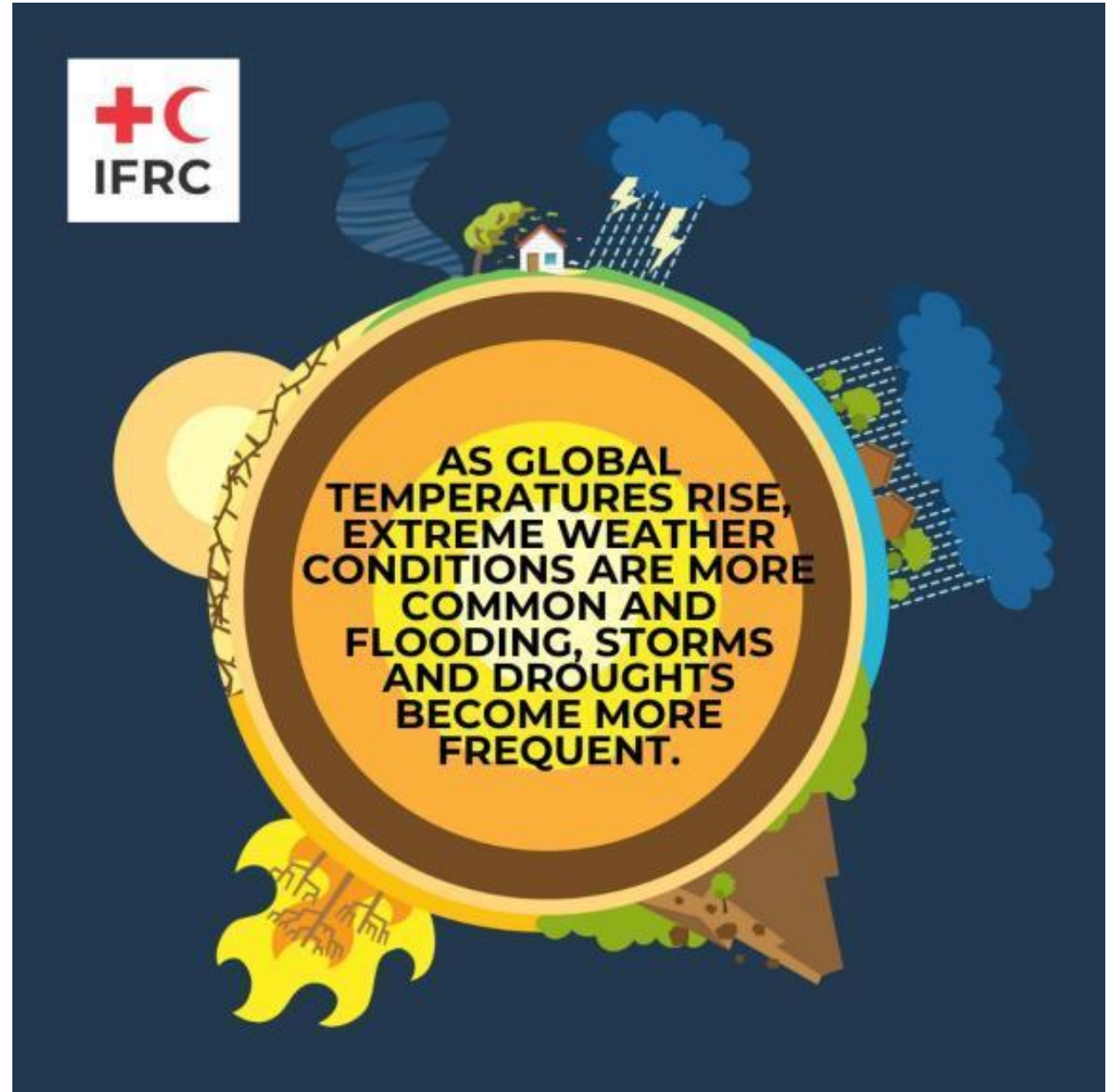


Climate change and Water, Sanitation & Hygiene (WASH)

Climate
Training



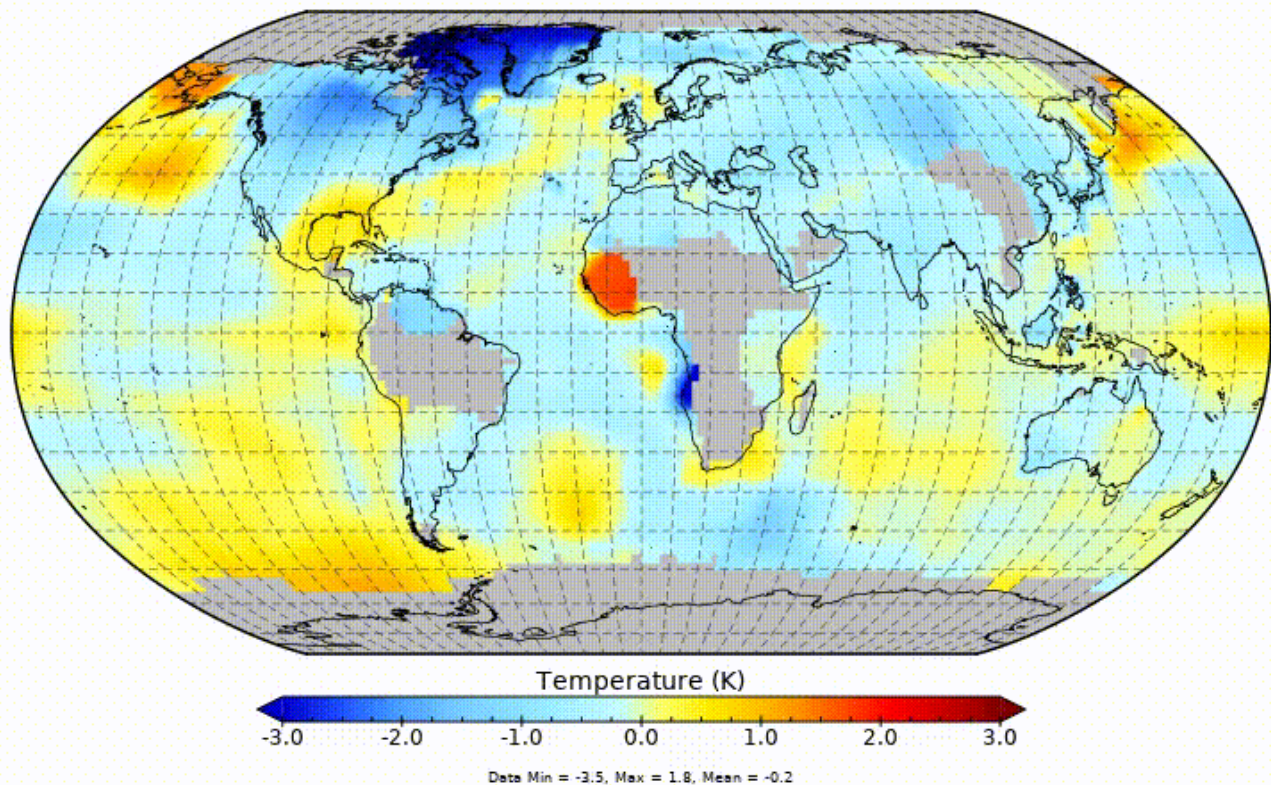
In the last decade:

- **1.7 billion people** around the world have been affected by **climate and weather-related disasters**
- Extreme weather- and climate-related disasters have killed more than **410,000 people**
- **We still have a chance to act!**



Scientists confirm that the problems are global

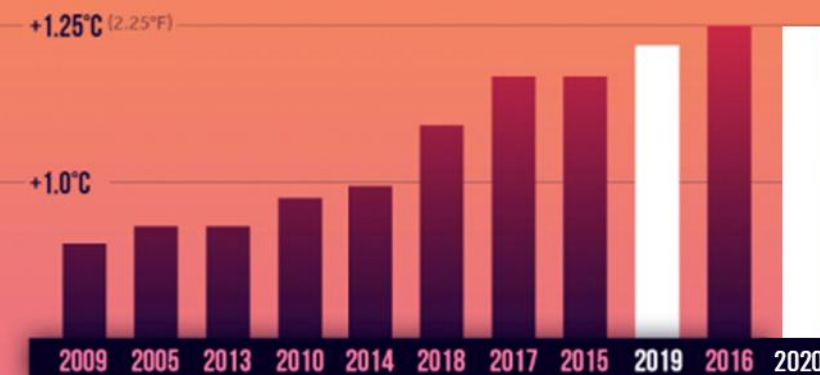
Annual Surface Temperature Anomaly base 1951-1980
1880-1884



Source: NASA

11 HOTTEST YEARS ON RECORD GLOBALLY

Last 5 = Hottest 5



Source: NASA GISS & NOAA NCEI global temperature anomalies (°C) averaged and adjusted to early industrial baseline (1881-1910). Data as of 1/15/2020.

CLIMATE CENTRAL

Quiz – Mitigation or Adaptation

<https://washsystemsacademy.org/mod/page/view.php?id=14461>



Photo: IFRC

Climate change and WASH: What will we cover?

LEARNING OBJECTIVES: By the end of this module, you should be able to:

- **Understand the public health risks** associated with WaSH and climate change
- Describe **WASH related diseases and pathogens**
- **Identify WASH interventions** to reduce climate change impacts
- **Identify tools and resources on** climate change and WASH

STRUCTURE

PART I - **Health risks** associated with WASH and climate change

PART II – **Interventions** to reduce health risk associated with WASH and climate change

PART III - **Tools and Resources** for WASH and climate change

Part I

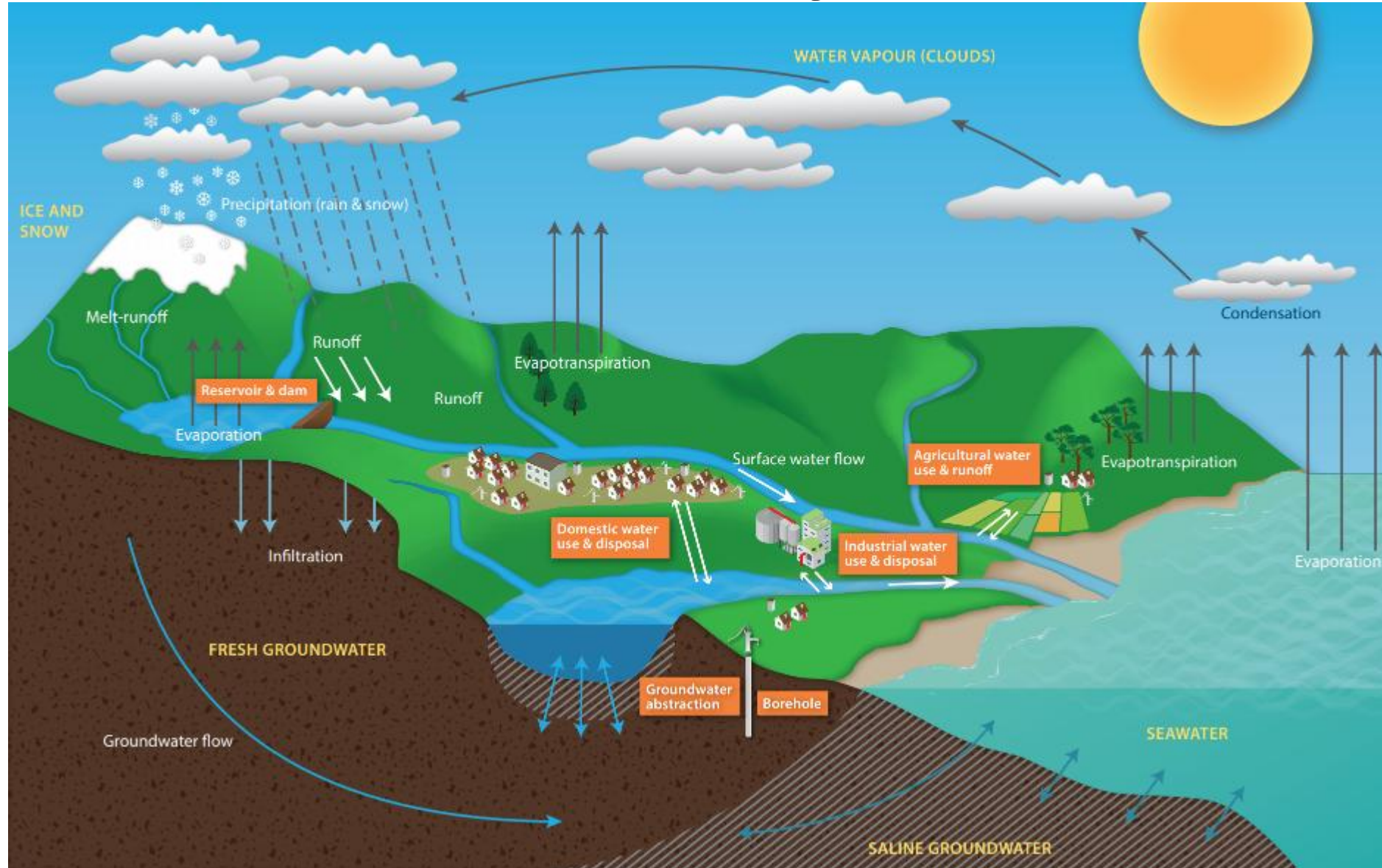
What are the health risks associated with WaSH and climate change?



The water cycle



The water cycle



Source: un-igrac

How does climate change affect the water cycle?

Water availability, access

Increased risks of flooding and drought in many areas

Water supplies stored in glaciers and snow cover are projected to decline

Increased competition between WaSH and agriculture

Water quality

Increased water temperatures are projected to exacerbate water pollution

Saline intrusion of coastal aquifers from rise in sea levels

Water systems

Climate change affects the existing water infrastructure and water management practices

Climate change challenges the traditional assumption that past hydrological experience provides a good guide to future conditions

Globally, the negative impacts of future climate change on freshwater systems are expected to outweigh the benefits



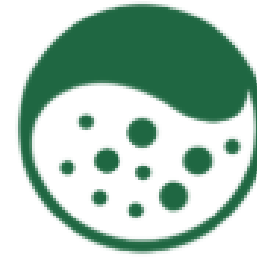
Too Much Water

Extreme weather events such as floods and hurricanes can cause direct damage to water and sanitation infrastructure such as pipelines, wells, toilets, and treatment facilities.



Too Little Water

Rising temperatures results in droughts and less predictable water availability. The destruction of vegetation and tree cover from droughts, wildfires, or changes in agriculture intensifies runoff, reducing groundwater recharge.



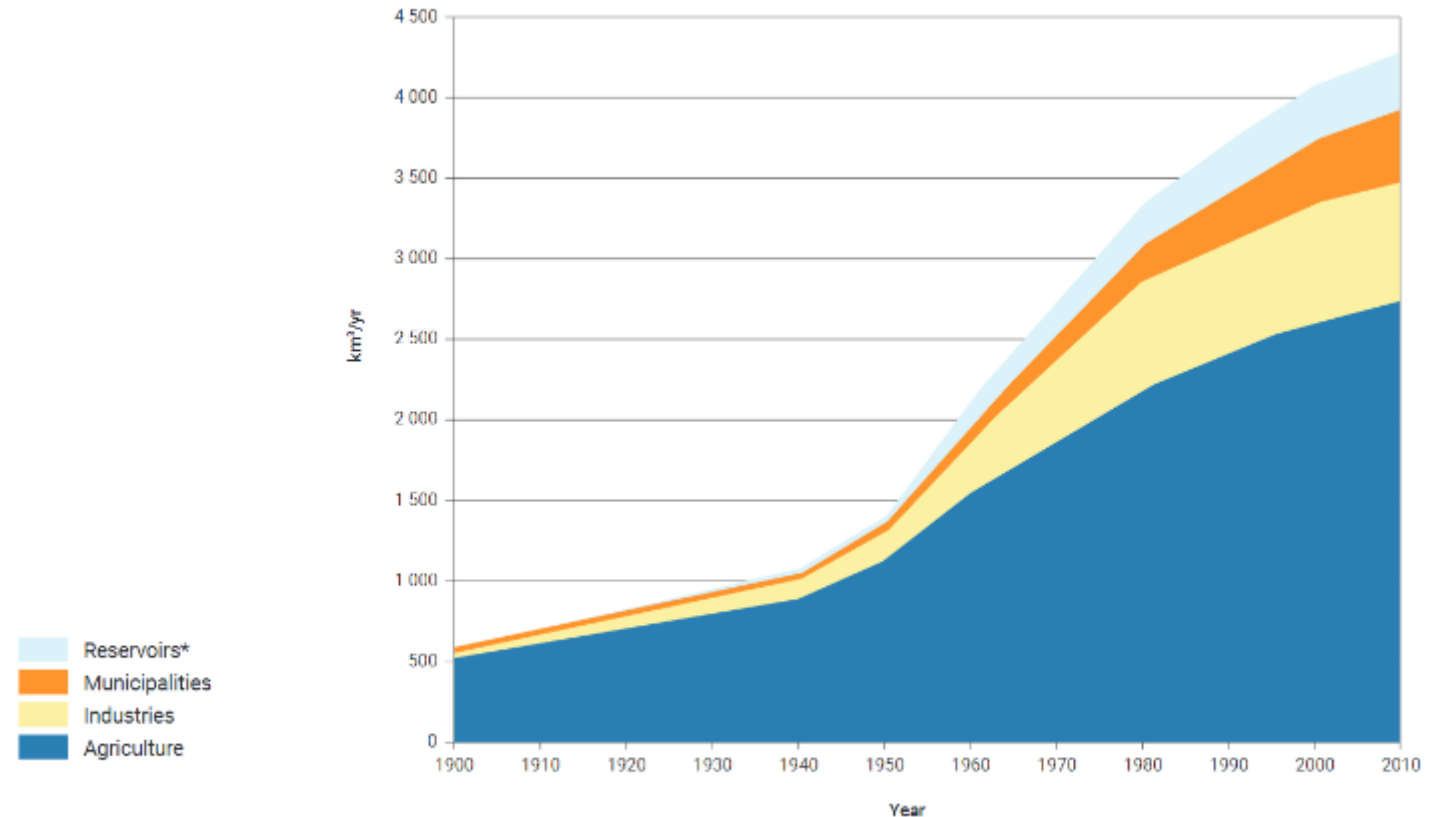
Polluted Water

Flooding, especially in areas with limited safely managed sanitation services, can cause the spread of contaminants and disease. And with rising sea levels, salt water can more easily contaminate freshwater aquifers.

Water availability & stress



Global water withdrawals throughout the previous century



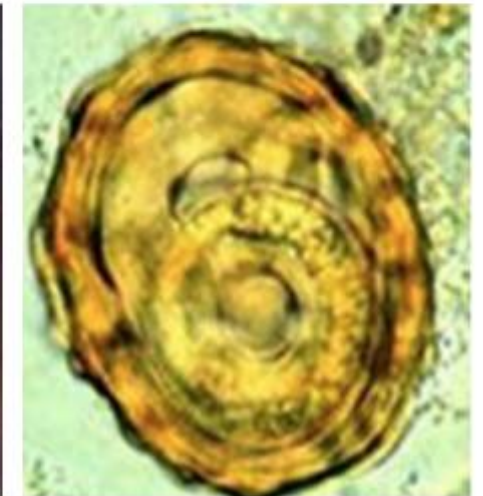
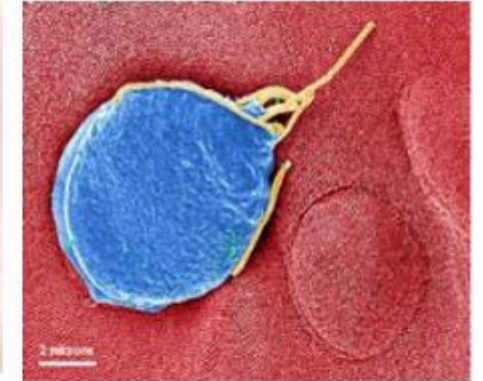
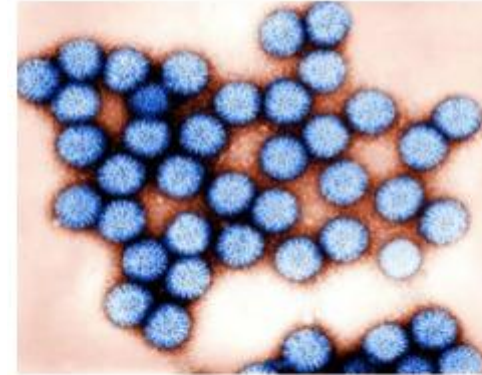
Note: *Evaporation from artificial lakes.

Source: AQUASTAT (2010).

Access: physical and economic



Water quality



Excess: water-related disasters



Photo: Bangladesh Red Crescent

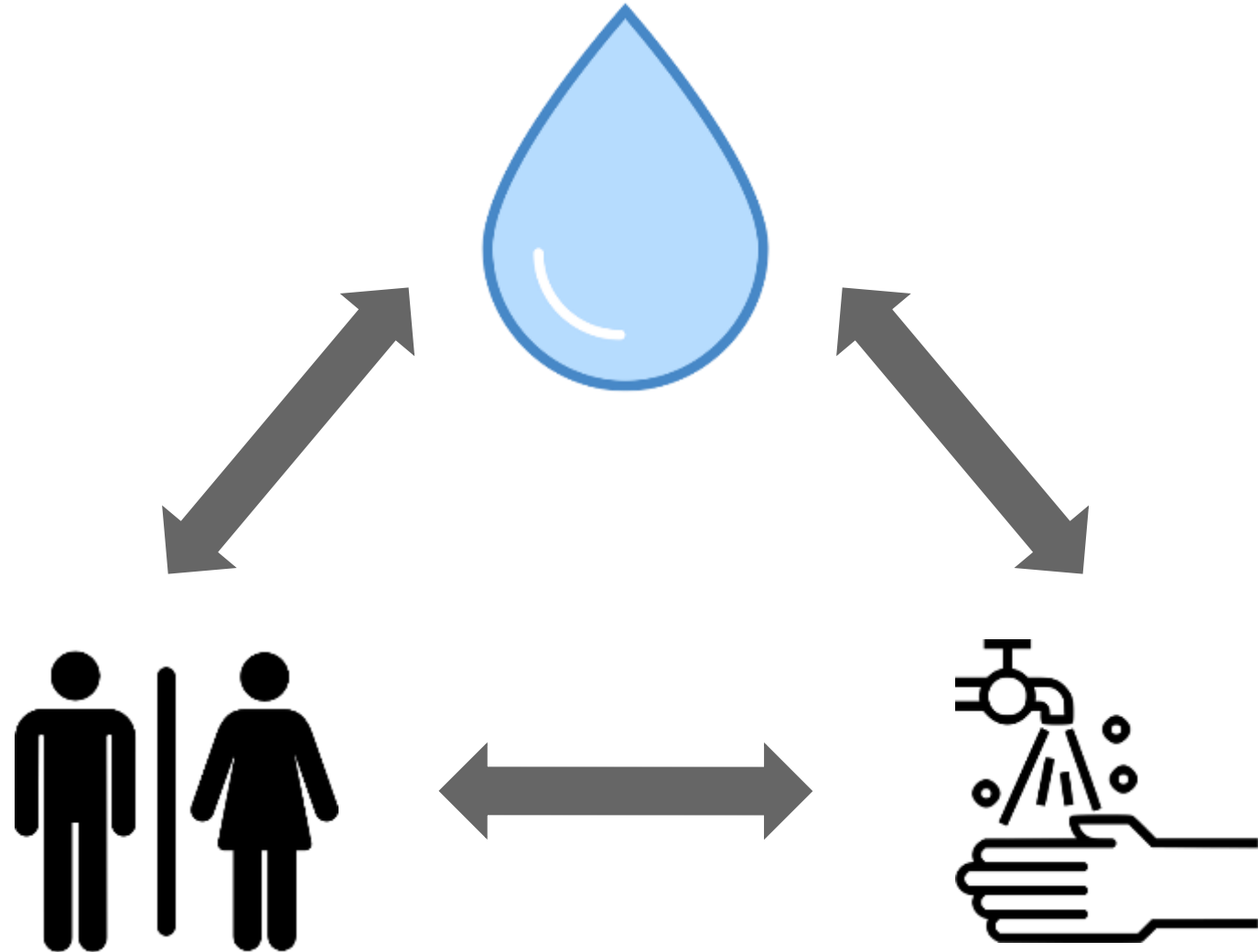


Photo: D. Onyodi / KRCS

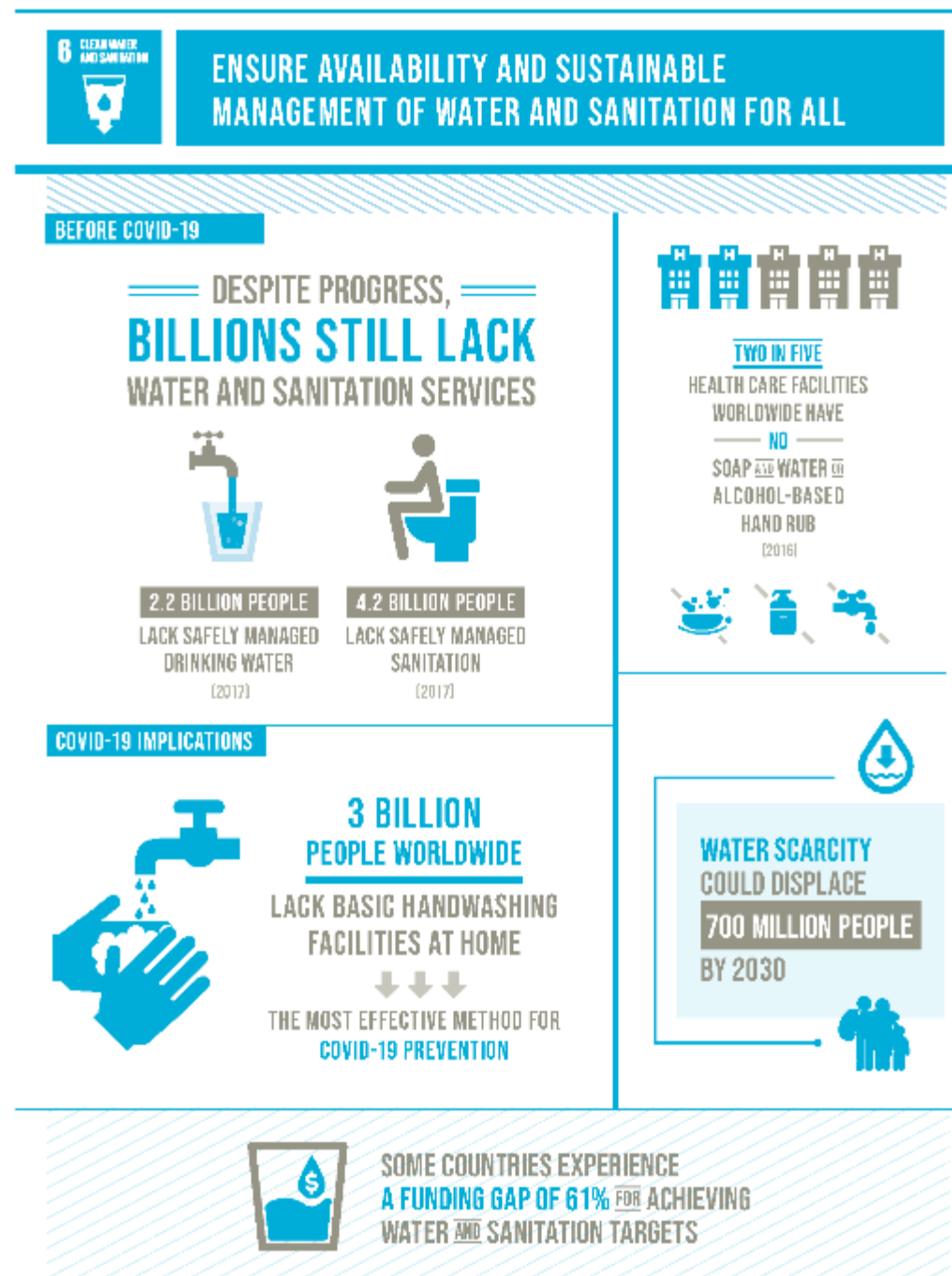
WASH is a Health *and* a development issue



Sustainable Development Goals

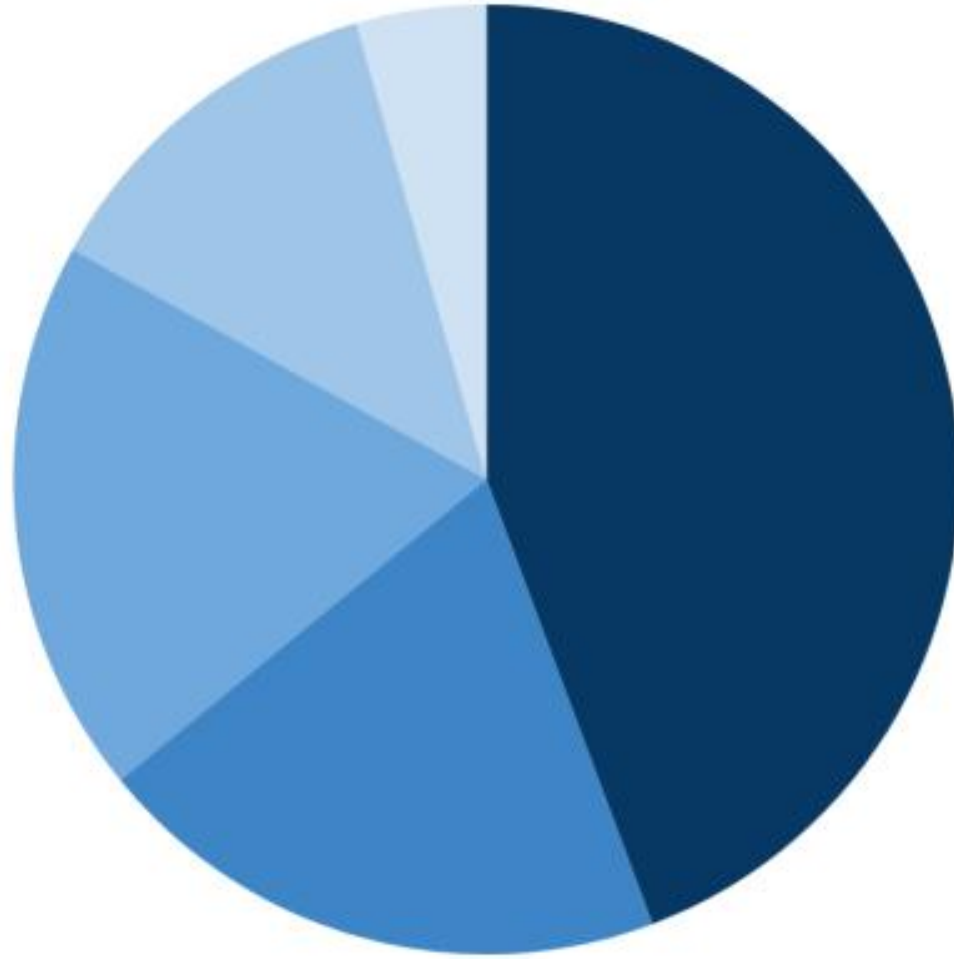


Sustainable Development Goal 6



Source: <https://sdgs.un.org/goals/goal6>

Disease burden from inadequate WASH for the year 2016



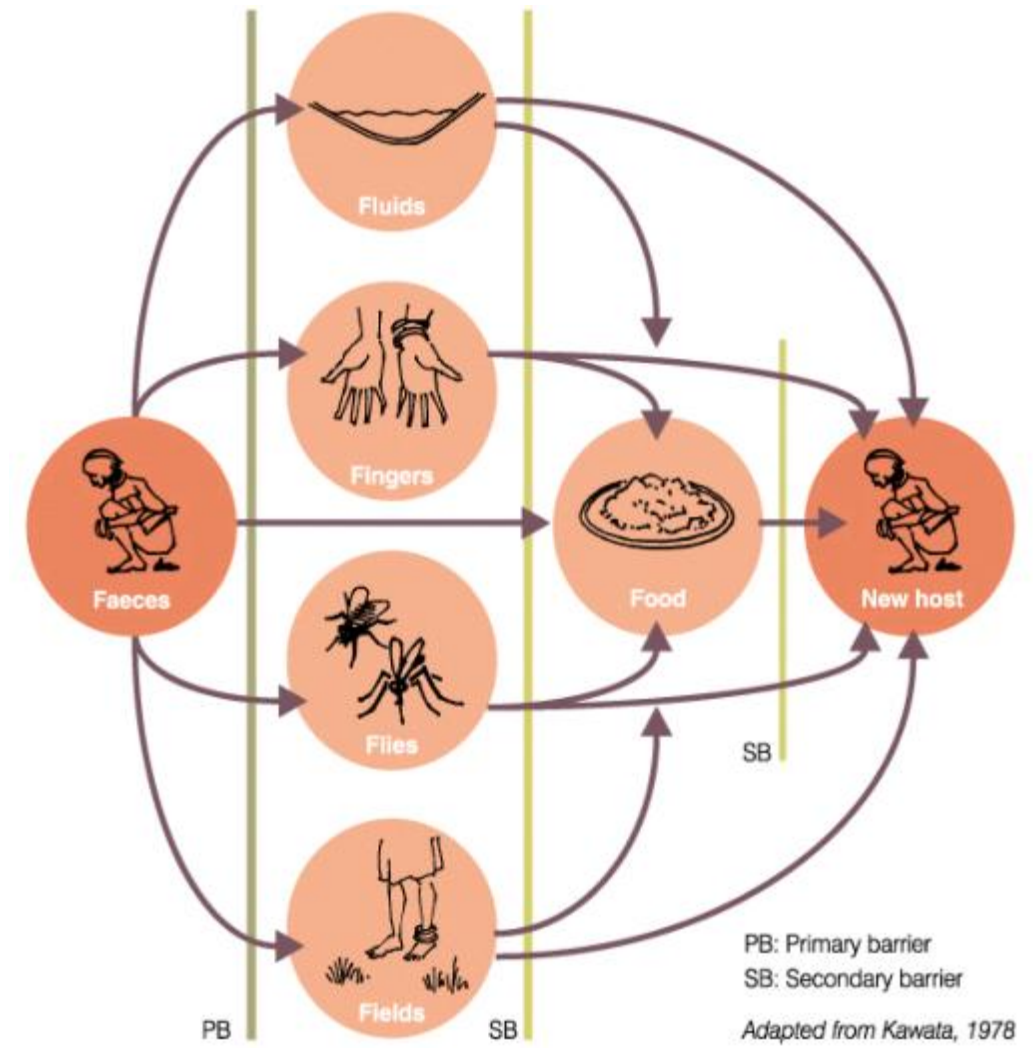
WASH and diarrhoeal diseases

Each day, nearly 1000 children die due to preventable water and sanitation-related diarrheal diseases

Reference: <https://www.un.org/sustainabledevelopment/water-and-sanitation/>

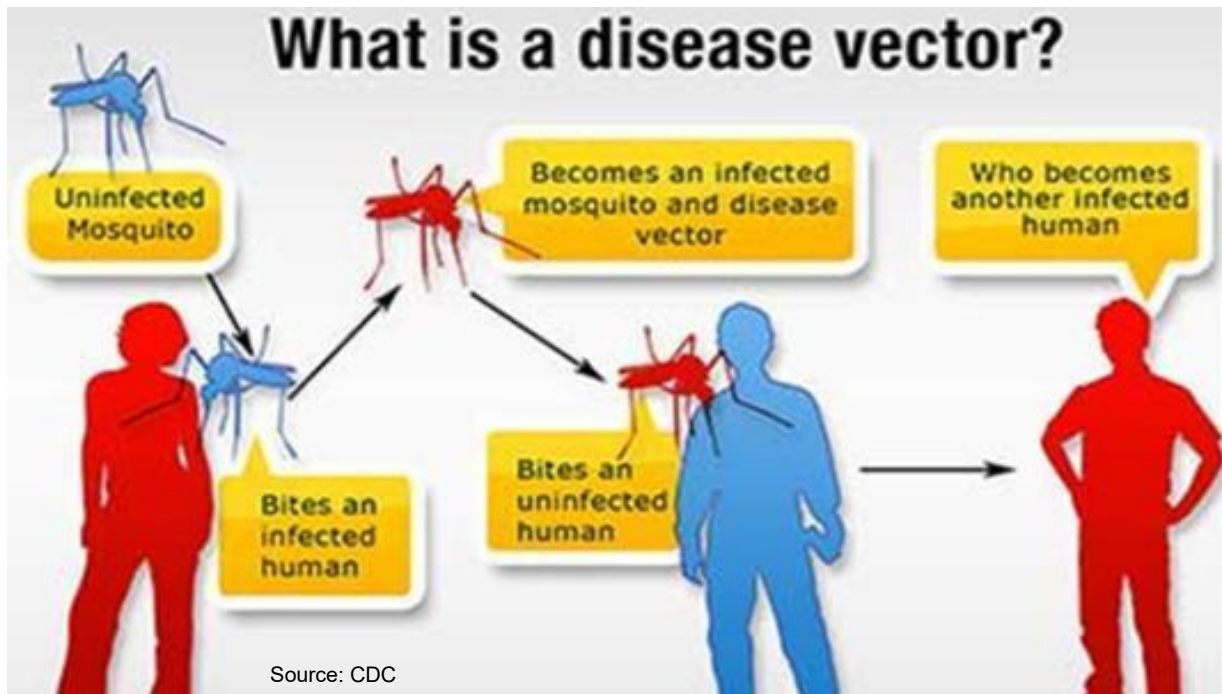


Photo: IFRC

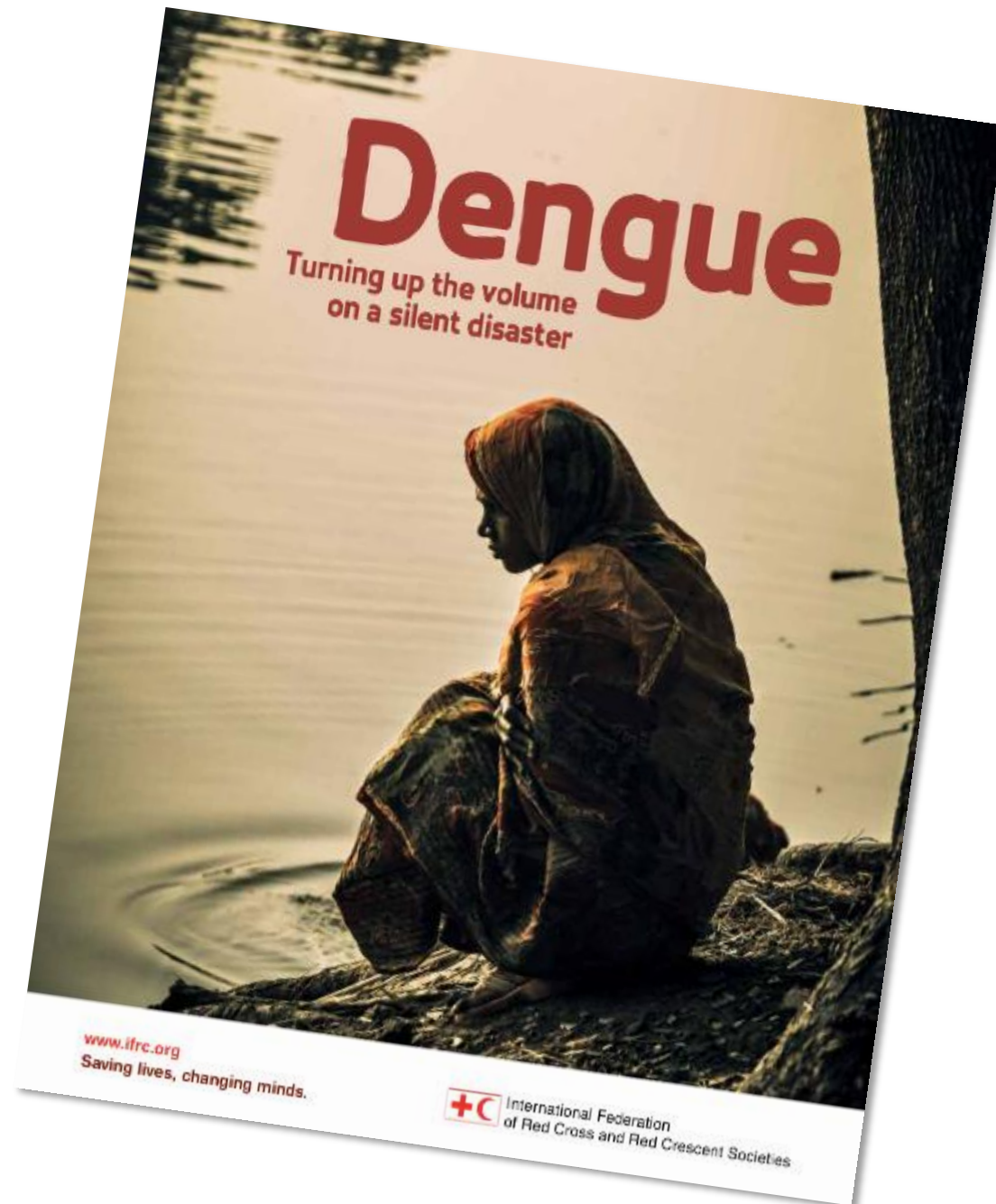


WASH and Vector-borne diseases

WHO estimates that malaria kills over 400 000 people every year – mainly children under 5 years old



Dengue fever continues to get worse with no end in sight

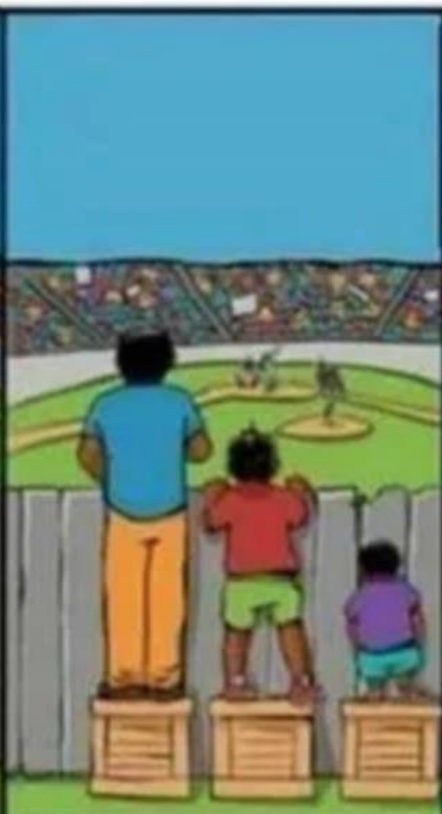
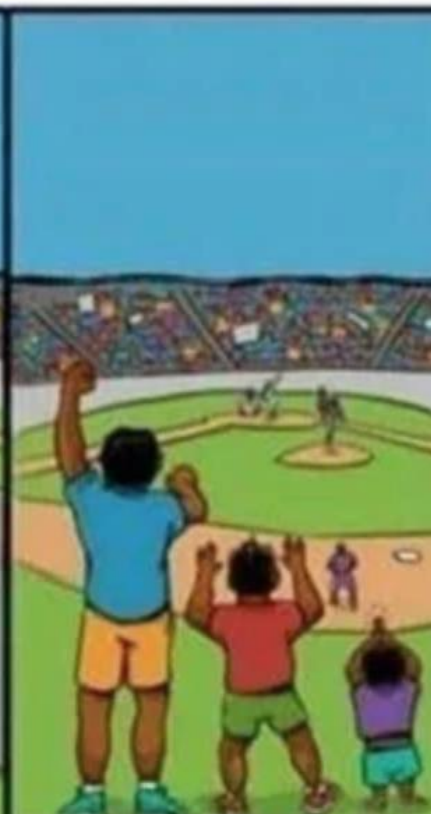


Sanitation and climate change



The most vulnerable



 REALITY	 EQUALITY	 EQUITY	 JUSTICE
One gets more than is needed, while the other gets less than is needed. Thus, a huge disparity is created.	The assumption is that everyone benefits from the same supports. This is considered to be equal treatment.	Everyone gets the support they need, which produces equity.	All 3 can see the game without supports or accommodations because the cause(s) of the inequity was addressed. The systemic barrier has been removed.



Gender

Man, Woman,
Intersex, Trans



Geography

Urban, Rural,
Peri-Urban



Income

Middle Income, Upper
Income, Lower Income



Persons with Disabilities

Visually Impaired,
Wheelchair User, Deaf

Note: the set of categories presented here (gender, geography etc) and the identities listed within each category (woman, rural household etc) are both meant to be illustrative and are not exhaustive.







How do vulnerability factors exacerbate the negative effects of climate change on health?



Drowning, injury,
death



Repeated
diarrhoea



Mental health
disorders, conflict,
migration

Community Resilience:

The ability to bounce back

"the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation. Resilience is an entry point commonly used, although under a wide spectrum of meanings. Resilience as a system trait overlaps with concepts of vulnerability, adaptive capacity and, thus, risk, and resilience as a strategy overlaps with risk management, adaptation and transformation. Implemented adaptation is often organized around **resilience as bouncing back and returning to a previous state after a disturbance.**"

Climate Resilient WASH

([2024 Definition from Sanitation and Water for all](#)-SWA)

Climate-Resilient Water, Sanitation and Hygiene (WASH) services anticipate, respond to, cope with, recover from, adapt to or transform based on climate-related events, trends and disturbances, all while striving to achieve and maintain universal and equitable access to safely managed services, even in the face of an unstable and uncertain climate, where possible and appropriate, minimising emissions, and paying special attention to the most exposed vulnerable groups.





Part II

What can we do
to reduce the health
risks associated with
WaSH and climate
change?

National HydroMet services and national public health authorities – our key partners



Early Warning, Early Action

- Anticipate, reduce and prepare for changing risks
- Effective early warning, enables early action
- Early action reduces human loss and suffering, and economic losses
- Early action can protect development gains



What is Forecast-based Financing?

A mechanism that enable access to *funding for early action based on credible forecast and in-depth risk analysis*



Photo: D. Onyodi / URCS

Climate-smart WaSH programming

- Climate-smart programmes and initiatives strengthen **peoples' awareness** and **incorporate climate and weather information** in assessing and addressing climate risks and vulnerabilities. It **enables 'early warning early action'**, and empowers people to anticipate, absorb and adapt to climate shocks and changing risks.
- No stand-alone programming, but modifying what we already do or influencing existing systems or schemes
- Cross-cutting and cascading risks: climate change needs to be considered alongside other risks (health, environmental risks, ecosystem degradation, etc)
- How does the wider landscape ("upstream") affect risks in this community?

WaSH adaptation interventions – water management



“Water can help fight climate change. There are sustainable, affordable and scalable water and sanitation solutions”

- Harvesting rainwater
- Reusing wastewater
- Promote underground water storage
- Protect investment in ground water



WaSH adaptation interventions – sanitation

Major climate-related risks	Adaptations
Physical damage to sanitation infrastructure from increased rainfall/floods.	■ Build bunds/drains to divert flow away from latrines; implement wider catchment management measures to reduce flood risk and protect infrastructure and treatment. ■ Site latrines, storage and treatment facilities away from areas of known flood risk. ■ Adopt robust design and construction standards for sanitation infrastructure in high-risk areas. ■ Implement climate resilient water safety planning.¹⁶
Flooding of sanitation infrastructure and threats to public health from water and wider environmental contamination.	■ Strengthen flood defences and upstream catchment management. ■ Regular pumping or emptying of latrines to prevent overflows, and clearing of drains and sewers to prevent blockages. ■ Adapt or design new systems – e.g. elevated latrines; non-return valves on septic tanks; separate sewage and stormwater removal (urban). ■ Public awareness and education around risks to public health and protection measures. ■ Implement climate resilient water safety planning.
Less water available for flushing and cleaning of systems in drying/drought conditions.	■ Adapt or design new systems – e.g. low/zero water-use latrines; modified and/or decentralised sewerage systems; treatment processes that can function effectively with reduced dilution. ■ Step up maintenance programmes to detect and clear blockages in sewers. ■ Implement climate resilient water safety planning.

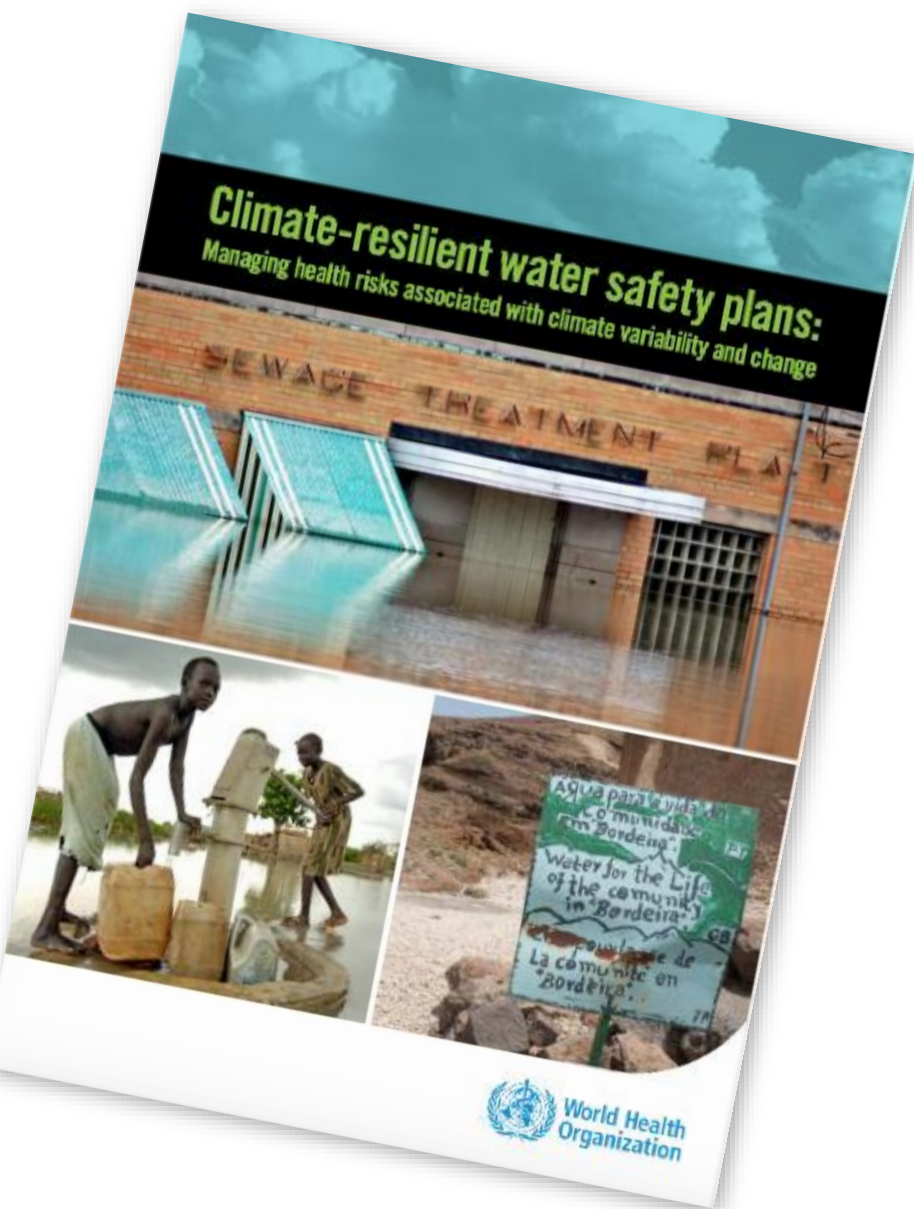


Part III

Available tools & resources



Climate-resilient water safety plans



Toolkit on climate change, WASH and health

This toolkit provides resources to support the effective integration of climate change, water and health considerations into health and WASH policies and programmes. These tools were developed as part of the DFID-funded project on "Building adaptation to climate change in health in least developed countries through resilient WASH" which was implemented from 2013-2018 in Bangladesh, Ethiopia, Nepal and Tanzania. Publications are sorted by the categories represented below, and may also be sub-categorized by country, region and publication year.

National climate change and health policies, strategies and plans

Vulnerability and adaptation assessments

Climate resilient WASH

Climate resilient health and WASH training packages

Information, education and communication materials

[Hide filter panel](#)
[Reset topic selection](#)

Filters

Region

- ☐ Africa
- ☐ South-East Asia
- ☐ Global

Country

- ☐ Bangladesh
- ☐ Ethiopia
- ☐ Nepal
- ☐ Tanzania

Publication year

- ☐ 2018
- ☐ 2017
- ☐ 2016
- ☐ 2015
- ☐ 2014
- ☐ 2013
- ☐ 2012
- ☐ 2011
- ☐ 2010

[Reset all filters](#)

Climate resilient WASH

Found 31 results:



Vision 2030

The resilience of water supply and sanitation in the face of climate change

WHO, 2010

This technical report aims to increase understanding of how anticipated climate change may affect drinking-water and sanitation systems and what can be done to anticipate resilience.

[Read the publication](#)

[Show more](#)



Climate Resilient Water Safety

Strategic Framework

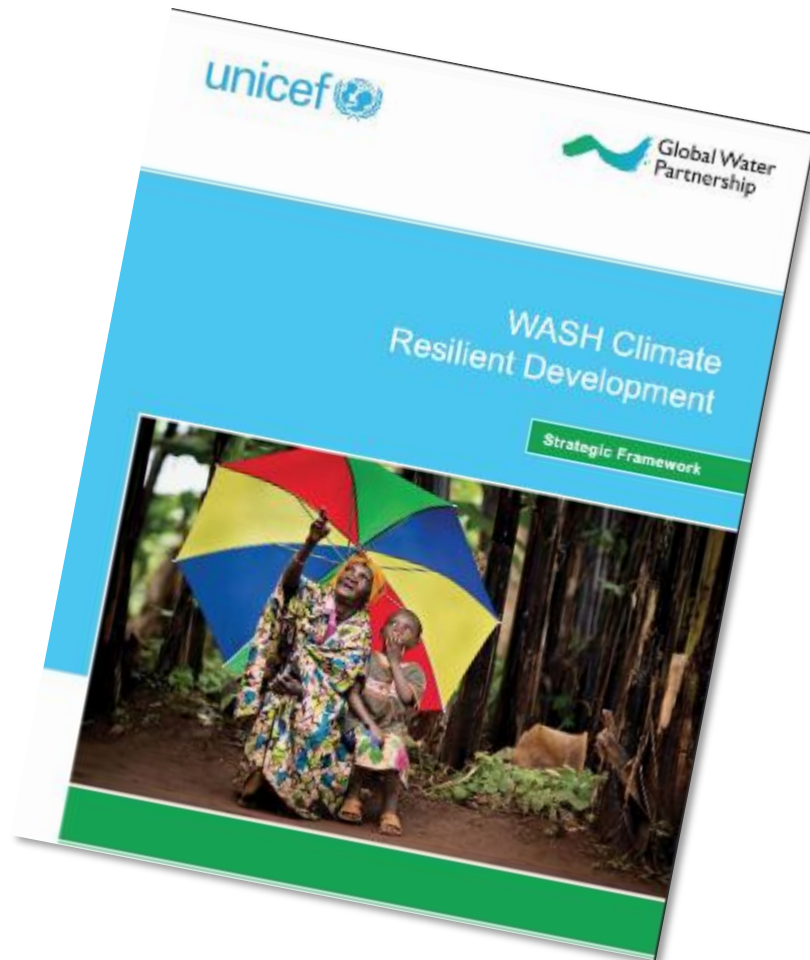
Federal Ministry of Water, Irrigation and Energy, Ethiopia, July 2015

This framework provides the strategic blueprint to develop a climate orientated risk assessment and management approach for drinking water supplies, from catchment to consumer.

[Read the publication](#)

[Show more](#)

UNICEF, Global Water Partnership - WaSH Climate Resilience



www.gwp.org/en/WashClimateResilience

[Back to GWP.org](#)

THE FRAMEWORK

Strategic Framework for WASH Climate Resilience

THE FRAMEWORK

The Strategic Framework consists of 4 quadrants which provide guidance on how to ensure resilient WASH services.

Resilient WASH programming helps ensure that WASH infrastructure and services are sustainable and resilient to climate related risks; and WASH contributes to building community resilience to climate change.

Read more and download the Strategic Framework Strategy here:

English, Spanish, French, Portuguese

TECHNICAL BRIEFS

To support the implementation of the Strategic Framework, a number of Technical Briefs have also been developed. The briefs go into further detail on specific topics to support the implementation of the Framework.

1. Understand the problem - Guidance Note
 - Risk assessments for WASH + Spread sheet tool
2. Identify and appraise options - Technical Briefs
 - Linking risk with response: options for climate resilient WASH - also available in Spanish and French
 - Appraising and prioritising options for climate resilient WASH
3. Deliver solutions - Technical Briefs
 - Integrating climate resilience into national WASH strategies and plans
 - Local participatory water supply and climate change risk assessment: modified water safety plans
4. Monitor and move forward - Technical Brief
 - Monitoring and evaluation for climate resilient WASH

[Additional references available here](#)

LEARNING MODULES

The following Learning Modules have been developed in order to build the capacity of WASH practitioners to implement WASH climate resilience programming.

1. Understand the problem
 - Learning Module 1: Introduction
 - Learning Module 2: WASH Climate Risk Assessments
2. Identify and appraise options
 - Learning Module 3: Options to Improve Climate Resilience
3. Deliver solutions
 - Learning Module 4: Integrating Options into Strategies and Plans
4. Monitor and move forward
 - Learning Module 5: Monitoring Programmes and Systems

Country Initiatives

washmatters.wateraid.org/climate-change



Climate change

The impacts of the climate crisis are happening now, compounding the water crisis already risking the lives, health and livelihoods of 1 in 10 people across the world.



Climate change, Finance

Short-changed on climate change: money, water and the people on the frontline

→ [Read the full publication](#)

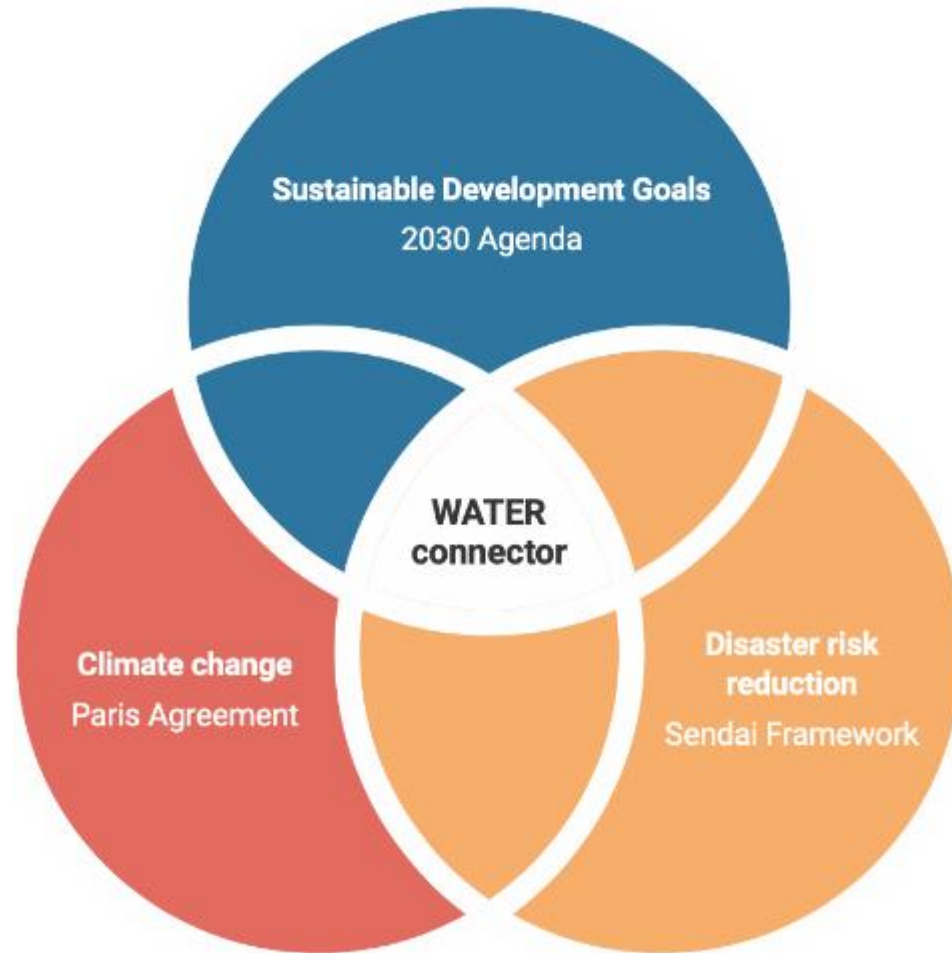


Climate change, Water, Partnership

Water and resilient business: the critical role of water, sanitation and hygiene in a changing climate

→ [Read the full publication](#)

The central role of water





Strong Infrastructure

that withstands stress and shock based on climate risk analysis to secure inclusive accessibility, while also recognizing no infrastructure is invincible and infrastructure alone will not deliver resilience services.

Healthy Freshwater

that protects and restores freshwater ecosystems that strengthen climate defenses and restores natural balance that benefits us all.

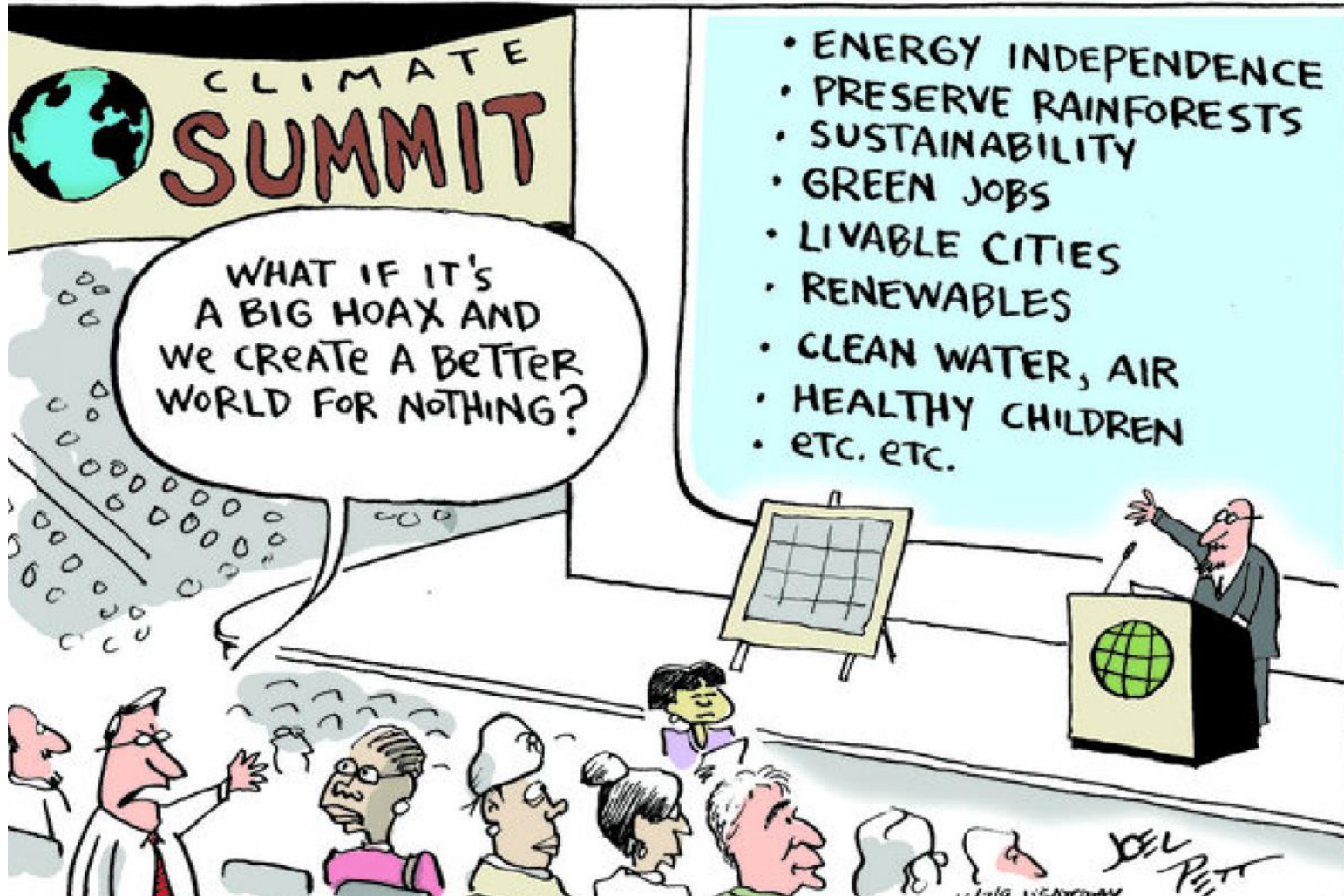
Dynamic Service

that actively manage risks on a real-time basis to maintain continuity of services with a focus on populations who are disproportionately impacted

While these aims are aligned with strong WASH systems and represent incremental changes, it's time to consider a more transformational shift in perspective.

We also must recognize that infrastructure and services cannot be sustained inside degraded environments.

No regret solutions



Quiz – IRC Session 2

<https://washsystemsacademy.org/mod/quiz/view.php?id=14471>