations. Of the total produced in 2022, about 3.7% was sold to registered waste handlers for recovery and reuse, and 95% was directed to landfill, including 0.5% TOW waste (reject VSF).

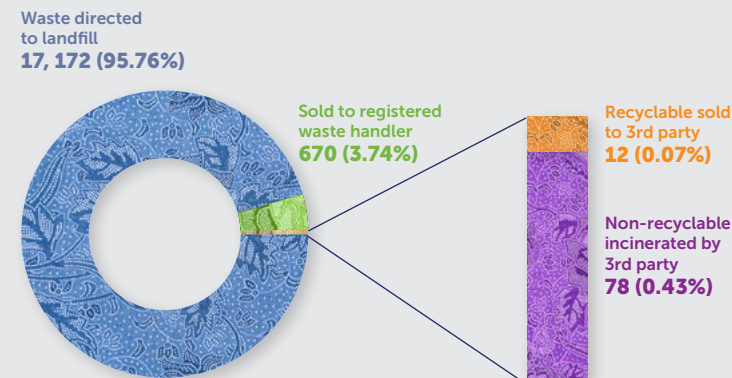
We have implemented various waste reduction and circularity initiatives that helped lower our total volume of waste to landfill by 716 tonnes or 4% compared to 2019. These include:

- A filter maintenance schedule to retrieve recyclable and reusable cellulose
- A zinc recovery pilot project to reduce and reuse zinc from our waste pipes as fertiliser at our plantations by recycling it back into our processes that will become permanent in 2023
- A TOW recycling and processing facility, commissioned in 2021, that converts recyclable TOW into saleable fibre and sends the remaining non-recycle TOW to landfill, reducing waste
- Upgraded VSF spinnerets that reduce clumping and TOW waste by 60-70% (also in 2021).

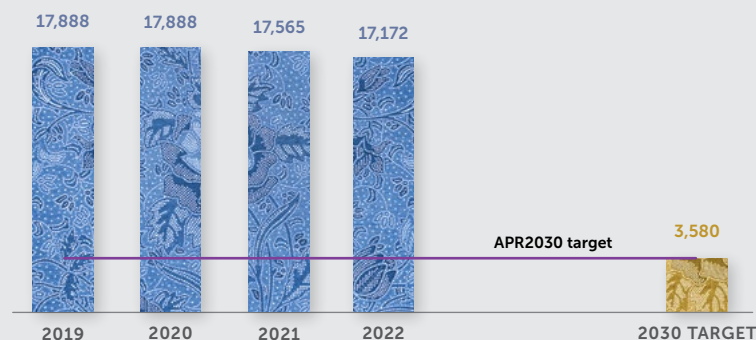
These initiatives are only the beginning. We recognise that our APR2030 target of an 80% reduction is ambitious, and we are finding more innovative ways to reduce and reuse waste at our operations.

WASTE GENERATED BY TYPE 2022 (t, %)

TOTAL: 17,931 t



SOLID WASTE DIRECTED TO LANDFILL 2019–2022 (t)



NEW WASTE-TO-VALUE INITIATIVE

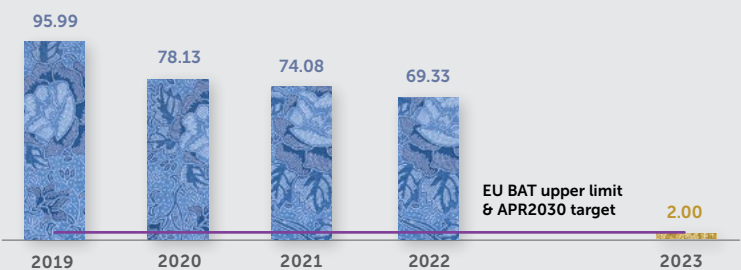
In 2022, we obtained an interim waste-to-value permit from the Indonesian government to conduct a pilot project and feasibility study on converting waste sludge into fertiliser for acacia and eucalyptus trees planted at APRIL's estates instead of sending it to landfill. We are collaborating on this project with APRIL throughout 2023 and hope to achieve positive outcomes, eventually scaling it with government support pending the results.

Hazardous waste

One of the challenges we face in meeting the EU BAT Polymer BREF requirements is our hazardous waste levels. APR produces five types of hazardous waste classified in the EU BAT Polymer BREF: primary waste treatment sludge, secondary waste treatment sludge, alkali-cellulose, viscose solids, and non-saleable TOW. However, the legal classification of hazardous waste varies from country to country, and there are differences between Indonesian and European standards.

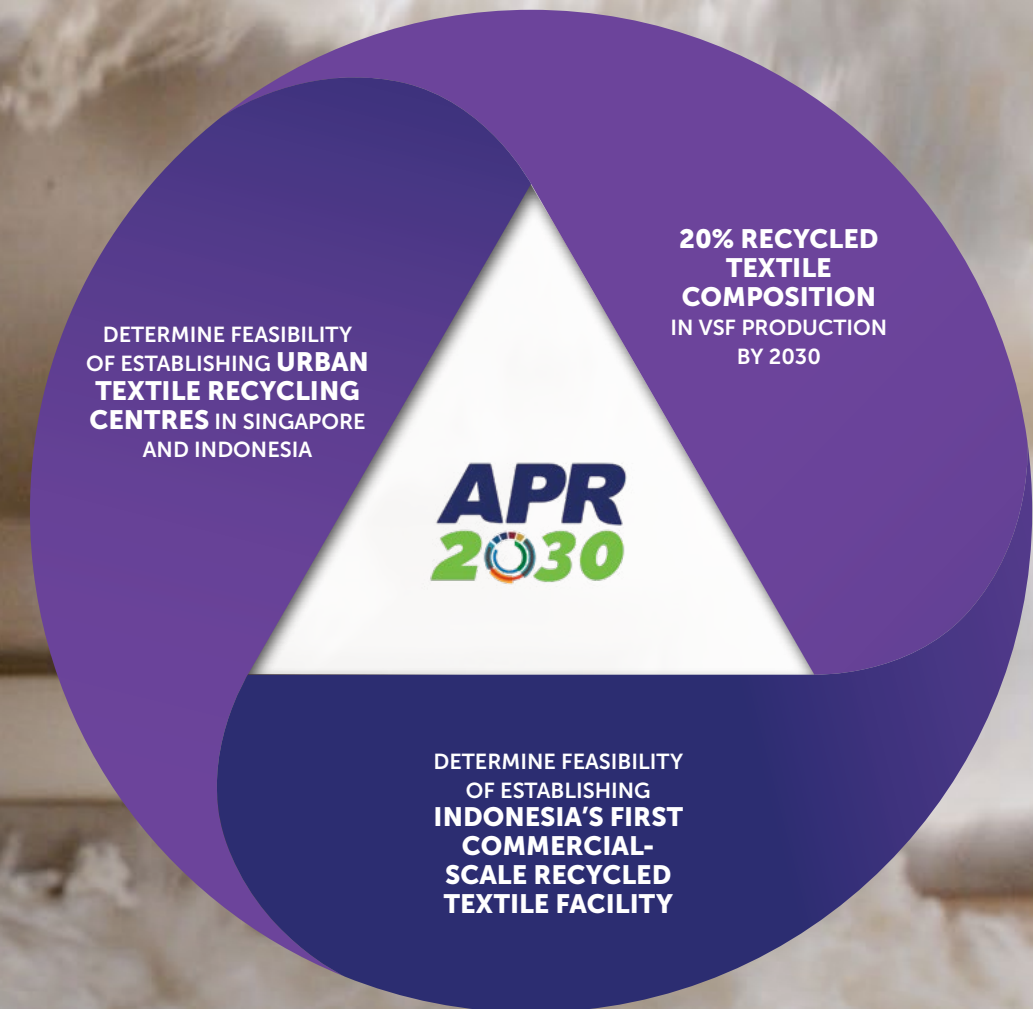
Our total hazardous waste intensity in 2022 was 69.33 kilograms per tonne of VSF produced (kg/t VSF), a 6.4% reduction from 2021 and an overall 27.8% reduction from our 2019 baseline. However, we have a long way to go to meet the expected EU BAT Polymer BREF levels of 2 kg/t VSF. Due to differences in Indonesian waste classification standards, we do not expect to meet this target by 2023. However, we have examined the root causes that make our waste hazardous and are analysing the results to understand its chemical properties, impact, and level of toxicity. Using this information, we are engaging with the Indonesian government to explore circularity options and share knowledge on the EU BAT Polymer BREF standard. We will also engage with experts from pulp and paper consulting groups and collaborate with viscose industry players to address the material challenges we face in meeting our waste reduction targets.

HAZARDOUS WASTE INTENSITY 2019–2022 (kg/t VSF)



CIRCULARITY

Fibre and yarn producers like APR play a vital role in minimising waste and promoting circularity. However, most textile industry efforts are limited to reducing the impact of existing linear production systems. We recognise the need to look beyond the boundaries of our operations and invest in systemic solutions to move the industry away from the take-make-dispose business model and champion circularity across the value chain. We can push the envelope by developing circularity and next-generation innovations, leveraging our robust research and development (R&D) capabilities, strong market ties, and appetite for collaboration. We continue to explore partnerships across the value chain and textile markets to learn from our peers, adapt our processes and work together towards our shared sustainability goals.



2022 HIGHLIGHTS

- SUCCESSFULLY TRIALLED RECYCLED TEXTILE IN FEEDSTOCK
- ESTABLISHED RGE-NTU SUSTEX RESEARCH CENTRE IN SINGAPORE
- LAUNCHED NEW TEXTILE WASTE PROGRAMME WITH MATAHARI



CIRCULARITY

ACCELERATING INNOVATION AND R&D

[GRI 3-3, 301-2, 306-2]

The Kerinci R&D centre

Since 2003, the Kerinci complex has operated a world-class R&D centre staffed with highly qualified academics and technicians supporting APRIL's innovations. When we established the APR facility in 2018, we expanded our R&D capabilities and made substantial investments to ensure the centre was equipped with cutting-edge equipment. As part of this endeavour, we set up a fully-automated pilot plant that replicates the operations of APR's viscose production plant, allowing us to test, change, and customise different parts of our production process so we can determine and resolve potential issues before making significant operational changes.

Breakthrough innovation: using recycled textile as feedstock

Although our viscose staple fibre (VSF) is made with wood pulp – a natural, renewable resource – we recognise our industry's responsibility to find ways of including recycled textile in our production processes. However, the industry still has a long way to go. The estimated market share of recycled man-made cellulosic fibre (MMCF) represented roughly 0.5% of all MMCF in 2021¹⁰.

Our APR2030 strategy includes a commitment to using 20% recycled textile in our raw materials. Our advanced R&D teams have been testing and developing new technology since 2020 to meet this goal. We have conducted trials reusing different types of waste, overcoming obstacles, rising to challenges and devising solutions to achieve this target by 2030.

CHALLENGE	SOLUTION OR NEXT STEP
Our initial studies showed that white cotton is an ideal source of high-quality recyclate. Although we can process it at our VSF plant, further studies concluded its high optical brightness agent (OBA) or bleach content makes it far from ideal for our customers and that removing OBA from the fibre is not cost-efficient.	Sourcing cotton recyclate that is not white and therefore viable once dyes are removed.
The properties of recycled textiles differ, depending on their source, requiring us to adjust our VSF plant's production processes for every batch.	Adjusting plant parameters for every feed to account for variances in the properties of recycled feedstock, e.g., longer or shorter steeping times and different CS ₂ dosing.

In 2021, we developed a process to integrate 20% recycled material into our VSF raw feed as slush to be mixed with 80% dissolving wood pulp (DWP) slush. We successfully tested the viability of using 50% and 100% recycled content in 2021. Based on this pilot, we can confidently introduce 20% recycled textile in our feedstock. We applied for a patent for this process and received approval early 2023.

Our next challenge is scaling this process from a pilot to an industrial one in the coming months. We are working with Finnish specialists ANDRITZ Oy, to trial this treatment on a larger scale, with the eventual goal of setting up a full-time textile recycling demo plant in Kerinci with a planned capacity of up to 24 tonnes per day. We must also work with strategic partners to increase the adoption of recycled textiles by the fashion and textile industry and consumers to drive market demand and justify supply.



Barriers to recycled textiles in Indonesia

Driving the recycled textile agenda in Indonesia is challenging and complicated. We must overcome several barriers to arrive at an effective process:

1. An absence of government-led policies and roadmaps on textile waste disposal and the promotion of a circular economy
2. The lack of a formal waste management infrastructure, which is especially difficult for garment factories and textile industry facilities operating in remote locations
3. A failure to recognise how recycled textiles can generate value (Textile waste is mainly collected by local men and youth organisations who sell it to small and medium-sized enterprises (SMEs) for downcycling and reuse as cleaning rags)
4. Difficulty securing quality feedstock due to local waste handling methods that are far from ideal for textile recycling because textiles vary greatly, and each value chain generates a different type of waste
5. Difficulty sourcing a steady supply of viable material, specifically recycled cotton, which is not locally produced in Indonesia and is mainly imported.

To overcome these obstacles, we must engineer solutions to collect, sort, and recycle textile waste and infrastructure that recoups material as consumer products reach end of life. APR continues to explore potential collaborations and partnerships with waste management companies to gain better access to their infrastructure, particularly for garment factories in remote locations. APR also partners with other players in the value chain who share our vision of diverting waste from disposal. We are also investing in technology, like a near-infrared scanning device developed by a UK-based start-up, to instantly identify different types of textile waste and its material composition with high accuracy.

These approaches and our ongoing progress in trialling and scaling textile recycling will allow APR to further support the industry in meeting its accelerating circularity goals.

¹⁰ Textile Exchange Preferred Fiber & Materials Market Report 2022



CIRCULARITY

WASTE INNOVATIONS

Our R&D team also drives waste innovation at our Kerinci complex. Meeting our waste reduction targets requires extending innovative thinking and practices to secondary materials in our production and distribution processes. For example, we use a small amount of plastic for straps on our viscose bales before shipping them to customers. These plastic straps already include 30% recycled material, and we are exploring alternative sources to increase recycled content.



Waste management



NEW TEXTILE WASTE PARTNERSHIP WITH MATAHARI

In November 2022, we started a textile waste recovery programme in collaboration with **Matahari**, one of Indonesia's largest retail chains, encouraging customers to trade in used denim for a discount. We rolled out 'Nevada Denim Trade-In' bins at the Supermal Karawaci (Tangerang), Metropolitan Mall (Bekasi), and Ciputra Mall (Jakarta) stores in conjunction with the chain's other sustainability initiatives.

APR supplies two drop-off boxes to each store with clear instructions for collecting second-hand denim from Matahari's customers, which is then sorted by fibre composition using our near-infrared scanning device before being repurposed as feedstock for APR's fibre-to-fibre recycling programme. Garments that are not suitable for use as feedstock are sent to our mechanical recycling partner for downcycling.

As part of this programme, we offered joint training sessions on selecting raw materials and developing new products while promoting products made in Indonesia. We ran three sessions between August and September 2022, attended by 116 participants, including Matahari's buyers, merchandisers, and quality control teams.

This programme aligns with Matahari's and APR's shared strategies to reduce the amount of clothing in landfills while finding a practical application for textile waste when products reach end-of-life. It has received an overwhelmingly positive response from consumers. We plan to expand the coverage of this programme in the next phase, increasing the number of Matahari stores involved, contingent on logistics and available infrastructure. We hope to collect as much textile waste as possible, adding fabrics other than denim. We are also engaging with other brands and partners aligned with our sustainability vision to secure more feedstock for textile recycling.

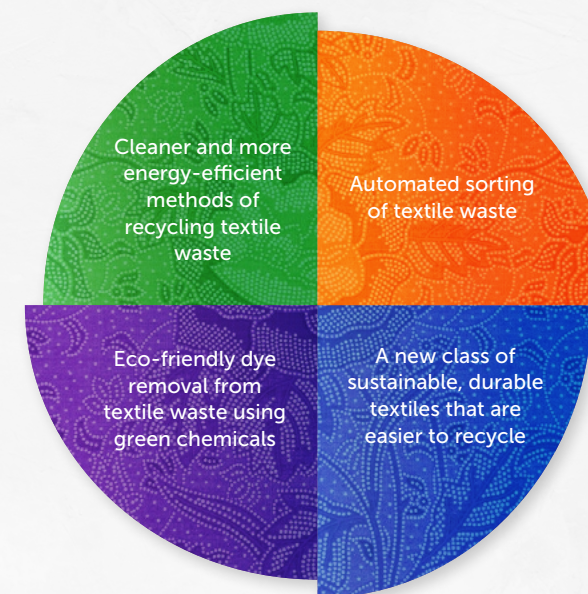


Waste management with Matahari

NEW RESEARCH CENTRE IN SINGAPORE

Our circularity innovations are supported by the Royal Golden Eagle (RGE) Group and its substantial presence in Singapore. In 2022, RGE partnered with the Nanyang Technological University (NTU) to launch the RGE-NTU Sustainable Textile Research Centre (SusTex) to improve circularity in the fashion value chain. Its research activities will focus on developing a pilot textile recycling plant that can be deployed in urban settings like Singapore.

RGE-NTU SusTex focus areas



RGE has pledged USD200 million over the next ten years to research next-generation textile and fibre innovation and technology. Funded initiatives include research into the economics and logistics of recycled textiles, engaging with the textile design community to inspire creativity, and forging partnerships with innovators to advance technology solutions at scale. RGE also plays a significant role in the Singapore Fashion Council (formerly the Textile and Fashion Federation (TaFF)), an industry alliance advancing innovation in circular economy approaches to fashion waste in Asia.



RGE-NTU SusTex



INCLUSIVE PROSPERITY

APR recognises the importance of inclusive prosperity in our APR2030 strategy and is committed to supporting the socio-economic development of surrounding communities and our workforce.

Our overall approach to engaging with surrounding communities is integrated with the efforts of our sister company, APRIL. We operate independent and joint programmes for community development. APR engages with seven communities within a 10-kilometre radius of our Pelalawan and Siak Regency operations, whereas APRIL's programmes cover a 50-km radius.

To support our workforce, APR upholds the rights of our employees in line with the International Labour Organisation's Declaration on Fundamental Principles and Rights at Work. We meet and exceed the high labour standards set by certification and label schemes like EcoVadis, OEKO-TEX®, and the Higg Facility Social & Labor Module (FSLM), which promotes safe and fair social and labour conditions for value chain workers.

2022 WORKFORCE HIGHLIGHTS



25% OF EMPLOYEES
ARE WOMEN



27% OF SENIOR MANAGERS
ARE WOMEN



ACHIEVED SCORE OF **84.5%**
ON HIGG FSLM, VERIFIED FOR
THE FIRST TIME



LOST TIME INJURY
FREQUENCY RATE **70.8%**
LOWER THAN 2019



INCREASED AVERAGE
TRAINING HOURS PER YEAR
FOR FEMALE EMPLOYEES
FROM 4.18 TO **10.27**

2022 COMMUNITY HIGHLIGHTS

- Supported **32** *posyandus* and trained **31** cadres
- Set up **32** nutrition monitoring posts
- Conducted **3** mass health assessments
- Distributed supplementary feeding packages to **1,254** toddlers and **109** malnourished expectant mothers

PUBLIC HEALTH

EDUCATION & ENGAGING YOUTH

- Signed memorandum of understanding with **7** universities
- Awarded **2** Textile Hub scholarships
- Sponsored **10** general scholarships
 - Facilitated **4** internship placements
- Conducted **9** Public webinars (7 coordinated by Jakarta Fashion Hub, 2 in collaboration with Rantai Tekstil Lestari)

PROMOTING TEXTILE ARTISANSHIP & EMPOWERING WOMEN

- Championed traditional **artisanship** through the Regional Textile Hub/Centre of Excellence in Riau
- Trained **28** women and 24 men in **Rumah Batik** since 2020
- Trained 10 women in **Songket** since 2020

SUPPORTING SMES

- Melayu Merindu:** Trained **5** songket weavers, **7** batik makers, and **8** fashion designers
- Engaged **9** fashion SMEs and **12** local batik and songket craftswomen

APR 2030

ADVANCE
GENDER
EQUALITY
ACROSS THE
VALUE CHAIN

INCREASE ACCESS
TO PRIMARY
HEALTHCARE
SERVICES IN
TARGETED
VILLAGES WITHIN
OUR OPERATIONS

CREATE A REGIONAL
TEXTILE HUB

EXPAND PROGRAMMES
THAT PROMOTE
TRADITIONAL
CRAFTSMANSHIP

CATALYTIC GOALS:



CONTRIBUTED GOAL:



INCLUSIVE PROSPERITY

OUR COMMUNITY

[GRI 3-3, 203-1, 203-2, 413-1]

Addressing community needs

In 2022, we engaged consultants to review the state and quality of social services in surrounding communities to identify gaps that APR and APRIL can jointly address through APR2030 and APRIL2030. The study served as a basis to design and implement holistic community development programmes that address specific needs in impacted areas, including poverty reduction, healthcare, and education.

Beyond community development, APR and APRIL are engaged in transformative community empowerment programmes through APR2030 and APRIL2030 that provide training, capacity building, and access to new sources of income. Our programmes and initiatives are co-designed through dialogue and discussions with the impacted communities, promoting knowledge exchange and a shared understanding between all parties to increase the effectiveness of our interventions.



TREE PLANTING DAY, NOVEMBER 2022

We recognise the importance of instilling good habits and values in children at an early age. We collaborated with the Mutiara Harapan School in conjunction with Indonesian Tree Planting Day on 28 November 2022 to educate 30 elementary school students on the importance of caring for nature, concluding with planting 20 trees at our Kerinci complex.



ANNUAL FOUNDER'S DAY

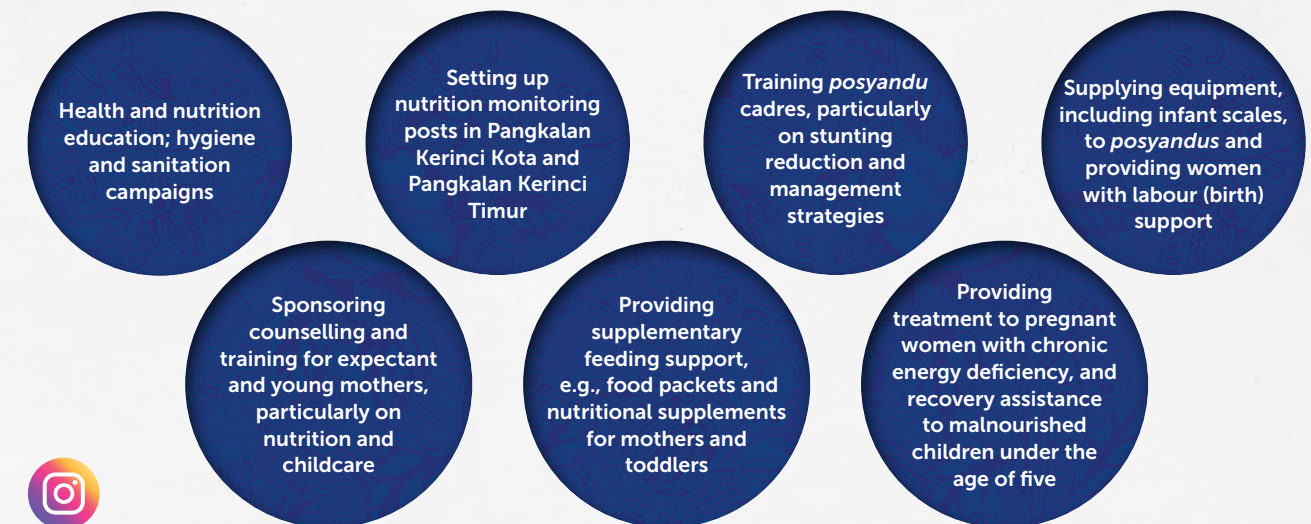
Every year, we celebrate Royal Golden Eagle (RGE) Founder's Day by volunteering in the community, enabling our employees to personally experience the 'Good for Community' pillar of RGE's 5C business philosophy. Our 2022 RGE Founder's Day was held on 5 December to coincide with International Volunteer Day for Economic and Social Development. We engaged in various volunteer and public service activities, including donating food packages to the community, planting trees, and renovating public facilities, including the public libraries in Pelalawan Sayap Palace and Bagan Melibur.



Health and nutrition for mothers and toddlers

APR is dedicated to supporting health in surrounding communities and improving access to healthcare. We collaborate with APRIL, community-based integrated health posts (*posyandus*) and clinics in our vicinity, and members of local Family Welfare Programmes. We engage in various activities and initiatives to promote good health and nutrition for our community members, especially expectant mothers and toddlers.

Preventing stunting and malnutrition is one of APR's primary concerns. We fully support the Indonesian government's efforts to eliminate stunting in toddlers in rural areas and the national target to achieve a 14% reduction against the 2014 baseline. Aside from providing on-the-ground support, we participate in discussions and consultations on stunting prevention and management (Rembuk Stunting) with village heads and officials, *posyandu* cadres (community volunteers who staff *posyandu* community service posts), and other relevant stakeholders, including government representatives. Together, we co-design solutions that improve the health of Indonesian mothers and their children. Our initiatives include:



A TEXTILE HUB IN RIAU

APR's textile hub in Riau is at the heart of our inclusive prosperity commitments. Our goal is to create a centre of excellence in Riau by 2030 that will provide the local community with the needed skills and tools to achieve self-sufficiency and prosperity while keeping up with new technology.

To achieve this goal, we work with other like-minded stakeholders, including customers, suppliers, fashion designers, fashion schools, and artisans, to create and implement programmes that support local socio-economic prosperity, focusing on women, SMEs, and youth. We also partner with various national and regional entities and lead industry-wide transformation initiatives through associations such as Rantai Tekstil Lestari (RTL), API-RIAU, and the Indonesian Fiber and Filament Yarn Producers Association (APSyFI). We have continued to make progress on this project in 2022 through our partnership with Rantai Tekstil Lestari (RTL). For more information, see [Rantai Tekstil Lestari](#).

Textile hub initiatives



In 2023, APR will conduct a study and set baselines to gauge the impact of our textile-related community initiatives. These figures will be starting points that will strategically shape our future programmes for maximum impact.



INCLUSIVE PROSPERITY

EMPOWERING WOMEN

[GRI 3-3]

In line with our APR2030 target to advance gender equality across our value chain, all our initiatives are gender inclusive, empowering and championing women in the industry.

Batik making and songket weaving

We recognise the importance of promoting and preserving the rich traditions and culture of local communities. Our *Rumah Batik* and songket weaving programmes successfully combine

modern materials and traditional crafts, introducing viscose rayon fibres into songket weaving and batik making and incorporating trendy new patterns and motifs to increase customer appeal, especially for younger consumers. These programmes specifically uplift women, helping them gain financial independence, and have garnered significant praise and positive feedback from women and community leaders.



FOSTERING ENTREPRENEURSHIP THROUGH BATIK

The *Rumah Batik* programme was launched in Pangkalan Kerinci in 2015 by our sister company APRIL and expanded following the establishment of APR. It comprises training modules on traditional batik making and educates participants on patenting their designs to increase their market value. Although our programme is aimed at women, we provide equal access to men and have trained 28 women and 24 men since 2020. Programme participants have established nine batik small and medium-sized enterprises (SMEs) (*Rumah Batik*), collectively earning over IDR 259 million in 2022, with one business generating over IDR 157 million.

NO	BUSINESS NAME	GENDER OF BUSINESS OWNER	NO. OF EMPLOYEES	ANNUAL SALES TURNOVER 2022 (IDR)	LOCATION
1	Batik Jalur	Male	1	2,918,750	Simpang Tanah Lapang, Kuansing
2	Rumah Batik Dekranasda Siak	Female	6	18,150,000	Siak
3	Rumah Batik Nagori	Female	50	157,083,333	Pisang Berebus, Kuansing
4	Batik Antau Singingi	Female	5	4,950,000	Kebun Lado, Kuansing
5	Batik Lebah	Female	6	5,066,667	Kebun Lado, Kuansing
6	Rumah Batik Andalan	Female	7	44,587,500	Pangkalan Kerinci Barat, Pelalawan
7	Batik Yus Pelalawan	Female	5	13,654,167	Pangkalan Kerinci Barat, Pelalawan
8	Rumah Batik Lalang Kabung	Female	3	7,948,333	Lalang Kabung, Pelalawan
9	Rumah Batik Seruni	Female	3	5,004,167	Dayun/Pangkalan Makmur, Siak

Every year, APR and APRIL purchase 2,000 pieces of batik from Rumah Batik to make uniforms for 'Batik Fridays' at the Kerinci complex. We further support these women and local artisans and help them generate additional income by serving as intermediaries to government offices that purchase batik for uniforms. However, attracting more women to participate in our batik programmes can be challenging due to a lack of local interest. This is primarily because the tradition is native to Central Java, not Riau, and also because the trait is not attractive to the young and modern who opt to move away from traditional craftsmanship.

To meet the challenge, APR is adopting new training methods and launching new programmes in 2023, including online sales and colour theory courses. We are also partnering with the Bandung Institute of Technology (ITB) and the Ministry of Tourism and Creative Economy

to provide further opportunities to upskill programme participants. Finally, we are looking at other ways of attracting new participants, especially younger women, such as encouraging female students to enrol in fashion design courses at vocational schools and offering internships at our facilities.

Inspired by *Rumah Batik*, our songket-making programme has trained ten women since its inception in 2020. It offers support on improving the quality of songket fabric and advanced weaving techniques and motifs. We also introduce rayon and viscose blends as an alternative to traditional fibres, resulting in songket fabric that is light and cool, drapes well, and provides all-day comfort.



INCLUSIVE PROSPERITY

USING APR VISCOSE IN LASEM BATIK

Lasem batik is a unique expression of the craft that originates in Rembang's Lasem district in Central Java. This international heritage city is intrinsically linked to Indonesian identity and a source of national pride as a melting pot of influences from Chinese, Javanese, and Dutch residents. The diversity of its population has impacted the batik motifs produced here, with more than 40 batik houses producing eclectic designs found nowhere else.

As part of Batik Day 2022, we partnered with the Faculty of Art and Design of Maranatha Christian University (*Universitas Kristen Maranatha*) in Bandung to conduct a workshop with 40 male and female Lasem batik makers in Central Java. We shared our knowledge and promoted viscose rayon as a sustainable and biodegradable alternative to synthetic fabrics. This initiative was supported by the Ministry of Tourism and Creative Economy, the Ministry of Education, Culture, Research, and Technology, and the Indonesia Endowment Fund for Education. It introduced practices that are more environmentally friendly and sustainable into traditional craft-making.

The product of this workshop was elegant Lasem batik scarves made by women using white viscose rayon cloth from APR. They hand-printed motifs such as Peony, Lung-lungan, and Ringgit Mountain using natural Indigofera dye, creating lightweight yet high-quality batik with an exquisite blue hue. These Lasem batik scarves were gifted as official souvenirs at the Conference of the Parties (COP27) in Egypt and the G20 Summit Tourism Working Group discussions in Bali in 2022. We hope to organise a showcase for participants' work during Indonesia's next National Batik Day in October 2023.

This success story is a testament to our commitment to empowering traditional textile makers in Indonesia and aiding SMEs' post-pandemic economic recovery. APR is committed to "*Pulih Bersama, Bangkit Perkasa*" and will continue supporting local SMEs by providing them with 100% renewable domestic materials for their products.



Collaboration

Lasem Batik



Souvenir presentation

Batik Lasem Scarf

Art activity



Batik Lasem Making

Driving SME growth through Melayu Merindu

APR recognises the need to involve local SMEs in the value chain – including women-led businesses like the ones in the *Melayu Merindu* campaign, mom-and-pop shops, and start-ups – to create a functional industry network for our regional textile hub. Supported by the Indonesian Ministry of Tourism and Creative Economy, this campaign aims to strengthen the national *Indonesia Berkain* movement popularising traditional fabrics such as batik and songket in contemporary fashion and promoting them to millennial and Gen-Z consumers and creators.

Aside from sharing our technical skills and expertise, we guide SMEs in complying with standards and regulations when selling their goods on the open market, including directly to APR. We also engage with and invite them to events at our Riau complex to connect with and market their products to interested buyers and help them source materials from other regions, including Java and Greater Bandung. Our ongoing support of the *Melayu Merindu* campaign aims to achieve the long-term goal of bolstering the growth and expansion of local SMEs into full-fledged factories within the next decade.

In 2022, eight fashion SMEs and twelve local batik and songket craftswomen in Riau took part in API-RIAU's *Melayu Merindu* campaign.

APR supports programme participants by providing market access and job opportunities, and 28 local craftswomen are currently members of API-RIAU. Through the *Melayu Merindu* campaign, we also help these women promote their craft and grow their business via online shopping platforms like Shopee, Instagram, and Tokopedia. On top of training them on e-commerce tools to promote and sell their products, our programme also provides instruction on financial planning and business tools that can be used for any commercial endeavour, not just selling batik.

Along with API-Riau, APR also collaborates with the Islamic Fashion Institute (IFI) in Bandung, West Java in offering scholarships to deserving youth in Riau who wish to further their studies in industry-related subjects.



APIRIAU

Melayu Merindu



Melayu Merindu Interview

Melayu Merindu



Melayu Merindu



INCLUSIVE PROSPERITY

SUPPORTING FASHION AND TEXTILE SMES IN RIAU

Commentary by Elaeis Pratiwi, owner and founder of Alwafa Hijab

APR supports fashion and textile SMEs like Alwafa Hijab in Riau. Before the *Melayu Merindu* campaign, fashion and textile SMEs in Riau faced challenges keeping up with industry trends and developments and sourcing raw materials only available in Java. The *Melayu Merindu* campaign addresses these issues and acts as a bridge between these SMEs and the Indonesian textile industry. More importantly, it promotes traditional culture and textiles, including batik, by connecting local artisans from SMEs like Alwafa Hijab with textile brands.

As one of the largest textile companies in Indonesia, APR has a tremendous influence on industry trends and is integral to developing and promoting fashion and textile SMEs in Riau. I sincerely hope that APR will continue its efforts to drive the growth of SMEs like ours at the national and international levels.

About: Elaeis Pratiwi (Ibu Tiwi) is the owner and founder of Alwafa Hijab, an SME based in Pekanbaru, Indonesia, and operating since 2016. Alwafa Hijab became a part of API-RIAU's Melayu Merindu campaign in early 2022.

Youth engagement

We are committed to engaging with youth and helping young people uplift themselves through the textile industry. Since 2021, we have partnered with a local vocational school in Pangkalan Kerinci to promote opportunities for further education and jobs in the textile industry to high school graduates.

In 2022, APR signed a memorandum of understanding (MOU) with seven universities, a first for the textile industry in Indonesia. The partnership aims to conduct joint research on sustainable viscose rayon while collaborating on projects in the fashion sector. The universities involved are *Universitas Kristen Maranatha*, *Universitas Kristen Petra Surabaya*, *Institut Kesenian Jakarta*, *Politeknik Negeri Media Kreatif*, *Sekolah Tinggi Desain LaSalle*, *Politeknik STTT Bandung*, and *Islamic Fashion Institute Bandung*.

In 2022, we sponsored two scholarships so outstanding students for further studies in fashion design and mechanical engineering. Additionally, we offered ten scholarships to deserving female students from the community. We also offer internship opportunities at APR and APY, with placements ranging from mill operations and human resources at our plant to fashion design at Jakarta Fashion Hub.

AIESEC programme

In 2022, student members of the youth-driven AIESEC NGO at Prasetya Mulya University attended a webinar and information-sharing session on eco-friendly fashion delivered by APR's Head of Sustainability. Students learned about our APR2030 sustainability strategy and the importance of consuming less and buying high-quality, sustainable products, such as clothing made using APR's biodegradable viscose rayon.



OUR WORKFORCE

[GRI 3-3]

APR strives to meet and exceed the labour standards of certification and label schemes like EcoVadis, OEKO-TEX®, and the Higg FSLM, all of which promote safe and fair social and labour conditions for value chain workers. In 2022, APR went one step further, conducting a human rights assessment and formulating a dedicated Human Rights Policy that consolidates our commitments to upholding labour rights specific to our operations.



Strengthened policy commitments

APR'S NEW HUMAN RIGHTS POLICY

Commentary by Julyandi Lee, Human Resources Business Partner (HRBP) Unit Manager| APR and APY

People are APR's greatest asset, and we firmly believe in having a dedicated human rights policy specific to our operations. Such a policy supports the HRBP Unit in making APR an employer that meets and exceeds human rights standards and regulations, thus embodying our company's core value of prioritising our people and caring about their welfare, well-being, and development.



INCLUSIVE PROSPERITY

EMPLOYEE OVERVIEW

[GRI 2-7, 2-8, 202-2, 408-1, 409-1]

APR and APY employ 848 people across our operations and offices in Riau, Jakarta, and Singapore, about 50% of whom are local to Riau. The remainder comprises employees with diverse cultural and ethnic backgrounds from other regions and countries. Our employee total grew by nearly 100 people in 2022 to meet the increased capacity of our mill operations.

In 2022, we also hired 356 contractors in support roles at our operations, such as waste management staff and office cleaners. Other contractors are hired temporarily, as needed. For instance, when we need more workers to keep production moving ahead

of temporary planned shutdowns. We also employ temporary contractors for ad hoc maintenance at our operations, like painting and building upkeep.

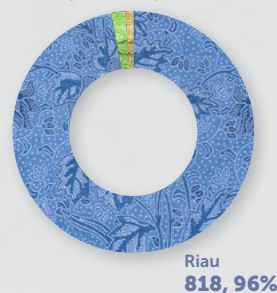
All permanent hires are employed directly by the company. Our contractors are subject to a vendor assessment and are vetted accordingly. All contracted workers submit to an onsite identification check to confirm they are above the legal minimum working age. These measures contribute to upholding our strict policies on no child labour or forced labour.

EMPLOYEE BREAKDOWN 2022 (no., %)

TOTAL: 848

BY REGION

Jakarta 17, 2%
Others 13, 2%



BY FUNCTION

Corporate offices and sales, 26, 3%
Cross-functional support, 4, 1%



Note: Employee functions were re-categorised in 2022.

In 2022, we scored 84.5% on the Higg FSLM, as verified by an independent third party for the first time. The assessment found that APR employees were satisfied with their employment conditions, and their rights were not breached in any way. However, the study identified some gaps against labour standards resulting from how contractors manage their staff, including not issuing pay slips

and requiring employees to pay for lost personal protective equipment (PPE). We followed up with an internal investigation of our third-party contractors, enacting clear action plans to address the identified gaps and eliminate the risk of future violations.

WAGES AND BENEFITS

[GRI 2-30, 202-1, 401-2, 407-1]

We pay employees in compliance with provincial regulations. Workers in each employment category receive equal pay, regardless of gender, including minimum wage earners. Because we operate in a remote location, we provide APR employees and their families with benefits such as quality housing, health insurance, nursing rooms for returning mothers, day care facilities and schools for their children, and transportation to and from our offices. Employees'

children are given access to schools that teach Indonesia's national curriculum or the International Baccalaureate syllabus.

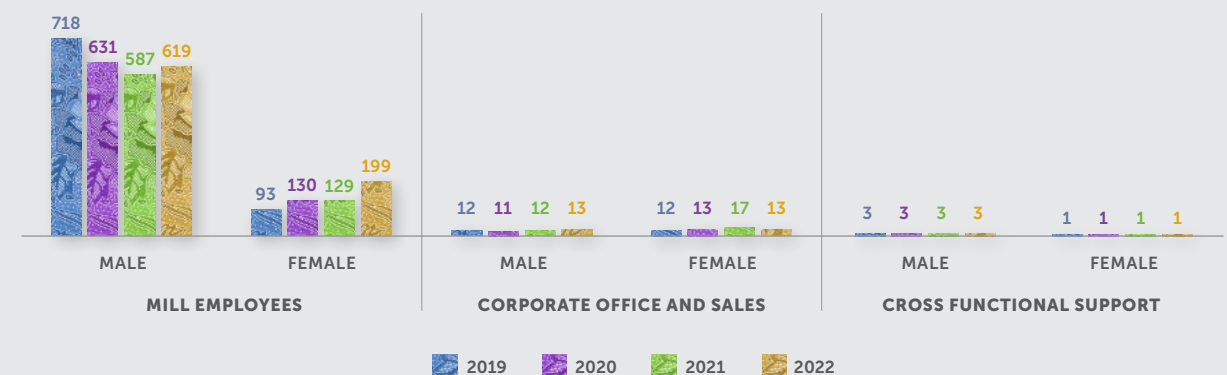
APR employees are free to form or join a trade union and enter collective employment negotiations without fear of discrimination or retaliation. All our employees are covered by a collective agreement.

DIVERSITY AND INCLUSION

[GRI 3-3, 405-1, 405-2, 406-1]

APR embraces diversity and promotes equal opportunity in the workplace. We have a zero-tolerance policy on all forms of discrimination and harassment. No discrimination cases were reported in 2022. However, due to the manual labour required at our facilities, we employ more men than women. Nevertheless, women comprise 25% of APR's total workforce. Notably, 27.3% of senior management positions and 16.7% of other managerial roles are occupied by women. We strive to provide women with facilities and support services that allow them to work at APR while raising their families, including breastfeeding rooms at our operations, primary and secondary schools, and day care for their children.

EMPLOYEES BY FUNCTION BY GENDER 2019–2022 (no.)



WOMEN REPRESENTATION IN THE WORKFORCE 2022–2022 (%)



Note: The percentage of women senior managers fell in 2022 not because of women leaving, but because APR added three new men in senior management positions.



INCLUSIVE PROSPERITY

100% WOMEN FORKLIFT OPERATORS

We are actively recruiting women to occupy more roles at our operations that do not require manual labour. All 14 APR forklift operators are women who have been hired and trained locally. Accident rates have fallen since we started employing only women operators, and bale stacking is neater, saving storage space.

FORKLIFT OPERATORS GENDER DISTRIBUTION

TOTAL: 14

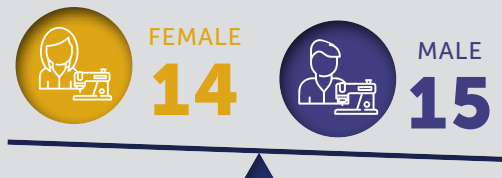


SUPPORTING MALE GARMENT MAKERS

Our yarn facility is home to an internal garment and apparel sewing operation that trains APR workers to sew employee uniforms for the Kerinci complex and other clothing to promote and market APR viscose. We ship spun yarn to one of our garment customers, who sells us back blended, woven, and dyed cloth to test our products. This garment-making operation initially employed only women, but many of our male employees expressed an interest in joining this facility. As of December 2022, our garment and apparel sewing operation employed 15 men and 14 women.

GARMENT MAKERS GENDER DISTRIBUTION

TOTAL: 29



Kartini Day 2022

In April 2022, we hosted Kartini Day jointly with APRIL, paying tribute to and celebrating the empowerment of Indonesian women. We organised a screening of the Indonesian movie 'Athirah' for women employees. All attendees wore traditional clothing to demonstrate Indonesian women's pride in their heritage, identity, and cultural values.



RETENTION AND DEVELOPMENT

[GRI 3-3, 401-1, 404-1, 404-2]

APR believes in investing in our employees and recognises that our organisation's success depends upon recruiting, retaining, and developing a talented and highly motivated workforce. We offer employees soft-skill, technical, and leadership training at the APRIL Learning Institute (ALI), teaching them relevant skills to boost their job performance. Specialised technical training is mandatory for all workers at the mill level, regardless of gender. All employees undergo an annual performance review with their manager, during which their yearly development goals and targets are set.

In 2022, APR hired 171 new employees, including 80 men and 91 women. Of these hires, 148 were under the age of 30. Overall turnover rates remain low, at 6% for those 30 and under, and 1% for those over 30. These numbers indicate that employees are generally satisfied working at APR. We experienced especially low turnover rates in 2021, as employees chose to continue working at APR at the peak of the COVID-19 pandemic.



INCLUSIVE PROSPERITY

HEALTH AND SAFETY

[GRI 3-3, 403-1, 403-2, 403-3, 403-4, 403-5, 403-8, 403-9]

APR upholds the highest workplace safety standards and continuously works to improve them in line with our zero-accident commitment. Our Occupational Health and Safety (OSH) policy is our guiding document on minimising health and safety risks within our operations. We adhere to best practices and the OHSAS 18001 standard to ensure compliance with all statutory obligations. OSH measures are overseen by the health and safety committee, comprising employees who contribute to developing and reviewing APR's OSH management system.

All employees receive the personal protective equipment (PPE) and relevant health and safety training required to perform their job functions. APR conducts frequent medical checks and periodically monitors worksites for health and safety hazards. Health checks include annual medical examinations at on-site Kerinci complex clinics and tests for hearing loss and tinnitus for those operating around loud machines for prolonged periods. In 2022, we recorded noise levels of 78.93 weighted decibels (dBA) at the fence, slightly exceeding the EU BAT levels of 70 dBA. These levels were due to the construction of a new board paper machine building. However, they had no impact on

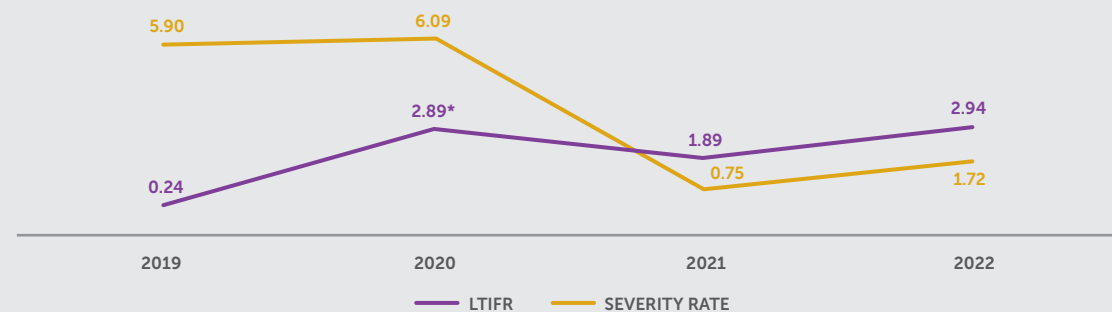
surrounding communities as the construction site is well within the boundaries of the Kerinci complex. Nevertheless, we will relocate the fence for our 2023 noise measurements.

We track all accidents and injuries in our OSH system. We also use an in-house Contractor Safety Management System (CSMS) that guides our employees in effectively managing OHS risks associated with work performed by contractors. In 2022, our lost time injury frequency rate (LTIFR) for employees and contractors more than doubled from 0.75 in 2021 to 1.72. Incidents were also more severe than the previous year, with an average of 1.89 days lost per accident in 2021 versus 2.94 in 2022. These accidents resulted from fires and pinches during mechanical work conducted by employees. We are addressing these causes through corrective actions and additional training.

Despite these increases, our LTIFR is 70.8% lower than in our first year of operations. We continuously work to identify the root causes of accidents and minimise the likelihood of their recurrence.

There were no workplace fatalities in 2022.

LOST TIME INJURY FREQUENCY AND SEVERITY RATES 2019–2022 PER 1 MILLION HOURS WORKED



Notes:

1. LTIFR measures productivity lost due to accidents (including fatalities) and is calculated as follows: number of lost-time injuries divided by total hours worked, multiplied by 1,000,000.
2. Severity rate measures the average days lost per lost time incident and is calculated as follows: number of days lost divided by number of lost time injuries.
3. Severity rate calculation for FY2020 excludes the equivalent 6,000 days lost for each fatality required by the local authority reporting.

APR has continued to follow strict COVID-19 protocols for all employees, contractors, and vendors on-site as the pandemic continues. Our measures include temperature checks, mandatory face masks and social distancing. We regularly disinfect common areas and work areas and communicate on COVID-19 safety precautions on an ongoing basis. All APR employees were fully vaccinated as of December 2021.

OUR CUSTOMERS

[GRI 3-3, 416-1, 416-2]

APR is continuously improving to meet the evolving needs of our customers. We readily accept and incorporate positive and negative customer feedback into our processes to improve our products. Staying up-to-date on current and emerging sustainability trends and requirements is central to our efforts, as is maintaining close communication with customers to understand their concerns and co-create sustainable solutions.

We also take pride in going beyond traditional business-to-business models and engaging with end-users to understand their needs. On top of fulfilling direct purchase orders, we actively promote the adoption of sustainable viscose in highly-visible markets while embedding solutions into our business practices to resolve consumer concerns about product end-of-life issues.

Product quality and safety

Adhering to product health and safety standards is central to APR's success. We subscribe to several certification schemes and leading labels, such as OEKO-TEX®, FKT, and Cradle to Cradle (C2C) Material Health, to meet the highest standards and provide assurance to our customers. In 2022, we assessed the health and safety impacts of all our products, and we presented certificates and made declarations to assure customers our products are safe and free from dangerous chemicals. None of our products failed to comply with health and safety regulations in 2022.



INCLUSIVE PROSPERITY

Addressing customer complaints

APR uses a computerised system to scan customers' orders, ensuring our products meet all their technical parameters and best-grade requirements. It is our way of consistently delivering products that match customer specifications and triggers an alarm if a product fails to meet these criteria.

Our technical sales support team is our customers' primary point of contact, managing customer complaints following a standard operating procedure and keeping them updated on the status of our investigation to ensure transparency and maintain a good business relationship.

APR and APY are uniquely integrated. Our yarn facility is the gatekeeper of APR's quality standards. It is where we conduct product trials and tests to ensure our products meet the highest quality standards and identify and resolve issues before products are delivered to our customers. In the event of non-conformities, we immediately inform APR customers and rectify the problem. In some cases, this may include recalling product batches that are deemed unsuitable.

Overview of complaints procedure



APR customer interviews

International customer visit



APR customer interviews

International customer visit

Local customer visit



International customer visit

Local customer visit

IMPORTANCE OF ALIGNING THE SUSTAINABILITY AGENDA ACROSS THE VALUE CHAIN

Commentary by Yağmur Dünder, Sales and Marketing Manager; Samet Parpar, Quality Assurance Officer | Göliplik Şeremet Tekstil A.Ş.

APR produces viscose that performs exceptionally and meets Göliplik's expectations in terms of quality and reliability. The scale, dependability, and capacity of the company's operations make APR a tremendous force in the textile industry, with the potential to become a role model for its peers.

However, the textile industry is driven by customer demand, especially from European buyers. We must therefore comply with leading international sustainability certifications and standards, including the Canopy Hot Button Ranking. Due to APR's relatively low score, we face barriers to marketing APR products in Europe and limit the use of APR products in our supply chain. APR should look to improving its Canopy Hot Button Ranking for its fibre to flow into European markets, and Göliplik would be happy to support the company's efforts.

About: Göliplik is based in Turkey and manufactures blended yarn for customers worldwide. APR is one of the company's main suppliers of viscose.



APPENDICES

STAKEHOLDER ENGAGEMENT

[GRI 2-28, 2-29, 403-4, 403-5]

STAKEHOLDER GROUP	KEY TOPICS ENGAGED ON	METHOD OF ENGAGEMENT	FREQUENCY OF ENGAGEMENT
Customers	Quality, service, price competitiveness,	Sales team outreach, networking events, collaboration on product innovation	Regular contact as part of sales management
NGOs	sustainability certifications, promoting the uptake and adoption of viscose, product innovation	Introductory meetings, regular dialogue with our supply partners (especially on controversial issues)	As needed or during industry roundtable meetings
Employees	Sourcing risks, zero-harm production, circularity, conservation	Onboarding new employees, refresher courses for existing employees, trade union discussions, internal communications, social media engagement showcasing life in Kerinci	Annually
	Engagement on APR policies and practices; fair employment conditions; sustainability training and updates	Internal communications	Ongoing (primarily in Kerinci)
	Performance reviews, ALI leadership training, exchange programmes with Sateri	Awareness, education, and training programmes to promote OHS practices to employees	Ongoing
Suppliers	Occupational health and safety (OHS)	Procurement engagement and assessment; ongoing dialogues	Ongoing
Local communities in Kerinci and Riau	Long-term sourcing partnerships; connecting conservation to sourcing and addressing NGO concerns	Ongoing dialogue and community outreach programmes	Ongoing

STAKEHOLDER GROUP	KEY TOPICS ENGAGED ON	METHOD OF ENGAGEMENT	FREQUENCY OF ENGAGEMENT
Industry associations	Member of Textile Exchange, Zero Discharge of Hazardous Chemicals (ZDHC), Man-made Cellulosic Fibres (MMCF) 2030 Vision, Sustainable Apparel Coalition, Textile and Fashion Federation, Indonesia Fashion Chamber (IFC) (Riau Chapter), Wiyasa TFA, and Walarmi (Natural Dye Association) Strategic positions in Indonesia Business Council for Sustainable Development (IBCSO), Rantai Tekstil Lestari (RTL), Indonesia Chambers of Commerce and Industry (KADIN), Asosiasi Pertekstilan Indonesia (API), API Riau, Asosiasi Produsen Serat Sintetis dan Filamen Indonesia (APSyFI).	Regular dialogue, roundtable discussions, advisory group meetings, annual events	Ongoing
Local and national governments	Investing in advancing sustainable textiles and fabrics in Indonesia and Singapore, research and development	Regular dialogue	Ongoing
Media	Press releases, annual media outreach	Media platforms	Annually or as needed
Industry peers	Industry-related topics on recycled waste and circularity	Industry platforms, one-to-one partnerships, collaborative research studies	Ongoing



APPENDICES

2022 MATERIAL ISSUES

[GRI 3-2]

MATERIAL ISSUE	DEFINITION
Biodiversity and conservation	Commitment to conservation and restoring natural landscapes; contributing to suppliers' conservation, restoration, and wildlife protection initiatives in Indonesia
Carbon footprint	Implementing measures to decarbonise APR's value chain; minimising our carbon footprint across operations by managing and reducing Scope 1, 2 and 3 greenhouse gas (GHG) emissions to mitigate climate impacts
Chemical management	Managing, using, and recovering process chemicals such as carbon disulphide (CS ₂), hydrogen sulphide (H ₂ S), and sodium sulphate (Na ₂ SO ₄) in compliance with internationally recognised chemical management guidelines; managing and reducing related air emissions, including CS ₂ and H ₂ S and the odours released into the environment; adopting circularity and closed-loop manufacturing approaches
Circularity and recycled products	Championing circularity in the industry through research, production, and collaboration; scaling circular production using textile waste
Community development	Improving the quality of life and wellbeing of communities where we operate by focusing on employment, health, and education
Customer satisfaction and product quality	Continuously reviewing the satisfaction level of customers to assess, maintain, and improve product performance, including, but not limited to, product quality, delivery and service; working to produce the highest quality products while addressing customer concerns and expectations; meeting regulations and sustainability standards on product quality and safety, and supporting the uptake and adoption of sustainably-produced material and products in the value chain
Diversity and inclusivity	Ensuring equal opportunities and fostering a diverse and inclusive workplace regardless of age, ethnicity, gender, nationality, minority status, sexual orientation, physical ability, or religious and personal beliefs across our operations, including at the management and board levels
Employee training and development	Investing in human capital by providing development opportunities through soft-skill, technical, and leadership training; managing our human capital needs by attracting, retaining, and developing a talented workforce

MATERIAL ISSUE	DEFINITION
Energy management	Minimising our environmental footprint across our operations through the efficient consumption and management of energy; using 100% renewable energy; investing in renewable energy initiatives
Governance, ethics, and anti-corruption	Implementing effective corporate governance practices; upholding the highest standards of business ethics by implementing anti-corruption policies and procedures and acting on breaches to our standards and principles; ensuring stakeholders have access to a whistleblowing mechanism to report breaches
Innovation, R&D, and technology	Investing in research and development of products, processes and technologies having positive impacts and benefits on the environment, society, and our business; being a front-runner in R&D and next-generation innovation, bringing new products and solutions to market; collaborating with other stakeholders to achieve shared industry goals
Labour and human rights	Creating a fair and conducive work environment for our employees by embracing diversity and equal opportunity, protecting human rights, and ensuring no child and forced labour
Occupational health and safety	Protecting the health and safety of our employees and implementing systems aligned with international best practices; reducing accident rates at our operations
Partnerships and collaborations	Building and maintaining long-term relationships with key stakeholders, e.g., customers, suppliers, regulatory bodies, partners, and social organisations; establishing a robust stakeholder collaboration strategy, including participation and representation in local, national, and international multistakeholder initiatives
Regulatory compliance	Complying with local and international regulations, policies, and processes to regulate business practices across operations; ensuring effective internal control and risk management processes are in place
Supporting sustainable local fashion	Actively driving change in Riau while contributing to the region's culture and prosperity by supporting local livelihoods; supporting local small and medium-sized enterprises (SMEs) to aid their growth and help them expand into full-fledged factories in the next five to ten years; pioneering the collaborative Jakarta Fashion Hub to support brands, designers, influencers, photographers, and other fashion industry stakeholders
Sustainability in the value chain (integration with APRIL)	Developing strategies and measures with APRIL to address common environmental challenges and community needs through ongoing business activities and infrastructure projects, e.g., CSR initiatives and integrated facilities




APPENDICES

2022 MATERIAL ISSUES

[GRI 3-2]

MATERIAL ISSUE	DEFINITION
Sustainability standards and assessments	Continuously improving operational performance by setting annual targets and emissions, energy, and waste reduction goals in compliance with leading standards. Including EU BAT Polymer BREF and ZDHC MMCF; certifying products against recognised standards (e.g., OEKO-TEX®, Ecolabels, Higg FEM and FSLM) to meet customer and market requirements
Sustainable sourcing and procurement	Ensuring 100% sustainably sourced dissolving wood pulp and full supply chain traceability leading to certified supply
Transparency and communication	Promoting business transparency by regularly reporting on business and sustainability strategies to relevant shareholders and stakeholders; ensuring timely and accurate disclosures on all material matters; engaging with APR employees and communicating sustainability measures to them
Waste management	Managing solid waste generated during the production process; minimising hazardous waste; adopting reduce-reuse-recycle and closed-loop manufacturing approaches
Water and wastewater management	Efficiently using water resources; discharging wastewater in compliance with local regulations and international industry best practices; adopting circularity and closed-loop manufacturing approaches
Women empowerment and women's health	Empowering and uplifting the socio-economic status of women artisans and entrepreneurs through textile trade initiatives focused on the traditional crafts of batik and songket; supporting community health and ensuring the wellbeing of local women and children by contributing to and improving healthcare programmes and services, including mass check-ups and medical, educational, and nutritional services for expectant mothers and toddlers














MAPPING MATERIAL ISSUES TO THE SDGs

















SDG	CATEGORY	SDG TARGET	2022 MATERIAL ISSUE	APR2030 PILLAR
 SDG 2: Zero Hunger	Contributed	2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.	<ul style="list-style-type: none"> Community development Women empowerment and women's health 	 
 SDG 3: Good Health and Well-being	Catalytic	3.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.	<ul style="list-style-type: none"> Community development 	
 SDG 4: Quality Education	Catalytic	<p>4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.</p> <p>4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.</p>	<ul style="list-style-type: none"> Community development Supporting local sustainable fashion Employee training and development 	  
 SDG 6: Clean Water and Sanitation	Core	<p>6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.</p> <p>6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.</p>	<ul style="list-style-type: none"> Water and wastewater management Water and wastewater management 	 



APPENDICES

MAPPING MATERIAL ISSUES TO THE SDGs

SDG	CATEGORY	SDG TARGET	2022 MATERIAL ISSUE	APR2030 PILLAR
 SDG 8: Decent Work and Economic Growth	Contributed	8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.	<ul style="list-style-type: none"> Diversity and inclusivity 	
		8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.	<ul style="list-style-type: none"> Occupational health and safety Labour and human rights 	 
 SDG 9: Industry, Innovation and Infrastructure	Core	9B Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities.	<ul style="list-style-type: none"> Circularity and recycled products Innovation, R&D, and technology 	 
		9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.	<ul style="list-style-type: none"> Supporting local sustainable fashion Women empowerment and women's health 	 
 SDG 12: Responsible Consumption and Production	Core	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their lifecycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.	<ul style="list-style-type: none"> Chemical management 	
		12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.	<ul style="list-style-type: none"> Waste management Circularity and recycled products 	 

SDG	CATEGORY	SDG TARGET	2022 MATERIAL ISSUE	APR2030 PILLAR
 SDG 12: Responsible Consumption and Production	Core	12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.	<ul style="list-style-type: none"> Sustainability standards and assessment Customer satisfaction and product quality Transparency and communication 	  
 SDG 13: Climate Action	Core	13.2 Integrate climate change measures into national policies, strategies and planning.	<ul style="list-style-type: none"> Carbon footprint Energy management 	 
 SDG 15: Life on Land	Contributed	15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.	<ul style="list-style-type: none"> Biodiversity and conservation Sustainable sourcing and procurement 	 
 SDG 17: Partnerships for the Goals	Catalytic	17.17 Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries.	<ul style="list-style-type: none"> Circularity and recycled products Sustainability in the value chain (integration with APRIL) Partnerships and collaboration 	  
		17.14 Enhance policy coherence for sustainable development.	<ul style="list-style-type: none"> Regulatory compliance Governance, ethics, and anti-corruption 	 



BASE DATA

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
General disclosures [GRI 2-6, 2-7, 2-8, 2-27, 2-30]						
Number of countries exported	VSF exported to	no.	17	14	16	14
	Viscose yarn exported to	no.	15	14	15	n/a
Number of operations	VSF mill	no.	1	1	1	1
	Viscose yarn mill	no.	1	1	1	n/a
Net sales	–	million USD	497	0	280.83	130
Capacity of production facility	VSF	t/annum	300,000	240,000	240,000	240,000
	Viscose yarn	t/annum	7,552	7,552	7,552	n/a
Total production	VSF	t	282,160	229,957	227,401	192,758
	Viscose yarn	t	7,471	6,962	4,340	n/a
	Total	no.	848	749	789[†]	839[†]
Number of employees	Male	no.	635	602	645 [†]	733 [†]
	Female	no.	213	147	144 [†]	106 [†]
	Total	no.	818	749	789[†]	697[†]
Permanent employees	Male	no.	606	602	645 [†]	594 [†]
	Female	no.	212	147	144 [†]	103 [†]
	Total	no.	30¹¹	n/a	n/a	142
Temporary employees	Male	no.	29	n/a	n/a	139
	Female	no.	1	n/a	n/a	3
Employees covered by collective bargaining agreements	Total	no.	818	749	789 [†]	697 [†]
Workers who are not employees /Contractors	Total	no.	356	438	272	272
Fines, non-compliances, monetary and non-monetary sanctions	Total	no.	0	0	0	0
Governance, ethics and anti-corruption [GRI 205-2]						
Directors communicated about anti-corruption policies	Total	no.	0	n/a	n/a	n/a
Directors received training on anti-corruption	Total	no.	2	n/a	n/a	n/a

11 Employees past the legal retirement age, who are retained on 12-month contracts subject to extension.

[†] Denotes restated figures resulting from the re-categorisation of employee functions and inclusion of APY employees.

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Governance, ethics and anti-corruption [GRI 205-2]						
Employees communicated on anti-corruption policies	Mill employees	no.	788	n/a	n/a	n/a
	Corporate office and sales	no.	26	n/a	n/a	n/a
	Cross-functional support	no.	4	n/a	n/a	n/a
Sustainable standards and assessments [GRI 417-1]						
Percentage of significant product or service categories covered by and assessed for compliance with requirements for product and service information and labelling	–	%	100%	n/a	n/a	n/a
Carbon footprint [GRI 305-1, 305-2, 305-3, 305-4]						
Gross direct (Scope 1) GHG emissions	-	t CO ₂ e	29,172.52	25,435.97	27,799.92	30,808.37
Gross location-based energy indirect (Scope 2) GHG emissions	-	t CO ₂ e	146,137.89	215,627.42	207,407.00	197,173.50
Gross market-based energy indirect (Scope 2) GHG emissions	-	t CO ₂ e	10,957.68	9,664.07	9,356.48	197,173.50
Gross other indirect (Scope 3) GHG emissions	-	t CO ₂ e	6,006,634.4	4,998,767.82	5,000,499.19	3,710,466.05
GHG emissions intensity ratio for the organisation	-	t CO ₂ e/t VSF	0.14	0.15	0.16	1.18
Biogenic emissions						
Scope 1	-	t CO ₂ e	101.89	116.43	116.43	62.13
Scope 2 (market-based)	-	t CO ₂ e	944,814.69	116.43	116.43	737,501.08
Scope 2 (location-based)	-	t CO ₂ e	1,181,018.36	62.13	62.13	737,501.08
Scope 3	-	t CO ₂ e	1,838,462.18	817,408.93	817,408.93	1,032,664.35
Energy management [GRI 302-1, 302-3, 302-4]						
Electricity consumption (multi-fuel boilers)	Total	MWh	260,770	243,968	221,890	209,631
	Renewable sources (palm EFB, bark, pulp fibre, palm shell)	MWh	260,770	243,968	221,890	209,631
	Non-renewable sources (coal)	MWh	0	0	0	0



BASE DATA

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Steam consumption (pulp and paper chemical recovery boilers)	Total	MWh	1,452,778	1,333,333	1,344,444	1,211,111
	Total from renewable sources (methanol from pulp production)	MWh	1,452,778	1,333,333	1,344,444	1,211,111
	Total from non-renewable sources (coal)	MWh	0	0	0	0
Energy intensity	–	GJ/t VSF	21.60	24.81	24.85	26.54
	–	YoY %	-12.91%	-0.16%	-6.37%	n/a
Amount of reduction in energy consumption achieved as a direct result of conservation and efficiency initiatives	Surplus med-pressure steam export to RPE	GJ	6,408.16	4,280.00	18,200.00	0.00
Sustainable sourcing and procurement [GRI 204-1, 301-1, 308-1, 414-1]						
DWP sourced	Total	t	285,596	233,456	231,862	196,391
	Indonesia	t	272,172	217,261	222,305	178,014
	Canada, U.S., EU	t	13,424	16,195	9,556	18,376
Sustainable sourcing and procurement [GRI 204-1, 301-1, 308-1, 414-1]						
Proportion of spending on local suppliers	APRIL (local)	%	33.26%	31.31%	7.00%	n/a
	Toba Pulp Lestari (local)	%	62.03%	61.76%	88.88%	n/a
	Cosmo Specialty Fibers (US)	%	3.82%	5.26%	1.84%	n/a
	Rayonier Advanced Materials (Canada)	%	0.87%	1.26%	1.13%	n/a
	Trader supplier (Hallein, Biocell pulp)	%	0.00%	0.42%	1.15%	n/a
Procurement spent	DWP	%	77%	77%	73%	65%
	Chemicals	%	22%	22%	26%	33%
	Packaging	%	1%	1%	1%	2%
Total production of DWP/VSF		t/t VSF	1.012	1.015	1.020	1.019
Traceability	VSF traceable to plantations	%	100.00%	100.00%	100.00%	n/a
	VSF traceable to mills	%	100.00%	100.00%	100.00%	n/a
	VSF traceable to nurseries	%	95.30%	93.06%	95.88%	n/a
	Nurseries to downstream (brands)	%	0.00%	0.00%	0.00%	n/a

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Sustainable sourcing and procurement [GRI 204-1, 301-1, 308-1, 414-1]						
Certification - PEFC	DWP from certified sources	%	99.83%	100.00%	98.87%	n/a
	DWP from controlled sources	%	0.18%	n/a	1.13%	n/a
New suppliers screened for environmental and social impacts		no.	0	0	1	n/a
Sustainable sourcing and procurement [GRI 204-1, 301-1, 308-1, 414-1]						
Suppliers assessed for environmental and social impacts		no.	4	5	4	n/a
Suppliers identified as having significant actual and potential negative impacts on environment and social		no.	0	0	0	n/a
Chemical management [GRI 301-1, 305-7]						
Consumption intensity						
Carbon Disulphide (CS ₂)	–	kg/t VSF	73.16	70.17	73.76	73.95
Sulphuric acid (H ₂ SO ₄)	–	t/t VSF	0.67	0.68	0.69	0.69
Caustic Soda (NaOH)	–	t/t VSF	0.54	0.55	0.56	0.58
Zinc (Zn)	–	kg/t VSF	2.62	2.31	2.54	2.91
Spin Finish	–	kg/t VSF	4.71	4.24	5.06	5.75
Sodium hypochlorite (NaOCl)	–	kg/t VSF	41.18	46.43	35.94	20.67
Recovery						
Total sulphur recovery	–	%	93.35%	92.90%	90.66%	89.21%
Sodium sulphate (Na ₂ SO ₄) recovery	–	%	56.84%	58.60%	54.81%	57.17%
Sodium sulphate (Na ₂ SO ₄)	–	kg/t VSF	568.4	586	548.1	571.7



BASE DATA

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Chemical management [GRI 301-1, 305-7]						
Consumption intensity						
Total sulphur emission intensity (CS ₂ , H ₂ S and NaHS)	–	kg/t VSF	13.80	17.51	23.63	30.98
CS ₂ emissions	–	mg/Nm	470.58	356.59	520.50	279.25
H ₂ S emissions	–	mg/Nm	25.15	21.01	22.20	17.11
Water and wastewater management [GRI 303-3, 303-4, 303-5]						
Water withdrawal						
Third-party water	–	m ³	12,516,533	11,035,383	11,130,520	11,743,071
Water discharge						
Water discharged to Kampar river	–	m ³	10,802,507	10,963,223	10,559,041	9,933,068
Water consumed	–	m ³	1,714,026	72,160	571,479	1,810,003
Quality of water discharged						
COD	–	g/t VSF	2,929.64	3,628.59	3,110.31	2,690.53
	–	mg/L	73.68	73.80	64.26	48.74
BOD	–	mg/L	11.26	14.10	13.47	15.20
TSS	–	mg/L	41.16	33.70	29.67	36.39
Zn to water	–	g/kg	0.03	0.04	0.03	0.01
	–	mg/L	0.69	0.83	0.67	0.29
Sulphate (SO ₄) to water	–	kg/t VSF	134.87	165.55	188.10	165.87
Process water consumption intensity	–	m ³ /t VSF	32.31	37.48	39.88	49.97
Cooling water consumption intensity	–	m ³ /t VSF	111.97	138.95	138.31	291.70
Waste management [GRI 306-3, 306-4, 306-5]						
Total hazardous waste generated	–	kg	17,931,208	18,162,570	18,261,740	18,284,740
Diverted to registered waste handler (For waste energy recovery and reuse)	–	kg	669,764	597,970	373,960	396,960

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Waste management [GRI 306-3, 306-4, 306-5]						
Directed to landfill (Effluent sludge and tow waste)	–	kg	17,171,710	17,564,600	17,887,780	17,887,780
Hazardous waste intensity	–	kg/t VSF	69.33	74.08	78.13	95.99
Community development, women empowerment and women's health [GRI 202-1, 413]						
Employees ratio of the entry level wage by gender to the minimum wage						
Legal minimum wage	–	IDR	3,031,000	3,002,500	3,002,500	n/a
Male	–	IDR	3,526,908	3,294,681	3,520,800	n/a
	–	Ratio	1.16	1.10	1.17	n/a
Female	–	IDR	3,150,133	3,183,125	3,300,000	n/a
	–	Ratio	1.04	1.06	1.10	n/a
Percentage of operations which implement local community engagement, impact assessments, and/or development programmes	–	%	100%	n/a	100%	n/a
Labour and human rights [GRI 401-1, 401-3]						
New employee hires and turnover						
New hires by age group	< 30 years	no.	148	89	81	108
	30–50 years	no.	21	15	28	15
	> 50 years	no.	2	2	5	2
Employee turnover by age group	< 30 years	%	6.11%	0.45%	6.15%	n/a
	30–50 years	%	1.59%	1.87%	2.21%	n/a
	> 50 years	%	1.34%	0.00%	0.00%	n/a
New hires by gender	Male	no.	80	64	86	122
	Female	no.	91	42	28	3
Employee turnover by gender	Male	%	7.46%	0.60%	4.58%	n/a
	Female	%	1.59%	0.51%	5.99%	n/a



BASE DATA

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Labour and human rights [GRI 401-1, 401-3]						
Parental leave						
Employees entitled to parental leave	Total	no.	430	336	295	n/a
	Male	no.	380	304	266	n/a
	Female	no.	50	32	29	n/a
Employees took parental leave	Total	no.	61	37	34	n/a
	Male	no.	52	36	24	n/a
	Female	no.	9	1	10	n/a
Employees returned to work after parental leave ended	Total	no.	61	37	34	n/a
	Male	no.	52	36	24	n/a
	Female	no.	9	1	10	n/a
Diversity and inclusivity [GRI 405-1]						
Management gender diversity						
Senior management	Male	no.	8	5	5	n/a
	Female	no.	3	3	2	n/a
Management	Male	no.	15	20	20	n/a
	Female	no.	3	4	4	n/a
Composition of mill employees						
Gender	Male	no.	648	587 [†]	631 [†]	579 [†]
	Female	no.	200	129 [†]	130 [†]	90 [†]
Age Group	< 30 years	no.	549	492 [†]	508 [†]	447 [†]
	30-50 years	no.	232	186 [†]	220 [†]	181 [†]
	>50 years	no.	67	38 [†]	33 [†]	41
Composition of corporate offices and sales employees						
Gender	Male	no.	13	12	11	12
	Female	no.	13	17	13	12
Age Group	< 30 years	no.	4	0	3	0
	30-50 years	no.	21	26	20	0
	>50 years	no.	1	3	1	0

[†] Denotes restated figures resulting from the re-categorisation of employee functions and inclusion of APY employees.

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Diversity and inclusivity [GRI 405-1]						
Composition of cross functional support employees						
Gender	Male	no.	3	3 [†]	3 [†]	3 [†]
	Female	no.	1	1 [†]	1 [†]	1 [†]
Age Group	< 30 years	no.	0	0 [†]	0 [†]	n/a [†]
	30-50 years	no.	3	3 [†]	3 [†]	n/a [†]
	>50 years	no.	1	1 [†]	1 [†]	n/a [†]
Incidents of discrimination cases	–	no.	0	0	0	0
Employee training and development [GRI 404-1, 406-1]						
Average employee training hours (continuing the numbering from prior pages): Employee training hours data covers mill employees only.						
Mill employees	Male	hours	6,903	4,494	2,352	n/a
	Avg/male employee	hours	11.15	7.66 [†]	3.73 [†]	n/a
	Female	hours	2,187	436	203	n/a
	Avg/female employee	hours	10.99	5.97	1.95	n/a
Employees receiving regular performance and career development reviews						
Mill employees	Male	no.	616	511	587	0
	Female	no.	199	73	104	0
Corporate offices and Sales employees	Male	no.	13	12	11	0
	Female	no.	13	17	13	0
Cross functional support employees	Male	no.	3	79	37	0
	Female	no.	1	57	25	0
Occupational health and safety [GRI 403-8, 403-9]						
Workers covered by an OSH management system						
Employees and workers covered by OSH management system	–	no.	816	749	789 [†]	839 [†]
	–	%	100%	100%	100%	100%
Workers covered by Contractor Safety Management System	–	no.	367	438	272	272
	–	%	100%	100%	100%	100%

[†] Denotes restated figures resulting from the re-categorisation of employee functions and inclusion of APY employees.



BASE DATA

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Occupational health and safety [GRI 403-8, 403-9]						
Work related injuries - Employees and workers OSH management system						
Fatalities as a result of work-related injury	–	no.	0	0	1	0
	–	rate	0.00	0.00	0.72	0.00
Lost time injuries (Fatality & Loss Time Injury)	–	no.	4	1	9	4
	–	rate	1.97	0.61	6.47	2.95
Recordable work-related injuries (First-aid cases)	–	no.	6	7	17	22
	–	rate	2.96	4.29	12.22	16.22
Total hours worked	–	hours	2,026,698	1,631,422	1,391,671	1,356,684
Total days lost due to work related injury	–	days	33	20	71	4
Total recordable injury rate (TRIFR)	–	rate	4.93	4.90	18.68	19.16
Contractor Safety Management System						
Fatalities as a result of work-related injury	–	no.	0	0	0	0
	–	rate	0.00	0.00	0.00	0.00
Lost time injuries (Fatality & Loss Time Injury)	–	no.	1	1	2	4
	–	rate	1.13	0.98	3.54	20.00
Recordable work-related injuries (First-aid cases)	–	no.	7	9	0	8
	–	rate	7.93	8.78	0.00	40.00
Total hours worked	–	hours	882,338	1,025,339	564,365	200,000
Occupational health and safety [GRI 403-8, 403-9]						
Contractor Safety Management System						
Total days lost due to work related injury	–	days	20	14	10	5
Total recordable injury rate (TRIFR)	–	rate	9.07	9.75	3.54	60.00

CATEGORY / INDICATOR	BREAKDOWN	UOM	2022	2021	2020	2019
Occupational health and safety [GRI 403-8, 403-9]						
Overall APR LTI and TRIFR (employees and contractors)						
LTIFR		rate	1.72	0.75	6.09	5.90
TRIFR		rate	6.19	6.78	16.25	28.01
Severity rate		rate	2.94	1.89	2.89	0.24
Noise monitoring level		dB(A)	78.93	65.78	61.75	Not recorded
Customer satisfaction and product quality [GRI 417-1]						
Percentage of significant product and service categories for which health and safety impacts are assessed for improvement		%	100%	n/a	n/a	n/a



GRI CONTENT INDEX

The Global Reporting Initiative (GRI) is a multi-stakeholder standard for sustainability reporting, providing guidance on determining report content and indicators. GRI is the most widely adopted global standard for sustainability reporting. It has been designed to enhance the global comparability and quality of information on environmental and social impacts, thereby enabling greater transparency and accountability of organisations. This report has been prepared in accordance with the GRI Universal Standards 2021. Our GRI Content Index references our 2022 Sustainability Report and the APR website.

Statement of use	Asia Pacific Rayon has reported the information cited in this GRI content index for the period of 1 January 2022 to 31 December 2022 in accordance with the GRI Standards.
GRI 1 used	GRI 1: Foundation 2021

GRI STANDARD	DISCLOSURE	LOCATION
GRI 2: General Disclosures 2021	2-1 Organizational details	About APR, p11
	2-2 Entities included in the organization's sustainability reporting	About this report, p2
	2-3 Reporting period, frequency and contact point	About this report, p2 Contact, p[97]
	2-4 Restatements of information	Stated throughout where relevant
	2-5 External assurance	About this report, p2 Assurance statement, p[90]
	2-6 Activities, value chain and other business relationships	About APR, p11 Leveraging the APRIL-APR integration, p23 Sustainable sourcing and procurement, p35 Note: Net sales/revenue data is not available.
	2-7 Employees	Employee overview, p62 Base data, p78
	2-8 Workers who are not employees	Employee overview, p62 Base data, p78
	2-9 Governance structure and composition	Governance and responsible practices, p24
	2-11 Chair of the highest governance body	Governance and responsible practices, p24

GRI STANDARD	DISCLOSURE	LOCATION
GRI 2: General Disclosures 2021	2-12 Role of the highest governance body in overseeing the management of impacts	Governance and responsible practices, p24
	2-13 Delegation of responsibility for managing impacts	Governance and responsible practices, p24
	2-14 Role of the highest governance body in sustainability reporting	Transparency and communication, p26
	2-16 Communication of critical concerns	Governance and responsible practices, p24
	2-22 Statement on sustainable development strategy	Statement from the Director, p4
	2-23 Policy commitments	Approach to sustainability, p18 Sustainability Policy
	2-24 Embedding policy commitments	Approach to sustainability, p18
	2-25 Processes to remediate negative impacts	Whistleblowing and grievances, p25
	2-26 Mechanisms for seeking advice and raising concerns	Whistleblowing and grievances, p25
	2-27 Compliance with laws and regulations	Regulatory compliance, p25
	2-28 Membership associations	Partnerships and engagement, p25 Associations
GRI 3: Material Topics 2021	2-29 Approach to stakeholder engagement	Partnerships and engagement, p25 Stakeholder engagement, p70
	2-30 Collective bargaining agreements	Wages and benefits, p63 Base data, p78
	3-1 Process to determine material topics	Materiality revision in 2022, p21
GRI 202: Market Presence 2016	3-2 List of material topics	Materiality revision in 2022, p21 2022 material issues, p72
	3-3 Management of material topics	Referenced throughout where relevant
GRI 202: Market Presence 2016	202-1 Ratios of standard entry level wage by gender compared to local minimum wage	Wages and benefits, p63 Base data, p78
	202-2 Proportion of senior management hired from the local community	Employee overview, p62



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GRI STANDARD	DISCLOSURE	LOCATION
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	Supporting local, sustainable fashion, p14 Our community, p54
	203-2 Significant indirect economic impacts	Our community, p54
GRI 204: Procurement Practices 2016	204-1 Proportion of spending on local suppliers	Sustainable sourcing and procurement, p35
GRI 205: Anti-corruption 2016	205-2 Communication and training about anti-corruption policies and procedures	Base data, p78
	205-3 Confirmed incidents of corruption and actions taken	Note: No grievances or corruption cases reported in 2022.
GRI 301: Materials 2016	301-1 Materials used by weight or volume	Sustainable sourcing and procurement, p35 Base data, p78
	301-2 Recycled input materials used	Circularity, p48 Note: We are currently trialling use of recycled material in our feedstock and will report on data when ready.
GRI 302: Energy 2016	302-1 Energy consumption within the organization	Base data, p78
	302-2 Energy consumption outside of the organization	Base data, p78
	302-3 Energy intensity	Energy management, p34
	302-4 Reduction of energy consumption	Energy management, p34
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	Water and wastewater management, p43
	303-2 Management of water discharge-related impacts	Water and wastewater management, p43 Base data, p78
	303-3 Water withdrawal	Base data, p78
	303-4 Water discharge	Base data, p78
	303-5 Water consumption	Water and wastewater management, p43

GRI STANDARD	DISCLOSURE	LOCATION
GRI 304: Biodiversity 2016	304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	APR's role in biodiversity conservation, p37
	305-1 Direct (Scope 1) GHG emissions	Carbon footprint, p32 Base data, p78
GRI 305: Emissions 2016	305-2 Energy indirect (Scope 2) GHG emissions	Carbon footprint, p32 Base data, p78
	305-3 Other indirect (Scope 3) GHG emissions	Carbon footprint, p32 Base data, p78
	305-4 GHG emissions intensity	Carbon footprint, p32 Base data, p78
	305-5 Reduction of GHG emissions	Carbon footprint, p32
GRI 306: Waste 2020	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Chemical management and recovery, p40 Base data, p78
	306-1 Waste generation and significant waste-related impacts	Waste management, p44
	306-2 Management of significant waste-related impacts	Waste management, p44 Circularity, p48
	306-3 Waste generated	Waste management, p44 Base data, p78
	306-4 Waste diverted from disposal	Waste management, p44 Base data, p78
GRI 308: Supplier Environmental Assessment 2016	306-5 Waste directed to disposal	Waste management, p44 Base data, p78
	308-1 New suppliers that were screened using environmental criteria	Sustainable sourcing and procurement, p35 Note: There were no new suppliers in 2022.
	308-2 Negative environmental impacts in the supply chain and actions taken	Sustainable sourcing and procurement, p35



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GRI STANDARD	DISCLOSURE	LOCATION
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	Retention and development, p64 Base data, p78
	401-2 Benefits provided to full-time employees that are not provided to temporary or parttime employees	Wages and benefits, p63
	401-3 Parental leave	Base data, p78
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	Health and safety, p66
	403-2 Hazard identification, risk assessment, and incident investigation	Health and safety, p66
	403-3 Occupational health services	Health and safety, p66 Stakeholder engagement, p70
	403-4 Worker participation, consultation, and communication on occupational health and safety	Health and safety, p66 Stakeholder engagement, p70
	403-5 Worker training on occupational health and safety	Health and safety, p66 Stakeholder engagement, p70
	403-8 Workers covered by an occupational health and safety management system	Health and safety, p66 Base data, p78
	403-9 Work-related injuries	Health and safety, p66 Base data, p78
GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	Retention and development, p64 Base data, p78
	404-2 Programs for upgrading employee skills and transition assistance programs	Retention and development, p64
	404-3 Percentage of employees receiving regular performance and career development reviews	Base data, p78
405-1 Diversity of governance bodies and employees	405-1 Diversity of governance bodies and employees	Diversity and inclusion, p63 Base data, p78
	405-2 Ratio of basic salary and remuneration of women to men	Diversity and inclusion, p63 Base data, p78

GRI STANDARD	DISCLOSURE	LOCATION
GRI 406: Non-discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	Diversity and inclusion, p63
GRI 407: Freedom of Association and Collective Bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Wages and benefits, p63
GRI 408: Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	Employee overview, p62
GRI 409: Forced or Compulsory Labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	Employee overview, p62
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	Our community, p54
GRI 414: Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	Sustainable sourcing and procurement, p35
	414-2 Negative social impacts in the supply chain and actions taken	Sustainable sourcing and procurement, p35
GRI 416: Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	Product quality and safety, p67
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	Product quality and safety, p67
GRI 417: Marketing and Labeling 2016	417-1 Requirements for product and service information and labeling	Sustainable standards and assessments, p28
	417-2 Incidents of non-compliance concerning product and service information and labeling	Sustainable standards and assessments, p28
Other topics not covered by the GRI Standards		
Innovation		Accelerating innovation and R&D, p48



GLOSSARY

Biodiversity - 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.

Blockchain - A retrospective, decentralised digital ledger consisting of records called blocks that cannot be altered. Used to record transactions across many computers.

Carbon footprint - The sum of greenhouse gas emissions and removals of a product system or an organisation, expressed as a carbon dioxide equivalent.

Cellulose - The basic structural component of all plants, approximately 40% of wood and the raw material for dissolving wood pulp production.

Chemical Oxygen Demand (COD) - The measurement of the oxygen required to oxidise soluble and particulate organic matter in water. COD testing involves using a strong chemical oxidising agent to chemically oxidise the organic material in a sample of wastewater under controlled conditions.

Cradle-to-gate - A life cycle assessment model that assesses a product's environmental footprint from raw materials extraction ('cradle') until it leaves the factory ('gate').

Dissolving wood pulp (DWP) - Highly purified chemical pulp derived from wood intended primarily for conversion into chemical cellulose derivatives and used mainly in manufacturing viscose staple fibre.

Downcycling - The process of recycling used or unused products to product new items of lesser quality.

European Union Best Available Techniques (EU BAT) Polymer BREF - The standard approved by legislators and regulators for meeting input and output standards for a particular process. The EU BAT lays down the information on the best available techniques, including emission levels, associated monitoring and consumption levels as well as relevant site remediation measures, and is recognised as the global industry benchmark for preventing and controlling industrial pollution.

Follow our Fibre - An APR platform that uses blockchain technology to track viscose bales and ensure sustainable sourcing throughout the supply chain.

Global Reporting Initiative (GRI) - A multi-stakeholder standard for sustainability reporting, providing guidance on determining report content and indicators.

Greenhouse gas (GHG) emissions - Gases in the atmosphere that absorb and emit radiation within the thermal infrared range. The primary greenhouse gases in the Earth's atmosphere are water vapour, carbon dioxide, methane, nitrous oxide, and ozone.

Higg Index - A suite of tools that measures environmental and social impacts across the life cycle of apparel and footwear products.

High Conservation Value (HCV) - A concept originally developed by the Forest Stewardship Council (FSC) to standardise the definition and evaluation of natural forests to be set aside for conservation. Six HCVs have been identified, covering the environmental and social aspects of natural forests.

International Organization for Standardization (ISO) - An organisation that has defined several series of standards impacting APR activities. The ISO 9000 series of standards pertains to quality management systems, ISO 14001 focuses on environmental performance and management, and ISO 45001 covers occupational health and safety management.

Jakarta Fashion Hub (JFH) - A collaborative space inaugurated by APR, where brands, fashion designers, and fashion enthusiasts connect to support the growth of a sustainable fashion industry in Indonesia.

Life Cycle Assessment (LCA) - A systematic analysis of the environmental impact of products throughout their life cycle from cradle to gate or cradle to grave.

Man-made cellulosic fibre (MMCF) - Materials made from cellulose-based fibres derived from plants, most commonly wood pulp.

Non-governmental organisation (NGO) - A term used in this report to designate grassroots and campaigning organisations focused on environmental and social issues.

OEKO-TEX® - An association consisting of independent textile and leather testing institutes which is responsible for the development of industry standards.

Posyandus - Community-based integrated health posts that support mothers and toddlers, staffed by community volunteers called cadres.

Rembuk stunting - Discussions and consultations on stunting prevention and management.

Sedex - A not-for-profit organisation which aims to improve responsible business practices in global supply chains.

Small and medium-sized enterprise (SME) - Business whose revenues, assets, or number of employees fall below a certain threshold.

Social and Labor Convergence Program (SCLP) - A multi-stakeholder initiative that focuses on improving working conditions in global supply chains.

Solid waste - Dry organic and inorganic waste materials.

Stakeholder - Any group or individual that is affected by or can affect a company's operations.

Sustainability - A term expressing a long-term balance between social, economic, and environmental objectives. It is often linked to sustainable development, which is defined as development that meets the needs of current generations without compromising the needs of future generations.

Sustainable Development Goals (SDGs) - A United Nations blueprint to achieve a better, more sustainable, and inclusive future addressing global challenge, including poverty, inequality, climate change, environmental degradation, peace, and justice.

The Forest Stewardship Council® (FSC) - An international non-profit forest management organisation.

The Program for the Endorsement of Forest Certification™ (PEFC) - An international non-profit organisation that promotes sustainable forest management through independent third-party certification schemes.

Total suspended solid (TSS) - a water quality parameter that is defined as the quantity of material suspended in a known volume of water that is trappable in a filter.

TOW - Viscose staple fibre which do not pass internal quality standards ('reject fibre').

Traceability - The ability to track sustainable VSF and DWP across the entire supply chain.

United Nations Framework Convention on Climate Change (UNFCCC) - An international environmental treaty negotiated at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992.

Viscose staple fibre (VSF) - A natural fibre made from purified cellulose, primarily from DWP twisted to form yarn.

ZDHC - A multi-stakeholder collaboration of global brands, chemical suppliers, manufacturers, and other organizations committed to reducing the chemical footprint of the MMCF industry, responsible for industry guidelines such as the ZDHC MMCF Fibre Production Guidelines, ZDHC MMCF Interim Wastewater Guidelines, and ZDHC MMCF Interim Air Emissions Guidelines.

CONTACT

[GRI 2-3]

ASIA PACIFIC RAYON

Jl M.H.Thamrin (d/h Jl. Teluk Betung)
No. 31, Kebon Melati - Tanah Abang,
Jakarta Pusat 10230, Indonesia
Tel +62 (21) 3193 0134
aprayon.com





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