

SUSTAINABILITY AS STRATEGY: HOW PHARMA IS DRIVING CLIMATE INNOVATION

Dr Sofia Sotiropoulou of Lonza Capsugel discusses the increasing emphasis that pharma companies are putting on sustainability metrics, and how they are extending this emphasis to their entire supply chains, placing expectations on design and manufacturing partners to participate in meeting sustainability targets.

Drug development traditionally places intense demands on resources, time and energy, with advanced manufacturing and supply chain networks in place all over the world. As a result of this globalisation, the drug development value chain is a significant contributor to climate change, specifically by generating greenhouse gas (GHG) emissions. Drug development stakeholders – biotech, pharmaceutical and nutraceutical companies alike – are working to decarbonise their supply chains and lower their GHG emissions by making their processes more sustainable. In fact, a recent Cytiva report found that nearly two-thirds of surveyed pharma and biopharma professionals rank sustainability as their number one priority for the next five years.¹ To advance sustainability and efficiency, drug developers and their partners are focusing on the following areas:

- **Climate:** Climate change is putting pressure on upstream supply chains. As its effects become more visible, drug developers and their supply and manufacturing partners are cutting their carbon footprints and lowering their emissions. Many are also aiming to transition to renewable energy sources, such as solar, wind or hydroelectric power, as a way to reduce their Scope 1 and 2 emissions.
- **Resource Use:** Drug developers and manufacturers are putting a greater emphasis on efficiency, with water being a prime example. Pharma companies are not only conserving water as a scarce resource but also preserving its quality,

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monitoring its use during production and guarding against discharge of effluent that may contaminate water sources. According to the Cytiva report, 58% of the surveyed biopharma professionals said that they have reduced water consumption.¹

- **Waste Reduction:** Companies are rethinking packaging and materials to reduce excess waste and becoming more vigilant about complying with regulations and guidelines. These firms are employing creativity and innovation to make pharmaceutical packaging lighter or ensure that it can be reused or recycled.

These areas of focus are especially pertinent for an already strained upstream supply chain, where resources and material shortages are common. On the downstream side, many consumers are becoming increasingly aware of climate change and its detrimental environmental effects. The rise of eco-conscious consumers is driving demand for products with clear environmental benefits, transparent sustainability performance and recognised certifications related to climate, water or circularity, including those that are upcycled.

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As a result, drug developers and their partners are more actively engaging in efforts to enhance the sustainability of their manufacturing practices. This shift is not only in response to customer demand and the growing environmental consciousness movement but also to safeguard operations and supply chains, making them more resilient to climate change and related effects.

PURSUE SUSTAINABILITY IN CAPSULE MANUFACTURING

In the pharma and excipients sector, sustainability innovation has led many companies to improve their manufacturing practices and reduce their environmental impact. Ever more companies are incorporating eco-design principles into capsule manufacturing, which offers numerous sustainability benefits, including lower carbon emissions. Eco-designed products are manufactured using less energy, preferably with renewable electricity, and with ingredients and materials sourced from a responsible and transparent supply chain.

Additionally, considerations such as the use of bio-based materials are increasingly important. Capsules, as oral delivery forms, are inherently bio-based – a key differentiator from injectables – and can help pharma manufacturers transition to lower carbon products.

PARTNERING TO ADDRESS GHG EMISSIONS

Several pharma players, guided by the industry's ambition for collective positive impact, are adopting emission reduction targets. Many organisations have joined the Science Based Targets initiative (London, UK), a global corporate climate

action organisation that develops standards, tools and guidance to help companies set GHG emissions reduction targets with the goal of reaching net-zero carbon emissions by 2050.

As a result, pharma and biotech companies are asking prospective supply chain partners to participate in their sustainability targets. These companies expect a certain level of “sustainability maturity” from their suppliers and insist that suppliers align with them on environmental values, including measuring, tracking and minimising their carbon footprint. These companies' sustainability requests fall into four broad categories:

- **Public Commitment to Sustainability:** When drug developers choose a manufacturing or design partner, they essentially invite the partner to join them on their sustainability journey. Therefore, they expect their partners to have the same level of commitment to sustainability goals, including global standards such as the Paris Agreement.
- **Renewable Electricity Supply:** Drug developers often request that manufacturing facilities be powered by renewable sources such as solar or wind-generated electricity. As these methods of delivery become more affordable, they are increasingly viewed as beneficial for both business and the environment.

- **Responsible Sourcing:** Being a reliable partner in sustainable business practices means maintaining tight control over the entire supply chain, beginning with the origin of raw materials. Tracking suppliers' sustainability efforts is essential to building a resilient supply chain and minimising risks. Just as drug developers align responsible sourcing with their corporate ethics and fair practices, manufacturers are applying the same principles when dealing with their own suppliers.

- **Transparency:** Drug developers now expect suppliers to share their sustainability goals openly in annual reports, including commitment to the principles of eco-design and green chemistry. These goals and measurable progress towards them must be clearly stated as part of a supplier's public profile.

The adoption of global sustainability metrics signals a more energised pharmaceutical and biotech industry that prioritises partnerships that align with their sustainability values, responding more directly to customer expectations and sharing data more proactively to demonstrate the impact of sustainability initiatives. Concurrently, many companies are establishing units dedicated to managing and advancing their sustainability initiatives.

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THE FUTURE OF SUSTAINABILITY IN DRUG DEVELOPMENT

Pharma and biotech companies and their suppliers no longer see sustainable manufacturing as a “nice-to-have” but as essential to how they operate. Increasingly,

they view sustainable value creation as an ethical, social and commercial imperative and a responsibility shared across the global community.

That responsibility also shapes which partners drug developers choose to support in their sustainability journey.



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Manufacturers that embed sustainability throughout their processes and equip customers with the capabilities, knowledge and expertise to adopt sustainable materials and methods will be best prepared to succeed in an ever-evolving pharma industry.

ABOUT THE COMPANY

Lonza Capsugel is a global healthcare manufacturing organisation, delivering capsule design, development and manufacturing technology for the pharmaceutical and biotech industries. The company produces more than 236 billion capsules annually, supporting drug developers from preclinical research through clinical trials to commercial production.

REFERENCE

1. “2024 Global Biopharma Sustainability Review”. *Market Report, Cytiva, Sep 2024.*



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