Country Story: **Australia - Flat, Dry and Salty**

Background

The Australian continent has a unique geography and arid climate which drives **salt accumulation**. Australia's freshwater salinity levels have been a major focus of **domestic water management policies** for decades and formed the basis of the first submission for Indicator 6.3.2 in 2020.

There is no **single comprehensive national-scale repository** of water quality data in Australia. Data observations are primarily a responsibility for state and territory governments. The Bureau of Meteorology (BOM) plays an important role in consolidating water information but does not yet have a complete dataset for all Indicator6.3.2 parameters.

Flat: Estimated average slope of only 1.4°

Dry: Arid climate with national average of 419 mm per year

Salty: Australia's low rainfall and gradient creates slow flowing rivers that drain internally and often evaporate leaving salts behind instead of draining into the ocean. Almost half of the Australian continent provides no runoff to surrounding oceans.

Method

Surface Water: 374 existing monitoring locations were identified. Target values were set by calculating the 5th and 95th percentiles of data from a reference period of between 2001 and 2016.

Data collected between 2017 and 2019 were used to calculate the indicator for 2020.

Groundwater: Over a million salinity observations at approximately 200,000 borehole locations were retrieved from the database dating back to 1967.

Data cleaning and a minimum data requirement (only boreholes with 10 or more measurements) resulted in **2,492** boreholes being selected for the calculation.

The reference period of 1967 to 2016 was defined, and upper **target values** were calculated using the 95th percentile.

Link to full story here: https:Communities page

Outcome

Reporting on Indicator 6.3.2 provided a greater understanding of salinity variability and extremes in Australia.

Calculating the change in a site's water quality can reveal long term trends and highlight issues. However, equally important is understanding why water quality might be changing. Separating out the effects of policies, practices, climate and other salinity influences is important to understand how to effectively manage problem sites. This information cannot be elucidated from Indicator 6.3.2 alone, so further analysis must be done for effective water quality management.

The results reveal that Australia generally had satisfactory salinity levels during the reporting period with an **Indicator score of 80** out of 100? The analysis also highlights the variability of water quality in Australia and the complexity of defining natural conditions.

Future

Closer engagement with state and territory governments as well as other science agencies will help to identify data availability for all **core parameters**. The government also continues to invest in improving the BoM's water information capabilities, including better national water quality information.

The representativeness of the **15-year reference period** used for surface waters, and how this impacts the indicator score could be tested.

For groundwater, setting the minimum data requirement may have introduced a **bias** towards monitoring poor quality sites. This needs to be investigated.

The approach of using each **monitoring station** as a proxy for a "water body" could be assessed.

Level 2 parameters not captured by the Level 1 reporting such as turbidity, bacteria, algae, or total suspended solids could be included in future submissions.

Remote sensing data may play a significant role in Australian Indicator 6.3.2 submissions in the future. Remote sensing can provide greater insight on water quality and could provide wider coverage of the Australian continent.

SUSTAINABLE DEVELOPMENT GOALS