AstraZeneca Position Paper: Water Stewardship

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AstraZeneca

Introduction

Water Stewardship is included in AstraZeneca's Natural Resources focus area, one of our Environmental Protection sustainability priorities identified by our materiality assessment. Our Sustainability Strategy spans Environmental Protection, Access to Healthcare and Ethics and Transparency.

Our approach to water stewardship supports our commitment to the Sustainable Development Goals and our contribution towards the critical global sustainable development challenges.

We recognise our responsibility to contribute to the UN 2030 Sustainable Development Agenda and the Sustainable Development Goals. As a global biopharmaceutical company investing in improving human health and advancing science, we focus on the six goals which have the greatest possible impact on human health.

SDG 6
Clean Water and Sanitation has **strong links** to all six of these goals, and our water stewardship work will support our contributions to this ambition programme.

Background

As a highly localised natural resource that is fundamental for life, management of water involves multi-faceted challenges. Climate change continues to intensify the global water cycle, including its variability and severity of wet and dry events[1]. Flooding causes significant economic and societal problems, with 1.47 billion people exposed to flood risks globally[2]. In water scarce areas, the concentration of pollutants and contaminants increases, exacerbating water quality and availability issues and adversely impacting biodiversity[3].

An estimated **780 million people** do not have access to clean drinking water[4] and growing consumption means that, if current trends continue, the planet faces a **40% shortfall** in water supply by 2030[5].

AstraZeneca recognises that access to water is a fundamental human right[6]. In many areas around the world water demand exceeds supply, and areas traditionally regarded as water-secure are increasingly facing seasonal shortfalls to meet the needs of communities, ecosystems and industry[7]. Water scarcity adversely impacts health and livelihoods while escalating the risk of conflict[8]. With health at the heart of our business, we have a responsibility to support the interconnectivity between human health and the health of nature and the planet.

With population growth, urbanisation and climate change expected to exacerbate water availability and water quality challenges[9], we are committed to minimising our impact on water and making a positive contribution to water stewardship in the river basins where we operate.

AstraZeneca's approach to water stewardship

Clean and plentiful water is vital for the development and manufacture of life-changing medicines. We use freshwater for cleaning and cooling, and we also require relatively small volumes of purified water for chemical syntheses and producing biological medicines. Although water use in our industry is low relative to other sectors[10], significant volumes of water are required to produce the raw materials we use to make our products and, at a local level, our sites have the potential to deplete water sources and impact water quality. We recognise that it is key to focus on not only how much water we use, but also the long-term impacts of where we use it.

We are committed to water stewardship and have targets, initiatives and goals across our operations to reduce our impacts and be a positive actor in the river basins where we operate:

- **At AstraZeneca sites:** Decoupling water demand from business growth with our 2015-2025 global water efficiency goal key performance indicators; aspiring to develop context-based science-based water targets.
- **In drug development:** Adopting Resource Efficiency targets to reduce the water demand of the drugs we develop; conducting life Cycle Assessments to calculate the water footprint across the whole product life cycle including the raw materials used to make the drug substance.
- **Maintaining water quality:** Preventing pollution by applying safe discharge limits for active pharmaceutical ingredients produced or formulated our manufacturing operation.
- **In our supply chain:** Applying these safe discharge limits across our supply chain to prevent pollution from supplying that manufacture active pharmaceutical ingredients for us; Implementing a Supplier Sustainability Framework.
- **In the communities where we operate:** Supporting basin-level collective action; leading the development of science-based water targets.

Water availability at AstraZeneca sites

Our business requires continuous access to reliable water sources. Decreasing water quality and scarcity present direct risks to our operations, potentially causing production shut-downs in our site network or supply chain. Additionally, as a significant water consumer in many catchment areas, our licence to operate could be damaged during periods of water scarcity. We must take all reasonable steps to use water responsibly and ensure adequate supplies for our business, our employees, the communities they live in and the ecosystems on which they depend.

These steps include:

- Focusing on water use within site boundaries
- Understanding local water risks
- Establishing site specific water stewardship plans

Target 6.4
By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

Water use at AstraZeneca sites

Our **2016-2025 Safety, Health and Environment strategy** outlines our company-wide global goal to improve water efficiency by decoupling water demand from business growth:

- Maintain our water usage at 2015 levels through to 2025, despite an expected doubling of revenue over the same duration.

To reach this goal we are focusing on water management and continuing to improve the efficiency of our research, development and manufacturing.

Since 2016, thirteen of our sites have worked with external specialists to conduct detailed water efficiency assessments, and our dedicated natural resources reduction capital fund has invested over $11m in 33 projects across our site network which improve water efficiency, site resiliance, and in some cases water quality. Examples include:

- Improved water metering to gain a detailed understanding of water use to help target process efficiency and optimisation interventions
- Installation of low flow fittings
- Upgrading processing equipment to reduce water requirements
- Rainwater harvesting
- Treating and reusing water elsewhere, such as in cleaning or cooling processes.

We prioritise implementing water efficiency projects and site water efficiency assessments in water-scarce areas. We are on track to meet our water efficiency goals – our water use has been declining as our revenue grows; in 2021 our water use was 17% lower than 2015.

Understanding local water risks

We have developed a standard methodology to assess water risk across our site network. Based on the **WWF Water Risk Filter Tool** which identifies and evaluates water risks around the world, this methodology has enabled us to broaden our understanding of our water-related risks and identify priority areas for investment. We also use the WWF Water Risk Filter to assess how drought risk at sites could be amplified by different climate change scenarios. Through our site-level climate risk assessments, we are exploring physical water risks including scarcity and flooding along with other hazards from climate change.

See our **TCFD report** for more detail

Site specific water stewardship plans

In 2021, we introduced a water stewardship pilot programme at 6 key sites, focusing on efficient water use within the boundaries of our sites, along with water quality and collective action opportunities in the local basin. These plans include:

- An overview of the site's dependence on water
- Water balance maps detailing sources and use
- Expected changes in water requirements
- Local water challenges, such as quality and WASH
- Staff engagement in water issues
- Opportunities for collective action

Developing this strategy

In 2020, we announced a **partnership with WWF** to analyse the physical, reputational and regulatory water risks within WWF's Water Risk Filter across our global operations to establish how we can strengthen our water stewardship programme.

We have a shared commitment with WWF to ensure that we take better care of natural resources; freshwater is essential for biodiversity which is at the heart of WWF's mission, and clean and plentiful water is fundamental to human health. Our longer-term goal is to implement **Science-Based Targets for Water**, once a global methodology is available, to lead the way on water stewardship for the pharmaceutical industry. This approach will ensure that we can be an effective steward contributing towards the sustainable management of water resources across the river basins in which we operate.

Drug development

How we design our medicines has a major impact on our water footprint across our value chain during the lifespan of a product patent, and beyond. When our medicines lose exclusivity, generic pharmaceutical companies will continue to make these medicines following the processes that we have developed; it is therefore critical that maximum water efficiency is designed into these production processes from the outset as they will be used throughout the lifetime of that medicine.

Life-cycle assessments of a range of our products demonstrate Active Pharmaceutical Ingredient (API) preparation has significant impact on a product's footprint. To measure and improve the resource efficiency of our APIs during development, we use a resource efficiency metric called process mass intensity (PMI). This PMI **metric** was developed by the American Chemical Society Green Chemistry Institute Pharmaceutical Roundtable (ACS GCIPR) and adopted by AstraZeneca in 2010 as the primary environmental metric for drug development projects. It is key metric that underpins product sustainability and our future water footprint. PMI is measured as kilograms of raw materials including water, used to produce a kilogram of the final API. A lower PMI means we are using raw materials and water more efficiently. We have a **target** to ensure 90% of our new API synthesis meet resource efficiency targets at launch by 2025.

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Maintaining water quality

Pharmaceutical residues enter the environment mainly as a result of patient use, where they pass through our bodies and into waterways. Drug manufacture and the improper disposal of unused medicines also add to the trace levels of pharmaceuticals in rivers, lakes, soils, and, sometimes, drinking water. AstraZeneca recognises that, even in such low concentrations, the risks associated with Pharmaceuticals in the Environment (PIE) should be determined, minimised and managed.

While waste from the manufacture of medicines is only a small proportion of the pharmaceuticals found in the environment, it is an area that we can make a direct impact. We recognise that managing these risks to maintain water quality and minimise environmental impacts are key to our overall water stewardship strategy. We have set a commitment to lead the industry to manage PIE.

To manage water quality impacts from the manufacture of our products, we have an Environmental Reference Concentration (ERC) risk assessment methodology to establish safe discharge concentrations for the APIs present in effluents from drug manufacturing. We manage the manufacturing discharge of our APIs in a responsible manner[11] to ensure that we do not pollute the local aquatic environment by exceeding the safe discharge standards set for our own manufacturing sites and those of key suppliers[12]. We monitor and report compliance against these safe discharge standards annually and revise them in light of new scientific evidence.

Using a concept called 'ecopharmacovigilance', we review emerging science and literature for new information that might change the way we assess and manage any environmental risks associated with our products through patient use and API production. A thorough assessment of the environmental risks resulting from the patient use of all our APIs has indicated that all our medicines currently pose low or insignificant risk to aquatic environments.

Target 6.3
By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

For more information, see our **Ecopharmacovigilance Dashboard**.

As part of our progress towards our 2025 environmental targets, our rolling annual targets that focus on water quality included:

- **100% of API discharges from AstraZeneca sites** – 2021 Performance: Target met with 49 manufacturing sites in scope
- **90% of API discharges from globally managed direct suppliers demonstrated as safe** – 2021 Performance: Target met with 4 of 75 supplier assessments not submitted and 1 of 75 API discharge limits exceeded at time of reporting. Subsequently, limit was refined and demonstrated discharges were safe.

For more information, see our **PIE statement**.

Supply chain

Producing the raw materials for our products uses water and can affect water quality. We partner with suppliers in building their own sustainability capabilities and hold them to high standards. We aim to work only with suppliers whose values are consistent with our own and who are committed to developing inclusive, resilient and transparent businesses. Throughout the life of our relationship with each supplier, we seek to ensure that their conduct matches the expectations outlined in our Global Standard **Expectations of Third Parties**.

We collect **water use data** from our critical direct suppliers annually and in 2018 we created the **Sustainability Partner Guide and Framework** to set clear expectations for our critical manufacturing partners. This framework provides a common way for our sourcing teams to assess and reward sustainability performance. We evaluate our most material partners which supply our APIs, product formulation, and devices for overall sustainability performance, making up nearly 10% of AstraZeneca's total spend. Through this process we recognise suppliers that set water efficiency targets, and those that are transparent about water risks management through disclosure to the CDP Water programme. This Framework also shares water stewardship best practice with our suppliers.

As we have many common suppliers, we are working with our industry peers to improve water stewardship in our supply chain through the **Pharmaceutical Supply Chain Initiative**. As a member of this group, we have supported resources which raise supplier capability on water related risks.

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Our efforts to tackle climate change will also reduce water use in our value chain. Cooling systems in thermal power plants withdraw and consume large quantities of water. Through our commitment to **RE100** since 2020 our we have sourced 100% certified renewable imported power for our sites worldwide. In some regions of the world, over a third of water is estimated to be withdrawn for thermoelectric power supply[13].

In the communities where we operate

Managing our own water use and minimising our impact on water quality will not be sufficient to insulate our business from water risks. As a result we are actively seeking opportunities to reduce water risks in the basins where we operate. In 2019, following intensifying dry-season water shortages and severe flooding during the monsoon, Chennai city officials declared that "Day Zero" (the day when almost no water is left) had been reached. In partnership with the Environmentalist Foundation of India (EFI), our colleagues from our Chennai site have invested in the restoration of several lakes and ponds in the area since 2019, with continued plans for similar nature based solutions projects in the near future. These projects demonstrate our employees' engagement and support the local community by recharging the groundwater table and reducing flood risk. See our 2019 **Sustainability Report** for more details.

Supporting basin-level collective action and innovations is an emerging focus area for AstraZeneca and is expected be an important part of future context-based water targets to reduce water risks for our business and other uses in the river basins where we operate.

Target 6.6
By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

Target 6.A
By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.

Target 6.B
Support and strengthen the participation of local communities in improving water and sanitation management.

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