Waterborne Pathogens

Detection and Treatment

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Chapter 2

Ubiquitous waterborne pathogens

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1. Introduction

In July 2010, the United Nations General Assembly (UNGA) univocally recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights (UNGA, 2010). However, due to inadequacy, unsafe, inaccessibility, and unaffordability of water, most of the people globally are deprived of this universal right. According to the Joint Monitoring Program (JMP) report, some 3 in 10 people worldwide, or 2.1 billion, lack access to safe, readily available water at home and 6 in 10, or 4.5 billion, lack safely managed sanitation (WHO and UNICEF, 2017). Due to the global efforts, billions of people have gained access to basic drinking water and sanitation services since 2000, but people in many countries are still lacking clean water and proper sanitation in their homes, healthcare facilities, and schools. Hence health of all these people is at a risk, affecting mainly the infants and young children. Water, sanitation, and hygiene were responsible for 829,000 deaths from diarrheal disease in 2016. It is estimated that every year, 361,000 children under 5 years of age die because of diarrhea. In addition, poor sanitation and contaminated water are also linked to transmission of waterborne diseases such as cholera, dysentery, hepatitis A, and typhoid (WHO and UNICEF, 2017).

In September 2015, Member States of the United Nations adopted the 2030 Agenda for Sustainable Development (UNSD, 2015) and Goal 6 of Sustainable Development Goals is to "*Ensure availability and sustainable management of water and sanitation for all*." Targets were set by considering the freshwater cycle as a whole. Member States try to achieve these targets by improving the standard of water, sanitation, and hygiene (WASH) services; increasing treatment, recycling, and reuse of wastewater; improving efficiency and ensuring sustainable withdrawals; and protecting water-related ecosystems

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