

**“ IF WE ARE SERIOUS ABOUT CREATING
A SUSTAINABLE SOCIETY, WE NEED TO
USE THE MATERIALS WE ALREADY HAVE,
OVER AND OVER AGAIN”**

**WELCOME TO
THE CIRCULAR
ECONOMY**

**A WHOLE
NEW ATTITUDE
TOWARDS WASTE**

**RAGN-SELLS GROUP
SUSTAINABILITY REPORT 2022**

RAGN  SELLS

HIGHLIGHTS IN NUMBERS

1 award

at the Swedish recycling and circularity awards, Återvinningsgalan 2022.

50 years

since the recycling symbol on Ragn-Sells trucks was designed.



600 million tonnes

of deposited oil shale ash in Estonia will be reused in the Oil Shale Ash project. This will capture and bind

600,000 tonnes of carbon dioxide.



13,000

tonnes of fuel will be delivered yearly to Cementa's factory in Skövde through a new cooperation with Heidelberg Materials.



2nd year in a row

Ragn-Sells received the **Sweden's Best Managed Companies** recognition, sponsored by Deloitte in cooperation with Nasdaq.

1 of 26

participants in Business Sweden's delegation to COP27.

1 speech

at UN Stockholm+50



Ragn-Sells' Sustainability Director, Pär Larshans, appointed as

1 of 3

co-chairs in the International Chamber of Commerce, ICC, new global working group on the Circular Economy.

2,000 tonnes

of textiles, will be recycled yearly in Denmark thanks to the sorting house built in 2022.

HIGHLIGHTS IN PICTURES



“Humanity’s ways of sourcing and handling key nutrients, such as nitrogen and phosphorus, are deeply problematic and damaging to people and planet alike. The nations that were present at the UN Stockholm+50 Conference have to pave the way for circular solutions for nutrients.”

Linnéa Sellberg, Head of Section and owner representative Ragn-Sells Group

Stockholm+50 Conference

In June 2022, Sweden hosted the 50-year anniversary of the first UN Conference on the environment. Representatives from Ragn-Sells took an active part in the discussions as well as the preparatory meeting held in New York on March 28.

COP27

Together with 25 other trailblazing Swedish companies, government agencies, academic leaders, and prominent NGOs, Ragn-Sells was part of Business Sweden’s delegation to COP27.

Our focus was to showcase sustainable and circular solutions to key global stakeholders. Thereby enabling how to keep critical resources in the loop instead of throwing them away and to generate growth potential within the green transition.

“Policymakers need more good examples to feel confident to include a circular focus in future action plans.”

Pär Larshans, Director of Sustainability and Public Affairs at Ragn-Sells Group



Ash2Salt

During 2022, Ragn-Sells established the world’s first facility for the recovery of potassium from fly ash. The plant will be able to process up to 150,000 tonnes of fly ash each year. That corresponds to roughly half of all fly ash produced in Sweden.

“The interest in the plant from customers, decision-makers, and other stakeholders has been great. The Ash2Salt technology is available at the right time when more and more people are realising that we have to change to a circular economy.”

Mikael Hedström, CEO of Ragn-Sells Treatment & Detox Sweden

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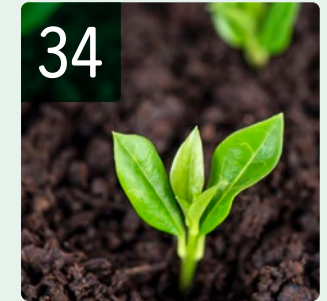
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THIS IS RAGN-SELLS





WORDS FROM THE CEO

If we are serious about creating a sustainable society, we have to use the materials we already have, over and over again. According to the UN, the extraction and processing of natural resources account for about 50 percent of climate change, 90 percent of biodiversity loss, and 90 percent of the threat to access to water.

Transitioning to a circular economy, where raw materials are used over and over again in efficient loops, is crucial to our ability to mitigate climate change, the depletion of our natural resources, and the risk of overshooting planetary boundaries. But the current attitude towards waste stands in the way of the transition to a circular economy.

The general ambition connected to waste is to minimise it. This does not lead to increased circularity. In fact, it actively works against the transition to a circular economy. Instead, the main ambition must be to reduce the

unsustainable extraction of virgin materials, and to treat waste as a source of sustainable raw materials.

At Ragn-Sells, aligning business conduct with sustainable development objectives is directly in line with our vision to be living proof that caring for the earth and business go hand in hand.

Ragn-Sells' mission here is very clear. We want to lead the transformation towards a circular society, where we care for the environment, counter climate change, and help communities prosper.

We believe in a world where waste streams are replaced by fully integrated flows of circular resources between citizens, industries, and society. Built on trust, partnerships, and sustainable solutions.

Ragn-Sells strives to be a thought leader and a role model in the circular economy. In collaboration with partners – customers, suppliers, local communities, and authorities – we find new circular material flows to maximise the value of scarce resources.

It has been a year filled with innovations, partnerships, and advocacy for a circular future.

We look forward to the upcoming year. Join us in being part of the solution!

Lars Lindén

CEO of Ragn-Sells Group
Stockholm, Sweden, April 2023

THIS IS RAGN-SELLS

The Ragn-Sells Group is a privately held corporate group involved in waste management, environmental services, and recycling. Since 1966, we have been collecting, treating, detoxifying, and recycling waste and residual products from businesses, organisations, and households for use as feedstock in new production processes.

We are a family owned third generation company, originating from 1881. Every generation since has kept a vision of a sustainable society at the heart of developing the company.

Over the years, Ragn-Sells has transformed itself from being a traditional waste management company to a company developing advanced recycling methods and driving the transition to a circular economy.

If we are serious about creating a sustainable society, we need to use the raw materials we already have, as often as possible.

Our operations are divided into three business areas:

- **Recycling that collects and recycles.** Our work is about collecting and recycling waste and passing on the recycled materials in new processes. Our key role is to collect material with the accurate quality, combine it with

other similar materials, and ensure that the quality meets needs and expectations.

- **Treatment & Detox that manages large plants for treatment and detoxification.** Our work with treatment and detoxification is about managing and finding solutions for materials that are not clean enough for the circular flow. We do this with the help of experience and knowledge and to constantly work with new, innovative solutions.
- **New Value Chains that develops new recycling flows and cross industry collaborations.** In an increasing number of businesses, the boundaries of where an industry begins and ends change and shift. Using waste to replace virgin resources presents enormous opportunities to reduce the carbon footprint, but making this happen in practice is difficult to implement for any industry on its own. ■

The Ragn-Sells Group

The environmental company Ragn-Sells converts waste into raw materials that can be used over and over again. Ragn-Sells drives the transition to a circular economy through solutions that reduce its own and other actors' environmental and climate impact.

We work closely with our customers to understand the local market needs. We also share cross-market knowledge and development within the Ragn-Sells group. This enables us to both grow our global knowledge base and provide the best possible local service. Ragn-Sells also has an ownership in several innovation companies.

Group facts 2022

2,477
Employees



100
Sites

Sweden / Norway / Denmark / Estonia

Markets

8,696 MSEK
Sales

6.3 million tonnes
Material treated

VISION AND MISSION

Vision: We want to be living proof that caring for the earth and business go hand in hand.

Mission: We want to lead the transformation towards a circular society, where we care for the environment, counter climate change, and help communities prosper.

Brand promise: We work every day to bring more resources back into the production cycle in a secure way. We aim to be at the forefront of circular solutions that make it easy for our customers to help create a sustainable and safe society.

Guiding principles for circular solutions: Our way of working is to contribute to keeping society within the planetary boundaries. We are firmly convinced that waste is a resource, which when treated and detoxified has an equal or even a higher value than vir-

gin resources. Therefore, the below three principles will keep guiding our mission towards a circular economy. These principles are symbolised with three overlapping circles, each representing a key criterion for making decisions on where to invest in the future. When all three principles are met, we secure that we have a sustainable business solution to build on. Our belief is that these basic principles are necessary to follow to succeed in shifting to a circular economy and a functioning market where waste replaces virgin resources.

- Reduce the need for use of virgin resources
- De-contaminate circular flows
- No debts or hindrance pushed to future generations



BUSINESS AREAS

Waste management companies play a significant role in many value chains since they can offer a solution to the mismanagement of natural resources and the negative impacts on the climate and environment. Ragn-Sells' role in this process is to create innovative solutions that detoxify and recycle back critical resources to society. Thereby turning chains into loops.

The Ragn-Sells Group has an extensive value chain including suppliers, business partners, and customers. We work with a large number

of actors across the entire value chain and often play a crucial role in other actors' value chains both as a customer and a supplier. This creates additional demands on us to act as a responsible business partner in all our operations and in everything we do.

Bringing materials back into society is at the very heart of our operations. To succeed with this operation, we sell the collected material to recycling facilities, or, alternatively, to intermediaries that deliver the material to recycling.

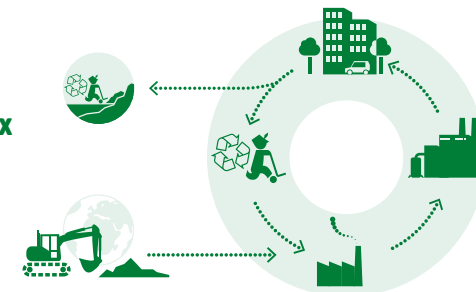
Recycling

Securing control of the flows of Commodity materials



Treatment & Detox

Solving the 'Tricky waste problems'



New Value Chains

Establish Joint Ventures via cross-segment integration



RAGN-SELLS' SUSTAINABILITY AMBITION

Ragn-Sells' sustainability ambition is to be climate positive by 2030 and to drive the transition to a society based on circular principles in a low carbon economy.

In practise this means that by 2030 we have reduced our own carbon emissions by at least 50 percent compared to 2019. Added to this, our new circular innovations that we implement together with our business partners contribute positively so that carbon emissions are avoided or stored elsewhere. By capturing carbon emissions to a degree that outweighs our own remaining emissions, we will generate a positive climate impact by 2030.

How do we get there?

We get there by leading the transition to a society based on circular principles in a low carbon economy and by developing innovative circular solutions that both detoxify and recycle back critical resources to society. ■

“RAGN-SELLS WILL BE CLIMATE POSITIVE IN 2030 BY REDUCING OUR OWN CO₂e EMISSIONS BY 50 PERCENT AND INTRODUCE INNOVATIVE CIRCULAR SOLUTIONS.”

Lars Lindén, CEO of Ragn-Sells Group



LONG-TERM STRATEGY AND GOALS

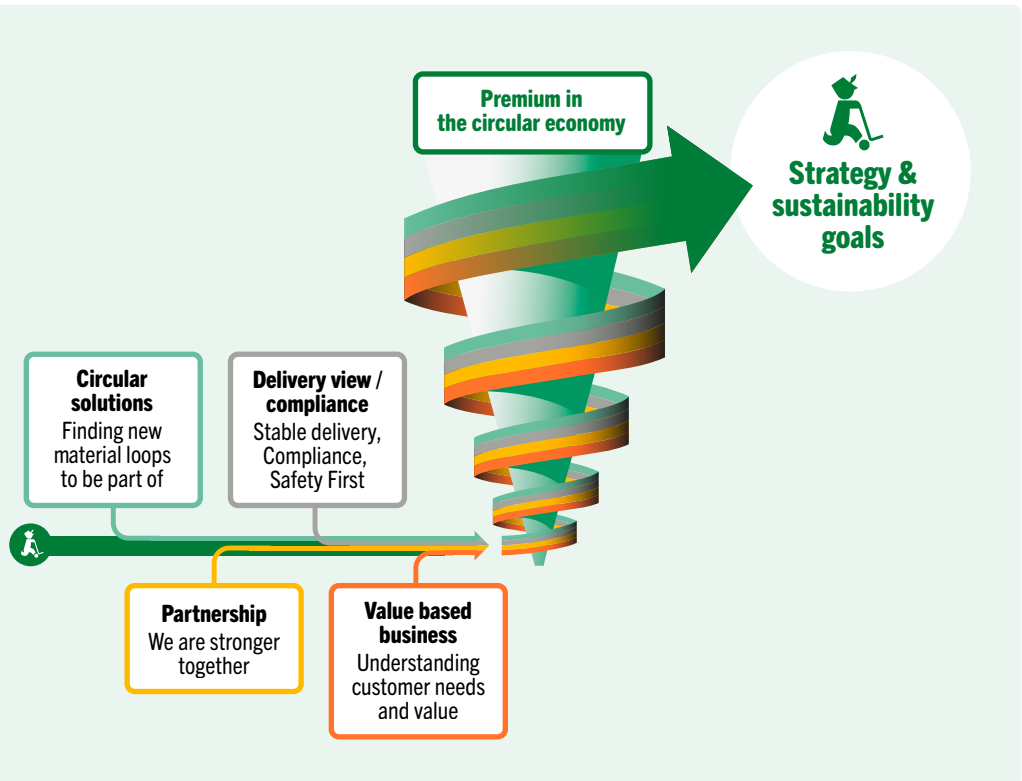
In everything we do we strive to create value for nature, people, and our own business. We are committed to continuously improving, innovating, and reinventing ourselves as a thought leader for circularity.

In a circular society, success depends on trustful cooperation. We earn and keep the trust of others by putting what is right for the planet, for society, and for our business in the long run over short-term gains. We work to achieve our sustainability goals and by assuming full responsibility for our own business. We express opinions and share knowledge in line with our beliefs. We ask ourselves how everything we do impacts society, so that we constantly move the transition to a circular world forward.

By finding new circular solutions, and new material loops to be a part of, we can offer a higher degree of sustainability and customer value.

We walk the talk by focusing on a stable delivery view, ensuring compliance, quality, and business ethics, and always putting safety first.

But we also know that we cannot change the world alone. By working together, we become stronger. Partnerships are key to identifying



and developing new and innovative circular solutions, but they also lead to a deeper customer understanding. This in turn helps us to ensure quality and create a value-based business that enables sustainable and innovative solutions for a circular future.

These focus areas build up our core strategy. They reinforce each other and help us to both reach our sustainability goals, and to create a competitive advantage as premium in the circular economy.

By emphasising the need to reach our sustainability goals, we can push our leadership in that direction. This will in turn help us reach the strategic focus areas.

In this year's sustainability report we have chosen to highlight progress and challenges with three of our sustainability goals:

- Circular solutions
- Reduce climate emissions
- Recycled material in procurement

WELCOME TO THE CIRCULAR ECONOMY



A WHOLE NEW ATTITUDE TOWARDS WASTE

We need a new perspective on waste. The transition to a circular economy is crucial to mitigate climate change, the depletion of our natural resources, and the risk of overshooting planetary boundaries. But the current view on waste stands in the way of this transition.

Many nations and blocs, including the EU, have clearly committed to transferring to a circular economy, and have action plans in place to make it happen. However, the traditional linear economy includes several obstacles to such a transfer. Especially when it comes to how society views waste. The transition to a circular economy requires a whole new attitude towards waste. We need to start treating waste as a valuable source of sustainable resources.

Abandon old principles

Instead of minimising the amount of waste, our overarching goal must be to reduce the unsustainable extraction of virgin materials.

The main aim of the so-called waste hierarchy, more or less fundamental to all current legislation and regulation of waste in Europe and other developed countries, is to reduce waste. This does not address the right issues. On the contrary, it counteracts efforts to establish large-scale circular flows.

Focus on resources

To make a circular economy possible, we must replace the waste hierarchy with a new governing principle focused on resources. The starting point for all legislation and regulation should be a fundamental strategy for a sustainable supply of raw materials. It would allow for the raw materials we already have

extracted to be used efficiently, without posing a threat to our health, our environment, or our climate.

Adjust skewed market conditions

Give all production of materials the same conditions, regardless of whether its origin is waste or virgin production. Today, virgin materials do not fully bear the cost of their extraction and emissions, which gives them a competitive advantage compared to recycled materials.

Let the polluter pay

The lawful and lucrative use of harmful substances in goods makes many potential material loops impossible. The polluter, who

benefits from introducing harmful substances into the system, must pay for them to be taken out of the system.

Stop regulate waste separately

Unlike virgin materials, the separate regulation of waste often makes it difficult, prohibitively expensive, or even illegal to move waste. This makes it difficult to reach sufficient scale. The same conditions have to apply to the extraction of raw materials from waste streams as to the extraction of virgin materials, without market distortions such as separate regulation, requirements, or taxation. ■



THE POLLUTER HAS TO START PAYING

Raw materials and emissions are not priced in a way that reflects actual costs. This creates an advantage for extracting virgin materials, making it hard for recycled materials to compete - a huge barrier for the transition to a circular economy. If the polluter must pay the actual cost for polluting, circular solutions will become more attractive.

“The pricing of raw materials and emissions is highly flawed. This is one of the biggest obstacles for the transition to a circular economy, because it makes it very difficult for recycled materials to compete with virgin materials,” says Anders Kihl, Director of Strategy and R&D at Ragn-Sells Group.

Today, virgin materials do not fully bear the cost they cause through extraction and processing. Even though the continued extraction of new raw materials is responsible for half of the world’s climate emissions, there is no cost to producers associated with this practice.

The fact that the actual price of a product is not reflected in its market value means that producers actually benefit from contributing to the harmful extraction of virgin materials, instead of circularity.

Markets have gotten used to this pricing model and optimised all processes for profitability under these conditions. This is an incredibly effective obstacle to the transition to a circular economy.

“In today’s dysfunctional system, producers are able to manufacture and sell products that are impossible to recycle – or worse – cause pollution further down the chain. And still make a huge profit! They simply pass the bill to someone else. It is time for the polluter to start paying,” says Anders Kihl.

One obvious example of this is the use of PFAS, a large group of synthetic substances with a wide range of use in society. Research increasingly indicates that PFAS substances are detrimental to our health and that they accumulate in the environment. The main problem is that it is cheap for producers to

add PFAS to products, but the producers do not bear the much higher cost of detoxifying the environment from PFAS.

Instead of the polluter, it is the public who is forced to pay for significantly more expensive waste management, or for decontamination, when local levels of PFAS go dangerously high. Contaminated waste streams also make recycled materials more expensive, which again leads the industry to use virgin materials, slowing down the transition to a circular society. This has to change.

It is time for the polluter to start paying the actual cost. This will steer development towards circularity and away from wastefulness in a more efficient way than legislation, because it will make it profitable to economise valuable resources and to design products intended to be recycled. Only then will we



close in on the actual goal: reducing the extraction of virgin materials.

“If producers could save money by making sure that their products are free from harmful substances, and that it is possible to manage them in a circular way once they are no longer wanted, change would come,” says Anders Kihl. ■

Did you know?

One gram of an ordinary PFAS substance today costs about 0,10 euros, while the cost of detoxifying for example water contaminated with PFAS may be several thousand times higher.

CIRCULAR SOLUTIONS

Doubling the circular share of production helps limit global warming

“ WE USED TO SEE WASTE HANDLING AS THE END OF THE ROAD. NOW WE HAVE THE CIRCULAR SOLUTIONS THAT TURN WASTE INTO SUSTAINABLE RAW MATERIALS.”

Anders Kihl, Director of Strategy and R&D at Ragn-Sells Group

CONSTRUCTING A SUSTAINABLE TOMORROW

Is the accusation of resource waste in construction fair? Are there reasons to distinguish between circular solutions and recycling? What political changes are necessary to increase circularity, and how will partnerships affect the construction sector in the future?

These are some of the questions that were raised during a panel about increased circularity in construction with participants **Patrik Johansson**, Sustainability Manager at Elitfönster, **Oskar Storm**, Technical Specification Manager at Saint-Gobain, **Lars Ek**, Key Account Manager, and **Camilla Sonnentheil**, Head of Business Development at Ragn-Sells Sweden.

The construction sector is responsible for approximately one fifth of Sweden's total greenhouse gas emissions. According to government agency Boverket, Swedish construction contributed a total of approximately 14.2 million tonnes of primary construction

waste in 2020, equivalent to around 40 percent of all generated waste in Sweden.

“The construction sector has likely not been among the top performers when it comes to handling residual material and waste separation at construction sites. However, the requirements have become stricter, and we have become significantly better just in the past few years,” says Patrik Johansson, Sustainability Manager at Elitfönster.

He continues:

“It is clear to us that the partnership between Ragn-Sells and the Inwido Group, of which Elitfönster is a part, has resulted in smaller

landfill fractions, an increased level of separation, and increased material recycling.”

Oskar Storm, Technical Specification Manager at French glass manufacturer Saint-Gobain argues that reaching circularity is challenging since it often requires going further than current requirements and standards. Saint-Gobain has, in partnership with among others the research institute RISE, investigated the possibilities of making flat glass circular. Oskar explains:

“Providing a separate container for crushed glass is not enough. To make new raw material, windowpanes must be collected intact, transported, and then crushed in a controlled

way to ensure an adequate degree of purity. Our pilot project for flat glass, developed in partnership with Ragn-Sells, is the first of its kind in Sweden to be able to live up to these standards. To achieve circularity, it is important to find new business models that go above what is current standard,” says Oskar.

Camilla Sonnentheil, Head of Business Development at Ragn-Sells Recycling, concurs:

“It is incredibly important to have projects that break new ground. Often this means that new solutions are initially more expensive due to the small volumes handled. Volumes need to increase to achieve cost efficiency in circularity.” →



All agree that it must become more expensive to use virgin materials than circular.

“It is crucial! If virgin materials were more expensive and recycled materials cheaper, it would have a remarkable effect. A major challenge in increasing circularity at construction sites is that it is cheaper to continue business as usual. The linear must become more expensive to boost circularity,” says Camilla.

There are also great opportunities to use public procurements as an effective tool in the transition to a circular construction sector.

“The sector would automatically change and the transition speed up if public procurement directives contained requirements for circularity. Companies would also transform, and we would reach larger volumes faster,” says Camilla.

Requiring a certain share of recycled material in products, so called quota obligations, are an important proposal to drive development. Introducing quota obligations in relevant EU legislation, will create market demand for circular solutions, which in turn drives investments and innovations.

Lars Ek, Key Account Manager at Ragn-Sells states:

“A quota obligation and an EU norm for a minimum share of recycled material would level the playing field and allow us to compete under the same circumstances.”

Oskar continues:

“We also need to discuss the cost of wasting material. Today, the largest fraction in Swedish recycling stations are windows. It is unreasonable that the most circular material available, glass, which can be melted an infinite number of times, ends up in landfills! We can tell that countries where it is expensive to place waste in landfills, have better opportunities to introduce circular solutions.”

There is unanimity in the group that partnership and collaboration is critical to increase circularity. Camilla expands:

“Partnerships are so important to us. If Ragn-Sells hadn’t come in contact with Saint-Gobain, we probably would not have dared to take the plunge. Partnerships are vital already in the early stages of business development. No one can afford to become circular in a silo.”

The group believes Ragn-Sells could play an important role in increasing circularity in the construction sector.

“In my view, our capacity to collect materials is an important part of the puzzle for the construction sector, says Lars. But, it is vital

that our customers are willing to bear the costs for circular solutions. The most cost-effective alternative to handle waste already exists. But, currently the planet pays instead.”

He continues:

“We are noticing both interest and willingness to pay from our clients in order to become more sustainable. It is very exciting,” says Lars.

Oskar finishes:

“If we meet for a conversation like this in a year, it will be very interesting to see what has happened. We are currently in a stage of fast paced development! Hopefully, more things will have happened in the past 12 months than the previous 10 years. I believe this is a defining year for circularity!”

Patrik Johansson, Sustainability Manager at Elitfönster



Oskar Storm, Technical Specification Manager at Saint-Gobain



Lars Ek, Key Account Manager at Ragn-Sells Sweden



Camilla Sonnentheil, Head of Business Development at Ragn-Sells Recycling Sweden





Sweden

Established	1966
Number of sites	56
Number of employees	1,668
Turnover (ext)	KSEK 5,624,000

Ragn-Sells Recycling in Sweden

KEY CONTRIBUTOR TO REACH GLOBAL GOALS

Our work at Ragn-Sells Recycling is about collecting and recycling waste, and passing on the recycled materials in new processes. Our key role is to collect material with the accurate quality, combine it with other similar materials, and ensure that the quality meets needs and expectations.

“IF WE CAN JUST DOUBLE THE SHARE OF RECYCLED MATERIALS IN GLOBAL PRODUCTIONS, WE ARE WAY ON TRACK TO REACH THE GLOBAL CLIMATE GOALS”

Magnus Uvhagen, CEO of Ragn-Sells Recycling Sweden

The potential for recycling to contribute to a sustainable world is enormous. It is the cornerstone in the transition to a circular economy. Currently, only 7.2 percent of the global

economy is circular*, meaning that it consists of materials that have already been used and replace the use of virgin materials. Even if recycling has increased globally, the world has rapidly become less circular because the extraction of virgin materials has increased much faster. But there is hope! Doubling the circular share of the global economy from today's small numbers, makes a massive contribution to limit global warming to well under two degrees Celsius.

Traceability and knowing where all material goes, is one challenge for future business

*1 The Circularity Gap Report 2023

development. We want to be able to trace all material we collect at the customer, to where it ends up downstream.

“There is an increased demand from our customers to know where the material actually goes”, says Magnus Uvhagen. He thinks that this is caused by a combination of increased regulatory demands in the value chain, and increased awareness that recycling is important.

“We are currently looking to develop a method to tag all material throughout the



value chain. It is not just about being able to identify the material but also to have evidence for a circular solution”, says Magnus Uvhagen.

Traceability is increasingly challenging the further downstream you get, especially when it comes to exports to challenging markets.

“Moving forward, we see a lot of potential to increase the level of recycled material used in construction projects. This is a priority for the near future!”

PARTNERSHIP FOR CIRCULAR FLOWS

of hazardous solvents

Not all waste can go straight back into the loop. We aim to find new recycling solutions also for hazardous waste. Partnerships are key to identify and develop new and innovative circular solutions. Our collaboration with Vilokan is a great example of such a partnership.

Every year, we handle about 60,000 tonnes of waste classified as hazardous. Despite the materials' complexity, our aim is to ensure that even the hazardous materials are recovered, which places major requirements on the handling. When it comes to finding new recycling solutions for hazardous waste, collaboration is vital.

To increase the recycling and reuse of solvents, Ragn-Sells formed a joint venture with the Swedish environmental technology company, Vilokan Group. Planning for a full-scale treatment facility is in full swing.

The facility will have a capacity to purify and recycle 20,000 tonnes of mainly ethanol, acetone, and glycol per year. The plant is operated by steam from the energy company E.ON's combined heat and power plant. ■

“Collaborating with our partners makes it possible to establish new value chains, taking care of each other's waste and creating a truly sustainable solution. Thanks to the new facility we can offer the market recirculated solvents with a purity of over 99 percent.”

Mikael Hedström, CEO of Ragn-Sells Treatment & Detox Sweden



Recycling solvents reduce emissions

Solvents are mainly produced from fossil and finite resources. Used solvents are often utilised for energy recovery through incineration. Recycling and reusing already produced solvents makes it possible to reduce the carbon footprint by 46–92 percent.



Sweden

Established	1966
Number of sites	56
Number of employees	1,668
Turnover (ext)	KSEK 5,624,000

Ragn-Sells Treatment & Detox in Sweden

BRINGING BACK VALUABLE MATERIALS FROM WASTE FLOWS

The Treatment & Detox business area helps taking responsibility for someone else's old debts to society. Our work is about managing and finding solutions for materials that are not clean enough for the circular flow. We constantly work to find new and innovative solutions to bring back valuable resources from waste.

“BRINGING BACK RESOURCES AND RAW MATERIALS FROM WASTE FLOWS TO SOCIETY AGAIN, IS TRULY THE CORE OF OUR SUSTAINABILITY WORK.”

Mikael Hedström, CEO of Ragn-Sells Treatment & Detox Sweden

“We want to make sure that our children do not have to play in toxic waste from old industrial areas, or that toxic chemicals start circulating in the ecosystem,” says Mikael Hedström, CEO of Ragn-Sells Treatment & Detox Sweden.

One example of an innovative technology that brings back valuable resources to society, is the Ash2Salt method. This allows for the extraction of potassium from fly ash, a by-product of energy production from the incineration of waste. The making of this Ash2Salt factory has been the main focus for Mikael the past years.

“I appreciate our brave owners who made the decision to go for an innovation such as the Ash2Salt factory. It is quite an investment, but it is the right move for us to move into the future of waste management.”

Some of the main challenges connected to our work with treatment and detox concerns regulation, permits, and taxes. Currently, these policies do not provide sufficient incentive to use recycled or detoxified materials over virgin materials. This may lead to valuable materials being spread into society without the possibility to be recycled.

Mikael Hedström also emphasises the need to talk about the sustainability goals with everyone in the organisation.

“Involving people always increases the commitment and level of engagement. This



ensures that the engagement for sustainability is really engrained throughout the business,” says Mikael Hedström.

Moving forward, Mikael stresses the need to think more about attracting and maintaining talent. It is important for Ragn-Sells as a business to futureproof skills and competencies, but also for the industry in general. Without the right competence it is very hard to meet any of our sustainability goals.

“What I love about Ragn-Sells is that I get to see people grow and reach goals together. We win as a team!”

FROM ASH PILES

to a carbon negative raw material

With discarded oil shale ash and captured carbon dioxide as raw materials, Ragn-Sells' Oil Shale Ash Project in Estonia will produce the commercial product PCC, precipitated calcium carbonate. This achieves three things at once: We stop the carbon dioxide from being released, clean up decades of environmental debt by putting the ash to use, and replace today's CO₂-intensive production of PCC from virgin materials.

While very few have ever even heard of oil shale, it is the number one energy source in Estonia. The country is mining 15 million tonnes of this brown rock per year and is left with 7 million tonnes of ash annually after burning it for obtaining energy.

Since Estonia began to use oil shale already before the Soviet era, the piles of deposited ash are huge – reaching nearly 600 million tonnes, roughly the same size as the Maldives. In the Oil Shale Ash Project, Ragn-Sells work together with scientists from Tallinn Technical

University, TalTech, and the University of Tartu, as well as Eesti Energia (Enefit) – the world's biggest oil shale energy production company and Estonia's largest company, to develop this new technology, extracting resources from the ash piles.

As today's society is based on unsustainable use of natural resources, Ragn-Sells is committed to bringing more resources back into the loop. The Oil Shale Ash Project offers a unique solution that extracts resources from the ash piles using captured carbon dioxide

to produce a carbon negative PCC product. It is a climate neutral production process with:

- **Minimal emissions** – Ragn-Sells' production process will operate within a closed system and will not produce emissions. The ash hills and the planned production plant are near each other, keeping emissions from transportation to a minimum.
- **Re-use of water** – Water circulates in a closed Zero Liquid Discharge System and is used again and again.

- **Residues** – The production of ultra-pure calcium carbonate will result in residues that are rich in silicones and magnesium. These can be repurposed and used in other applications.

From the residuals, it is possible to extract additional critical materials, such as **magnesium, silica, and aluminium**. These materials can then be used in fertilisers or as raw materials for everyday products. To close these loops, we need to collaborate with other stakeholders in the value chain. ■



“In the future, we hope that Estonia will use more sustainable energy resources. Until then, we have a very clear vision, to make the power produced from oil shale 100 percent waste free by using the oil shale ash to generate and recover resources that can be used in other production processes.”

Alar Saluste, Project Manager OSA at Ragn-Sells Estonia

FINANCING THE OIL SHALE ASH PROJECT

The Oil Shale Ash Project was granted 1.7 million euros from Enterprise Estonia's Applied Research Programme in 2022. The funding will make it possible to carry out the next steps in the industrial tests required to produce calcium carbonate out of oil shale ash. In addition, the investment from Enterprise Estonia also enables continued research on other raw materials that could be extracted and recycled from oil shale ash.

Ragn-Sells also received a state grant of 225,000 euros provided by Enterprise Estonia association and KredEx. The grant will enable continued research into how magnesium, defined as a critical raw material by the EU, could be extracted from oil shale ash.

Despite the potential to produce a carbon negative raw material, the Oil Shale Ash Project does not qualify for any of today's EU green funding options. The reason is that the technology uses carbon dioxide generated from a fossil fuel origin. In May 2022, Frans Timmermans, Vice President of the European Commission, was introduced to the Oil Shale Ash-project, during his visit to Estonia.

Ragn-Sells proposed that the European Commission establishes a transition period, dur-

ing which the circular economy production units could also use fossil carbon dioxide if there are no alternative sources available. The transition period could be linked to the launch of the European CO₂ transportation network.

To support the creation of sustainable solutions that drive the transition to a circular economy to help fight climate change, Ragn-Sells partnered up with the world leader in flooring and sports surface solutions, Tarkett, in October 2021. The collaboration focuses on developing a carbon negative PCC product for potential use as a filler material in Tarkett's vinyl flooring. ■

What is Oil shale?

Oil shale is a black or brown fine-grained sedimentary rock containing kerogen and various minerals.

Oil shale ash consists of natural materials such as quartz, feldspar, carbonate materials as well as the new materials created during incineration, including clinker minerals, which give the ash useful self-cementing qualities. Oil shale ash itself is not harmful to the environment – it can be used as a fertiliser and for reducing the acidity of soil.





Estonia

Established	1992
Number of sites	6
Number of employees	282
Turnover (ext)	KSEK 353,000

Ragn-Sells in Estonia

INNOVATION, COMPLIANCE, AND ORGANISATION

Ragn-Sells' operations in Estonia have developed a lot the past years. Kai Realo explains that the focus for business development in Estonia the past year has been three-folded. First, organisational updates to ensure sustainable operations also in the future. Second, increased focus on compliance.

“Focusing on compliance is the best way for us to ensure that we meet the expectations from our customers,” says Kai Realo.

Third, a new business area has opened up in treatment and detox.

“Traditionally Ragn-Sells Estonia has focused on recycling mainly from the household

“MY BIGGEST SATISFACTION IS THAT WHAT I DO EVERY DAY IS NOT ONLY GOOD FOR THE COMPANY, BUT ALSO FOR ESTONIA”

Kai Realo, CEO of Ragn-Sells Estonia

waste market. In 2022, we took ownership of a landfill, which is a great opportunity for us to expand the treatment and detox operations also to Estonia,” says Kai Realo.

She explains that the main challenge Ragn-Sells face on the Estonian market is connected to political will. The climate challenge has not been on top of the political agenda so far, and currently both the energy crisis and the war in Ukraine are in focus. The lack of a political discussion on climate, in combination with a lack of understanding of the value of waste as a sustainable source of materials, can make it challenging to advocate for

necessary regulatory changes for the transition to a circular economy.

“Nothing good can be said to come from the war in Ukraine, but at least the broken supply chains and price increases have made it easier for many to understand why recycling and circular solutions are important and better,” says Kai Realo.

Business development in Estonia push for new circular solutions and the need for innovations. For example, a new factory shredding used tires is under way. The customer then produces heating oil from the tires and in a later stage will refine it further to make it a material



for the chemical industry. A similar solution is planned for plastics that cannot be recycled because it is too dirty or damaged.

In addition, managing medical waste is a new and upcoming business area for Ragn-Sells in Estonia. Usually medical waste is just incinerated, but Ragn-Sells has developed a technology to recycle the metal and plastic in medical waste, where Estonia is the pilot project.

“The project on medical waste, where the solution is recycling and not incineration, is unique for the Baltic area. We in Estonia are an exciting pilot project!” says Kai Realo. ■

OVERCOMING BARRIERS

The shift from linear to circular material flows has the potential to create new business models, new collaborations throughout the entire value chain, as well as the creation of new sustainable technologies. But there are challenges to this readjustment. Ragn-Sells works actively to create the shift in attitude and the regulatory reform needed for waste to be seen and used as a resource.

Currently waste is often regulated separately, causing a number of problems for the circular transition. Instead of the quality of the goods, it is its origin that determines its competitiveness. Even if recycled materials actually often are of a higher quality than virgin options. This means that current regulation often discriminate against recycled materials, making it cheaper to source virgin materials than recycled ones, and create trade barriers for a circular economy.

In addition, most legislation on waste concerns the need to manage waste problems and reduce the amount of waste produced. This legislative attitude is counterproductive when trying to create a circular economy.

Ragn-Sells is convinced that there is a great need for businesses to actively contribute to legislative processes.

To start with, we all have to agree that waste is not rubbish – it is simply goods that no one has sorted or detoxified yet.

The next step is to adjust all regulation – both national and international – to this attitude.

We work actively to create long-term attitude changes towards a more circular economy, as well as to impact rules and regulations in order to enable circular material flows. Our ambition is to become an activist company by initiating the public dialogue and sharing our knowledge with relevant stakeholders. ■

“As one of the leading environmental companies, Ragn-Sells takes a stand on important environmental issues – and contribute to future solutions. This can be, for example, influencing decision-makers, coming up with new, innovative solutions, writing consultation responses and being active in the debate.”

Susanna Lind, Public Affairs Manager at Ragn-Sells Sweden



“True circularity requires international cooperation and free movement across borders for waste and materials produced from waste. Through our strong engagement, we bring forward innovative solutions, influence stakeholders and work hard to be an active voice of circular economy in the public debate.”

Pär Larshans, Director of Sustainability and Public Affairs at Ragn-Sells Group



SHAPING A SAFETY CULTURE IS KEY

Through group-wide initiatives we continue to shape a culture of safety across all levels. It is our highest priority to safeguard the health of our employees and entrepreneurs, as well as our customers and the general public. The goal is to become the industry leader in workplace safety by 2030, built on a foundation of mutual trust and collaboration.

Within the Ragn-Sells Group, health and safety issues are managed locally within each company. To ensure the same health and safety standards in all countries, local policies and procedures are in place that harmonise with national legal requirements and standards. Compliance with routines in the management system is controlled through internal and external audits.

All our operations are governed by an ISO 45001 certified management system and all

our employees are directly covered by this. Entrepreneurs and contractors are indirectly influenced by our routines and protocols.

Our Safety Board was established in 2021 as a joint venture across operations in Sweden, Norway, Denmark, and Estonia. The board has initiated an annual Safety Week for the entire Ragn-Sells Group, and is currently designing a unified group-wide approach to work safety.



“It is my priority to ensure that everyone knows that there is always time to think about how to do your job in a safe way.”

Mikael Hedström, CEO of Ragn-Sells Treatment & Detox Sweden

Furthermore, safety officers conduct regular and systematic inspections at our sites. As part of our traffic safety policy, breathalysers are installed in all our trucks.

A critical element for maintaining strong workplace safety at Ragn-Sells is the tracking of metrics to measure performance and inform efforts. They include the ratio of accidents to hours worked, as well as the proportion of accidents that result in employee absences.

Our reporting system for risks or incidents – ImproveRS – has already been implemented in Norway and was rolled out in Sweden, Denmark, and Estonia in 2022. The system features a function for open dialogue whenever employees report something. Such a chance to be heard is a meaningful motivator – and employees’ insights are vital resources for determining which preventive or corrective measures to take.

REDUCE CLIMATE EMISSIONS

Circularity
can solve
50%
of emissions

“TRANSITIONING TO A CIRCULAR ECONOMY IS CRUCIAL TO OUR ABILITY TO MITIGATE CLIMATE CHANGE, BUT THE CURRENT VIEW ON WASTE STANDS IN THE WAY OF THIS TRANSITION.”

Miranda Jensen, Head of Group Function HSE at Ragn-Sells Group

Ragn-Sells' technologies

ENABLE CO₂e REDUCTIONS

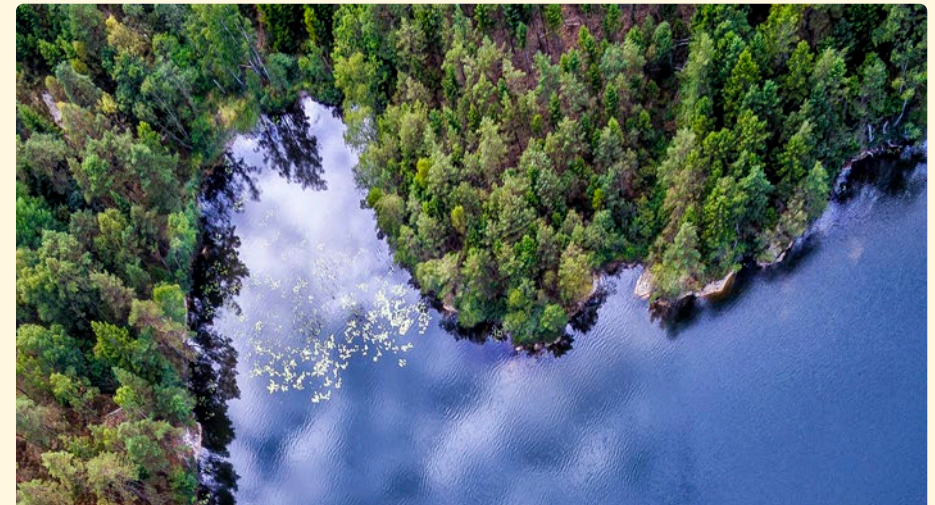
Global warming is reality, and we all need to act. Much of the dialogue concerning the climate challenge focus on how to reduce the use of fossil fuels. This is important, but we can, and need to, do much more. If we are serious about creating a climate neutral society, we have to start using the materials we already have as often as possible.

Almost half of the earth's climate challenge relates to the production and consumption of goods and materials, as well as the extraction and transformation of virgin resources. In order to meet our climate goals, we need to prioritise material management much higher.

An effective way for the business community to contribute to reducing the world's CO₂e emissions would be by circular processes with equal market conditions. Higher ambitions to solve the climate challenge will not only save the planet, it also strengthens

competitiveness for businesses that create jobs and economic growth. The business community is up to the challenge and Ragn-Sells is ready to share knowledge on how this is possible.

Our recipe to meet this challenge, and at the same time create sustainable growth, is to allow and enable circular material flows in society. By transferring to a circular economy, where materials are used over and over again, we can supply the world without adding to the climate challenge. ■



Reduced emissions through partnerships

Ragn-Sells will become climate positive in 2030 by reducing our own emissions by 50 percent. But the greatest impact we will have in the climate challenge is to implement new circular solutions that reduces emissions at our partners and in the society.

Ragn-Sells can, together with partners:

- Identify material flows and treatment challenges
- Develop solutions and new ways of collaborating
- Thus, reducing the extraction of virgin resources
- Drive the transition to a circular economy

Heaps of ash turn into PCC

Decades of dependence on oil shale have left Estonia with 600 million metric tonnes of ash. The mountains created by this ash cover an area larger than the Maldives. Through our project we use this ash, rich in calcium, and combine it with captured carbon dioxide to produce a compound called PCC. This saves 400 million tonnes of CO₂e. Every kilo produced carries a negative carbon footprint of 0,4 kg CO₂e, meaning that production effectively removes carbon from the atmosphere. The planned Oil Shale Ash Project facility in Narva-Jõesuu will use around 15 million tonnes of ash per year from 2035, leading to massive reductions in CO₂ emissions while digging away the heaps of stored ash.

COLLABORATION LEADS THE WAY

To accelerate the development of electrified, emission-free heavy transport, Ragn-Sells collaborates with the world-leading provider of transport solutions, Scania, and machinery service company FORIA to transport fly ashes from thermal power stations to Ragn-Sells' new Ash2Salt-facility northwest of Stockholm.

Today, there are several solutions for electrified transport, but most of them are for shorter distances and with not as heavy trucks. Scania's new heavy electric truck is one of the first of its kind and can handle loads up to 64 tonnes. The truck started to operate on the roads in Mälardalen region, Sweden, in October 2022.

Once the new Ash2Salt facility has opened in 2023, the electric truck will work in two shifts to decrease the number of transports that operate on fossil fuel. To avoid unnecessary and costly stops, the truck will be charged rapidly when loading and unloading.

At Ragn-Sells' facility Högbytorp, the tech company ABB has delivered two highly

efficient chargers with a capacity of 160 kW. The intention is that the same opportunity to charge will be available at the thermal power plant where the fly ash is collected later.

The collaboration with Scania and FORIA is a part of Regional Electrified Logistics (REEL), an initiative where leading Swedish companies and organisations accelerate the transition to electrified emission-free transports on our roads. The initiative is led by CLOSER, the Swedish platform for transport efficiency, which benefits from the support of the programme Fordonsstrategisk forskning och Innovation (FFI) to pave the way for the transition to electric freight transport in the Swedish market.



“What we do with fly ash is one of the largest investments that have been done within recycling of materials in Sweden. We are happy that the collaboration with Scania and FORIA enables electrified fossil-free transport of fly ash to and from our facility.”

Erik Wastesson, Project Manager at Ragn-Sells Sweden



HOW LANDFILLS CAN BECOME MATERIAL BANKS

Landfills might not be a primary association to the circular economy. However, what we cannot extract, recycle, or detoxify from waste today, we likely can tomorrow. Not even in the circular economy can all resources be in a constant loop. We need to be able to store them somewhere. Landfills can become our material banks from where we turn waste into resources.

Currently, it is not always possible to recycle or detoxify all waste, or even extract energy from it. Toxic waste such as heavy metals and other environmental toxins, pollute materials and the soil, and needs to be taken out of the loop. In the process of detoxifying the circular systems, landfills are necessary for this type of waste. Ragn-Sells owns and operates a number of landfills that are subject to environmental permits, and it is our top priority that storage in our landfills is safe. But we also see our landfills as potential material banks.

Fighting the climate challenge requires that we future proof access to critical raw materials. Without using virgin materials. For example,

the electrification we face in order to move away from fossil fuels is completely dependent on access to a number of rare metals. But at the same time we have to move away from virgin materials and towards reusing critical resources over and over again. Landfills may be part of the solution to this problem.

Technical innovations keep expanding the possible ways to reintroduce substances into the circular loop. It is likely that technological development will allow us developing resources even from landfilled waste in the near future. Our landfills – our material banks – can be an enabler on our journey towards circularity. ■



Landfills – emissions and recycling

During the decomposition of organic material in landfills, a greenhouse gas is formed, almost thirty times stronger than carbon dioxide. The landfill gas is largely generated from historically deposited organic waste and consists of methane, nitrogen, oxygen and ammonium. Most emissions of greenhouse gases from Ragn-Sells' operations actually derive from landfills. Since 2005, it is no longer allowed to deposit organic waste at landfills in Sweden, and we expect these levels to decrease in the future.

However, landfills can also be an energy carrier and a resource. Ragn-Sells collect and incinerate (thus avoiding emitting) landfill gas at the sites in Sweden. These efforts effectively collect the gas, which is then used for heating, cooling, and to generate electricity that our recycling processes can be run on.

Waste is valuable

In a linear economy it makes sense to aim for minimum waste, but, in a circular economy, waste and resources are the same thing. That means less waste is nothing to strive for. Most current regulation is designed for a linear economy. Unfortunately, this often leads to waste being treated in a way that makes future recycling impossible. Regulatory reforms need to take future technological development into account and enable storage of waste as material banks. Seeing landfills as material banks can enable our journey towards circularity.

ADVOCATING FOR A CIRCULAR FUTURE

We work continuously to create long-term attitude changes among decision-makers. Our aim is to impact rules and regulations in order to enable circular material flows.

Today, half of the world's emissions are caused by the production of common goods such as for instance food, clothing, and cars, according to the UN. This is largely a consequence of raw materials being mined, used, and then thrown away, rather than being recovered and used again and again. At Ragn-Sells we believe that it is possible to create a sustainable future by transitioning to a society based on circular principles, keeping critical resources in the loop instead of throwing them away.

In May 2022, we were invited by the International Chamber of Commerce (ICC) to participate in a World Trade Organization (WTO) meeting in Geneva. At the meeting we highlighted the challenges of trading CO₂ – a key enabler and feedstock in to one of Europe's largest circular economy projects that have the potential to significantly reduce global greenhouse gas emissions. We also described the challenges related to the use of phosphorus from secondary sources, where legislation now focuses on origin, rather than quality, of the raw material. →



“Free trade regulations are today one of the biggest blockers when we try to “mine” from our urban flows to transform from a linear to a circular society, even research and pilot trials are very complicated to conduct and as a result, it reduces the interest to invest in a circular development.”

Pär Larshans, Director of Sustainability and Public Affairs at Ragn-Sells Group

Ragn-Sells at the COP27 Business Sweden Arena

Ragn-Sells hosted several sessions on how to create a sustainable future:

- Call for collaboration: Developing climate resilient food system pathways
- Havbruk in Norway: Circular solution for sludge recycling in Norwegian fish farming
- How to avoid our oceans to be filled up with resources that should be kept in circulation
- Nordic vision: How nutrients can be recirculated repeatedly

Our Sustainability Director Pär Larshans was appointed co-chair of a new global working group on Circular economy by the International Chamber of Commerce (ICC) in September 2022. The group’s task is to contribute with a business perspective, knowledge and experience to current sustainability challenges defined within the The United Nations Environment Programme, UNEP, World Customs Organization, WCO, and The World Trade Organization, WTO. The working group will be led jointly by Ragn-Sells and representatives from the global law firm Greenberg Traurig and the global tech company IBM.

In October, WCO, organised the first in a series of symposia on “Visualising a greener Harmonized System” in Brussels. Our Sustainability Director Pär Larshans along with the European Commission’s David Kozik and the Food and Agriculture Organization’s Marcio Castro De Souza, were invited to provide input to the dialogue on the theme

“Expanding food horizons – recognizing agricultural diversity for sustainable global food security.”

According to the latest IPCC report released in April 2022, a shift to a circular economy is essential to achieve the targets set in the Paris Agreement. To share knowledge and showcase examples of how circular material flows are a key contributor for meeting the climate goals, Ragn-Sells participated at the UN’s annual climate conference (COP27) in Sharm El-Sheikh, Egypt, during two weeks in November 2022.

A small win at COP27 was to not lose the 1.5-degree ambition and to not ease the previous agreements from past COPs. Although circularity is almost not at all mentioned in the agreement, there were a lot of circular talks in the pavilions. For the first time agriculture was also part of the talks. This is very promising since circular solutions

will have the potential to both reduce the carbon emissions and reduce the risk of overshooting the planetary boundaries.

At COP27 we participated as part of Business Sweden’s delegation consisting of 26 Swedish trailblazing companies such as Alfa Laval, IKEA, and Tetra Pak, government agencies, academic leaders, and prominent NGOs. The aim of the delegation was to showcase the impact of sustainable solutions to key global stakeholders, as well as public and private decision makers, to generate growth potential within the green transition. ■

Ragn-Sells at Nature, WeDontHaveTime, and ICC global arenas

Ragn-Sells was part of or hosted several sessions at Nature:

- Circular solutions to reduce CO₂ emissions and avoid waste filling up our oceans
- Wastewater plants becoming resource plants, hosted by Ragn-Sells
- The nutrient challenge and alternative sources of Phosphorous, hosted by Ragn-Sells
- What about the big Nitrogen challenge? hosted by Ragn-Sells
- What about Havbruk? How to increase fish production within the borders of our planetary boundaries, hosted by Ragn-Sells

“Climate needs more circularity. At COP27 we had a special focus on how to produce food within the limitation of the planetary boundaries by using circular solutions.”

Pär Larshans, Director of Sustainability and Public Affairs at Ragn-Sells Group



FEEDING THE PLANET

The extraction of natural resources accounts for

90%

of the threat to access to water

“ TO ENSURE THAT NOT ONLY RICH PEOPLE CAN BUY EGGS IN THE FUTURE, WE NEED TO IMPLEMENT CIRCULAR PRINCIPLES ON HOW OUR MACRONUTRIENTS ARE SOURCED.”

Pär Larshans, Director of Sustainability and Public Affairs at Ragn-Sells Group

SUSTAINABLE FOOD PRODUCTION

Feeding the planet in a sustainable way is one of the biggest challenges of our time. Access to food is both a human right and a key component to reaching the global sustainable development goals. With a growing population we need to increase farming. But not just any farming. We need to grow more food in a way that does not harm the planet or the people living here.

To do this we need more fertiliser. According to the UN, the world is currently headed for a hunger catastrophe of historic proportions, partly because of a shortage of fertiliser. But the current way of sourcing and handling key agricultural nutrients used in fertilisers, such as nitrogen, phosphorus, and potassium, is deeply problematic and damaging to people and planet alike. It contributes heavily to climate change, pollutes the environment, overshoots crucial planetary boundaries, and creates dependencies from problematic sources.

The good news is that we have enough of these crucial agricultural nutrients available to source in a sustainable way. Right here in our sewers. We just have to start using them.

Transitioning to a sustainable way of feeding the planet demands that we use the raw materials already available in our waste streams – over and over again. We must make sure that valuable natural resources are recovered, recycled, and reused, while making sure that toxins are taken out of the loop. This depends on our ability to detoxify circular flows of raw material.

Ragn-Sells' technologies offer circular methods that enables production of fertiliser nutrients from waste streams that are available in every country on the planet. ■

Effects of today's fertiliser production

More than two percent of global greenhouse gas emissions come from the burning of fossil gas to produce nitrogen fertiliser. Hundreds of millions of children suffer from stunted growth and impaired brain development because of nitrogen overload in their local water.

Phosphate mines have a large climate impact and are polluted with heavy metals like cadmium and uranium, causing serious health issues. Potassium is mined, primarily in Canada, Russia and Belarus, creating heavy dependencies on problematic imports.

Curt Bergfors Food Planet Prize

Ragn-Sells was named as one of six finalists for the 2022 Curt Bergfors Food Planet Prize as a recognition of our technologies for recycling key fertiliser nutrients from waste. Launched in 2019, The Curt Bergfors Food Planet Prize is the largest monetary award in the environmental arena. It rewards innovative solutions that can help the world shift to sustainable food systems within a ten-year timeframe. The purpose is to recognise visionaries who are working to rethink, re-engineer and reshape our food systems and enable them to make an impact.

Ragn-Sells' entry for the award consisted of three separate, patented methods for recovering and recycling the three main nutrients crucial to agricultural fertiliser: Ash2Phos for phosphorus, Aqua2N for nitrogen, and Ash2Salt for potassium. Without these three key nutrients, it would be impossible for farmers all over the world to grow the food we need, especially as earth's population is expected to keep growing rapidly.

The two winners of the 2022 Curt Bergfors Food Planet Prize were ColdHubs and Global Mangroves Alliance.

INNOVATIVE TECHNOLOGIES

Ragn-Sells has developed innovative technologies that enable circular methods to use waste streams and produce three key agricultural nutrients: Nitrogen, phosphorus, and potassium. With these circular methods, Ragn-Sells wants to contribute to a thorough reform of the entire global food system. But it also requires new circular legislation everywhere.

Nitrogen and phosphorus are found in wastewater. Ragn-Sells has developed the technology to capture these nutrients and put them to new use. This way, wastewater treatment plants can become resource plants. This can eliminate the need to burn fossil gas to produce nitrogen fertiliser, or to mine as much phosphate tainted with heavy metals.

Potassium exists in fly ash, a by-product of energy production from the incineration of waste. Until now, fly ash has simply been landfilled and its resources wasted. Ragn-Sells has the technology to extract potassium from the fly ash, thereby making use of a previously discarded resource. ■



THREE CIRCULAR METHODS to produce key agricultural nutrients



Aqua2N

The standard method of producing nitrogen fertiliser is more than 100 years old and runs on fossil gas causing more than two percent of global greenhouse gas emissions.

The Aqua2N technology, by contrast, is a chemical method to capture the nitrogen from wastewater at the plant in a form instantly applicable as fertiliser.

Using the Aqua2N technology to capture nitrogen has the potential to significantly reduce greenhouse gas emissions with enormous benefits for the climate.



Ash2Phos

Normally phosphorus comes from phosphate mines. In addition to the large climate impact of mining for phosphate, most of the world's known phosphate reserves are polluted with heavy metals.

The Ash2Phos technology provides a method to extract more than 90 percent of the phosphorus from incinerated sludge, while getting rid of pollutants.

Using the The Ash2Phos process has the potential to significantly reduce greenhouse gas emissions with enormous benefits for the climate.



Ash2Salt

Generally potassium is mined, primarily in Canada, Russia and Belarus.

The Ash2Salt method provides a method to extract potassium from fly ash, a by-product of energy production from the incineration of waste. Until now, fly ash has simply been landfilled and its resources wasted.

The first full-scale Ash2Salt facility is about to start operations near Stockholm, and the technology is available in 12 countries.

Detailed information about the Ash2Phos, Ash2Salt and Aqua2N technologies can be found on the EasyMining web site.

NORWEGIAN FISH POOP

can replace Russian gas and phosphorus

Aquaculture, such as fish-farming, is essential to global food security. But its growth puts stress to the aquatic ecosystems. Waste from fish-farms consists mainly of fish faeces and waste feed – also called fish sludge. In Norway, Ragn-Sells Havbruk uses an innovative technology to extract energy and develops a way to also extract nutrients from fish sludge.

Norwegian fjords have natural advantages for aquaculture, but in some places the local conditions prevent the fjord from removing waste naturally. This creates an obstacle for the expected growth in production. At the same time, the waste constitutes a potentially valuable resource because it contains high quantities of the important mineral phosphorus.

This leaves room for innovative and circular solutions. In a pilot programme outside of Bergen, that is exactly what Ragn-Sells Havbruk and partners provide.

In the netpens off Osterøy in Sørfjorden, the rainbow trout swim around in the blueish green seawater mixed with fresh meltwater from the mountain. They are fed eleven times every 24 hours and they defecate at least as often.

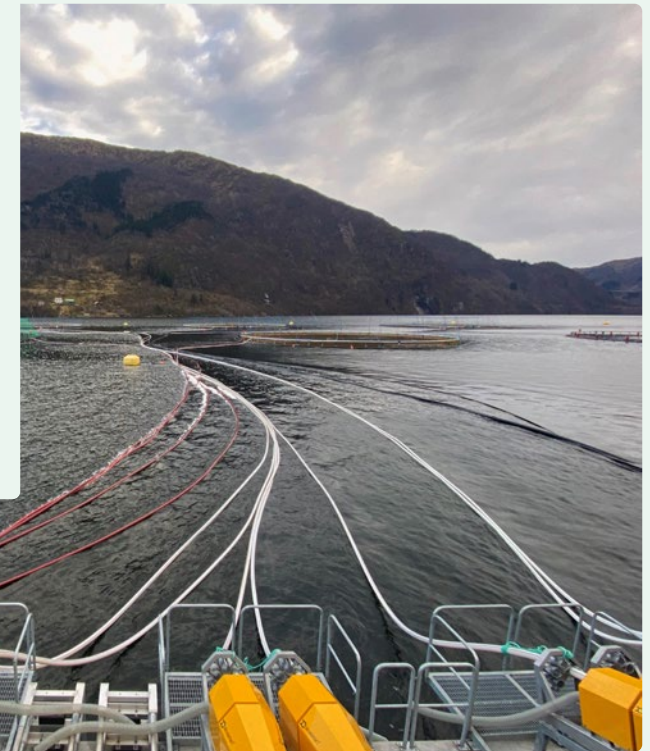
When the aquaculture firm Lift Up in Western Norway developed a combination filter to make use of the waste from these aquaculture facilities, Ragn-Sells Havbruk saw its opportunities and entered into a partnership.

The recently developed combination filter separates dead fish and fish sludge and

What is aquaculture?

Aquaculture can be described as the farming of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. Basically, aquaculture is farming in water. According to the UN, aquaculture contributes about 50 percent of global total fisheries production, making it an essential part of global food security and nutrition.

Source: FAO The State of World Fisheries and Aquaculture 2022



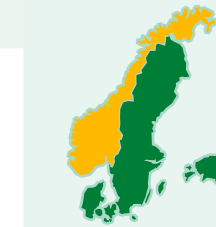
pump it into separate tanks where it is used to produce bioenergy, fuel, fish oil products, and organic fertiliser.

“This is the first facility in the world to make use of the invention. The system for collecting and removing waste from aquaculture netpens minimises the impact of food and fish faeces on the marine environment,” says Daniel Flatøy, Head of Logistics at Ragn-Sells Havbruk.

Since last summer, nearly 3,200 tonnes of fish sludge have been removed from Sørfjorden, equivalent to 70 percent of the total discharge.

Through this project, a Norwegian unique technology can contribute to transforming an environmental challenge into an international industrial adventure.

“Imagine fish sludge becoming biofuel on a jet plane that can ultimately take you to the Maldives or New York. That is what I call greener travel,” says Dag Martin Børhaug, General Manager of Ragn-Sells Havbruk. ■



Norway

Established	1989
Number of sites	30
Number of employees	416
Turnover (ext)	KSEK 2,223,000

Ragn-Sells in Norway

RECYCLED WOOD AND FOSSIL FREE ALTERNATIVES

This past year has been an eventful year on the Norwegian market with three main sustainability projects. In addition to the Havbruk initiative, we have invested in new production lines for the recycling of unsorted waste.

“THIS JOB IS COMPLEX — AND THAT’S WHAT MAKES IT SO FUN! I’VE BEEN HERE 18 YEARS AND NOT ONE DAY IS LIKE THE NEXT.”

Vidar Svenning Olsen, CEO of Ragn-Sells Norway

This enables both the production of Solid Recovered Fuel, a more sustainable type of fuel for incineration ovens used in the production of concrete, as well as a higher degree of recycling of materials that otherwise would have been incinerated.

“Our new production lines provide us with the opportunity to extract iron and other

metals from unsorted waste with the help of magnets, and we are working on being able to extract plastic as well from this unsorted waste,” says Vidar Svenning Olsen.

We have also continued our participation in the partnership sirkTRE, designed to boost the timber and construction industries in their transition to circularity. The intention of the project is to ensure that recyclable wood is used in construction projects and as raw material in the timber industry. This has the possibility to replace virgin materials in the construction industry.

“The sirkTRE project is a very exciting initiative for the circular transition! It is supported

by public funding and has the potential to reduce emissions by 0.5 million tonnes of CO₂ every year by 2024 and two million tonnes of CO₂ every year by 2030”, says Vidar Svenning Olsen.

In addition, we continue the job to reduce our own emissions by constantly replacing machinery and vehicles into fossil free alternatives.

“As a business we need to walk the talk, reduce our own emissions, and lead the transition to a fossil free society. In Norway, our ambition is to be completely fossil free in logistics by 2025,” says Vidar Svenning Olsen.

Going forward we see an even stronger focus on the recycling of used cars. We have



purchased several facilities for wrecked cars and prepare ourselves for the recycling of electric vehicles, EVs, an ever expanding market in Norway, planning for a new factory to deconstruct EVs.

“Norway has been leading in the transition to electric vehicles and we prepare ourselves to be ready when the first generation of EVs reach end of life and it is time to make use of all the valuable resources in them to avoid extraction of virgin materials,” says Vidar Svenning Olsen. ■

RECYCLED MATERIAL IN PROCUREMENT

In Sweden,

1/3

of the total climate impact from consumption comes from public purchases.

“PROCUREMENT CAN BE A POWERFUL TOOL IN THE TRANSITION TO A CIRCULAR ECONOMY.”

Massimo Forti, CEO of Ragn-Sells Denmark

PROCUREMENT AS AN ENGINE

in the circular transition

In Sweden’s action plan for circular economy, public procurement is highlighted as one of the most important tools to drive demand for recycled materials. Public purchases accounts for one third of the total climate impact from consumption and is therefore needed for Sweden to transform into a circular economy.

The value of public purchases in Sweden amounts to more than SEK 800 billion per year. This accounts for almost a third of the total climate impact from Swedish consumption. A large part of the climate emissions is due to the constant extraction of new raw materials needed to produce the large amount of products purchased each year.

If we are serious about creating a sustainable society, we must reuse already existing raw materials over and over again. The fastest way to develop a circular society is by mainly choosing recycled materials in all procurements. Nine out of ten Swedes, 87 percent, want their municipality to prioritise goods made from recycled materials whenever possible. This is according to an opinion poll

implemented by Ragn-Sells in 2022. Yet, it is still unusual for municipalities to prioritise recycled materials in their procurement.

Swedish municipalities procure approximately SEK 350 billion a year. Seven out of ten tenders in Sweden are made by municipalities, according to the Swedish Procurement Agency. If more municipalities were to demand recycled material, new cycles could arise. Since 2018, we have regularly assessed whether municipalities prioritise recycled material in their procurement. The main question in our surveys has been whether the municipality’s procurement policy in any way requests or prioritise goods made from recycled materials.

In 2022, only 19 municipalities out of 290 responded that their procurement guidelines state that goods made from recycled materials should be prioritised. Hence, Ragn-Sells has felt the need to carry out several activities to increase knowledge, build public opinion, influence public procurement, and change policies.

Our work on circular procurement has led to increased dialogue, and strengthened relations, with local decision-makers. We will continue building dialogue by initiating a platform for exchange on circular procurement between municipalities next year. Later on, the platform will also include companies. ■



The value of purchase

The value of purchases, covered by Swedish procurement laws, is estimated at approximately 800 billion Swedish crowns, equivalent to approximately one sixth of Sweden’s gross domestic product (GDP). Hence, purchases covered by Swedish procurement laws accounts for 23.5 million tonnes of carbon dioxide equivalents, or 28 percent, of the total climate impact.

In the EU, public authorities spend around 2.2 billion Swedish crowns, or 14 percent of the gross domestic product per year, on the purchase of services, works and supplies. In the energy, transport and waste sector for instance, management of public authorities are the principal buyers.

FAIR PLASTIC

creating a demand for recycled plastic

Only 9 percent of all plastic produced in the world is recycled. 12 percent is incinerated, causing huge emissions. The rest is either in use, landfilled, or dumped into our oceans or elsewhere. FAIR Plastic brings back plastic into the loop through recycling.

“Plastic is amazing and contributes in many ways to sustainability. But the consequences of our management of plastic waste have reached deep waters. Literally. Ragn-Sells is committed to develop and build solutions that can bring back as much plastic as possible into the production cycle again,” says Massimo Forti, CEO of Ragn-Sells Denmark.

Clean and consistent plastic waste has been recycled for decades. The main problem stems from the enormous amounts of mixed, unclean plastic waste that is not utilised properly. Fossil resources are lost and our climate and environment foot the bill. Businesses can take action to avoid plastics ending up in oceans and reduce the emissions from plastic incinerations.

“We can all take responsibility to increase the demand for recycled plastic in new products. I am proud that we at Ragn-Sells have created a new standard for recycling mixed and unclean plastic waste.”

Massimo Forti, CEO of Ragn-Sells Denmark



This is FAIR Plastic

FAIR Plastic is extracted from the mixed and unclean plastic waste from the Danish households, shops and companies. From this plastic waste, Ragn-Sells can produce several types of FAIR Plastic feedstock that are used in the production of new plastic products. This gives us the opportunity to save much more of the fossil resources.

Ragn-Sells has developed a new standard for recycled plastic called FAIR Plastic.

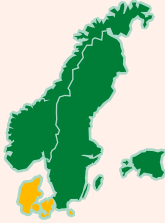
Traditional recycling of plastic is good. But it does not push the demands that the new climate plan makes, and it does not contribute to further reduction of our CO₂ balance. FAIR Plastic does.

Currently, only 30 percent of all Danish plastic waste is recycled. Ragn-Sells Denmark wanted to increase this share. With FAIR Plastic, a new, Danish plastic feedstock is introduced that addresses these problems from the bottom up. FAIR Plastic is extracted from the mixed and unclean plastic waste from the Danish households, shops and companies. From this plastic waste, Ragn-Sells can

produce several types of FAIR Plastic feedstock that is used in the production of new plastic products. This gives us the opportunity to save much more of the fossil resources.

The biggest challenge to reduce the wasting of plastics is the low demand for recirculated raw materials. But the demand is increasing. Ragn-Sells Denmark collects almost 60% of all plastic managed in the Ragn-Sells Group and some of the biggest retailers in Denmark, and leading companies such as Grundfos and LEGO have discovered these new possibilities, already using new plastic products with FAIR Plastic.

MARKET



Denmark

Established	2001
Number of sites	8
Number of employees	111
Turnover (ext)	KSEK 699,000

Ragn-Sells in Denmark

ELECTRONICS, TEXTILES, AND PLASTICS

The past year has been very successful for the reuse of electronics in Denmark. We have increased our focus on the reuse of electronics components, and will continue to do so the upcoming years, especially on smart electronics, such as laptops. Reuse of electronics contributes to our sustainability ambition, because it reduces the need for virgin extraction and thereby reduces climate emissions greatly.

“OUR ATTITUDE IS — LET’S TRY! WHEN WE SEE AN OPPORTUNITY, WE DO IT!”

Massimo Forti, CEO of Ragn-Sells Denmark

“We started focusing on the reuse of electronics already in 2019, but during 2022, we have really started to see results in volume. This is great for the climate”, says Massimo Forti.

The reuse and recycling of textiles has also grown in importance. During 2022, we built a sorting house and started manual sorting

to send either to reuse or recycling. We won the biggest contract with the biggest waste management company in Denmark for textile recycling, which will result in approximately 2,000 tonnes reused or recycled textiles per year. Plastics continues to be an important focus area for Denmark, with FAIR Plastic as the poster child.

“FAIR Plastic has been a great project to raise awareness in society regarding the huge problem of single plastics all the way to the UN. The next step is to get the customers to realise the huge benefits”, says Massimo Forti.

One of our biggest challenges for business development is connected to limited potential for automation. Currently, robotic technology works well to recycle material, but for reuse, we need manual management to recognise various types of textiles. However, we need to develop more automated processes to secure a good working environment. Of course, we are also affected by the war in Ukraine. We see that the insecurities also affect infrastructure projects, creating less waste, which of course is impacting our business.



Going forward, Ragn-Sells Denmark will focus even more on becoming an attractive employer and diversify our recruitment base to fulfil our diversity targets. This is increasingly possible as Ragn-Sells is becoming more and more recognised as a sustainability company. In addition our focus is to create large and circular industrial partnerships. In the pipeline is building a factory for the recycling of plastics, a joint venture with a Dutch company.

“We become a stronger force in society by building partnerships with those who are best in class.”

PARTNERSHIPS

for circular procurement

We cannot change the world alone. Partnerships and cooperation are key to identifying and developing new and innovative circular solutions needed to transform our linear economy to a circular society.

Ragn-Sells participate in a number of partnerships in order to promote more circular procurement practices. Through these collaborations we strive towards ensuring that a greater share of public spending is allocated to products that have been made fully or partly by recycled materials.

”The municipalities in Sweden buy goods and services for more than SEK 350 billion every year. By demanding more recycled materials, they could give the transition to a circular economy a huge push forward.”
Pär Larshans, Director of Sustainability and Public Affairs at Ragn-Sells Group.

Public procurement and circularity

The Public Procurement Act in Sweden enables municipalities and other governmental agencies to take sustainability considerations into account in public procurements.

The National Agency for Public Procurement develops criteria for how buyers can design sustainability requirements. One such criteria includes the recommendation to request information on the amount of recycled material in the procured goods. It is also possible to give benefits to this type of goods in the procurement, and to actually require that a certain part of the good shall be recycled.

Cooperation with Afori

In march 2022, Afori, a new platform for innovative public procurement was launched in Sweden. Ragn-Sells Head of Sustainability, Pär Larshans, participated with a key message on the importance of dialogue.

The purpose of the platform is to create a forum for all stakeholders – the public sector, private sector, academia and civil society – to share best practices, develop procurement policies and inspire each other.

The platform is based on an assignment to three governmental agencies to increase the number of innovative solutions through innovative procurement.

Local leadership in the circular transition

Every year since 2018, Ragn-Sells has sent a digital survey to all of Sweden’s 290 municipalities in order to map the status of procurement practices. The main survey question has been if the municipal’s procurement policy in some way request of prioritise goods made my recycled materials.

Based on the results of this yearly survey, Ragn-Sells has praised the good examples by appointing selected municipalities to Circular leaders, met with local leaders and issued diplomas.

SETTING AN EXAMPLE IN PROCUREMENT

If Ragn-Sells could reach a share of 50 percent materials sourced from recycled resources in procurement, we could lessen our greenhouse gas emissions significantly. But to get there we must deepen the understanding of the sustainability effect from using recycled materials.

“We have extremely ambitious goals and it will be a challenge to reach them. For change to come, the entire waste management industry will have to both adjust its prices, and demand more from both suppliers and customers,” says Massimo Forti, CEO of Ragn-Sells Denmark.

A central part of driving the change to a circular economy is to increase the demand for materials sourced from recycled resources. Ragn-Sells encourages procurement of goods made from recycled materials, both in public debate and in collaboration with customers and suppliers. But, if we are serious about reducing the need for virgin materials in production, we need to walk the talk and increase the share of recycled materials in our own procurements.

Our goal is to have at least 50 percent of all our procurement sourced from recycled resources by 2030.

Most of Ragn-Sells’ procurement relate to transport performed by subcontractors, vehicles and equipment to the sites, as well as fuel. The best chance for us to prioritise recycled materials in procurement is in categories such as work clothes, giveaways, and waste bins.

“The biggest challenge is that our suppliers need to deepen their understanding of their own sustainability performance and what to prioritise in procurements. They must also show us the relation between sustainability and costs. We do not have insight in this now, but we hope it will be regulated in the future,” says Massimo Forti.



During 2023, Ragn-Sells will map procurement in all operations to set a baseline for the share of recycled materials. This will enable a follow up on the progress towards the goal of 50 percent recycled materials in procurement by 2030.

“We also need to have a model weighing sustainability and price against each other to be able to choose suppliers based on sustainability performance, where recycled materials are a part,” says Massimo Forti.

During 2022, in collaboration with partners, we have developed both inner liners and waste bins containing FAIR Plastic, that will be launched in 2023.

“We should set a good example. If we want our customers to procure in a sustainable way, we must do the same,” says Massimo Forti. ■

Recycled materials in procurement

Ragn-Sells’ goal is to have at least 50 percent of all procurement sourced from recycled resources by 2030.

Most of Ragn-Sells’ procurement relate to transport, vehicles, equipment and fuel.

Prioritising recycled materials in procurement is easiest in categories such as work clothes, giveaways, inner liners and waste bins.

A close-up photograph of a person's hands being washed under a stream of water. The person is wearing a bright orange high-visibility work jacket with reflective grey and orange stripes on the sleeves. The background is a blurred green and white geometric pattern. The text 'OUR SUSTAINABILITY AGENDA' is overlaid on the left side in white, bold, sans-serif font, with a short horizontal line underneath.

OUR SUSTAINABILITY AGENDA

SUSTAINABILITY STRATEGY

Ragn-Sells' sustainability strategy guides our work towards sustainability and a fully circular economy. The overall goal for Ragn-Sells' sustainability strategy is our commitment to be climate positive by 2030 and to drive the transition to a society based on circular principles in a low carbon economy.

Our sustainability strategy is based on our vision to be living proof that caring for the earth and business go hand in hand. We want to lead the transformation towards a circular society that cares for the environment, counters climate change, and helps communities prosper. We provide society with a crucial service, taking care of waste products which otherwise would contribute to pollution of both air, soil, and water. We also contribute to a transition into a circular economy, where waste is turned into resources to secure the access to raw materials in society. This helps us counter climate change by decreasing CO₂e emissions from the extraction of virgin materials.

Since our core business is based on the idea to be sustainable, we consider our business strategy to be an integral part of our sustainability strategy. It gives us momentum in all sustainability work and consists of five areas that reinforce each other, help us reach our sustainability goals, and create competitive advantage.

Through our sustainability strategy we strive towards integrating sustainability in all aspects of our business.

- **Value creation and innovation.** We work with all stakeholders to develop innovative solutions and services that create value

for the environment, society, and economy at large, as well as for Ragn-Sells as a business.

- **People and culture.** Building a safe, inclusive, and visionary culture is key in our ambition to transform society into a circular economy. The people working at Ragn-Sells are at the heart of this quest. Our focus on health and safety, as well as competence development, enable a sustainable business development.
- **Climate and environment.** Our circular business model is designed to minimise negative environmental impact and reach

our ambition of being climate positive by 2030. Climate and emissions, environmental protection and biodiversity, and safe handling of landfills, are key aspects to achieve this ambition.

- **Responsible relations.** Ragn-Sells has an extensive value chain and often play an important part in other actor's value chain. This creates additional demands on us to act as a responsible business partner in all our operations and in everything we do. Our Code of Conduct and Business Partner Code of Conduct helps us secure a sustainable supply chain and strive to go beyond compliance. →



“Our sustainability strategy is in alignment with our vision to be living proof that caring for the earth and business go hand in hand.”

Miranda Jensen, Head of Group Function HSE Ragn-Sells Group

Our sustainability strategy is strongly anchored and aligned with the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States, and the Sustainable Development Goals (SDG's). The following goals are especially relevant to our business: **SDG 9 Industry, Innovation, and Infrastructure**, **SDG 12 Responsible**

Consumption and Production, SDG 13 Climate Action, and SDG 17 Partnerships for the Goals.

To fulfil our strategy and achieve our sustainability commitment, we have identified seven specific sustainability goals to be achieved by 2030.

THE GLOBAL GOALS



Our sustainability goals

- 01 Diversity**
- 02 Work safety**
- 03 Resource focus instead of waste focus**
- 04 Reduce CO₂e emissions**
- 05 Circular solutions**
- 06 Transparent material flows**
- 07 Recycled material in procurement**

SUSTAINABILITY INTEGRATION

Driving the transformation from a linear to a circular economy requires new types of business models, thought leadership, as well as committed partnerships with a variety of market actors. Ragn-Sells strives to become a thought leader and a role model in the circular economy.

We aim to find new circular material flows in collaboration with partners, to maximise the value of scarce resources. Both at our company level and at the level of the whole society, this transformation can be seen as a journey, which requires collective commitment and efforts at several levels.

On the basic level, our focus is on managing negative externalities through compliance, ensuring that our operations cause no harm to people or the planet. Additionally, we have a clear focus on strong financial performance

and corporate governance to further strengthen our license to operate.

On the tactical level, we have focused on fully integrating sustainability into our business strategy and business development for the past six years. A critical part of the integration is to understand and influence market demand for more sustainable and circular waste management solutions. This again requires continuous, dedicated, and transparent engagement with stakeholders.

On the strategic level, our ambition is to become an activist company by taking an active part in the public debate and sharing our knowledge with relevant stakeholders. Collaboration and inclusion continue to be our preferred strategy to shape the market, create new ways of doing business, and eventually transform the society into a circular economy.

To strengthen our tactical sustainability work, we have appointed sponsors to each of our seven sustainability goals. First, the sponsors

are responsible for developing strategies and action points for their respective goal. Second, the sponsors shall report progress to the Executive Leadership Team (ELT), which is the highest governing body for Ragn-Sells' sustainability work. The sponsors are also a part of the ELT, along with Group CEO and Director of Sustainability and Public Affairs. Meaning that they answer to each other and the integration in the organisation for each goal is frequently followed up. ■



STAKEHOLDER ENGAGEMENT

Many of our stakeholders share our concerns regarding areas crucial to the transition to a circular economy. This includes issues such as climate change, environment and biodiversity, business ethics, and anti-corruption, as well as health and safety.

Through collaboration and effective dialogue with different stakeholders we get a better understanding of our sustainability impact in society, expectations from stakeholders, and learn from good practices. This type of knowledge and partnership is essential for our ambition to lead the transformation to a circular economy and develop our business.

At the same time, the concerns and expectations from stakeholders vary depending on their relationship with Ragn-Sells and our business. We are aware that new stakeholders may appear as we continue to develop our business and sustainability work. Hence, we

continuously conduct a stakeholder analysis where we assess our relevant stakeholders and the impact we have on each other.

Our prioritised groups of stakeholders are those we assess are most affected by our business operations, and the ones who have the greatest influence on our work. As illustrated on this page, these groups are owners, employees, customers both upstream and downstream, policy makers, the general public and partners/suppliers. The figure also illustrates the most important topics for each group of stakeholders. ■

Prioritised stakeholders



STAKEHOLDER DIALOGUE

During 2022, we have had an ongoing dialogue together with all of our prioritised stakeholder groups.

Stakeholder group	Dialogue in 2022
Owners	Board meetings and financial reporting are the main channels for conducting dialogues with our owners.
Employees	An Employee satisfaction survey conducted biannually complemented with a Pulse survey performed in the inbetween year, meetings, onboarding and offboarding surveys, dialogue with union representatives and safety representatives.
Customers upstream	Customer surveys, personal meetings, our Customer portal, interviews.
Customers downstream	Customer surveys, dialogues, on-site audits, follow up on Business Partner Code of Conduct.
Policy makers	International perspective: Regular meetings with politicians in the EU Parliament, ongoing dialogue with politicians on national level in all countries where we operate. National perspective (Sweden): Personal meetings, round table discussions, seminars, consulted as experts in different processes of policy making.
General Public	Round table discussions, open seminars in for example Almedalen, meetings, cooperation groups (samverkansgrupper).
Partners/Suppliers	Supplier assessments, supplier dialogues and meetings, on-site audits.



MATERIALITY ANALYSIS

To identify what areas and topics Ragn-Sells should particularly focus on in our sustainability efforts, we conduct a materiality analysis on a regular basis, involving our key stakeholders. The purpose of the analysis is to identify potential critical economic, environmental, and social impacts that Ragn-Sells has, and might have, as well as issues that substantially influence the decisions of stakeholders.

By assessing where Ragn-Sells has the most positive and negative impact on people and society, the environment, and the economy, we can allocate our resources and sustainability efforts to where they make the biggest difference. To contribute to a more sustainable society we need to know what we have to change in our business, why, and how.

In 2021, we did a thorough stakeholder dialogue. The results were compiled, analysed, and used as the foundation for an internal discussion about our sustainability impact. This resulted in a mapping of our material topics, illustrated in the figure, showing our stakeholders' concerns and expectations in

relation to the degree of our significant impact on these issues.

In 2022, we did a deep dive into the materiality analysis from 2021 and mapped our material topics against trends and developments during the past year. It was an internal process to identify any needs for updating the materiality analysis. The conclusion was that no significant changes had occurred that would call for adjustments.

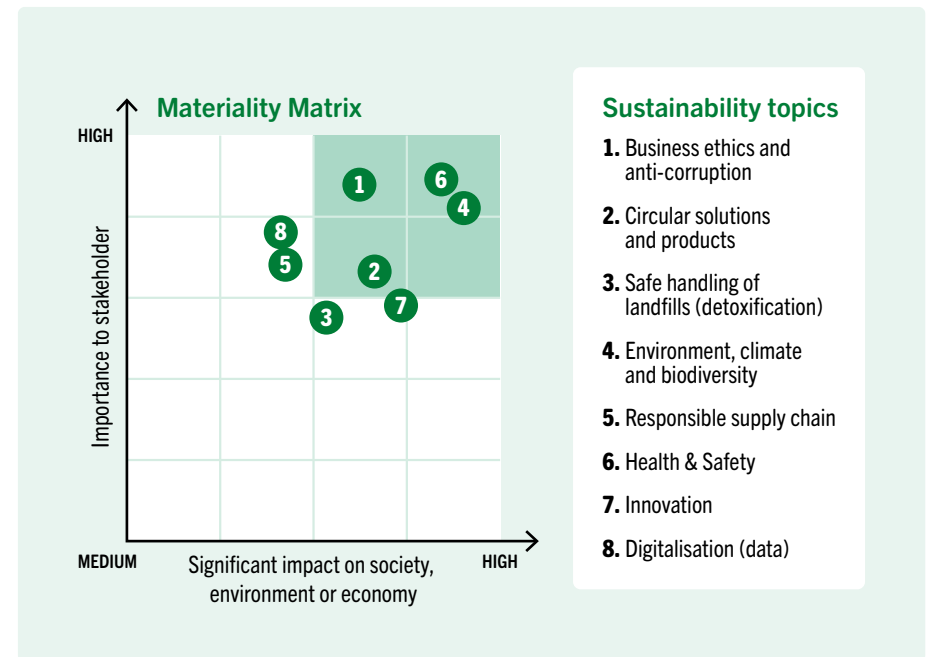
Taking into account both the impact on society, and importance to our stakeholders, our material sustainability topics are: circular solutions and products, health and safety, environment, climate, and biodiversity, as

well as business ethics and anti-corruption. These material topics are woven into our seven sustainability goals. For example, our sustainability goals **Resource focus instead of waste focus** (Goal 3), **Reduced CO₂e emissions** (Goal 4), **Circular solutions** (Goal 5), **Transparent material flows** (Goal 6) and **Recycled materials in procurement** (Goal 7) are all connected to our impact on the material topic of Circular solutions and products.

Biodiversity and human rights are two sustainability topics growing in significance globally. The increased significance of these topics are a direct consequence of the strong connection to climate change, as well as an elevated

regulatory focus on business responsibilities connected to these issues. Ragn-Sells acknowledges that we need to strengthen our competence on these issues and further assess our impact in the coming years.

Advancing our sustainability goals will demand improved ways of working, innovation, and technical development. To succeed we need new and diverse perspectives. Furthermore, we need to tackle the challenges of finding the right competence to help us get there, and we also need to contribute to modern legislation and regulations that enable change in the way society values waste. ■



MANAGEMENT AND GOVERNANCE

Our management approach to sustainability is to create a company culture, and a model for collaborating with partners, that is based on trust. This foundation in trust enables us to be a driving force for sustainable business development and circularity. The building blocks of creating trust internally and externally are illustrated in our 5C leadership model – Communication, Collaboration, Commitment, Compliance, and Competence.



Communication

We are constantly increasing our ability to communicate, allowing everybody inside or outside Ragn-Sells to contribute to our sustainability goals. We listen to each other and seek dialogue. We give constructive feedback that leads to greater results.

Collaboration

We help each other to succeed through collaboration, by sharing knowledge and by networking. Collaboration also consists of creating common goals to support one Ragn-Sells, as well as to accelerate circularity together with our external stakeholders.

Commitment

We are committed to Ragn-Sells and are loyal to decisions that are taken by the company. By setting clear and measurable goals for each employee, we inspire people to be committed. We strive to continuously improve as individuals and as an organisation.

Compliance

By caring, taking responsibility, and being compliant with external laws, regulations, and standards, as well as internal policies and guidelines, we maintain trust in us as a partner in the circular economy transformation. Compliance is an ongoing process that sets expectations for our behaviour. Furthermore, compliance helps us to stay focused and work through operational excellence.

Competence

We develop our skills and competence through our ongoing work and specific competence development. With the appropriate competence, we can support our customers in their circularity journey.

GOVERNANCE STRUCTURE

To harmonise our sustainability efforts across the entire company and all country offices, we have established Group Functions to coordinate our actions across country borders.

Each Group Function is responsible for implementing actions towards their strategic goals, in accordance with our sustainability strategy and material topics.

Coordinating our efforts on sustainability falls under the responsibility of the Group Function Sustainability & Public Affairs. Reporting on sustainability performance is conducted on a quarterly basis to the Executive Leadership Team (ELT) and the Ragn-Sells Group Board. Our Group Function Sustainability team is headed by our Director of Sustainability, who has the responsibility to coordinate the Group's overall sustainability performance.

The economic planning is performed through the Group strategy development, the respective business planning, and budgeting processes. Steering and follow-up is performed

in our business units through specific KPIs and certain targets per country. Deviations from set targets lead to specific action plans that are followed up at the specific business unit levels.

Membership of associations

BIR (Bureau of International Recycling)
ERFO (European Recovered Fuel Organisation)
ETRA (European Tyre Recycling Association)
EuRIC (European recycling industries)
FEAD (European Waste Management Association)
ICC (International Chamber of Commerce)
ÅI (The Swedish Recycling Industries' Association)
Water Europe



Our different country offices are certified according to the following ISO standards:

Sweden	ISO 45001	Occupational health and safety
	ISO 9001	Quality management
	ISO 14001	Environmental management
Norway	ISO 45001	Occupational health and safety
	ISO 9001	Quality management
	ISO14001	Environmental management
Estonia	ISO 26000	Social responsibility
	ISO 45001	Occupational health and safety
	ISO 9001	Quality management
Denmark	ISO 14001	Environmental management
	ISO 45001	Occupational health and safety
	ISO 9001	Quality management
	ISO 14001	Environmental management

COMPLIANCE AND RISK MANAGEMENT

Being compliant relates to a broad spectrum of business and sustainability issues, such as corruption, bribery, competition, and the provision of safe quality products and services. It also includes labour rights issues such as health and safety, and workplace discrimination.

The Ragn-Sells Group continues to be firmly committed to conducting our business and pursuing our interests in a legal and ethical manner. Given that we have businesses in many countries, and we are involved in a wide range of processes, services, and products, we take a comprehensive perspective on business ethics and strive for an ethical business conduct in all levels of our operations.

In the Ragn-Sells' Code of Conduct it is underlined that we insist on honesty, integrity, and fairness, and that we are committed to upholding and promoting high ethical standards in all aspects of our business. The Code of Conduct also includes our position on legal compliance, human rights,

employees, business ethics, conflicts of interest, company assets, and exports to developing countries.

Ragn-Sells complies with all applicable anti-trust and competition legislation. We have a zero-tolerance for corruption and bribery, and any deviations are acted upon immediately. Business ethics is addressed by group management through the adoption of a common Business Ethics Directive. This outlines the group's position regarding corruption and bribes, conflicts of interest, and competition law.

To act as a responsible business partner, we also need to identify and be aware of any potential risks, both downstream and upstream. In our downstream activities it is mainly inter-

actions with other actors, both local and global, that could potentially involve risks. Potential issues include non-compliance and deviations from environmental, social, and economic laws and regulations. In our upstream flows, risks include poor working conditions for entrepreneurs, hired transporters, and workers at the sites of our suppliers and customers.

To increase awareness and understanding for the business ethic aspects amongst employees, an e-learning class was developed in 2020. The programme consists of three modules of corruption, anti-competitive behaviour, and conflict of interest. The modules are available in all of Ragn-Sells' working languages; Swedish, Danish, Norwegian, and

Estonian. The training is mandatory for all managers and white-collar employees, however, all employees are encouraged to conduct the training. Attendance levels are generally high in all countries, but need to be constantly prioritised to maintain adequate attendance levels in the coming years.

During 2022, no confirmed cases of corruption were reported (2021: no cases). Furthermore, there were no confirmed cases of employees being dismissed or disciplined for corruption, nor confirmed incidents leading to the termination of contracts with business partners for such a reason. No lawsuits were brought against any of Ragn-Sells' companies within the field of competition law (2021: no cases). →



Compliance

Our overall compliance programme, established in 2019, stipulates the process for operating in compliance with external laws and regulations, as well as the internal ethical principles and standards. The programme lays out the roles and responsibilities within our organisation for prevention, mitigation, and action in case there are deviations or if any risks materialise.

The Ragn-Sells' Code of Conduct and our Business Partner Code of Conduct lay the foundation for our compliance management. The Ragn-Sells' compliance policy clearly outlines that the Code of Conduct is to be strictly observed by all companies within the Group, all employees, officers, and board members, and in all markets at all times. To ensure awareness and understanding of the Code of Conduct, we continue to implement our educational programme for employees.

All our employees are required to undertake the training, and in 2022 the majority of employees completed the training.

Whistleblowing

We strive to promote transparency and openness with regards to compliance and possible deviations. In order to reduce the risk of misconduct, employees are encouraged to seek advice on integrity and ethical behaviour from their direct manager, or anyone in the management team. Employees are also encouraged to raise their concerns on potential violations of the Code of Conduct and its underlying policies and instructions.

Incidents of suspected misconduct are reported either to the direct management, or alternatively, through an internally hosted whistle-blower channel, reporting directly to the group CEO. Since 2021, we also have an external whistle-blower channel.

We are committed to ensure that persons reporting on potential violations or misconduct suffer no harassment, retaliation, or adverse employment consequences. The reported cases of misconduct are investigated locally or centrally, depending on the nature of the issue, with a clear escalating process up to the CEO. During 2022, 4 incidents were reported through the whistle-blower channel. No convictions related to violations of human rights, labour law, or other violations of legislation related to social aspects such as discrimination or harassment, were reported for 2022 (2021: no cases). ■

Ensuring correct communication on sustainability

As laws and regulations on responsible marketing have become stricter, this puts pressure on us to make sure we communicate the right information and that we avoid any incorrect environmental claims.

To ensure a correct communication on sustainability matters we have initiated a mandatory

training for employees in sales and communication. The focus is on avoiding the risk of greenwashing.

Ragn-Sells have also produced a glossary which describes our most commonly used concepts on sustainability, and how to use them. The glossary will be available in relevant languages.



REPORTING ON 2022

01

DIVERSITY

Goal: The culture in Ragn-Sells is inclusive and non-discriminative where diversity and gender balance amongst company leaders is the norm.

The Ragn-Sells Group is committed to improving diversity in general and to broaden our thinking and our perspectives. We are in particular committed to increasing the share of women in leadership positions to counteract the imbalance of today. We aim to achieve this by strengthening the diversity, equity, and inclusion perspectives in our human resources processes. Specifically, through a focus on gender composition in both recruitment and selection process, as well as when preparing talents and successors for key positions, in order to make this as balanced as possible.

Since our industry has a history of male over-representation our objective is to achieve an even gender balance within the organisation. To help us reach that objective, we have set clear ambitions related to gender equality:

- At least 50 percent of all new leadership recruitments are to be female until 2030.
- Wanted position 2025: Women in Profit & Loss leadership teams: 35%
- Women in Succession Planning: 40%
- Women in Leadership positions: 30%



“Ragn-Sells wants to be a thought leader in circularity. To succeed, we need to create an inclusive culture where different ideas can flourish and where diversity is the norm.”

Susanne Schumann, Director of Human Resources at Ragn-Sells Group



Our diversity, equity, and inclusion believes:

Age diversity

Requires continuous learning and provides knowledge exchange and a better understanding of customers.

Gender balance

Our strategic commitment to Diversity, Equity & Inclusion with the goal of maintaining equal pay.

Cultural diversity

Provides different insights and a variation of perspectives.

LGBT+*

Requires that our workplace provides psychological safety to be able to be our authentic selves.

Supporting individual needs

Different working models in different life phases promotes a better well being.

Our 5C's

Our cultural framework that sets expectations for leadership and behaviour.

*1) LGBT (lesbian, gay, bisexual, transgender)

01 DIVERSITY

- Wanted position 2030: 50/50 gender balance in all leadership positions and leadership functions.

We believe diversity gives access to a wide variety of talents, skills, and experiences which helps provide insights into societies needs and motivations. We strive to broaden our perspective on diversity and to ensure an inclusive workplace where people can grow, perform well, and continuously develop – at all levels and positions – regardless of race, ethnicity, gender identity, age, disability, sexual orientation, religious beliefs, or national origin.

The past year, we have been working actively with Diversity, Equity and Inclusion across the Group. We have reviewed and updated internal processes, such as the recruitment policy and the employee development talks, in order to ensure alignment across the Group. Each business unit has made relevant Diversity, Equity and Inclusion agendas in order to fulfil business needs. We have also started rolling out our 5C leadership model to ensure further skills development.

Our overall compliance programme, established in 2019, stipulates the process for operating in compliance with external laws and regulations, as well as the internal ethical principles and standards concerning diversity and discrimination. Ragn-Sells' Code of Con-

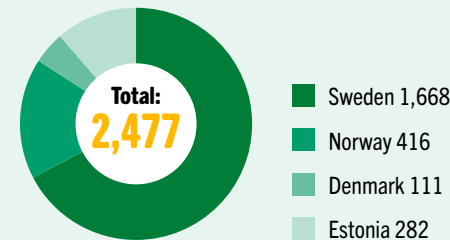
duct gives a clear message that the company is an equal opportunities employer, where discrimination and violence, bullying, threats, abuse, or harassment are not tolerated.

To ensure that all Ragn-Sells employees complies with the Code of Conduct, the following activities are performed:

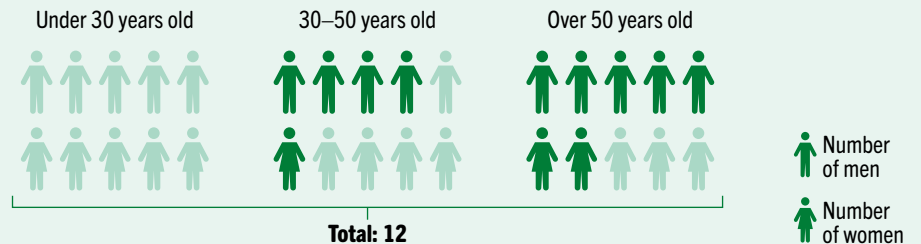
- All new employees conduct training in Ragn-Sells Code of Conduct.
- When recruiting, we always ensure advertising and interviews provide equal opportunities.
- We review salaries annually to ensure fair wages; salaries are set based on role and responsibility.
- We have a whistle-blower function for employees to report negative conditions.
- Employee surveys are conducted bi-annually, where employees are asked to give feedback on work environment related topics.

During 2022, 4 incidents were reported through the whistle-blower channel, and there were 0 convictions related to violations of human rights, labour law, or other violations of legislation related to social aspects such as discrimination or harassment, reported for 2022 (2021: no cases). ■

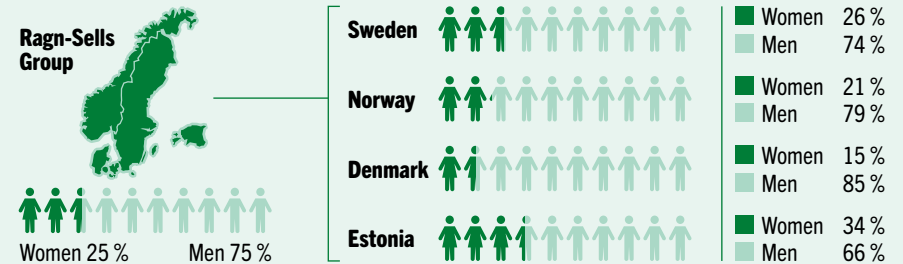
Number of employees 2022



Diversity in top management 2022



Employees by gender 2022



02

WORK SAFETY

Goal: Our work safety is industry leading, and we are perceived as a role model.

To reach our goal to become the industry leader in workplace safety by 2030, we run a range of group-wide initiatives to shape a strong safety culture. For employees to feel supported in reporting risks or incidents, our management must foster open communication as a company norm. These principles are at the heart of every effort contributing to the culture of safety at Ragn-Sells.

To shape a culture of workplace safety, leadership is key. Throughout the Ragn-Sells group, health and safety issues are managed locally within the different companies. These issues are heavily regulated by legal requirements. To ensure the same health and safety standards in all countries where Ragn-Sells

operates, local policies and procedures are in place. Incidents, near misses, risk observations, and sick leave are monitored by all Ragn-Sells companies.

Safety issues are also dealt with in local safety committees, present in all our operating countries. They represent all employees and meet on a regular basis. Routines and responsibilities are in line with each respective country's national legislation. All employees and operations are directly covered by ISO 45001, an international system for managing workplace health and safety on both a physical and psychological level. Suppliers and other contractors are indirectly influenced by some routines and working methods in our manage-

“If we are careless about safety, we put ourselves and our colleagues at risk. Our goal is a business where no one gets hurt on the job. Always take the time to think before you do anything!”

Mikael Hedström, CEO of Ragn-Sells Treatment & Detox Sweden



ment system. Compliance with routines in the management system is controlled through internal and external audits, and continuous implementation of preventative measures.

With the purpose of setting the framework for Ragn-Sells future safety work, our group common Safety Board cover areas and key performance indicators as Lost Time Injury Frequency (LTIF), Total Recordable Injury Frequency (TRIF), progress reporting on decided safety activities for Group and sharing and communicating best practices in a structured and systematic way.

For Ragn-Sells Group, the LTIF resulted in 7.8 and TRIF at 14.7 during 2022. We will continue both developing and implementing new KPI's as well as training and support in how to work with root cause analysis during 2023 to ensure improvement of our safety standards, measures, and culture.

During 2022, our incident management system, ImproveRS, already implemented in our Norwegian and Swedish operations, was launched in Denmark and Estonia. The purpose with the ImproveRS system is to streamline the reporting of incidents, near misses, and risk observations and to work more effectively with corrective measures. The system has already given a very good



02

WORK
SAFETY

overview of what measures have good effect and what we need to prioritise in the health and safety area.

Each of our local management systems include steering policies and steering documents to ensure that employees work in a safe manner. This also includes local risk assessments which are the basis for existing and changed working methods. The risk assessments are regularly controlled both in audits and by authorities, and we update our local management systems whenever we encounter a new potential risk in our operations. Each manager is responsible for safeguarding the health and safety of their closest co-workers and all employees are always free to refrain from a potentially hazardous situation without any reprisals. Furthermore, safety officers frequently conduct systematic inspections of the sites to control and improve the health and safety environment for the employees. These occur at least once a year, but in some sites up to four times per year. The systematic inspections are adapted to each different business and the safety officers are frequently trained in both risk awareness and equipment safety.

Identifying and assessing risks on a continuous basis decrease the risk of actual incidents. Therefore, our employees are highly encouraged to report any form of risk observation. To guarantee our employees full protection from any form of corrective measures, only managers can see what their employees have reported. The importance of reporting, incidents, near misses, and risk observations is continuously communicated on different levels throughout the organisation.

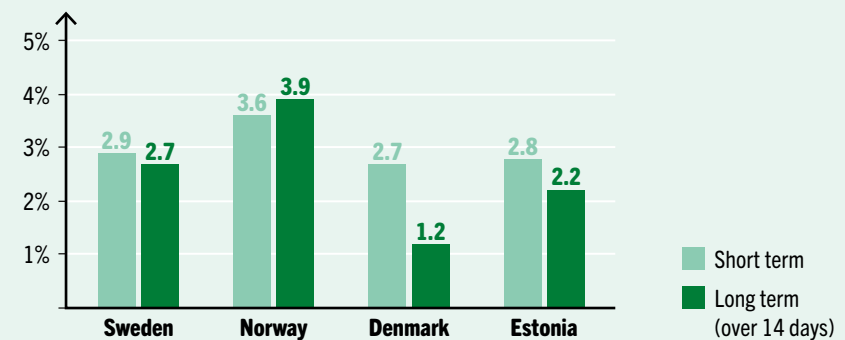
In the event of incidents in the business, we report to, and cooperate with, the relevant authorities and take necessary measures to prevent similar events from occurring again. To avoid risks we will continue to increase focus on identifying and communicating root causes in 2023.

The most common hazards in our workplace are slips, trips, falls, falls from heights, contact with sharp edges, and improper working positions. Within Ragn-Sells, hazards are defined and documented in instructions, identified locally after investigations, and subsequently reported centrally. In 2022, 205 injuries were reported, of which lost time cases 50, medical

treatment cases 57, permanent disability cases 3, restricted work cases 4, and first aid cases 91. In order to reduce injuries, we will increase focus on training, awareness raising, and root cause analysis in 2023.

To raise awareness of risks, we are planning to develop a group-wide e-learning onboarding programme in risk awareness and safety culture in 2023. ■

Percentage of sick leave 2022



03 RESOURCE FOCUS INSTEAD OF WASTE FOCUS

“Today, almost all legislation is about solving waste problems and reducing the amount of waste. This counteracts a circular economy! The solution is a completely new principle, which instead is based on supplying society with the raw materials we need.”

Anders Kihl, Director of Strategy and R&D at Ragn-Sells Group



Goal: The established waste hierarchy (part of the EU legislation) has been replaced by a resource focus instead of a waste focus principle that emphasises the importance of securing the availability of circular resources.

The transition to a fossil free society will require the continued extraction of virgin materials. For example, the coming decades of electrification will require more copper and rare earth metals than can be found in today's waste streams. But a changed fundamental view on waste, focusing on our need to secure the supply of raw materials, is an absolute requirement for our ability to break the both harmful and risky dependence on virgin materials.

Taking part in the public debate and regulatory development is therefore an important part of our approach to advance the circular agenda.

We work actively to create long-term attitude changes towards a more circular economy, as well as to impact rules and regulations in order to enable circular material flows.

We sometimes describe ourselves as an activist company, strongly advocating for more ambitious regulation around circular waste management systems in various forums. We continuously initiate public dialogue and share our knowledge with relevant stakeholders. Political spheres, industry initiatives, and media platforms are examples of where and how we engage to reach out with our message.

This report has provided numerous examples of how we during 2022 have engaged with our stakeholders and advocated for a more circular future. It has been a very active year for dialogue. On our local markets, we participated for example in Arendalsuka in Norway and Almedalen in Sweden.

Our presence on the international arena included presentations for international organisations such as the World Trade Organization (WTO), and the World Customs Organization (WCO). We also had a strong presence at the UN's annual climate conference (COP27) as part of Business Sweden's delegation. The

perhaps most impactful event during 2022 for our potential to push the global agenda towards a circular economy, was the appointment of our Sustainability Director Pär Larshans as co-chair of a new global working group on Circular economy by the International Chamber of Commerce (ICC).

To support the sustainability goals and to drive change towards a circular economy, we will continue to coordinate our advocacy activities cross the Ragn-Sells Group in 2023. ■

04

REDUCE CO₂e EMISSIONS

“By 2030, Ragn-Sells Group will be climate positive. We get there by drastically reducing our own emissions, shifting from fossil to renewable energy sources, working closely with our partners, and offering circular solutions that help others cut their climate emissions.”

Magnus Uvhagen, CEO of Ragn-Sells Recycling



Goal: Ragn-Sells has reduced the footprint from our operations and facilities in line with, or better than, the Paris agreement.

Our negative environmental impact mainly derives from emissions from landfills, transport, and treatment plants. We continuously work on limiting our negative environmental impact. This includes handling, monitoring, and limiting emissions to air, land, and water, developing transport logistics, switching to renewable fuels, and performing final coverage on landfills.

Emissions of greenhouse gases

Emissions of greenhouse gases are one of the most important aspects for Ragn-Sells to consider in terms of our impact on climate change. We are committed to substantially reducing our emissions within the coming

years to reach our ambition of being climate positive by 2030.

To be climate positive by 2030, and to drive the transition to a society based on circular principles in a low carbon economy, we must reduce our own carbon emissions with at least 50 percent compared to 2019.

This reporting year, Ragn-Sells' total emissions of greenhouse gases amounted to 97 thousand tonnes including landfill gas (112 thousand tonnes, 2021). Total emissions of greenhouse gases, landfill gas excluded amounts to about 51 thousand tonnes.

Emissions from transports

A major part, 47 thousand tonnes of our emissions (34 thousand tonnes, 2021), derive from fossil-fuels from transport. In recent years, we have taken several measures to decrease the environmental impact, including eco-driving, a review on route optimisation, updating the vehicle fleet, and replacing fossil fuels with renewable options. By switching to a greater share of bio-based fuels, we can effectively reduce our climate emissions from transports. In 2022, our main focus was to replace fossil fuels with renewable fuels, and to invest in new electrical vehicles.

Our emissions from business travels decreased to 993 tonnes CO₂ (1,185 tonnes

CO₂ 2021). Our vehicle fleet for company cars now consists of 94 percent electrified vehicles – compared to 88 in 2021. Several of our vehicles at our operation sites are now completely electrical and the sites also have solar panels installed. The purchased electricity for all operations in Sweden is origin-marked renewable electricity.

Due to improved methods and processes for data collection, we are now able to report emissions from additional transport categories, such as downstream customer transports. This explains an increase in total emissions from transport compared to last year, despite the above efforts to decrease the emissions



04

REDUCE CO₂e EMISSIONS

from other emissions categories emanating from transport.

Emissions from landfills

Most emissions of greenhouse gases from Ragn-Sells' operations derive from landfills, which accounts for about 45,100 tonnes CO₂e, or a little less than 50 percent. In 2020, we changed the way we report emissions from our landfills, moving from theoretical calculations, to actual measurements of real methane emissions. This affects the possibility to effectively compare yearly development from the baseline year of 2019. After three

years of measurements, we have proven that our emissions are much lower than the theoretical model previously used but there are still uncertainties that need to be clarified. Going forward, we will continue to carry out CO₂e measurements from landfills annually to be able to monitor a more stable downward trend in emissions from the landfills. When we have monitored the actual landfill emissions for some years, we will have the possibility to set up relevant actions to reduce the emissions so that we are in line with our 2030 ambition.

Emissions and effluents to water and soil

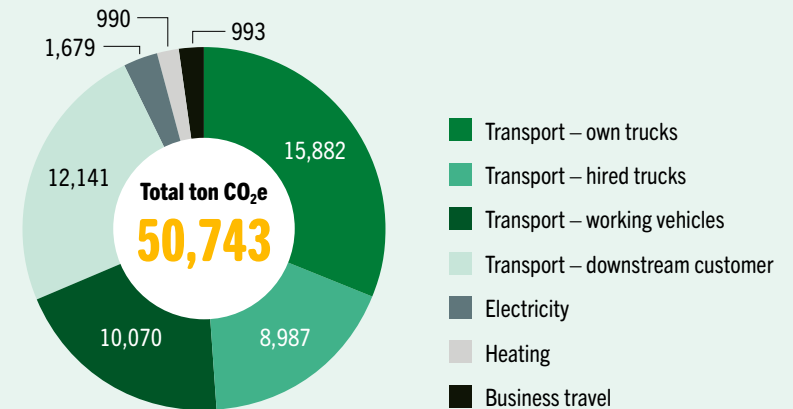
In addition to CO₂e emissions, our business also causes emissions and effluents to water and soil. Protecting the environment and local communities, as well as promoting biodiversity, includes minimising our effluents to water and soil, and ensuring a sustainable local environmental impact. Ragn-Sells effluents to water and soil derive mostly from treatment plants and mainly consist of metals, nutrients, and oils.

Environmental protection and concern for biodiversity often implicates local actions.

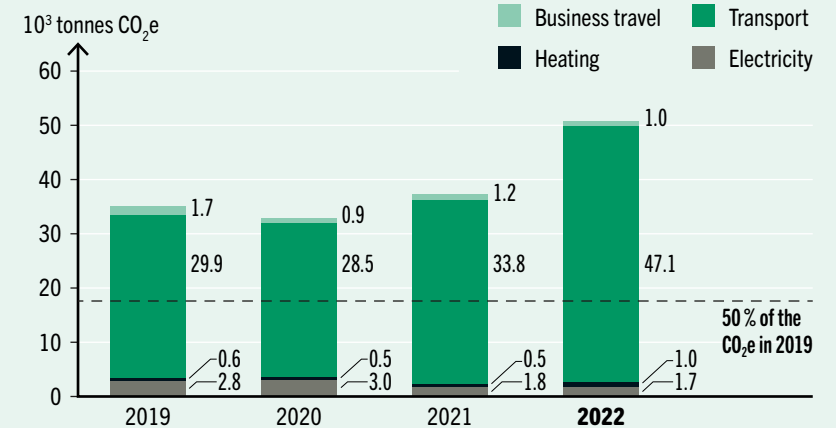
Therefore, the operational responsibility associated with the company's environmental permits is delegated to the respective site manager. At the facilities, the precautionary principle is considered when permits and specific terms are decided. Risk analyses are conducted continuously within the framework of the company's risk management routine and according to the precautionary principle.

Ragn-Sells also participates in different cooperation forums for water collaboration and water conservation associations.

2022, excluding landfill gas (tonnes CO₂e)



Total CO₂e Ragn-Sells Group, excluding landfill gas



05

CIRCULAR SOLUTIONS

Goal: Through collaboration with partners and society we develop and deploy refined and value-creating circular material flows, with the aim to increase material recycling and avoid emissions.

Recycling worn-out products and bring waste into new raw materials are among the most effective measures to reduce climate impact since energy consumption is lower in the recycling of materials than in the extraction of new raw materials. Through new circular innovations and solutions – such as detoxification, resource recycling, emission reduction or capture – implemented together with our business partners we contribute positively so that carbon emissions are avoided or stored elsewhere.

Today, Ragn-Sells' business idea builds on circular solutions and on closing the loop of material flows. Many of our operations enable more materials to be used over and over again, with decreased production from primary resources as a result.

Through different types of research and innovation projects we develop, implement, and improve approaches to resource management aiming to detoxify and maintain the value of societies circular resources. We develop resource-focused circular processes in close

“Thinking circular from the start, we design for closed loops at the drawing table. We use no toxic substances that end up in the loop, or components that can not be taken apart and recycled. In that way, materials retain their value, regardless of how many times we use them.”

Vidar Svenning Olsen, CEO of Ragn-Sells Norway



collaboration with universities, research institutes, customers, and other stakeholders in society. We also actively support cooperation through multi-sector symbiosis exploration.

One of the most important steps during 2022 was to introduce a proactive environmental approach and milestones to support achieving better circular practices. We established an Innovation Steering Committee (ISC) including Head of Innovation Management, Director of Sustainability, Research & Development, all Profit & Loss Departments, and country CEOs on Group level to revise organisational set up and to compile knowledge, insights, and innovation interventions for Circular Solution (CS).

The ISC will create a framework for monitoring, measuring, and improving innovation area to determine the principles, guidelines, and approaches for the Circular Solutions Portfolio. Through national and international

research and innovation programmes, Ragn-Sells joined several new external multi-stakeholder collaboration projects supported in its four operational countries.

Additionally, in 2022, Ragn-Sells advanced a great number of necessary partnerships related to plastics, wood, textile, construction materials, aquaculture, and other relevant sectors connected to many of our innovations. Noteworthy examples include: In Sweden the Flat Glas Project with Saint Gobain and Clean Construction project with IKANO. In Norway, the oil contaminated water project with Øras, and CirkWood with IKEA. In Denmark the RSW Plastics with Van Werven and the light-weight aggregate with Leca. In Estonia the Oil Shale Ash Project with Tarkett, turning ash into PCC. ■

06

TRANSPARENT MATERIAL FLOWS

Goal: The depositing of our downstream material on the world market is monitored and audited in a transparent and compliant manner and is the norm in society.

Bringing material back to the society is at the core of our operations. We provide collected materials to recycling facilities, paper mills, plastic or metal industries, or to intermediaries that deliver material for recycling. Other customers include energy companies who use waste products to produce electricity and district heating. Therefore, we often play a crucial role in other actors' value chains both as a customer and as a supplier. This creates additional demands on us to act as a responsible business partner in all our operations and in everything we do.

Since 2019, we have used the EcoVadis platform to manage and communicate our sustainability performance with ratings on four themes: environment, labour and human rights, ethics, and sustainable procurement. In 2022, Ragn-Sells achieved the silver level in the EcoVadis rating system after an independent survey.

Identifying any risks, both downstream and upstream in our value chain, is the first step to ensure a responsible supply chain. In our downstream activities, both locally

“For companies to dare to buy materials produced from waste, they must be able to trust where the material comes from, what it contains, and what we have done with it. Transparency creates trust and guarantees that the material we sell has both a good origin and a secure future.”

Jonas Wäneskog, Managing Director at Ragn-Sells Recyclables



and globally, involvement with other actors can involve risks, such as non-compliance and deviations from environmental, social, and economic laws and regulations. In the upstream, risks include poor working conditions for temporary staff, and workers at the sites of our suppliers and customers.

The Ragn-Sells Business Partner Code of Conduct (CoC) lays the foundation for risk mitigation and management and stipulates our continuous efforts for a sustainable value chain. This Business Partner CoC sets out the basic requirements we place on our suppliers in terms of their responsibility to their stakeholders, and covers topics such as legal compliance, business ethics, human rights and labour rights, environment, and export of waste.

Upstream business partners conduct self-assessments. Based on these they are grouped into risk categories. If there are any signals of

non-fulfilment of contracts or the Business Partner CoC, the supplier is audited.

In 2022, 11 critical upstream suppliers were audited, of which none of the audits resulted in terminated relationships. During 2023, we will continue performing audits at high-risk suppliers. We also conducted audits of downstream business partners based on risk assessments covering geographical area, material, and treatment type, and customer specific details. The actions performed to reduce risks within the value chain were also applied to the actors used to transport the materials to the waste receivers.

A critical part of the audit is to decide if any corrective actions are needed such as price adjustments, penalties, or early termination of agreements. During 2022, 12 of our critical downstream customers were audited, of which 0 resulted in terminated relationships.

07 RECYCLED MATERIALS IN PROCUREMENT

“By asking for recycled materials in the procurement for our own operations, we help create a circular society. In 2030, half of the goods we purchase will be made from recycled raw materials.”

Massimo Forti, CEO of Ragn-Sells Denmark



Goal: At least 50 percent of all our procurement is sourced from recycled resources.

Most of Ragn-Sells' procurement relate to transport performed by subcontractors (temporary transporters), vehicles and equipment for the operational plants, as well as fuel. But we want to walk the talk by also requesting our suppliers to use recycled materials in their productions. By procuring products with recycled content, we promote the change to a circular economy.

If we are being serious about driving the change towards a circular economy we need to set an example and be best in class when it comes to recycled materials in procurement.

The goal for our own procurement is very ambitious and it will be a challenge to reach

it if the rest of the industry does not share our ambition. There is still much to be done but by steadily increasing recycled materials in our own operations we contribute to increased demands of goods made out of recycled materials.

During 2022, in collaboration with partners, we have developed both inner liners and waste bins containing FAIR Plastic, that will be launched in 2023.

During 2023, Ragn-Sells will map our own procurement and establish a baseline for the share of recycled materials in our procurement. This will enable us to better follow up on our progress towards our goal for 2030,

when 50 percent of procured materials should be sourced from recycled resources.

We will also prioritise recycled materials in procurement of the following categories: work clothes, give-aways, inner liners and waste bins. The goal for 2023 is that our work clothes are 100 percent made out of recycled materials, that our plastic bags and waste bins are made of FAIR Plastic, and that we only use give-aways made from recycled materials. We also aim to increase collaboration with our suppliers and customers in order to develop additional solutions for how to increase the share of recycled materials in our procurement. ■

FINANCIAL INFORMATION

As we conclude 2022, we are very proud of what has been happening across all our markets and business areas. Despite the level of significant investments, we improved our financial position and strengthened our ability to continue the circular transformation. Thus, showing that caring for the earth and business go hand in hand.

The completion of the Ash2Salt plant has been the largest investment Ragn-Sells has made so far. It will certainly be followed by multiple initiatives of other game-changing technologies, both by Ragn-Sells and others.

From a financial perspective, these investments are enabled by sustainable finances from our current operations.

Ragn-Sells has the capacity to continue exploring and pushing barriers. By research, development, and innovative solutions we will continue to lead the transition to the circular economy.

“Our main challenge is to make sure that we are financially solid and able to both invest in innovative solutions required for the transition to a circular economy, and ensure sustainable finances in our daily operations.”

Madeleine Ljunggren, Chief Financial Officer at Ragn-Sells Group



Direct economics value generated (MSEK)

Revenues	8,696
Net investment	347

Distributed economic value (MSEK)

Employees (Wages and other remunerations)	-1,850
Suppliers and public sector (payment)	-6,630
Sum of distributed value	-8,480
Profit from associated company	24
Operating profit	588
Providers of capital (payment)	-8
Accounted taxes	-111
Profit	469
Dividend to owners	6



For further information regarding this report, please do not hesitate to contact Pär Larshans, Director of Sustainability & Public Affairs at Ragn-Sells Group. par.larshans@ragnsells.com

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