

Small Island Developing States (SIDS) are constrained by their size, isolation, natural vulnerability and limited natural and financial resources. Freshwater resources, limited to groundwater in many cases, are exposed to extreme weather events, threats to water quality and increased exploitation due to increased water demand. Access to sanitation and safe drinking water, protecting sensitive ecosystems and generating productive use of variable water resources are among the main challenges small island countries are facing. These challenges require innovative approaches and tailoring of solutions to the complex combination of geographical and socioeconomic constraints of an individual island.

## SDGs in the context of SIDS

SIDS, as UN Member States, have adopted the Sustainable Development Goals (SDG) and are expected to monitor and achieve the proposed targets until 2030. Implementing Goal 6 on water and sanitation means achieving a number of targets related to water quality, water-use efficiency, and integrated management and protection of water resources. Progress towards target achievement will be monitored via flexible indicators able to capture the required changes at various national scales and settings.

*“By 2030 ensure enough water and sanitation for all”*



Many Pacific SIDS rely heavily on groundwater and therefore implementation and achievement of Goal 6 essentially translates to protection and sustainable management of the limited groundwater resources. These aspects may be known to water specialists in Pacific SIDS but may require specific adaptation in the context of the proposed, globally compliant, indicators.

*“Can the proposed indicators be directly applied to Pacific SIDS or is there a need for specific adaptation?”*

## Designation of water bodies

Inventories and delineations of water bodies are prerequisites for a meaningful calculation of SDG indicators. Indicators related to water quality and to temporal changes of water-dependent ecosystems need to be directly linked to specific surface water and groundwater bodies. In many SIDS, and especially in the outer islands, assessment and monitoring of existing water bodies is partial or non-existent. As the SDGs look at water from both user and environmental perspective, all water bodies should be evaluated independently of whether they are used for drinking water production or not.

## Spatial upscaling

Indicators should be reported at national level. In other words, the results obtained from individual water bodies should be aggregated at country level. For countries consisting of multiple islands, aggregation is more complicated as all islands should be taken into account. It remains up to the countries to decide how they want to achieve this. One option would be the application of weighting schemes based on parameters such as island population, relative dependence on groundwater, surface water, rainwater, etc.

## Examples of indicator-specific issues

**Indicator 6.3.2** concerns the quality of inland water bodies and supports countries in assessing the outcomes of water quality management measures. A set of 5 basic parameters was proposed to monitor water quality. In many SIDS, water quality monitoring is only limited to salinity and coliform bacteria.

**Indicator 6.6.1** addresses the changes in the extent of all water-related ecosystems over time. In order to monitor temporal changes in the extent of groundwater bodies, not only groundwater levels but also vertical salinity changes need to be monitored. This is especially relevant for freshwater lenses where temporal changes in their extent due to groundwater withdrawals are mainly reflected by thinning of the lens due to seawater intrusion, rather than water table declines.

## Issues related to the assessment and monitoring of water supplies

Monitoring of water resources in Pacific island countries is generally established over the course of various regional and national projects. Sustaining monitoring activities and maintaining monitoring sites and equipment becomes challenging past the end of these projects. This is mainly due to difficult access to monitoring sites and to “outer islands” which, in many cases, lie days away from the main island. As a consequence, existing databases are usually incomplete and of questionable quality.

In order to tackle this issue, internet-based telemetry technologies can facilitate data transfer and ensure long-term sustainability of monitoring. Alternatively, collaboration with local agencies or training of people (e.g. farmers) present in these islands and willing to undertake the monitoring tasks is another viable option. Establishing different tiers in terms of monitoring frequencies for the different islands within a country can allow for a more efficient distribution of resources and expertise. On-going financial support and mentoring are necessary to sustain long-term monitoring of water resources. Mentoring should be established by means of distance-learning, regional, and in-country training at regular intervals to retain skills and knowledge and maintain the quality of collected data.

After recent discussions with representatives from Pacific SIDS involved in water management, a number of “products” have been identified as requirements for an improved capacity in terms of assessing and monitoring water resources. These products include:

- Telemetered data on rainfall, streamflow, water levels, salinity and water abstractions
- In-country capacity to undertake analysis of borehole and geophysical data
- The establishment of flood/drought management plans to inform on the status of hydrological disasters
- Inventories and mapping of water resources
- Quantification of sustainable yields