



UNICEF's Climate Change Mitigation and Adaptation WASH interventions to improve the lives of children

What is UNICEF?

- United Nations agency focussing on children
- Established in 1946
- Works in over **190 countries/territories** to save children's **lives**, to defend their **rights**, and to help them **fulfil** their **potential**, from early childhood continuing to adolescence

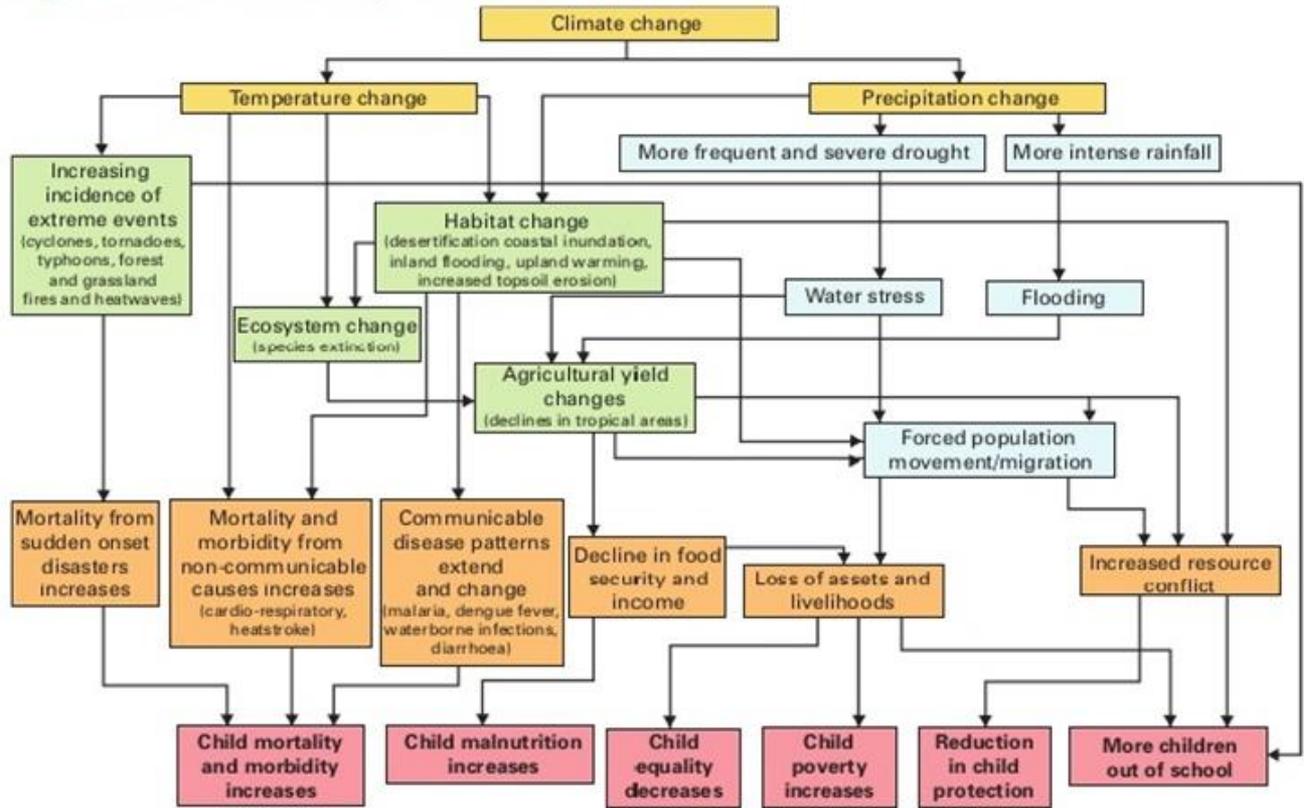


Why is WASH important for children?

- Sustainable access to safe water and sanitation facilities and services, and the practice of key hygienic behaviours, are **critical** for the **sustained mental and physical development of children and their mothers**
- WASH can impact upon the **Education** of children
- WASH can affect the **Health** of children
- WASH can affect the **Nutritional status** of children
- WASH has an impact upon the **safety and security** of children



Direct and Indirect impacts of Climate Change on children?



Source: UNICEF UK (2008). *Our climate, our children, our responsibility: The implications of climate change for the world's children*. London: UNICEF. Retrieved from <http://www.unicef.org/docs/climate-change.pdf>.

How does Climate Change affect children's access to WASH?

Increased **water insecurity** affects:

- **Access** to water sources (**reduced water levels**, reduced **volumes** available, distances, **time** taken to collect water/**limited carrying** capacity with increased distances)
- Reduced **water quality** (desalinisation, increased mineralisation)
- Increased **costs** to obtain water (lower water levels)
- Inhibited **hygiene** practices

Floods/extreme events:

- Damage to WASH **infrastructure**
- Shallow latrines damaged and areas of open defecation flooded => contamination of water sources
- Inhibited **sanitation** practices



**By 2040, 1 in 4
children will live
in areas of
extremely high
water stress**

How does Climate Change affect children's Health?

- More prone to **WASH** related illnesses and diseases (reduced volume of water, limited hygiene practices) (8% increase each 1°C)
- **Deteriorating air quality** can increase the rates of respiratory illnesses (and can affect the health of unborn children)
- **Extreme and prolonged heat events** negatively impacts children
- **Flooding can reduce the physical access** to Health facilities
- Reduced livelihood opportunities negatively impacts the income level of the family (**reduced ability to pay for medicines, education prioritisation**)
- Health facilities can become **overwhelmed** during large scale outbreaks e.g. **cholera, dengue, malaria**
- **Damage** to Health facilities during storms as they become more frequent

Climate Change and Cholera?

- Cholera is caused by the ingestion of **food or water contaminated** with the bacterium vibrio cholerae
- 2.9 million cases and 95,000 related deaths annually worldwide (majority of the cases reported in Sub Saharan Africa)
- Increasing **evidence of linkages between changes in climate (temperature, precipitation) and the incidence rates of Cholera**
- The burden of cholera is disproportionately borne by the **young and most vulnerable people**



Climate Change and Cholera?

- Increases in temperature can affect the incubation rate of the cholera vibrio bacterium
- Outbreaks can be the result of **either** heavy rainfall and subsequent **floods** (contamination of water sources) or by **drought** and **water-induced stress**
- Damaged sanitation (flooded latrines)
- **Migration** to camps/towns
- Distribution patterns affected by migration
- **Malnutrition**



Climate Change and Malaria?

- The geographical limits of malaria are related to climate, and so can potentially be affected by changes in climate, but the relationship is complex

Climate Change and Dengue Fever?

- Evidence to suggest that there is a demonstrable increase in dengue cases over the last few decades, linked to increasing temperature, increased precipitation however, other factors need also to be considered e.g. migration patterns

Climate Change and Zika?

- Many variables (temperature appears to have greater impact than precipitation)

How does Climate Change affect children's Nutritional status?

- Reduced volumes of water and poor water quality can lead to frequent bouts of illnesses and diseases which negatively impacts a child's mental and physical development (from which children can never fully recover)
- Reduced access to water negatively affects the family's ability to cultivate food (less animals, less crops) reducing the calorific intake of children and pregnant mothers
- Increased costs to abstract/collect water can reduce the variety and volume of foods consumed
- Nutrient content of food affected by climatic factors
- Abandonment of land and migration to cities

How does Climate Change affect children's access to Education?

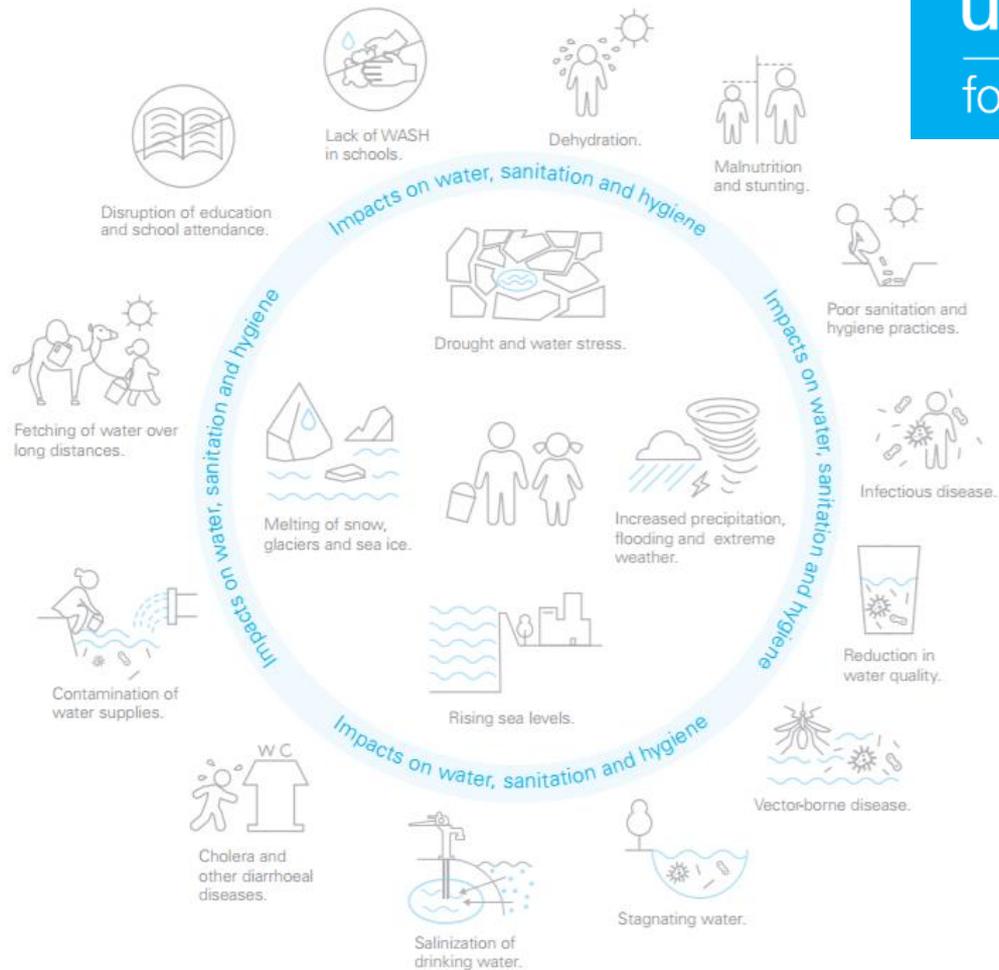
- Schools are often used as **shelters** during emergencies which can cause major disruptions to children's education
- Flooding impedes children's **access** to schools
- Increased migration **disrupts education**
- Reduced family income may mean children have to **drop out** of school to supplement family's income
- Reduced health status affects children's **attendance, attention and participation** in schools
- Increased distances for water collection reduces time for children for other **developmental activities**

How does Climate Change affect children's safety and security?

- Increased distances to water sources can lead to **physical damage** (stunting)
- Increased distances can expose children to increased risk of **violence** (including GBV)
- Reduced family incomes can induce **negative coping mechanisms** (child marriage etc)



A summary of how Climate Change affects the lives of children



What is UNICEF doing in the area of WASH – Adaptation/*Mitigation*?

- i. Promoting **alternative water sources**
- ii. Supporting groundwater **resource investigation**
- iii. Supporting groundwater **monitoring and modelling**
- iv. Promoting **multi-use water sources** to support **livelihoods** as well as basic WASH access
- v. Development of **capacity tools** e.g. framework, **professional drilling** and O&M
- vi. **System strengthening** on Climate Change
- vii. **Vulnerability mapping**
- viii. Mobilisation on **Water Conservation**
- ix. **Private sector engagement**
- x. Integrating **DRR into Humanitarian interventions**
- xi. *Promoting use of alternative energy sources (including solar)*



Examples of Water Projects

Alternative Water Sources?

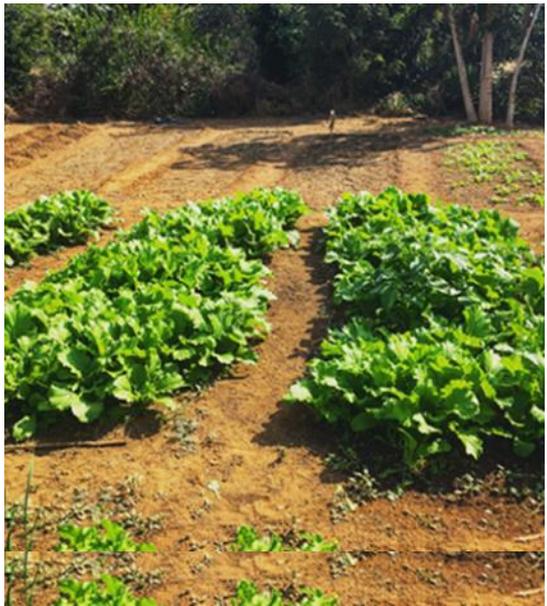
Promoting interventions to move away from shallow (ground) water or surface sources:

- deeper groundwater sources
- sand-dams
- artificial recharge
- Reuse

Supporting groundwater [resource investigation](#) to identify alternative more sustainable reserves:

- Satellite imagery
- Geophysical surveys
- Groundwater modelling

Examples of Water Projects in Madagascar (Multiple Use Systems)



Examples of Water Projects in Chad (Sand Dams)



Examples of Solar Water Projects (Madagascar)



Examples of Solar Water Projects in Myanmar

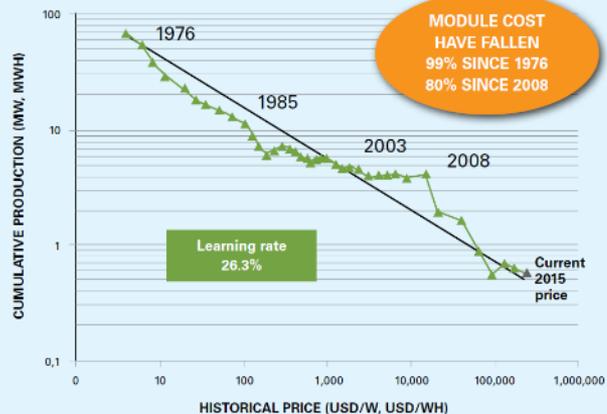


Examples of Solar Water Projects



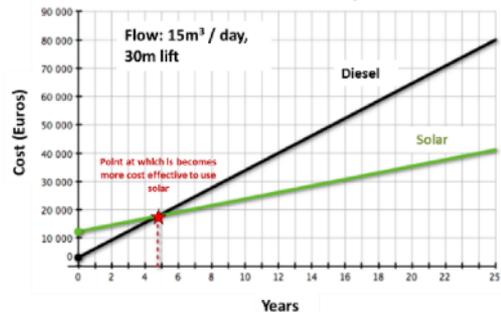
Solar Water Projects

Every time the world's solar power doubles, the cost of panels falls 26%



- Price of solar powered systems, (especially solar panels) has decreased substantially in past 30 years.
- Solar system components, on average are still 10-15% more expensive than other mechanized systems (grid or diesel).
- However, over a 20 year period – a motorised pump costs around 5 times as much to maintain than a solar pump due to the cost of maintenance and fuel.

Fig.6 Proportional operating costs of operating a Solar Pump versus a Diesel Pump



(Source: Eau Solaire 2016)

UNICEF's Global Solar Powered Water System Assessment 2017

- Solar powered systems perform well in terms of flow rate and durability, when boreholes are **well sited and systems are correctly dimensioned**
- The effective collection of **user fees** (including making provisions for the poorest) is vital in order to ensure the sustainability and equity of services.
- Systems help ensure improved climate resilience, leaving communities less dependent on expensive/unsustainable fuel supply and allow communities to access a **higher level of service**
- More investment is required in order to build capacity of UNICEF, partners and **private sector**

Examples of Solar Water Projects

- Gaza



UNICEF/GWP on Strategic Framework on WASH Climate Resilience

<https://www.gwp.org/en/WashClimateResilience/>



> THE FRAMEWORK

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

Resilient WASH programming helps ensure

> 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

> LEARNING MODULES

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



UNICEF/GWP on Strategic Framework on WASH Climate Resilience



Framework



UNICEF/GWP on Strategic Framework on 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.



> 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](#)
- [Appraising and prioritising options for climate resilient WASH](#)

> 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](#)

UNICEF/GWP on Strategic Framework on WASH Climate Resilience

Read more and download the Strategic Framework Strategy here:



English, Spanish, French, Portuguese

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

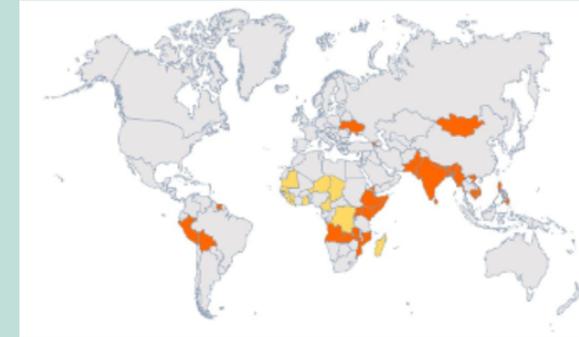
- **Monitoring and evaluation for climate resilient WASH**

Additional references available here

4. Monitor and move forward

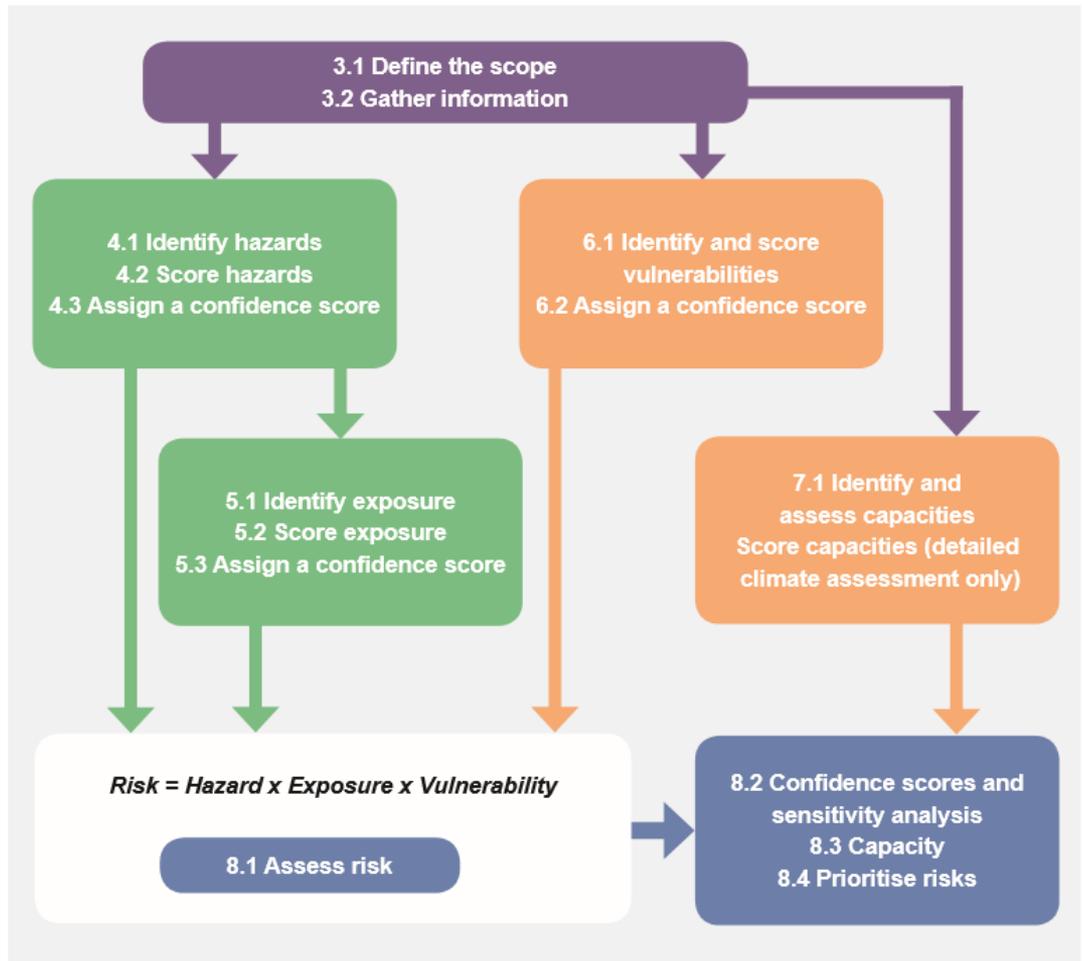
- **Learning Module 5: Monitoring Programmes and Systems**

Country Initiatives



Details of the Strategic Framework

Guidance on Risk Assessments



Questions?

unicef 
for every child

