

WASTEWATER: The Untapped Resource

The four **R's** of wastewater management generate social, environmental and economic benefits for all society, contributing to overall well-being and health, water and food security, and sustainable development.

MOST HUMAN ACTIVITIES THAT USE WATER PRODUCE WASTEWATER

that is **LOWER** in **QUALITY** than the **WATER** **ORIGINALLY** USED

OVER 80% OF THE WORLD'S WASTEWATER IS RELEASED TO THE ENVIRONMENT WITHOUT TREATMENT

Releasing **untreated** wastewater impacts

- HEALTH**
- ENVIRONMENT**
- ECONOMIC ACTIVITIES**

CIRCULAR ECONOMY

A **CIRCULAR ECONOMY** balances economic development with environmental sustainability through the most efficient use of resources and clean production processes. It seeks to minimize pollution and energy consumption, while maximizing the reuse and recycling of materials and improving the life-cycle of products.

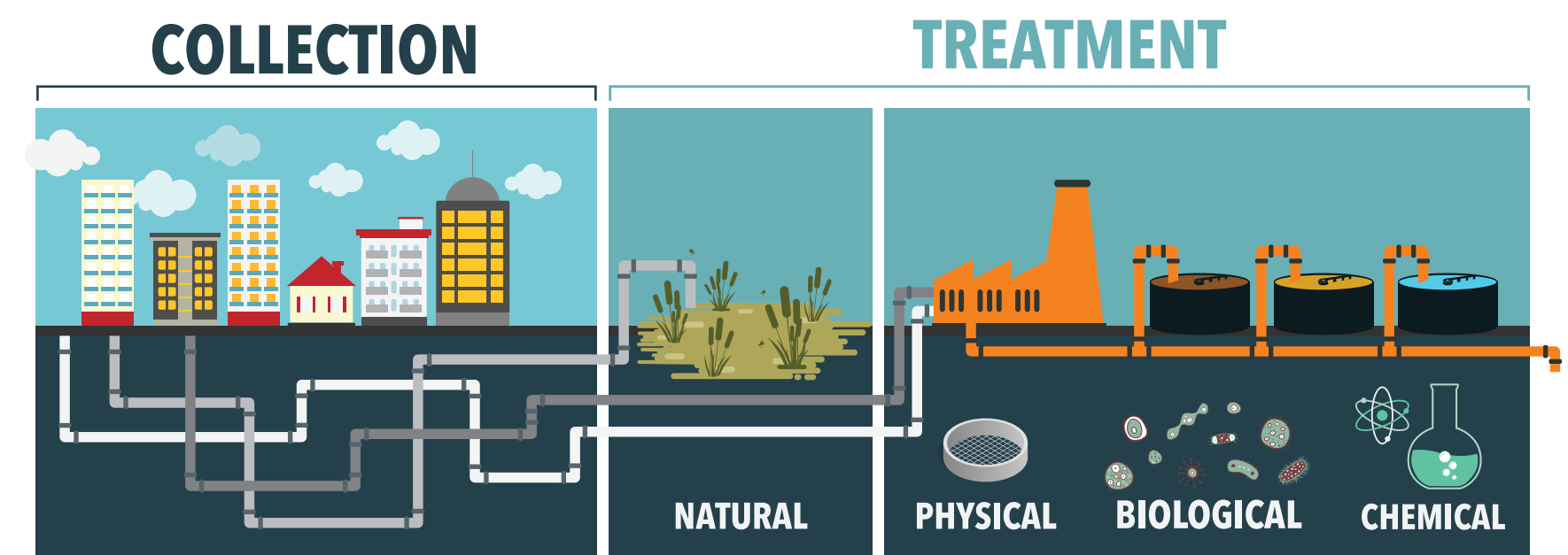
REDUCING OR PREVENTING POLLUTION AT THE SOURCE

The goal is to keep the volumes and toxicity of pollution to a minimum at the source, by prohibiting or controlling the use of certain substances to eliminate or limit their entering into wastewater streams.



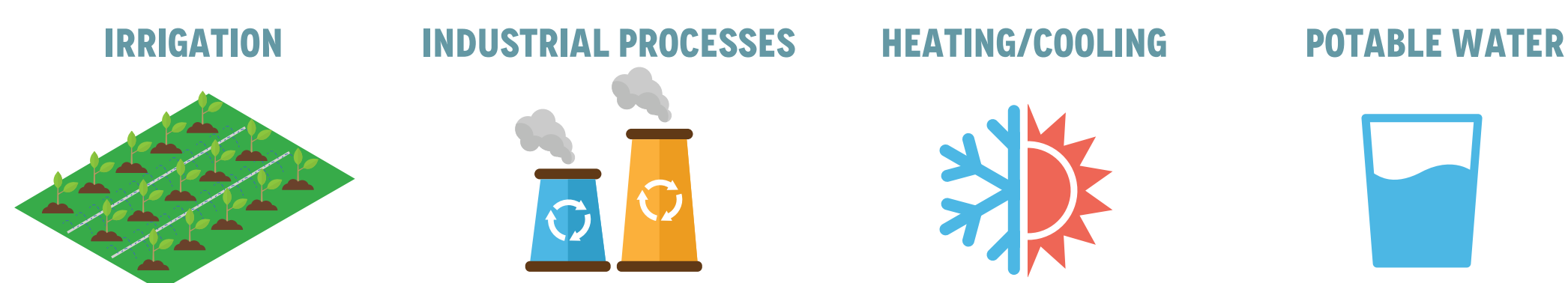
REMOVING CONTAMINANTS FROM WASTEWATER: COLLECTION AND TREATMENT

The endpoint of a sewerage network should be a treatment plant, which aims to remove contaminants from wastewater so that it can be either safely used or returned to the water cycle with minimal impacts.



REUSING WATER (i.e. USING WASTEWATER)

Treated wastewater can be safely used to enhance water availability and offset water scarcity. Not all wastewater needs to be treated to the level of drinking water quality. Non-potable quality treated wastewater can be safely used in agriculture, industries and municipalities for a variety of different purposes.

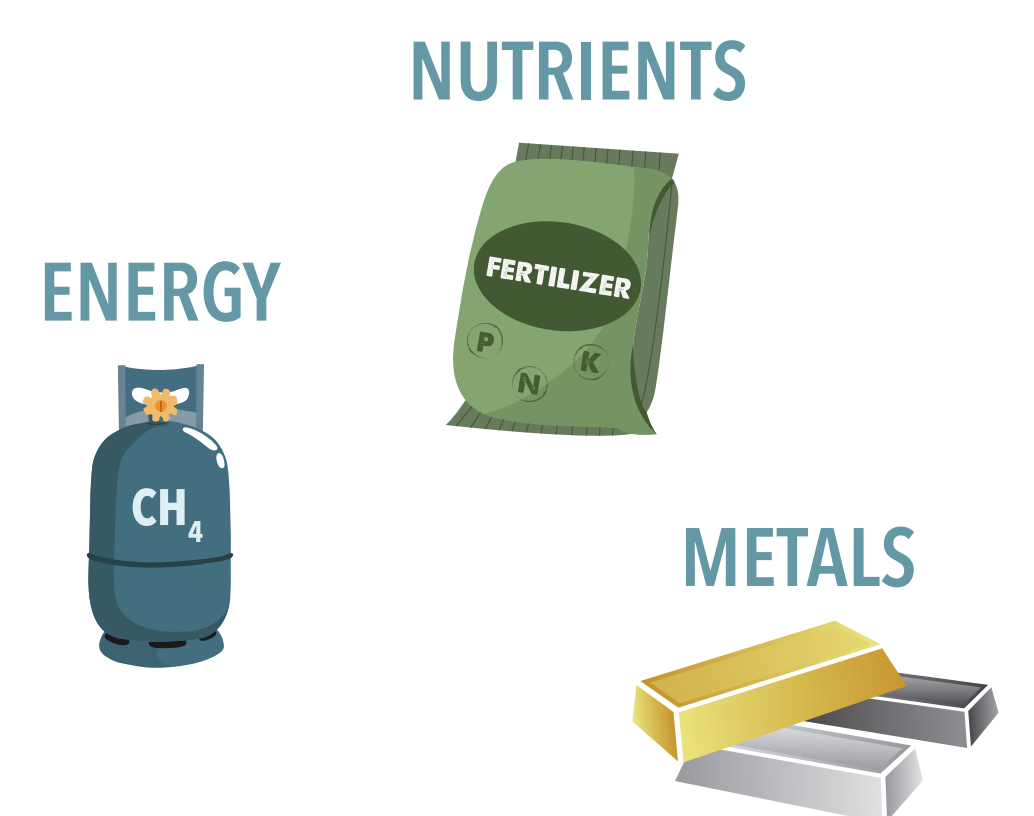


Greenland

The approximately 330 km³ of municipal wastewater generated every year could potentially irrigate 40 million hectares (roughly the size of Greenland)

RECOVERING USEFUL BY-PRODUCTS

Wastewater can be a cost-effective and sustainable source of recoverable by-products. Energy can be recovered from wastewater in the form of biofuel, biogas and heat. Nutrients (nitrogen and phosphorus) can be recovered and transformed into fertilizer.



In a world where demands for freshwater are ever growing, and where limited water resources are increasingly stressed by over-abstraction, pollution and climate change, neglecting the opportunities arising from improved wastewater management is nothing less than unthinkable.

