Novartis
Environmental Sustainability Strategy
2021
Contents

Executive summary
Introduction
Our environmental sustainability journey
Our environmental sustainability targets
A strategic approach
Putting strategy into practice
Environmental Sustainability Maturity Model

Strategic Objective 1 | Planet
A global leader in environmental sustainability

Strategic Objective 2 | Patients
Sustainable products delivered to our patients

Strategic Objective 3 | People
A mindset of sustainability embedded in how we operate

Strategic Objective 4 | Policy
A global voice influencing the environmental sustainability agenda

Portfolio Management Office
Structure
Operating model

Governance

Appendix
Our aspiration is to be a catalyst for positive change and a global leader in environmental sustainability.

The Novartis Environmental Sustainability Strategy sets out our aspiration to be a catalyst for positive change and a global leader in environmental sustainability, and the framework to deliver that aspiration between now and 2030.

As a global medicines company, with a purpose to reimagine medicine to improve and extend people’s lives, the environmental sustainability agenda is an essential component of our strategy and operating model. The relationship between human and planetary health provides Novartis with an opportunity, and a responsibility, to ensure that we deliver our purpose in a sustainable way.

Unless we can reimagine medicine sustainably, our efforts to improve and extend people’s lives may be compromised by the environmental impact of our efforts. Therefore, we need to achieve our aspiration, to be a catalyst for positive change and a global leader in environmental sustainability, in a way that delivers benefits for our patients, our planet and our people.

Given the scale and urgency of the challenge we face, everyone has a responsibility to play their part, and at Novartis, we are determined to play a proactive leadership role. COVID-19 has shown what can be achieved in the face of a global challenge when we work together across geographical, sectoral and political boundaries towards a shared common goal.

The experience of the global pandemic has certainly drawn attention to the environmental agenda and the need for urgent action. Our commitments to environmental, social and governance (ESG) obligations will drive long-term results and company value. The tensions between financial and ESG performance are disappearing, and these are increasingly regarded as essential, mutually-reinforcing components of an organization’s strategy.

Delivering our targets holistically

Our focus on sustainability has evolved over the past decade. We have outlined a series of ambitious targets on carbon neutrality (climate), plastic neutrality (waste) and water sustainability. Although less mature, we are also committed to exploring efforts to improve biodiversity. Biodiversity is central to efforts to discover, develop and deliver life-saving medicines.

This strategy sets out our approach to deliver those targets in a holistic and comprehensive way that includes:

- A focus on the delivery of our targets
- A commitment to deliver sustainable products to our patients
- An inclusive approach that brings our associates on the sustainability journey, by embedding a mindset of sustainability in how we operate
- A pledge to be a strong voice on the global environmental sustainability agenda

We aim to make our strategy tangible and to embed environmental sustainability at the heart of our organization. To do so, we will ensure it is interwoven into our strategic priorities, our culture and all aspects of how we operate across Novartis.

Our efforts will be underpinned by a clear governance structure and a central Portfolio Management Office, which will provide a coordinating function to bring the sustainability story together in a clear and consistent way, including project management, communications and performance reporting.
Introduction

Human health and planetary health are intrinsically linked.
Our environmental sustainability strategy is central to Novartis’ long-term strategy and operating model. Successful delivery of our environmental sustainability strategy will require leadership, innovation, investment and change.

A race we can win

As a leading global medicines company, committed to reimagining medicine to improve and extend people’s lives, we are at an important junction on our sustainability journey.

The relationship between global health and planetary health has never been more evident. Given the scale of the challenge we face, this symbiotic relationship offers unprecedented opportunity for Novartis to build on our commitments to date and to be bold and ambitious in our aspirations for environmental sustainability.

Planet

Climate, temperatures, sea level elevation, wind and daylight duration play an important role in disease transmission. Climate change is already causing extreme heat and poor air quality in some areas, which threaten to exacerbate pre-existing health conditions, such as heart failure, lung cancer and respiratory diseases. It is expected that climate change will continue to have a profound impact on the most marginalized societies.

Vulnerable people, living in the most fragile and conflict-affected countries, are disproportionately affected by climate change, leading to humanitarian crises in affected regions. In addition, an increase in temperature and humidity may cause a proliferation of insects that carry vector-borne diseases, including dengue fever, malaria and Chagas disease.

Novartis is working to understand and anticipate these climate and related risks, to ensure that we continue to discover, develop and deliver life-saving medicines.

Health

Harmful effects on health due to increased temperatures

More allergies

Increased disease spread including vector-borne disease

New disease transmission patterns

The link between human and planetary health

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Effecting real change

Real change is possible if we are brave enough to reimagine the possibilities.

It will take innovation, creativity and breakthrough thinking to respond to the global environmental sustainability crisis. The progress achieved in response to the global pandemic was unimaginable, until we were forced to adapt, create, re-think and respond to the challenge that we faced.

We must use the same focus and energy in our fight for sustainability. The environmental, social and governance (ESG) agenda is at the core of the Novartis Strategy.

The growing importance of ESG across a number of dimensions, including operational efficiencies, attraction and retention of talent, and investor relations, is well documented. Our stakeholders will not evaluate us on our financial performance alone; non-financial metrics, including commitments to the environmental, social and governance agenda, are also driving long-term results and company value. In his 2021 letter to CEOs, Larry Fink speaks to the dramatic reallocation of assets, which saw a 96% increase in investment in sustainable assets in 2020, compared to 2019.

The COVID-19 pandemic is a powerful example of what can be achieved when we work together on a global scale, with a critical common goal in our sight. Recent collaborations have yielded ground-breaking results in the search for a COVID-19 vaccine.

This may hold important lessons for the global effort to tackle the environmental sustainability crisis.

"The pandemic has presented such an existential crisis – such a stark reminder of our fragility – that it has driven us to confront the global threat of climate change more forcefully and to consider how, like the pandemic, it will alter our lives. It has reminded us how the biggest crises, whether medical or environmental, demand a global and ambitious response."

Larry Fink’s 2021 letter to CEOs
Our environmental sustainability journey

Novartis leadership is committed to driving our sustainability agenda across our organization, the pharmaceutical sector and beyond.

Measuring our value to society
For too long, environmental sustainability had been viewed as a cost of operations. It is increasingly seen in the context of value creation rather than compliance. Novartis is measuring its value to society and the environment using the Social, Environmental and Economic (SEE) impact valuation. This measures the overall value to society by assessing the “triple bottom line”, the benefits and costs to people, planet and profit. This monetization of SEE impact provides a common currency which improves visibility and comparability.

Climate-related reporting
Novartis has also expressed its support for the Task Force on Climate-related Financial Disclosures (TCFD). This provides a consistent set of voluntary disclosures across industries, which can be adopted by companies to inform investors and other stakeholders about climate-related risks. TCFD will help both companies and financial markets to better evaluate and price those risks. The first qualitative TCFD disclosure was published in the 2020 Novartis in Society (NiS) ESG Report. Quantitative disclosures on climate-related topics will be incorporated in future reports.

As a company, we bring tremendous social value through life-saving medicines. In our efforts to treat illness and cure disease, we must also do everything in our power to look after the health of the planet.
Our environmental sustainability targets

Novartis has set ambitious environmental sustainability targets to be carbon neutral, plastic neutral and water sustainable by 2030.

We have made significant progress towards delivery of those targets. They continue to provide the central focus for this holistic strategy.

Ambitious targets

Novartis has demonstrated leadership and commitment to the environmental sustainability agenda. We are now aiming for our own operations to be carbon neutral by 2025 and for full carbon neutrality across the entire value chain by 2030. This includes an approved Science Based Target of 35% reduction of absolute emissions (without the use of offsets) across Scope 1, 2 and 3, by 2030.

Tracking ahead of expectations

To date, progress against these targets is ahead of expectations. We are in the process of mobilizing our Scope 3 engagement strategy to maximize our influence with suppliers. Similarly, we have successfully reduced water consumption significantly. Our progress toward plastic neutrality and embedding of the circular economy is also on track.

Further details of our plans to reach these targets are outlined in Section 2.

Environmental Sustainability targets, 2025 and 2030

<table>
<thead>
<tr>
<th>Our ambition</th>
<th>Targets 2025</th>
<th>Targets 2030</th>
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<tbody>
<tr>
<td>Climate</td>
<td>Carbon neutrality</td>
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<td>1 Carbon neutral own operations Scope 1 and 2</td>
<td>3 Total carbon footprint</td>
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<td>2 Environmental criteria in all supplier contracts</td>
<td>neutrality scope 1, 2 &amp; 3</td>
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<tr>
<td>Waste</td>
<td>Circular economy &amp; plastic neutrality</td>
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<td></td>
<td>4 Eliminate PVC in packaging</td>
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<td>Water</td>
<td>Water sustainability</td>
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<td></td>
<td>8 Water consumption reduced by half in our operations</td>
<td>10 Water neutral in all areas</td>
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<td></td>
<td>9 No water quality impacts from manufacturing effluents</td>
<td>11 Enhance water quality wherever we operate</td>
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</table>
A strategic approach

Success in our quest to be a catalyst for positive change and a global leader in environmental sustainability, will involve both internal transformation and external influence to innovate.

Delivery of our own sustainability commitments is at the heart of our strategy. To support and enhance these objectives, we will design and deliver sustainable products to our patients, embed a mindset of environmental sustainability in the way we operate, and take our place on the global stage with a strong voice influencing the environmental sustainability agenda.

Catalyst for positive change, a global leader in environmental sustainability

Governance & reporting

<table>
<thead>
<tr>
<th>Planet 1</th>
<th>Patients 2</th>
<th>People 3</th>
<th>Policy 4</th>
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<tr>
<td>A leader in environmental sustainability</td>
<td>Sustainable products delivered to our patients</td>
<td>A mindset of sustainability embedded in how we operate</td>
<td>A strong voice influencing global sustainability agenda</td>
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Design principles

- Climate
- Waste
- Water

- New products
- Existing products
- Health impacts

- Building momentum
- Opportunities to innovate
- Learning journey

- Build trust
- Create value
- Be a role model
Putting strategy into practice

Anchored in our purpose to reimagine medicine, the Environmental Sustainability Office will work in partnership with the business to support and drive change in how we lead, think, operate and deliver sustainably to our patients. To do this, we will build on existing platforms across our strategic priorities.

Embedding sustainability
The Novartis purpose to reimagine medicine is anchored in a holistic vision of the totality of human health. As a leading medicines company, our commitments to environmental sustainability and planetary health, including a commitment to support the UN Sustainable Development Goals (SDGs), are central to this holistic vision. SDG 3, to ensure good health and wellbeing, is central to our business and strategy. Novartis is committed to adopt a sustainable approach to support delivery of the UN SDGs. Through our business operations and ongoing activities, we make essential contributions to goal 13 (climate action). Our environmental sustainability targets align with goal 6 (clean water and sanitation), goal 7 (affordable and clean energy), and goal 12 (responsible consumption). We will challenge our assumptions and embrace the opportunity for innovation.

Strategy design principles
Delivery of the four strategic objectives will be underpinned by a set of design principles and coordinated by the Portfolio Management Office. Progress will be tracked, using an automated performance dashboard to support a coordinated approach to delivery of the four strategic objectives across the business units.

Environmental sustainability is at the core of our business

Our purpose
To reimagine medicine

Our strategic priorities
Unleash the power of our people | Deliver transformative innovation | Embrace operational excellence | Go big on data and digital | Build trust with society

Environmental Sustainability Strategy

Governance & reporting

Design principles

Bringing our strategy to life

To minimize the environmental impact of our actions on the planet

To focus on health impacts for patients

To enhance, support and encourage collaboration across the value chain

To optimize the environmental opportunity provided by data and digital solutions

To adopt a transparent approach
Environmental Sustainability Maturity Model

Currently, Novartis would be best described as a 2nd generation environmental sustainability organization.

Our aim, through implementation of this strategy, is to progress to a 4th generation sustainability organization, in which environmental sustainability is a prominent feature of the business model, used to drive innovation and excellence across the business.

A prominent central feature of the business model

Focus on sustainable sources of materials and increased efficiencies throughout the value chain

Measured as part of business unit, investment and project-specific performance

Inherent in the growth strategy, operating model and decision-making at every level of the organization

1st Generation Compliance

2nd Generation

3rd Generation Sustainable products

4th Generation New business models

5th Generation Next practice platforms

Reference: Harvard Business Review. See appendix page 71
Our targets to be carbon neutral, plastic neutral and water sustainable are the central focus of our ambition to be a global leader in environmental sustainability.
A global leader in environmental sustainability

Our targets to be carbon neutral, plastic neutral and water sustainable are the central focus of our ambition to be a global leader in environmental sustainability. By setting and delivering these ambitious targets consistently, we will lead by example and act as a role model for the industry and beyond.

Focused on three key areas - climate, waste and water sustainability - we will work in collaboration with our partners, to achieve our strategic objective to be a global leader in environmental sustainability. Specific Position Papers are being developed to provide further detail on the strategy behind each of these three key areas.

**Climate**

Our primary climate target is full carbon neutrality for our own operations and all of our suppliers (Scope 1, 2 and 3) by 2030. This will be delivered in two parallel workstreams. One will focus on ensuring that all Novartis operations are carbon neutral by 2025. The second will involve collaborating with partners across the value chain to support our journey to full carbon neutrality by 2030.

**Waste**

Under our waste commitments, we will increase the material efficiency by reducing the amount of waste sent for disposal by half in 2025 and becoming plastic neutral by 2030.

**Water**

Water targets will follow a dual-track, one focused on ensuring sufficient and safe water wherever we operate, the second seeking to achieve water neutrality by 2030.

**Biodiversity**

Novartis also considers biodiversity to be a critical issue for the business. Potential biodiversity losses would impact not only the supply chain for some biologics, but also the discovery, scaling and delivery of future medicines to patients.

Recent UN research on the impact of biodiversity projects found that restoring 30% of lands that have been converted for farming back to its natural ecosystem, would prevent over 70% of projected extinctions of mammals, birds and amphibians. That would put us on track to sequester almost half of the CO₂ increase in the atmosphere since the industrial revolution. Work is underway to define our specific biodiversity targets.

Our journey to deliver these objectives will position us as a global leader in environmental sustainability.
Strategic Objective 1 | Planet

A targeted approach

Climate
To deliver on our commitment to carbon neutrality, there are three related aspects to consider:

Scope 1
Emissions arising from our own operations, directly
Such as carbon dioxide from the combustion of fossil fuels in our boilers and vehicles, hydrofluorocarbons (HFCs) from refrigeration equipment and our own vehicles

Scope 2
Emissions arising from our own operations, indirectly
From our consumption of energy electricity or steam which is generated by a third party

Scope 3
Emissions arising from members of our value chain
Including our suppliers and their suppliers and distribution and use of Novartis products across the value chain

Facts and figures
Reaching carbon neutrality requires neutralizing residual Green House Gas emissions with an equivalent amount of carbon removals (carbon offsets). Our current strategy estimates that:

65%
Our current strategy estimates that up to 65% of our value chain emissions will need to be offset to achieve full carbon neutrality.

90%
90% of CO2e from our suppliers are Tier 2 to Tier 5 (total of ~40K suppliers), where tier 1 suppliers are our direct suppliers, tier 2 suppliers are their direct suppliers and so forth along the value chain.

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1 tCO2e: Tonnes of carbon dioxide equivalent
Strategic Objective 1 | Planet

A targeted approach

Proposed solutions for Scope 3
High-level

1. Reduce number of suppliers to increase influence
2. Launch of the Novartis Green Expectations
3. Defined ACCA model to support supplier’s journey
4. Define offset strategy

The scale and complexity of the Scope 3 challenge requires a specific focus. Our ambition to extend our influence significantly beyond our own operations, to also include carbon emissions across our value chain is a bold and ambitious target, that will require a coordinated approach to encourage and support our suppliers to make similar commitments toward delivery of these targets. To this end, we have developed the 'Novartis Green Expectations from Suppliers' document, outlining what is needed from our suppliers to support them on that journey.

The ACCA model provides a framework to track and measure suppliers’ journey toward carbon neutrality.

The 4-stage framework involves:
1. Awareness building
2. Comprehension of the requirements of the carbon emission targets
3. Commitment to achieve carbon neutrality
4. Definition of action plans to meet environmental sustainability targets

We are engaging our suppliers in dialogue and this will be underpinned with concrete tools and mechanisms to facilitate their journey as much as possible. Given the breadth of this engagement (approximately 36,000 suppliers), it will take some time before we see the results of those efforts, particularly among suppliers with whom we do not have direct interactions.
# Measuring our progress

The key performance indicators which will be used to measure and track progress are outlined below.

<table>
<thead>
<tr>
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<th>2030</th>
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For roadmap, see appendix page 69
Strategic Objective 1 | Planet

Case studies

Climate
Announced the signature of five Virtual Power Purchase Agreements (VPPA) which are expected to collectively add 277 megawatts of clean power to the electrical grid.

Goal
Novartis committed to the environmental sustainability goal of using only renewable energy (carbon neutral own operations) by 2025. In April 2021, we joined the “RE100” initiative of the Climate Group and the CDP to accelerate our shift to 100% renewables.

Six parks (solar and wind) will be built in Spain by three developers, with whom Novartis has contracts for periods between 10 and 15 years. Projects are expected to start between Q1 2022 and Q1 2023.

Outcomes
The VPPAs are expected to eliminate ~30% of our remaining Scope 1 and 2 emissions and achieve 100% carbon neutrality for electricity procured in Europe.

Waste
Omnitrope SurePal is a growth hormone therapy given to children and teenagers. The current pen and case presentation have been on the market for 10 years.

Goal
The challenge was to create a new more sustainable product, using innovative designs, and eco-friendly materials.

The cases were evaluated by material analysis and Lifecycle Assessment (LCA) and one case was shown to have a significantly lower carbon footprint compared to the original case and other designs. An internal Human Factor Engineering (HFE) expert review was performed and favored the new design.

Outcomes
Sustainability: The proposed new case design, which is made entirely of recycled poly-propylene, has reduced total carbon footprint by 75% compared to the current case.

This proposed design also presents some clear advantages from a user perspective, by allowing users to see the contents of the case without opening it, an option that was favored by our internal HFE team.

A feasibility study to develop a case that will be designed for manufacturability and robustness will be carried out. Due to its novelty, there is a need to further investigate the design of the case to ensure a reliable quote for the full development project.

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Outcomes
For production of 64 batches of metformin, the used containers are reduced from 9,200 to less than 800 containers. This also decreases the amount of water consumed for cleaning from 3,900 m³ to 320 m³ per year.

Goal
Metformin, one of the top drug products at NTO Strykow, is produced in high amounts (>50 tonnes per year). This is managed through 2,300 batches, with 4 tablet containers per batch (=9,200), which to be cleaned after each batch, consumed 3,900 m³ of water per year.

Adjusting the transportation process of tablets from single batch to multiple batches simultaneously reduces the number of used containers, and the amount of water needed for cleaning.
Strategic Objective 2

Patients

Patients are the inspiration behind everything we do at Novartis.
Sustainable products delivered to our patients

Design, development and delivery of more sustainable products to our patients are key enablers of our environmental sustainability strategy.

The aim is to minimize the negative impacts on our patients’ health and on planetary health. Making that connection between human and planetary health a focus helps to put our commitments to the ‘totality of human health’ into practice.

At Novartis, patients are the inspiration behind everything we do. Therefore, this strategic objective, to deliver sustainable products to our patients, will involve an end-to-end review of the drug development lifecycle, from early-stage research through product development and marketing, to use and disposal of our products by patients. The lifecycle assessment tool will provide the framework to evaluate the burdens associated with our products, processes and activities over their entire lifecycle, from the ‘cradle to the grave’. In addition, we will improve our understanding of the impact of environmental change on human health and we will use this to inform our future product portfolio plans.

New and existing products

The move to incorporate sustainable design principles into the development and delivery of new and existing products represents a fundamental change to the business model. Therefore, it will be introduced on a phased basis, based on a clear prioritization exercise.

To achieve our strategic objective of embedding sustainable design principles in the research, development, production and marketing of new and existing products, we will:

• Leverage circular economy opportunities
• Reduce (as far as possible) non-renewable components within our products, devices and packaging
• Aim to decarbonize our manufacturing processes
• Compensate for unavoidable emissions, as required

Health impacts

To further develop our understanding of the specific impacts of the environment on human health, we will bring together expertise from across the Novartis business, including our global health experts, to analyze the specific implications of that relationship and to assess how we can respond to upcoming challenges in a way that best meets patients’ needs.

Challenges

Regulatory requirements may hinder implementation of sustainable innovations

Conflicting priorities lead to insufficient dedicated resources and expertise

Short-term commercial and financial targets are prioritized over sustainability

Enablers

Strong R&D pipeline and capabilities provide a leadership opportunity

Visible leadership commitment and global reputation presents opportunity to lead and influence

Increased awareness of and emphasis on ESG performance

Opportunity through evolving regulatory landscape

Focus areas

› New products
› Existing products
› Health impacts
A targeted approach

Delivery of sustainable products to our patients is focused on product and production process optimizations across business units.

Our “Roadmap to Sustainable Product & Process Design” guides us to systematically embed, by 2030, environmental sustainability aspects into the design of new and optimized drug substances, drug products, devices and packaging solutions.

We are following circular economy principles, starting from the selection of raw materials and a more sustainable product design approach, up to the collection and recycling of products at end-of-life, where appropriate.

Circular Economy Principles

1. Raw Material
   - Use non-hazardous / more sustainable material alternatives

2. Product Design

3. Production
   - Reduce PMI (Process Mass Intensity), lean production process

4. Distribution
   - Reduce number of shipments and distance. Green Logistics.

5. Use & Re-use
   - Recovery & recycling of solvents and precious metal catalysts

6. Collection
   - Dry Powder Inhaler device take-back scheme: Pilot started in April 2021 in CH.

7. Recycling
   - Consider recyclability of devices & packaging at design phase itself

*Graph taken from the 2020 - EFPIA White Paper on Circular Economy - https://efpia.eu/media/554663/circular-economy.pdf*
Strategic Objective 2 | Patients

Measuring our progress

The key performance indicators which will be used to measure and track progress are outlined below.

Research and drug development roadmap

- Count of products significantly optimized via application of sustainable product/process design principles

Lifecycle management optimization

- Environmental sustainability priorities addressed via sustainable product/process design principles
- Number of carbon neutral products

Social impact

- Novartis SEE (Social Environmental Economic) Impact value
- Number of products with a social impact assessment during development phase

\[\text{For roadmap, see appendix page 70}\]
Case study

Sustainable product development
Life Cycle Assessment for our Dry Powder Inhaler devices

Description
Life Cycle Assessments (LCAs) are a “cradle-to-grave” analysis technique to assess the environmental impact associated with all stages of a product’s life, from raw material extraction to processing, manufacturing, distribution, use and disposal.

Novartis conducted environmental LCA studies for its respiratory Dry Powder Inhaler devices (DPI) across six environmental categories in accordance with the GHG Protocol’s Sector Guidance for Pharmaceuticals and Medical Devices. A streamlined LCA was conducted for the Active Pharmaceutical Ingredients (API) and the optional sensor.

Benefits
The study suggests that the Novartis DPIs have on average a carbon footprint of less than half compared to other published DPI LCAs. Classical pressurized metered-dose inhalers (pMDIs) using HFC-134a as propellant gas can have on average a carbon footprint of up to 50 times higher than the Novartis DPI.

Novartis is committed to integrating environmental LCAs into product development processes to embed sustainability by design, supporting the delivery of the Novartis goals to achieve carbon neutrality by 2030, in line with the approved science-based target.

Global warming potential in CO₂e per year of various inhaler types per published LCAs

<table>
<thead>
<tr>
<th>Inhailer Type</th>
<th>Global Warming Potential (kg CO₂e)</th>
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<tbody>
<tr>
<td>NVS DPIs (4)</td>
<td>(1.5-5.1)</td>
</tr>
<tr>
<td>Other DPIs (4)</td>
<td>(5.5-8.6)</td>
</tr>
<tr>
<td>pMDI (3) HFC - 152a (7.15)</td>
<td>165.5</td>
</tr>
<tr>
<td>pMDI (3) HFC - 134a (61-245)</td>
<td>508.8</td>
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<td>pMDI (1) HFC - 227ea (509)</td>
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Strategic Objective 3

People

We will embed a mindset of sustainability in how we operate.
A mindset of sustainability embedded in how we operate

Our third strategic objective is focused on our associates. We will embed a mindset of sustainability in how we operate.

Our people are passionate about sustainability
Embedding a mindset of sustainability is about creating a culture where sustainability is consistently considered in the decision-making process. This provides a mutually-beneficial “win-win” gain for Novartis associates and for the company. The opportunity to work in an organization that puts human and planetary health at the heart of its purpose and strategy is an attractive one for all generations, particularly for millennials. Our associates are motivated by the opportunity to work in areas of interest, to contribute to a greater good, and to be part of something meaningful.

Building momentum
We will partner with our People & Organization team to leverage opportunities to share our sustainability story across existing platforms, channels and events. We will outline a clear communications plan that identifies key initiatives of relevance to the environmental sustainability agenda and we will work with those teams to promote the sustainability theme through those events. We will mobilize a network of green ambassadors to act as the link between global and local initiatives. The Green Ambassadors Network will provide the channel through which initiatives can be communicated, promoted, sponsored and shared.

Opportunities to innovate
We will also coordinate opportunities to innovate by engaging with teams across Novartis to get their insights, ideas and suggestions for innovative sustainability projects. The One Novartis Environmental Sustainability Team (ONEST) initiative is a global network of colleagues who collaborate to develop innovative sustainability projects. We will use that network to access the power of our people to think, create and innovate about how we can continually develop and improve our sustainability efforts on an ongoing basis.

Learning journey
Development of the learning journey will provide the foundation to raise awareness and understanding of our environmental sustainability story. The training, which includes a learning map and training modules, will provide associates with a basic understanding of key aspects of environmental sustainability strategy, and an option to focus on particular business unit features, as appropriate. Equipping associates with this training, will help to embed the sustainability mindset across business units.

Key performance indicators

<table>
<thead>
<tr>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish a Green Ambassadors Network (GAN)</td>
<td>Number of learning hours on ES learning</td>
</tr>
</tbody>
</table>

For roadmap, see appendix page 70
Case study

One Young World - Novartis Caucus 2021
Operation Planetary Health

**Description**

**Purpose**
The purpose of the OYW-Novartis Caucus 2021: Operation Planetary Health was to raise awareness about environmental sustainability and to create a movement to accelerate change within the organization. The theme of “planetary health” aligns with and builds on Novartis environmental sustainability targets and strategy.

**Aims**
The event aimed to inspire associates to address specific environmental challenges with actionable and sustainable solutions. Our focus was on carbon neutrality (Scope 3 emissions; emissions in our value/supply chain) and the circular economy. We also sought to gain insights and solutions for emerging issues that do not yet form part of our company targets.

The goal was to give associates a sense of responsibility and a platform to act and be empowered to make a difference.

**Scope**
Innovation challenge for internal community – Imaginatik Planbox.

Call for ideas highlighting the three main areas.

Virtual event for internal and external community.

**Outcomes**

| Participants/unique users (Feb 11 & 12) | 891  |
| Views on Novartis Caucus portal | 10758  |
| Yammer conversations | 94  |
| Ideas submitted | 396  |
| Comments | 795  |
| People visited the platform | 1869  |
| Workshops | 30  |
| Subject matter experts from all units supported the innovation challenge | >40  |
Strategic Objective 4

Policy

A strong voice influencing the global environmental sustainability agenda.
Strategic Objective 4 | Policy

A strong voice influencing the global environmental sustainability agenda

Our fourth strategic objective is to be recognized as a role model, driving and influencing change internationally.

Our aspiration, to be catalysts for positive change and a global leader in environmental sustainability, sets a new level of ambition for Novartis in this space.

**Build trust**

To achieve our ambition, we must build trust and to do so, we will need to be transparent about our successes and failures. Credible data and reporting infrastructure will provide the foundation for our global reputation and influence in this space. A solid data foundation will inform strategic planning, decision making and our investment strategy, as we stretch our scope to invest in biodiversity, environmental sustainability research, climate health research and natural climate solutions that will deliver a positive impact for patients and the planet.

The specific actions that we will take to build trust include: disclosure of principal trade associations, publication of climate policy disclosures and regular reporting of progress, including Task Force on Climate-related Financial Disclosures (TCFD) reporting.

**Create value**

Clear and consistent messaging are key to our efforts to influence relevant advocacy and public affairs matters in the US, the EU and globally. We will leverage our country leadership teams to effectively influence at national and international fora. Development, sponsorship and communication of industry-relevant thought leadership will further enhance our efforts to create value and to lead and influence the global environmental sustainability agenda.

In preparation for the UN Climate Change Conference, COP 26 in November 2021, we will establish a climate advocacy network, which will build on the COP 26 platform and continue its advocacy work throughout the duration of this strategy.

**Be a role model**

We will adopt a holistic and integrated approach, incorporating social, environmental and economic factors to establish a position of leadership and influence, where we are seen as a role model across the sector and beyond. Clear and consistent communications and messaging with our diverse stakeholder group, including suppliers, customers, employees, shareholders and governments, will provide a single ‘One Novartis’ voice on environmental, social and governance matters, many of which are interrelated. We will partner through industry partnerships to drive change across the industry.

<table>
<thead>
<tr>
<th>Challenges</th>
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</thead>
<tbody>
<tr>
<td>Mindset shift – address stakeholders holistically</td>
</tr>
<tr>
<td>Influence supply chain</td>
</tr>
<tr>
<td>Public reporting platforms - not getting enough credit for effort invested</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncover systemic challenges, highlight and table for attention</td>
</tr>
<tr>
<td>Demonstrate behavioral changes and attitudes</td>
</tr>
<tr>
<td>Be transparent about challenges and address them on the way</td>
</tr>
<tr>
<td>Opportunity to integrate environmental sustainability reporting with financial reporting</td>
</tr>
</tbody>
</table>

Focus areas

- **Build trust**
- **Create value**
- **Be a role model**
Strategic Objective 4 | Policy

Measuring our progress

The Key Performance Indicators which will be used to measure and track progress are outlined below.

<table>
<thead>
<tr>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish a Policy Advocacy Network</td>
</tr>
<tr>
<td>Establish an Environmental Sustainability tech startup incubator support program</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of startups supported financially</td>
</tr>
<tr>
<td>Number of startups that have successfully graduated from the Environmental Sustainability tech startup incubator support program</td>
</tr>
</tbody>
</table>

*For roadmap, see appendix page 71*
Case study

Natural Capital Protocol assessment

Description
Novartis used the Natural Capital Protocol\(^1\) to measure, value and compare relevant natural capital impacts. Novartis also wanted to quantify the social and environmental benefits of forest carbon-sink projects in Colombia and Argentina that have been running for over a decade.

The results of the Natural Capital Protocol assessment confirmed that carbon and other air emissions, as well as water use along the supply chain, are the major external environmental costs for Novartis. Clearly, emissions are driving climate change which will significantly impact biodiversity.

Outcomes
One learning was that environmental or social benefits from forest sink projects reach similar or greater returns than those generated from carbon sequestration alone. Carefully designed forest projects owned and operated by Novartis in Colombia and Argentina were found to be net positive through protection of watersheds and increasing biodiversity, as well as for social development and long-term economic growth in project areas.

Our existing forestry project in Santo Domingo Estate, Argentina is much more than a carbon-sink project. It is a true example of sustainable forestry. In contrast to most forest projects based on monocultural plantations, more than 20 different high-value native species such as lapacho have been planted together with non-native pine trees to quickly develop a biotope and protect the area from floods or continued soil degradation. Over time, native species will account for 75% of the total coverage. The trees, which today measure more than 10 meters high, also provide a habitat to a variety of mammals and birds.

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\(^1\) https://capitalscoalition.org/casestudy/natural-capital-protocol-case-study-for-novartis/
A centralized portfolio management function will provide a hub to coordinate and support environmental sustainability initiatives, enterprise-wide.
In line with the Customer and Technology Solutions (CTS) priority bold objectives on portfolio management and focus, the portfolio management function will provide a central hub to coordinate and support enterprise-wide Environmental Sustainability initiatives.

The Portfolio Management Office for Environmental Sustainability will support implementation of the Environmental Sustainability Strategy by coordinating delivery on three levels - portfolio management, program management and project management.

**Portfolio management**
Focused on assessing and managing the ‘strategic fit’ of the programs and projects delivered to ensure that resources and efforts are being invested on the right initiatives.

**Program management**
The portfolio will be organized in four interrelated programs of work to deliver each of the strategic objectives identified. These programs will be managed in a coordinated way to achieve the environmental targets (2025 and 2030), business objectives and benefits.

**Project management**
A series of projects will be identified to deliver the programs. A project is a temporary endeavor to create a unique product, service or result. The Portfolio Management Office will also coordinate change management, communications and dashboard reporting functions across the portfolio. An interactive performance management dashboard will be used as a tool to track progress against the targets set.

The Portfolio Management Office will coordinate project management activities across the board. Starting with quarterly reports at strategic objective level, we will build the infrastructure to provide more regular and detailed reports, as required.

The PMO will help us to:

- **Align investment decisions** with our aspiration and purpose
- **Ensure that there is a clear program of work** to deliver each of the strategic objectives set
- **Align projects with strategic priorities**, based on a clear view of the priorities – what we are doing and what we are not doing
- **Monitor progress against our targets** on climate, water and waste neutrality
- **Communicate our sustainability story** with internal and external stakeholders effectively

**Portfolio Management Framework**
Bringing the sustainability story together in a clear and consistent way

**Operating model**
A single end-to-end platform will provide an integrated process and system to coordinate environmental sustainability activities, the collation and short-listing of innovative ideas from our associates across the business through the project implementation journey, to comprehensive performance dashboards.

The focus areas, challenges, enablers and KPIs pertaining to each of the strategic objectives have been included in this document and high-level roadmaps for each are provided in the Appendix. These provide the blueprint for more detailed plans, which will be used as the mechanism for ongoing tracking of progress, risk management and financial management.

Working in collaboration with the business units, the Portfolio Management Office will coordinate project management activities across the board. Starting with quarterly reports at strategic objective level, we will build the infrastructure to provide more regular and detailed reports, as required.

A single end-to-end system will be used to provide a seamless flow from the opportunity definition phase, through ideation, assessment, prep for approval, implementation and performance reporting. This end-to-end approach will support integrated planning, reporting and management across the enterprise.

Novartis has integrated environmental considerations into financial planning. Capital Projects in excess of $20 million require an environmental sustainability review. Projects above $5m require transparency on environmental sustainability KPIs.
The governance structures outline how project and program benefits and risks are managed to optimize overall performance and value creation for the portfolio.
The governance structures outline how project and program benefits and risks are managed to optimize overall performance and value creation for the portfolio.

Clear governance structures are essential to the success of this strategic portfolio.

Chief Sustainability Officer
Under the leadership of the Chief Sustainability Officer, the Environmental Sustainability Office will provide the leadership, subject matter expertise and portfolio management support to coordinate environmental sustainability activities across business units. A program lead, with the appropriate subject matter expertise, will work with a designated working group to plan, manage and coordinate projects for each of the respective strategic objectives. Project management support will also coordinate activities across the four workstreams.

Environmental Sustainability Strategy Implementation (ESSI) Steering Committee
The ESSI Steering Group will act as the primary steering committee for this strategy. The ESSI includes representatives from across the business units, corporate affairs and global health. The committee convenes on a bi-monthly basis to review progress, next steps, risks and decisions.

The Environmental Sustainability Office will issue an annual report to track progress against the four strategic objectives and overarching strategy outlined in this document.

Overview of governance structure
- Governance Nomination and Corporate Responsibilities Committee (GNCRC)
- Environmental Sustainability Strategy Implementation (ESSI) Steering Committee
- Environmental Sustainability Office
- Chief Sustainability Officer
- Strategic objective 1
  - Program Lead
  - Working group
  - A global leader in environmental sustainability
- Strategic objective 2
  - Program Lead
  - Working group
  - Sustainable products delivered to our patients
- Strategic objective 3
  - Program Lead
  - Working group
  - A mindset of sustainability embedded in how we operate
- Strategic objective 4
  - Program Lead
  - Working group
  - A strong voice, influencing the global environmental sustainability agenda
## Strategic Objective 1 | Roadmap

<table>
<thead>
<tr>
<th></th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive carbon neutrality in own operations</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
</tr>
<tr>
<td>Drive carbon neutrality in our value chain</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Eliminate PVC in packaging</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Drive plastic neutrality</td>
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<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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</tr>
<tr>
<td>Achieve no water quality impacts from manufacturing effluents</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Achieve water neutrality in all areas</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Enhance water quality wherever we operate</td>
<td><img src="status.png" alt="Progress" /></td>
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## Strategic Objective 2 | Roadmap

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<thead>
<tr>
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<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify key ES product attributes, apply LCAs</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Integrate ES across project portfolio</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Scale up green chemistry principles</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Integrate recovery &amp; recycling processes</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
</tr>
<tr>
<td>Sustainable packaging materials &amp; devices</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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## Strategic Objective 3 | Roadmap

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<tr>
<th></th>
<th>2021</th>
<th>2022</th>
<th>2024</th>
<th>2025+</th>
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</thead>
<tbody>
<tr>
<td>Design and develop a comprehensive change program</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Collaborate with existing internal initiatives</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
</tr>
<tr>
<td>Create opportunities to innovate</td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
<td><img src="status.png" alt="Progress" /></td>
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<tr>
<td>Rollout a learning &amp; engagement program</td>
<td><img src="status.png" alt="Progress" /></td>
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### Strategic Objective 4 | Roadmap

<table>
<thead>
<tr>
<th>Activity</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop change and communications management plan</td>
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<tr>
<td>Deploy advocacy and public affairs strategy</td>
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<tr>
<td>Increase data maturity &amp; reporting</td>
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<tr>
<td>Develop professional development program</td>
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<td></td>
<td></td>
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<tr>
<td>Create investment strategy</td>
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</tbody>
</table>

*Legend:* Established, Expand, Transform, Milestone

### Environmental Sustainability Maturity Model

1. **1st Generation Compliance**
   - Compliance is used to provide an opportunity for innovation with products, processes and materials

2. **2nd Generation Sustainable Own operations**
   - Focus on increasing efficiencies throughout the value chain
   - Increased use of clean energy and development of sustainable sources of materials

3. **3rd Generation Sustainable products**
   - Focus on developing sustainable offerings or re-designing existing ones to be eco-friendly
   - Development of compact and eco-friendly packaging

4. **4th Generation New business models**
   - Finding novel ways to deliver and capture value which will change the basis of competition
   - Develop new delivery technologies that change value-chain relationships

5. **5th Generation Next practice platforms**
   - Question the logic behind the business through the sustainability lens
   - Enable customers and suppliers to manage energy radically differently