

Now & Next

Nature



We are protecting nature, assessing and supporting biodiversity and managing water responsibly.

We have increased our focus on measuring biodiversity in our own forests and are investigating new science-based approaches for setting targets for nature.

- In this section**
- Protect and regenerate forests and biodiversity
 - Water management



Protect and regenerate forests and biodiversity



14

paper mills with biodiversity programmes*

The circular economy is regenerative by design, prioritising resources to stay in use for longer and ensuring processes which extract natural resources leave room for biodiversity and natural systems to regenerate.

By sourcing responsibly and using sustainable forest management practices, we reduce our impact on nature and encourage biodiversity to thrive.

Protecting and regenerating forests and biodiversity is essential to ensure the survival of plant and animal species, genetic diversity and natural ecosystems.



Measuring and improving biodiversity contributes to reducing the degradation of natural habitats, halting the loss of biodiversity and protecting and preventing the extinction of threatened species.

2023/24 highlights

Three

biodiversity assessments completed across two forests, helping us to begin to measure and improve biodiversity

* Cumulative total of mills with biodiversity projects per year.

Protect and regenerate forests and biodiversity

By 2025, measure and improve biodiversity in our own forests and assess our dependencies on nature

Measuring biodiversity in our Georgia, USA, forests

In 2021/22, we began a collaboration with the University of Georgia Warnell School of Forestry and Natural Resources to provide undergraduate and graduate students the opportunity to work with us to gain a better understanding of the biodiversity that could be found and supported within our own forests. In phase one, they created a list of species we should expect to encounter in our forests.

In 2022/23, phase two of the project involved gathering data and establishing a biodiversity baseline. Project groups assessed flora and fauna using a variety of tools and identified several species of interest in our forest lands.

In 2023/24, the final phase of the project, two graduate students carried out fieldwork within our forests.

One student, Elise McDonald, focused on the presence of wild pollinator species in our pine stands. Another student, Aisha Nobles, conducted further assessment on gopher tortoises and key species of interest, building off the work conducted by undergraduates in the previous year.

Elise McDonald collected samples of pollinators by installing bug traps in various strands of forest. She continues to collect more data with the bug traps and is identifying all collected insects to compare their presence across pine stands that have been raked of pine straw, and pine stands that have been left untouched. This is an area of work that is of high emphasis in the forest management industry.



Aisha Nobles identified many gopher tortoise burrows in our forest lands and is currently quantifying the population of tortoises on our properties. She will determine the viability of the overall gopher tortoise population to inform future forestry management decisions. She has also placed dozens of camera traps across our forest lands to monitor the presence of other species of interest as they walk in front of the cameras.

Over the years of our collaboration with the University of Georgia, several students have received real world experience in working with external organisations, gaining industry contacts and knowledge. Working with the University of Georgia furthers our knowledge of the species present in our forests.

“Working with DS Smith has allowed me to investigate the effects of pine straw management on wild bee community structure, an important facet of forest management, yet understudied. Seeing problems from multiple perspectives and working closely with people of different expertise, we can identify conservation solutions that are more operationally feasible to implement.”

Elise McDonald
Graduate Student



A key difficulty surrounding this project includes the large and dispersed forest lands that we own in southeast Georgia.

As nature and biodiversity are developing and emerging areas of focus, there is no one set guideline on how to measure or quantify biodiversity, therefore partnering with an academic institution has allowed us to better tackle this target.

Assessing forest biodiversity and ecosystem services in Portugal, Iberia

Over five months in 2023/24, a biodiversity assessment was completed in partnership with the consultancy Natural Business Intelligence (NBI), a business and ecology consultancy based in Portugal, for two regions of our Portuguese forests: Outeiro and Vale de Mouro.

The assessment focused on identifying habitats and species in the two study areas, encompassing 100 per cent of our forest lands in Portugal and 33 per cent of our total Iberian forest. The aim was to demonstrate and signal the current state of biodiversity and ecosystem services present, and inform management solutions going forward.

NBI carried out this assessment through field visits, analysis of GIS, satellite data and imagery, reviews of existing database and documentation, and interviews with our forestry team.

In Vale de Mouro

The first study area, Vale de Mouro, covers 706,8 ha and is located mostly in the Alegrete parish, Central-east Portugal. The assessment identified 14 habitats in this study area, of which 29 per cent were determined as High Natural Value areas, which can be considered a priority for conservation or control of exotic or invasive species.

In total, the study also identified 219 flora species within the area, 18 per cent of which are considered of conservation interest, as well as 293 fauna species, where 29 per cent are considered species of conservation interest, including the greater horseshoe bat (*Rhinolophus ferrumequinum*) and the golden eagle (*Aquila chrysaetos*).

In Outeiro

The second study area, Outeiro, covers 178.6 ha and is located mostly in the Outeiro parish, northeast Portugal. It was found to have six habitats, 11 per cent of which were considered High Nature Value Areas.

The assessment in Outeiro identified 155 flora species within the area, 20 per cent of which are considered to be of conservation interest, along with 192 fauna species, 26 per cent considered to be of conservation interest, including the great tit (*Parus major*) and the Provencal fritillary (*Melitaea deione*).

Joao Goncalves, Forest Director, Iberia, was really pleased with the results and explained that “the assessment within our forests in Portugal has shed light on the fantastic variety of fauna and flora present, and how important it is to proceed with responsible and sustainable forestry management practices, informed by this assessment, to continue in the conservation of our native biodiversity and ecosystem services enhancement”.

Outcomes

This project, promoted by Joao Goncalves, focused on the assessment of several key ecosystem health indicators. Based on these indicators, we were able to estimate the potential of the main ecosystem services provided by these forests, namely carbon sequestration, surface and groundwater availability, water purification services, erosion control and flood regulation.

This work provides us with a strong basis for the work we are doing to set targets to regenerate nature taking a science-based approach, following the Taskforce on Nature-related Financial Disclosures (TNFD) and Science Based Targets Network (SBTN) guidance. NBI have shared proposed management and monitoring measures to continue to promote biodiversity.

Information and policies

[Sustainable Forest Management and Fibre Sourcing Policy](#)

Protect and regenerate forests and biodiversity continued

By 2025, biodiversity programmes in place at each of our paper mills

Biodiversity programmes aim to sustain and support the variety of plants, animals and the ecosystem health at and surrounding our paper mills, including the communities of which they are a part. All 14 paper mills have completed at least two years' worth of biodiversity activity to date.

Site-based biodiversity activity

Site-based initiatives are often employee led and demonstrate their commitment towards local biodiversity. For example, a member of the Site Services team at Kemsley mill, England, constructed ten bat boxes to place around the mill's perimeter, providing the local bat population somewhere safe to roost and raise their pups. Colleagues at Reading mill, North America, focused on maintaining their onsite beehives by splitting hives, planting perennials and enjoying their first honey harvest amongst colleagues at the plant.

Another great example is our team at Aschaffenburg mill, Germany, who were recognised for their ongoing commitment to maintaining green spaces. This programme is now largely in the hands of its employees, who have implemented further measures to promote biodiversity including mosaic mowing, planting wildflowers and removing invasive species - which all serve to keep its local 'Blossoming Company' certificate.

Supporting biodiversity efforts in the community

Challenges posed by construction on-site disrupted some of our mills' biodiversity plans, yet their innovative ideas were used to support local biodiversity efforts in the community instead.

Riceboro mill, North America, engaged with a local school using their new 'biodiversity lesson plan' which was attended by over 500 students. Colleagues at Zărnești mill, Romania, partnered with Tudor Association, Brasov, to provide 50 students with a lesson about supporting local bird life including the building and painting of bird boxes to be put up around the school and mill.



Flower meadows and insect houses at Kaysersberg and Coullons, France

Colleagues at Coullons paper mill, France, planted three flower meadows at the entrance of the mill, including a variety of 15 plant species to help support biodiversity by attracting new varieties of insects. The insects can take shelter in a new insect house, which the team built from scratch using recycled materials.

At our other French paper mill in Kaysersberg, 15 colleagues constructed two insect houses in collaboration with the local environmental protection association, Sentinelle Nature Alsace. The insect houses were placed on two newly planted flower meadows at the mill entrance, allowing the insects to easily access food from the flowers. To learn more about biodiversity, the team also visited the local wildlife conservation park NaturOparC. The organisation works to preserve endangered species with breeding and reintroduction programmes for local animals.

"Building the insect houses was a great experience for all involved, raising awareness of the importance of preserving biodiversity while also allowing us to spend time together with colleagues from across the mill. Both associations - Sentinelle Nature Alsace and NaturOparC - make important contributions to biodiversity in the local area, so it was a pleasure to work with them and support them financially."

Audrey Heinrich
Communications and HR Responsible



Beekeeping events in Witzhausen mill, Germany

In 2023, the local association Beekeepers at the Hohe Meißner e.V., contacted Witzhausen paper mill and received funding from the DS Smith Charitable Foundation. They held an informative series of events titled 'Sustainable Beekeeping in Frau Holle Land'.

The series included courses on the basics of beekeeping and planting bee havens, and featured guest lecturers.

"With a strong partner behind us, training and events were made possible that we would otherwise not have been able to finance. Thanks to DS Smith, we have been able to boldly develop and expand our ecological education work in 2023."

Martin Schuler
Chairman Hohe Meißner e.V



Tree planting in Dueñas mill, Spain

As part of their Biodiversity Programme, our Dueñas paper mill recently supported biodiversity and landscape recovery in the local community through planting trees that are native to the area.

The project aims to preserve and enhance the surroundings of the Ermita de la Virgen de Onecha church, a historical building located just across the river from the mill. The project included weeding and maintaining the large trees of poplars, mulberry, juniper and pine, and cleaning the pond.

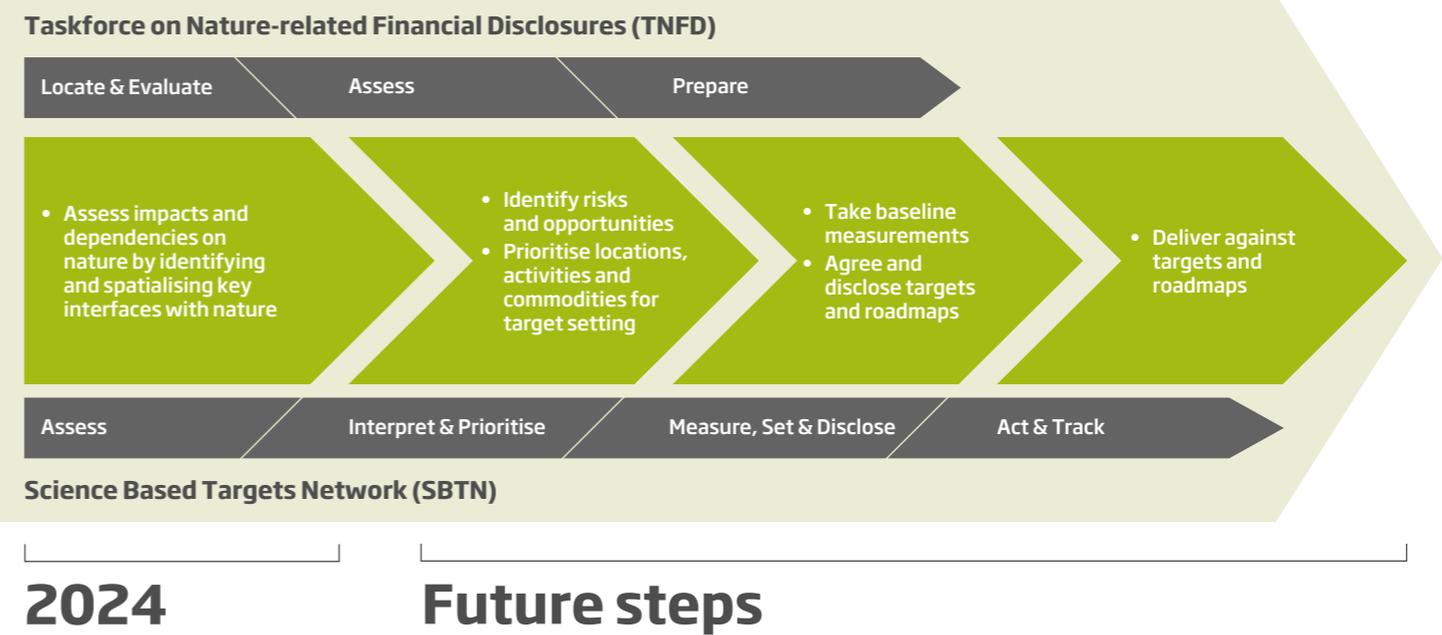
The landscape design and tree species were chosen specifically to ensure minimum future maintenance, and to improve habitats for local wildlife.

Protect and regenerate forests and biodiversity continued

We will analyse our impacts on nature across our value chain following TNFD and SBTN processes



Our approach to assessing our impacts and dependencies on nature



Set targets to regenerate nature taking a science-based approach

We have established strong foundations to reduce our impact on nature by sourcing responsibly, managing our forests and operations sustainably, and working in partnership with our communities.

However, our Now & Next Nature pillar remains a key area of opportunity to further learn about our impacts on the natural environment and what we can do to reduce them further. We are dependent on nature in a variety of ways, including through the use of natural resources, such as timber and water, or through the ecosystem services that nature provides, including climate regulation, water purification and pollination.

Assess our dependencies on nature

In 2023/24, building on the work achieved with our forests in Georgia, USA and Iberia, we initiated a collaboration with a specialist agency to assess our impacts and dependencies on nature from a business-wide perspective. This will be carried out during 2024/25.

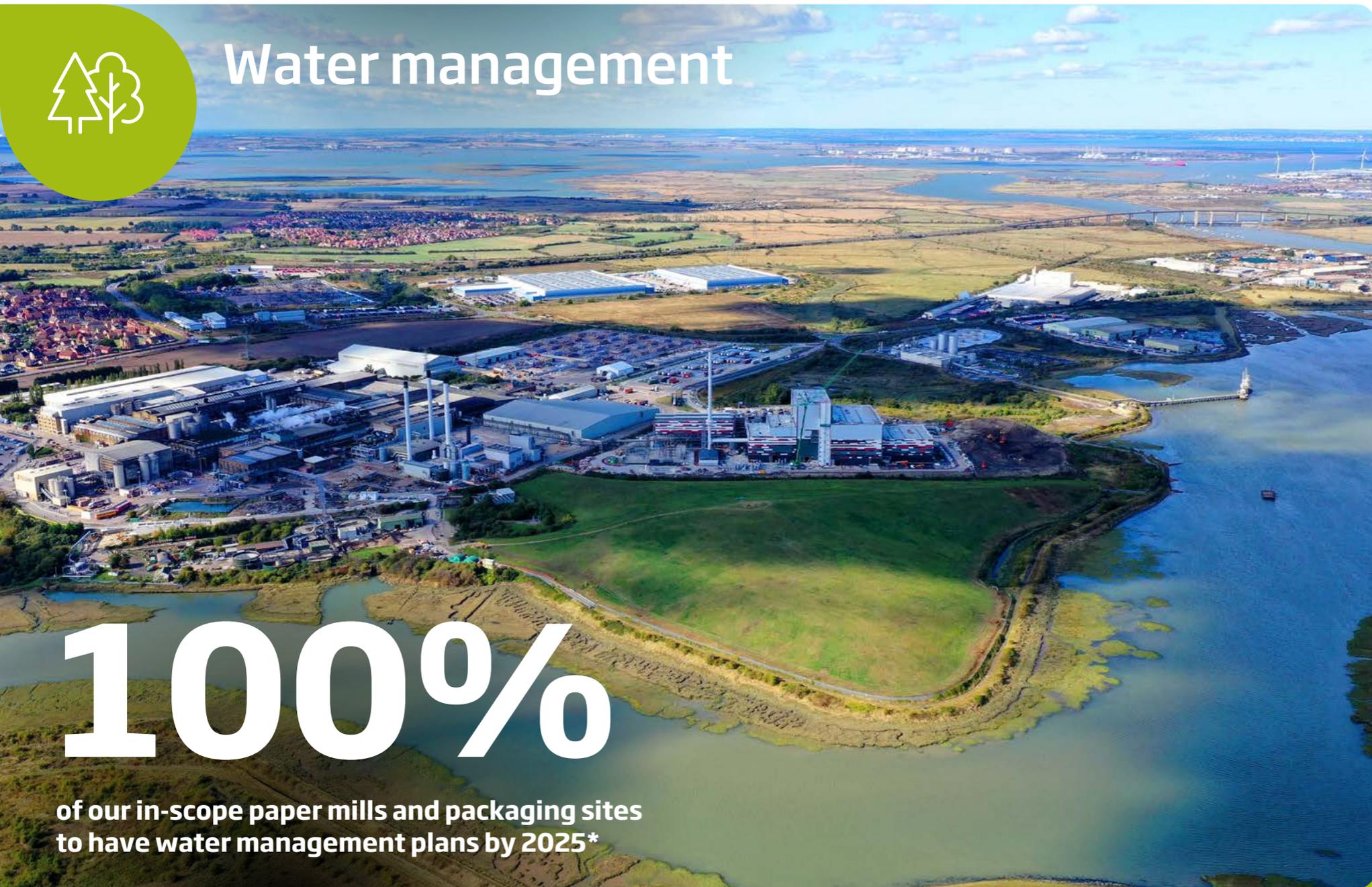
The impact assessment will identify where our most material impacts and dependencies lie within our direct operations, upstream supply chain and a high-level view in our downstream. The assessment will consider the key pressures on nature loss, as described by Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), in all geographies that we touch upon.

These could include land-water-sea use change, ecosystem use, water, air, and soil pollution, disturbances and invasive species, as well as resource extraction.

The assessment will follow initial steps set out in the Science Based Targets Network's (SBTN) Technical Guidance and the Taskforce on Nature-related Financial Disclosures (TNFD). The assessment will help to inform our ambition to set targets to regenerate nature taking a science-based approach by identifying the most material areas on which to focus.



Water management



100%

of our in-scope paper mills and packaging sites to have water management plans by 2025*

Processes for natural resource use are designed to allow natural systems to regenerate. By reducing the amount of water we withdraw from nature to carry and transform fibre through our operations, we have an opportunity to reduce pressure on natural systems.

By reusing and recycling water multiple times and through efficient water treatment, over 70 per cent of the water we withdraw is safely returned to the natural environment to continue the water cycle.

Responsible water management is important to benefit and respect the needs and priorities of all water users in a locality, in a way that does not harm the natural ecosystem and water cycle.



Responsible water management contributes to improving water quality, efficiency and scarcity, protecting and restoring water ecosystems.

2023/24 highlights

7.52m³

water abstracted for use in own process per tonne of production (at mills at risk of water stress)

Begun the development of

Water Management Plans

for 2025*

* Sites in scope include manufacturing sites with >5,000m³ annual water withdrawal, identified at current or future water stress risk with the WRI Aqueduct Tool.

Water management

By 2030, 10 per cent reduction in water withdrawal per tonne of production at mills at risk of water stress compared to 2019

In 2023/24, the average water abstracted for own process per tonne of production at paper mills located in regions at risk of water stress was 7.52 m³/t nsp (2022/23: 8.4 m³/t nsp), reflecting a 10 per cent reduction since 2019/20, driven by the closure of Trakia (Pazardzhik) mill. In addition to the closure, changes to the energy system at Aschaffenburg resulted in greater volumes of water exported to a third party, reducing own process water use significantly. At Alcolea, a new shoe press has been set up to squeeze and recirculate water back around the water loop, thus reducing water withdrawal. Over the course of the next year we will evaluate how to take the target forward to further water reduction, reuse and recycle opportunities.

Managing water resources effectively

In our direct operations, approximately half of our sites maintain ISO 14001 certified environmental management systems, which includes practical tools to manage environmental impacts and responsibilities, including water impacts. This enables management that is specific and tailored to its locality. Regular reviews are conducted to ensure that responses to water-related risks can be implemented in a timely manner. As part of our supplier engagement programme, we set standards relating to water reduction and assess the water performance of our suppliers using EcoVadis. This supplements our use of the WRI Aqueduct Water Risk Atlas tool to identify direct operations located in water-stressed areas.

Aqueduct was updated in 2023 with new inputs to the hydrological model, providing more accurate baseline data, as well as future projection data for 2030, based on the latest climate models. Whilst this up to date data has informed our climate scenario analysis, the scope of the sustainability target remains the same scope identified in 2022/23.

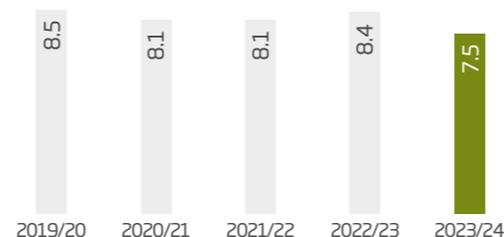
Information and policies

[Group Water Management Policy](#)

[WRI Aqueduct Water Risk Atlas](#)

[CDP Water Security](#)

Water abstracted for use in own process per tonne of production (at mills at risk of water stress) (m³/t nsp)

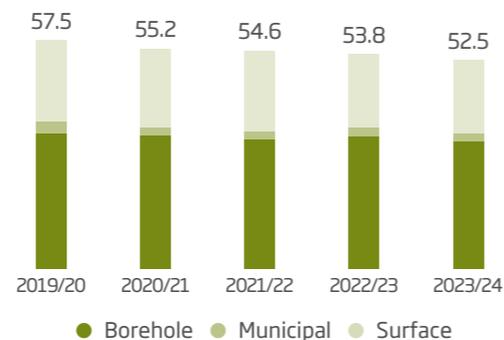


Group Water Management Policy

Our Group Water Management Policy was updated in 2023/24 to reflect our commitment and responsibility to work with our local communities and regulators to ensure that wherever we operate, water is used efficiently.

We participate in the CDP Water Security questionnaire annually, providing transparency and accountability for performance on water, scoring A- for Water Security in 2023.

Total water withdrawals, by source (million m³)



Reducing our freshwater consumption

Our business is vitally dependent on freshwater given that it is intrinsic to the paper-making process. Water is used as a transportation medium for our primary raw material (fibre) as it is transformed from used paper to recycled paper. It is also used as a means for transferring energy (as steam), within both paper-making and corrugating.

Our major initiatives to reduce freshwater consumption are focused on making improvements at our paper mills as around 95 per cent of the water that we withdraw is used for paper-making

Water management and reduction in consumption volumes, as well as improvements in water efficiency, are key performance indicators.

These initiatives include:

- Reusing freshwater multiple times**
Changing the configuration of machinery, infrastructure and processes to allow water to enter a different part of the process before being returned to the natural environment.
- Recycling freshwater multiple times**
Changing the configuration of machinery, infrastructure and processes to allow water to cycle multiple times within the same process before being returned to the natural environment.
- Optimising water intensive processes**
By improving the processes that require water so that they are more efficient and less resource intensive, such as making changes to how water spray nozzles are configured, with the potential to reduce energy and water consumption.
- Upgrading water intensive equipment**
By investing in new and improved equipment that is less resource intensive, with the potential to reduce energy as well as water consumption.

These practices help to reduce water withdrawal and consumption, conserving and protecting water.



Valmet to supply new Lucca paper machine

In 2023/24, we announced that Valmet had been chosen to supply our brand-new paper machine at our Lucca paper mill in Italy, expected to commence operation in 2025.

The new machine will meet the demand for sustainable packaging innovation in the region, as well as improve Lucca's environmental performance by reducing specific emissions and water use per tonne of paper produced.

Annually, the paper machine will produce recycled liner grades of approximately 450,000 tonnes.

"We are thrilled to get the deal agreed with our partners at Valmet and are looking forward to the next stage now where we can start to get the physical build up and running."

Stefano Andreotti
Project Manager

Water management continued

By 2025, 100 per cent of our paper mill and packaging sites¹ to have water management plans

We have defined a water management plan as an operational plan for the management of water withdrawal to ensure environmentally sustainable and economically beneficial practices.

To further our commitment to water management in 2023/24, we extended our water management plan, including water stress mitigation planning and water withdrawal reduction initiatives, to all sites, not just those in water-stressed regions.

Our water management plans have been developed throughout 2023/24, and include a survey, and the development of either a water scarcity plan, for packaging sites, or a water management plan, which includes a water scarcity plan, for paper mills. This provides awareness and allows individual and specific ownership of plans at a site level. The survey includes:

- Water usage on site
- Training and awareness-raising
- Water reduction, reuse and recycle opportunities
- Stakeholder mapping and engagement planning
- Proactive performance measurement
- Monitoring of watershed conditions

Sites that withdrew more than 5,000m³ of water in 2022/23 are required to complete a water management plan, covering 99.8 per cent of our water footprint and 57 per cent of our sites in high to extremely high areas of water stress, using the WRI Aqueduct model. In 2024/2025, we will re-evaluate the water withdrawal at our sites and add any new sites that cross into the threshold.

Water scarcity plans

The water scarcity plan is designed to be an appendix to an already existing site Business Continuity Plan (BCP). This allows the packaging site to put an action plan in place in the event the site loses access to water for less than 24 hours, 24 hours to one week, or more than one week. Within the scarcity plans sites have been asked to develop and include the process to follow once their water supply has been resumed. These would include, among other steps, contacting FM Global, their water supplier, the relevant fire department, sanitation, etc.

Water management plans

The water management plans that the paper mills are developing include a water scarcity plan and are more detailed and comprehensive.

As a minimum, the plans are required to cover:

- Location and descriptions of all water sources on site
- Description of potential water loss scenarios and actions to mitigate/potential back up solutions
- Emergency team roles and responsibilities
- Reduction opportunities

Paper mills that already had water mitigation plans are reviewing, updating and re-submitting their plans.

The plans are reviewed annually, and actions are created where improvement opportunities are identified.

Adapting to climate change

In the long term, there is a risk that competition for water could increase in the river basins from which we withdraw water. There is a chance that local authorities could impose supply constraints to prioritise domestic supplies over industrial users of water. In our Task Force on Climate-related Financial Disclosures (TCFD) reporting, we have identified that the increased likelihood of water stress is a chronic physical risk arising from climate change.

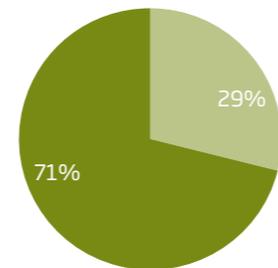
Water stress has the potential to impact specific geographies in the long term and is likely to be more severe in a higher warming scenario (e.g. in a greater than 2°C world compared to pre-industrial era temperature levels). In our climate scenario analysis, we considered the potential primary financial impact of water curtailment event to consider the resilience of our strategies considering different climate scenarios.

We consider our present-day strategies resilient to climate-related risks and opportunities, helped in part by key mitigation actions, including the major initiatives to reduce freshwater consumption outlined on the previous page.

1. Sites in scope include manufacturing sites with >5,000m³ annual water withdrawal, identified at current or future water stress risk with the WRI Aqueduct Tool.

➔ [See DS Smith Annual Report 2024, pages 60-77 for our Task Force on Climate-related Financial Disclosures \(TCFD\) reporting](#)

Water withdrawal in regions at current or future risk of water stress (%)



- Total water withdrawn from regions at current or future risk of water stress
- Total water withdrawn from regions not at current or future risk of water stress



Aschaffenburg water action plan

When challenged with producing a comprehensive, detailed water management plan, employees at Aschaffenburg paper mill, Germany, went above and beyond.

Working across the mill they created a plan that not only detailed alternative options but went a step further to analyse their water consumption, highlight areas of opportunity and create an action plan for 2024/25.



Cambridge water scarcity plan

In 2023/24, our Cambridge packaging plant in USA developed a water scarcity plan as part of our initial pilot.

The purpose of the plan was to provide a management framework and detail alternative options if the site either experiences a shortage or a lack of water supply to minimise business disruptions.

Upon review of the pilot, it was clear that the team had produced a very strong plan, and it was used as the 'gold standard' for the rest of the Packaging division.

This pilot enabled the team to take ownership of water performance, produce an individual water scarcity plan, and share best practice with other packaging plants.