



**Exceeding water
performance targets
for the food & beverage
manufacturing industry.**

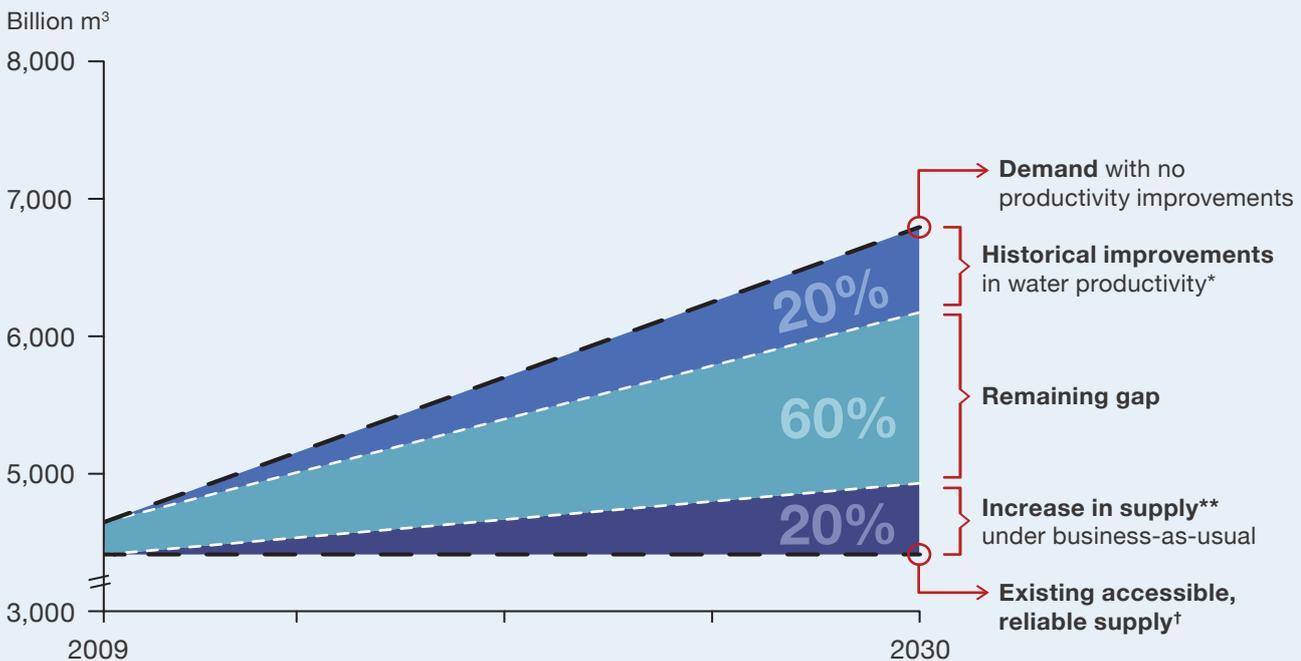
Introduction

Over the past 50 years the world's population has doubled and global GDP has grown tenfold¹. The subsequent boom in industrial output has resulted in an ever-increasing strain on global water resources. In fact, it is estimated that by 2030 if there is no improvement in water efficiency, there may be a 60% gap between water supply and demand¹ (figure 1).

Although the majority of countries have a supply of water that meets the needs of their population today, the problem lies in the effective management of water resources. Increasing competition for water resources is a growing business risk, a major economic threat that cannot be ignored, and a global priority that affects all sectors and regions¹.

As a sector whose value chain is exposed to water scarcity, the food and beverage industry is under increasing pressure to minimise their impact on the environment. Food and beverage manufacturers therefore have a responsibility to engage in solutions to address the water challenge¹.

Figure 1. Estimated gap between water supply and demand by 2030¹



* Based on historical agricultural yield growth rates from 1990-2004 from FAOSTAT, agricultural and industrial efficiency improvements from IFPRI

** Total increased capture of raw water through infrastructure buildout, excluding unsustainable extraction

† Supply shown at 90% reliability and includes infrastructure investments scheduled and funded through 2010. Current 90%-reliable supply does not meet average demand

SOURCE: 2030 Water Resources group - Global Water Supply and demand model; IFPRI; FAOSTAT

The Challenges

Contamination from commonly present organics and micropollutants typically results in food and beverage manufacturers being challenged to reduce Chemical Oxygen Demand (COD) and improve the aesthetics of wastewater.

Releasing untreated wastewater into the environment can result in:

- Bioaccumulation in food chains, which happens when toxins and pollutants in the water are consumed by aquatic animals and are then consumed by humans
- Impairment of the ecological balance of a waterbody due to the stimulation of biological growth (eutrophication), such as algae
- Lack of light and oxygen penetrating water, causing the death of marine life and plants due to suffocation

In order to meet strict environmental standards and avoid loss of permit, operational downtime and costly fines, it is essential that wastewater emissions comply with industry regulations.

The pressure faced by the food and beverage industry to minimise their impact on global water resources has led to many organisations establishing performance targets as part of their Corporate Social Responsibility (CSR) policy.



Arvia Technology's Treatment Solution

By adopting a wastewater treatment process which has the ability to remove harmful organics and reduce COD, manufacturers meet regulation and prove their commitment to the protection of the environment.

Arvia's Nyex™ Treatment Systems offer a unique solution for the reduction of hard-to-treat organics, micropollutants and colour from water and wastewater streams.

Each on-site system (figure 2.) is tailored to meet specific water treatment requirements, guaranteeing environmental and regulatory discharge limits are achieved. Furthermore, Nyex Treatment Systems can also be designed and optimised to ensure treated water is safe for reuse within the business, see figure 3. This not only reduces utility costs but also supports CSR targets.

Nyex systems provides a chemical free and environmentally sound solution which combines adsorption with electrochemical oxidation in a single,



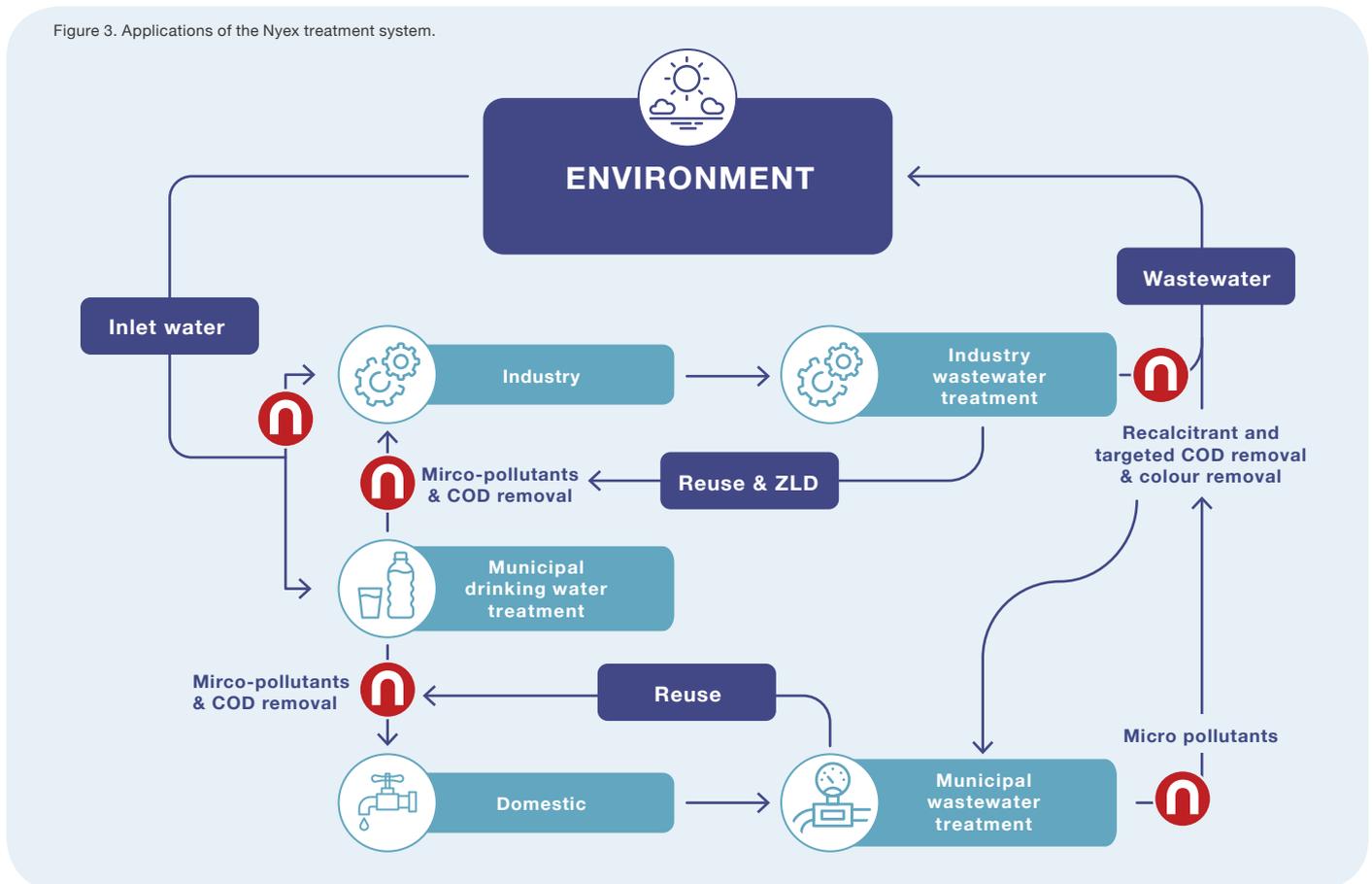
Figure 2. The Nyex-a containerised system.

scalable unit designed to complement existing treatment trains.

Problematic contaminants are concentrated on the surface of Arvia's proprietary media, which is non-porous with high electrical conductivity. This patented adsorbent media allows for targeted and continuous oxidation.

Unlike granular activated carbon, Nyex media is effectively regenerated in-situ and the process can continue without interruption or replacement. Results are achieved without chemical dosing or the generation of sludge, reducing costs from the transport of chemicals and specialist waste disposal.

Figure 3. Applications of the Nyex treatment system.





Benefits of Nyex Treatment to the Food & Beverage Manufacturing Sector

Manage depleting resources in water stressed areas enabling continued business growth.

Increase profitability by reducing production costs including utilities and maintenance.

Enable compliance with increasingly stringent regulation with an optimisable treatment solution.

Speak to one of our application experts today to discuss the targeted removal of trace level organics and colour from your wastewater with Nyex.

1. Charting Our Water Future, Economic frameworks to inform decision-making. The 2030 Water Resources Group, 2009.

https://www.mckinsey.com/~media/mckinsey/dotcom/client_service/sustainability/pdfs/charting%20our%20water%20future/charting_our_water_future_full_report_.ashx

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Safer water for future generations