# Monitor and move forward

This session covers monitoring and the lessons learned from the implementation of climate resilient development activities, including an overview of the Technical Brief ‘Monitoring and evaluation for climate resilient WASH’.

1. Monitoring programmes and systems
2. Monitoring indicators in the WASH sector
3. Review experiences and share lessons learned


# Monitoring programmes and systems

Monitoring is an ongoing process and monitoring programmes should be continually reviewed and strengthened. Key questions to consider include:

Does monitoring of WASH programme implementation give adequate attention to assessing whether opportunities to increase climate resilience provide tangible benefits?

Are outcomes related to enhanced climate resilience included in the results-based reporting on WASH achievements?

To what extent will it be possible to show the improved results and lessons to further influence national WASH development frameworks?

Is the monitoring sufficient to make a judgement about the effective use of resources and comparative advantages of climate resilient development?


# Monitoring indicators in the WASH sector

## Aspects for which SMART indicators could be developed include:

| | |
|---|---|
| Policies and strategies | • Plans and strategies accommodate climate change priorities that have been established at the national level |
| Planning, programmes and projects | • Cross-sectoral considerations to manage climate risks identified in activities at the national and sectoral level |
| Implementation | • Infrastructure with improved resilience to climate hazards and extremes |
| Monitoring and evaluation | • Indicators to track performance against climate-resilience targets and objectives |
| Capacity development | • Strengthened capacity of WASH professionals and practitioners to identify and address climate risks |


# Technical Brief

## Monitoring and evaluation for climate resilient WASH

Front cover of Technical Brief

### The Technical Brief:

Aims to set out how indicators can be identified and used to monitor and evaluate the effectiveness of measures introduced to enhance climate resilience, and their contribution to the overall sustainability of WASH services.

Focuses on the additionality that climate resilience M&E introduces when incorporated into existing M&E systems, and provides examples of typical monitoring indicators that can be used and/or adapted where necessary.

Summarises the factors to consider in monitoring climate resilience, and suggests ways to address these challenges.


# Indicators

- Indicators can simplify information about complex phenomena to improve communication.
- They can be quantitative or qualitative.
- Indicators for climate resilient WASH services should be SMART (specific, measurable, achievable, relevant and time-bound).
- Indicators may be used at different points in the results chain:

Activity indicators

Output indicators

Outcome indicators


# Results Framework

## SIMPLIFIED RESULTS FRAMEWORK FOR WASH CLIMATE RESILIENCE

**OUTCOME**

**Rural WASH infrastructure and services are sustainable, safe and resilient to climate related risks; and WASH contributes to build community resilience to climate change**

**INTERMEDIATE OUTCOME**

| NATIONAL | SUB-NATIONAL LEVEL/ WATERSHED LEVEL | LOCAL AND PROJECT LEVEL | |
|---|---|---|---|
| 1. An ENABLING ENVIRONMENT conducive to climate resilient WASH services and communities | 2. Water resources are MONITORED and MANAGED considering climate risks to WASH services and infrastructure | 3. ACCESS to climate resilient WASH infrastructure and services | 4. Climate resilient BEHAVIORAL CHANGE and GOVERNANCE at community and local level |

**OUTPUT**

| STRENGTHEN WASH SECTOR ENABLING ENVIRONMENT | BUILD WATER RESOURCE MONITORING AND MANAGEMENT CAPACITY | SUPPORT CLIMATE SMART INFRASTRUCTURE AND TECHNOLOGIES | SUPPORT INSTITUTIONAL REFORM AND BEHAVIOUR CHANGE |
|---|---|---|---|
| 1.1 Knowledge of climate risks generated and shared<br>1.2 Climate risk informed policies, strategies, plans and programmes developed<br>1.3 Adequate budget and resources allocated<br>1.4 Plans implemented and monitored<br>1.5 Inter-sectoral coordination strengthened with focus on health, food security and education sectors<br>1.6 Strengthened Early Warning Systems in place | 2.1 Water resource status and pressures understood<br>2.2 Long-term monitoring systems implemented and maintained<br>2.3 Guidelines/rules developed prioritising WASH services and accounting for hydrological change<br>2.4 Agreed rules implemented for resource development and adaptive management | 3.1 Project design and implementation of WASH standards strengthened<br>3.2 Water storage enhanced and protected<br>3.3 Water supplies diversified where possible<br>3.4 Climate smart technologies (low and no regret options) for WASH investigated and implemented | 4.1 Capacities and resources of local government and local private sector to implement and monitor WASH resilient programming strengthened<br>4.2 Awareness and capacity of communities to respond to shocks and stresses is enhanced<br>4.3 Local markets and supply chains extended and deepened to increase availability of climate resilient WASH products and services<br>4.4 Early warning and response systems strengthened |

**ACTIVITY**

| | | | |
|---|---|---|---|
| 1.1.1 Improving understanding of climate risks | 2.1.1 Assessing water resources – quantity and quality | 3.1.1 Ensuring conformity with climate-informed standards | 4.1.1 Strengthening capacity of WASH professionals and practitioners |
| 1.1.2 Understanding resilience of technology types | 2.1.2 Assessing risks to water resources from climate change and other pressures | 3.1.2 Supporting supervision and enforcement of standards | 4.1.2 Making sure sufficient resources are available for local WASH agencies in most vulnerable regions |
| 1.1.3 Understanding WASH contribution to build community climate resilience | 2.2.1 Monitoring water availability and quality | 3.2.1 Developing decentralised storage systems | 4.2.1 Education and training of community groups for climate-responsive WASH management |
| 1.2.1 Reviewing and updating WASH policies and strategies to account for climate risks | 2.2.2 Monitoring patterns of use and climate-linked (and other) threats | 3.2.2 Strategically developing groundwater resources | 4.2.2 Sharing knowledge on local WASH climate resilient options |
| 1.2.2 Strengthening evidence based policy advocacy | 2.3.1 Developing agreed guidelines/rules across water sector informed by climate risks | 3.3.1 Spreading risk between different water sources and systems | 4.3.1 Supporting local markets and supply chains for resilient WASH systems/technologies |
| 1.3.1 Making budget allocations available to enhance resilience of existing WASH systems | 2.3.2 Supporting basin planning initiatives that coordinate water-using and polluting sectors and prioritise support for the most vulnerable areas | 3.3.2 Targeting areas/communities affected by climate hazards and vulnerable sources by providing climate resilient WASH systems | 4.4.1 Assessing status and functionality of early warning and response systems in relation to WASH needs |
| 1.3.2. Making budget allocations available to prioritize WASH interventions in identified risk areas | 2.4.1 Developing new water sources in a resilient and sustainable manner | 3.4.1 Adapting technologies to account for climate risks | 4.4.2 Contingency planning for WASH– esp. droughts and floods |
| 1.3.3 Ensuring adequate emergency budget allocations for WASH sector | 2.4.2 Allocating resources between sectors with WASH as a priority | 3.4.2 Exploring innovative, climate smart technologies (e.g. solar systems) | 4.4.3 Water Security and Water Safety Planning |
| 1.4.1 Developing, implementing and monitoring plans | | 3.4.3 Exploring wastewater reuse/ recycling, nutrient recovery and energy production from waste | |
| 1.4.2 Mainstreaming bottleneck analysis and planning | | 3.4.4 Improving sanitation and hygiene practices (e.g. ending open defecation) to reduce vulnerability | |
| 1.5.1 Identifying and incorporating cross-sectoral considerations to manage climate risks | | | |
| 1.5.2 Increasing partnership and collaborative working | | | |
| 1.6.1 Ensuring Early Warning Systems predict and mitigate climate risks to WASH related outputs and outcomes | | | |


# Indicators - national

Table 2.1: National

| Outcome/output/activity | Indicator | Hazard |
|---|---|---|
| **Intermediate outcome:** An enabling environment conducive to climate resilient WASH services and communities | Perceived adequacy of the enabling environment for climate resilient WASH services and communities | General |
| **Output:** Knowledge of climate risks generated and shared | Perceived adequacy of available evidence on the potential impacts of climate change on the WASH sector | General |
| | Do national WASH related ministries and departments understand climate risks and how best to respond to these? | General |
| | Is understanding of climate risks shared amongst experts and stakeholders? | General |
| **Activity:** Improving understanding of climate risks | Has a national climate risk assessment been completed for the WASH sector? | General |
| | Are key national government agencies involved in carrying out climate risk assessments? | General |
| | Have government-led impact evaluations, which include the impact of climate, been carried out in the past 5 years? | General |
| | Is a process in place to review and update risk data each year? | General |
| **Activity:** Understanding resilience of technology types | Percentage of water supply and sanitation technologies screened according to their suitability to withstand climate related shocks and stresses | General |


# Indicators – sub-national/watershed

Table 2.2: Sub-national/watershed

| Outcome/output/activity | Indicator | Hazard |
|---|---|---|
| **Intermediate outcome:** Water resources are monitored and managed considering climate risks to WASH services and infrastructure | Percentage of water resources that are monitored and managed for climate shocks and stresses | General |
| | Percentage of water sources with a monitoring system in place to understand how it is being affected by climate change | General |
| **Output:** Water resource status and pressures understood | Percentage of catchments where water resource pressures are well documented | General |
| | Percentage of communities where the status of local water resources is well understood | General |
| **Activity:** Assessing water resources – quantity and quality | Percentage of communities where hydrogeological conditions were properly assessed and documented before water point construction | General (SC Indicator) |
| | Percentage increase in investment in resource assessment and siting | General |
| | Percentage of catchments for which assessments have been completed on aquifer characteristics | General |
| **Activity:** Assessing risks to water resources from climate change and other pressures | Percentage of communities for which maps have been produced of areas at risk, e.g. those exposed to a combination of high climate risk, difficult hydrology, and potentially less resilient technologies | General |
| | Percentage of water resource assessments that consider climate impacts | General |
| | Percentage of latrines/sanitation structures in at risk areas for which an assessment of risk to structure and surrounding area has been completed | General |


# Indicators – local and project level

Table 2.3: Local and project level

| Outcome/output/activity | Indicator | Hazard |
|---|---|---|
| **Intermediate outcome:** Access to climate resilient WASH infrastructure and services | Percentage of population with access to water points able to meet at least a 12 hour service daily all year round | Drought |
| | Percentage of population with access to springs providing a continuous supply during a drought | Drought |
| | Percentage of population with access to soap and water at a handwashing facility during a drought period or following a flood | General |
| | Percentage of households with access to a resilient latrine that does not flood during the wet season | Flooding |
| **Output:** Project design and implementation of WASH standards strengthened | Percentage of households where latrines collapsed in the last year due to heavy rains or other extreme weather events | General (SC Indicator) |
| | Percentage of collapsed latrines which were immediately built following heavy rains or other extreme weather events | General |
| | Percentage of protected springs built using high strength, flexible, quality materials | General |
| | Percentage of dug wells (or boreholes) sited at least 20m from latrines and other sources of pollution risk | General |
| **Activity:** Ensuring conformity with climate-informed standards | Percentage of wells (or other infrastructure) constructed according to climate-relevant standards in drought risk areas | Drought |
| | Percentage of latrines (or other sanitation infrastructure) where a post-construction audit has been completed considering that it has been constructed according to climate-relevant standards | General |
| | Percentage of water points constructed according to standards | General |
| | Percentage of latrines constructed according to climate-relevant standards in flood risk areas | Flooding |
| **Activity:** Supporting supervision and enforcement of standards | Those responsible for latrine construction within the community have received sufficient guidance and follow-up on the siting and construction of climate resilient latrines | General (SC Indicator) |


# Selecting indicators

Criteria to consider include:

Are data sources and collection methods available to inform the chosen indicators?

Is there an appropriate mix between the qualitative and quantitative indicators?

Will data be available and information provided in a timely manner to fit in with important decision-making processes?

Who will be responsible for collecting data and providing information to ensure the sustainability of WASH services?

Where relevant, are indicators pro-poor and gender disaggregated?


# How to modify indicators

- Hazard:

  Percentage of population in drought risk areas with access to alternative water sources

- Infrastructure:

  Percentage of latrines where a post-construction audit has been completed to ensure that it has been constructed according to climate-relevant standards

- Time-bound component:

  Funding available every year to support installation of equipment for wastewater reuse and recycling


# National examples

| Indicator | Modified |
|---|---|
| Targeted finance available in **flood** risk areas for the most vulnerable populations | Targeted finance available in **drought** risk areas for the most vulnerable populations |
| Finance available to rebuild or increase resilience of **sanitation facilities** in hazard-affected areas | Finance available to rebuild or increase resilience of **water supply infrastructure** in **flood** risk areas |
| Percentage of WASH and climate resilience plans monitored and reviewed **every year** | Percentage of WASH and climate resilience plans monitored and reviewed **every 6 months** |


# Sub-national/watershed examples

| Indicator | Modified |
|---|---|
| Perceived change in quality of water due to **drought** | Perceived change in quality of water due to **heavy rains** |
| Are climate-relevant standards in place for the construction/ installation of **latrines and other sanitation infrastructure**? | Are climate-relevant standards in place for the construction/ installation of **water points**? |
| Percentage increase in investment in resource assessment and siting **over 3 months** | Percentage increase in investment in resource assessment and siting **over a year** |


# Local and project level examples

| Indicator | Modified |
|---|---|
| Percentage of population with access to soap and water at a handwashing facility during a **drought** period | Percentage of population with access to soap and water at a handwashing facility following a **flood** |
| Percentage of **latrines** where a post-construction audit has been completed to ensure that it has been constructed according to climate-relevant standards | Percentage of **wells** where a post-construction audit has been completed to ensure that it has been constructed according to climate-relevant standards |
| Percentage of water points having dried up for at least 1 month out of the last **12 months** | Percentage of water points having dried up for at least 1 month out of the last **6 months** |


# Monitoring programmes and systems

- It is important to also identify any challenges that may make it difficult to implement monitoring programmes.

- Monitoring climate resilience requires specific consideration of certain factors if it is to be effective.

**Box 6.1: Factors to consider in monitoring climate resilience[28]**

- Uncertainty about how and when changes in climate will occur and what effects there will be, particularly at a local level.
- Baselines shift and contexts change, meaning that comparison of data before and following the implementation of climate resilient development measures loses its validity.
- There is a lack of generic indicators that can be widely used in monitoring because resilience has to be grounded in the context, scale, sector and nature of the measure, all of which vary.
- Monitoring and evaluation normally look to demonstrate the attribution of changes to a specific measure. However, resilience and the implementation of measures is complex and often multi-sectoral, meaning that a modified approach to monitoring is required.
- Definitions of basic concepts may vary between agencies, while more specialised terms may only be well understood by one particular agency.

Source: Bours, D., McGinn, C. and Pringle, P. (2014) Monitoring and Evaluation for Climate Change Adaptation and Resilience: A Synthesis of Tools, Frameworks and Approaches, 2nd edition. SEA Change CoP, Phnom Penh and UKCIP, Oxford.


# Factors to consider in monitoring climate resilience

- Long and short timeframes
- Uncertainty
- Monitoring non-events
- Availability of baseline data
- Shifting baselines
- Generic indicators
- Contribution and attribution
- Varying use of definitions


# Key points

## Key points

- In the context of scaled-up funding for climate change adaptation and increased resources from climate funds, it is becoming increasingly important to provide evidence that implementation is contributing to an increase in climate resilience.
- Monitoring in the context of WASH climate resilience requires SMART indicators to assess progress towards specific targets and objectives.
- Shared learning has the potential to speed-up and scale-up reliable and affordable responses to address climate risks.


# Assignment

- Assignment: indicators and M&E challenges

- Objectives:
- to select and modify indicators of interest
- to consider the different challenges that have been or could be faced when monitoring climate resilience, and any lessons learned from previous monitoring and evaluation systems

- Tasks:
- select indicators and modify these if necessary for a specific objective
- consider whether you have faced any of the challenges in M&E systems and record any lessons learned


# Assignment

You may have an example you want to use, otherwise choose one of the following examples

## A: Addressing seasonal or drought-related reductions in water availability

- Option 1: Select most reliable springs for development
- Option 2: Site boreholes in most productive parts of aquifer
- Option 3: Implement catchment protection measures to enhance long-term infiltration and groundwater recharge

## B: Assessing different water storage options to address water scarcity risks (example for scoring capacity given in the brief).

- Option 1: Install in-channel structures to enhance aquifer recharge
- Option 2: Rainwater harvesting
- Option 3: Direct infiltration techniques

## C: Addressing the risk of contamination of water sources due to inundation of pit latrines (example for scoring synergies in the brief).

- Option 1: Site latrine away from areas of known flood risk
- Option 2: Design pit to allow regular pumping or emptying
- Option 3: Implement land management measures to reduce flood severity.