Seasonal water rationing

Challenge: Too little water **Adaptation response:** Water allocation

Description

The amount of water available from a source can vary greatly between seasons, thus it is particularly important to ensure sustainable abstraction rates and protect water sources from over-use during dry seasons. Seasonal water rationing is an approach to control water use rates amongst different users based on the seasonal availability of water and socioeconomic priorities. Rationing may take the form of water use restrictions for certain purposes, in certain times, or certain areas. The aim is to maintain equitable use among different users, as well as high levels of water productivity, throughout the year.

Implementation

Hydrological and economic models can be used as decision-support tools for allocation and restriction measures. Relevant information for planning includes current storage volume and water flows, as well as projected water flows, during the season, which can then be used to predict sustainable extraction rates that maintain environmental water needs under varying climatic conditions. Economic calculations and models can in turn predict the economic consequences of changing allocated volumes amongst water users, in addition to uses that deliver the most benefit to the society.

Due to the uncertainty of accurately predicting weather patterns, and an increase in the effects of climate change, changes to water allocation volumes are typically adjusted on a continuous basis (e.g. on a monthly basis or every ten days) by authorities, depending on the changes in environmental and socioeconomic conditions (hereunder seasonal changes) and availability of water in the basin.

Prioritization of water users based on their capacity to adapt to a change (reduction) in water consumption, and the potential socio-economic consequences of such a change, is also an important consideration. Seasonal rationing may affect water-users differently, depending on the user's capacity to adjust to changes in available water volumes.

Water allocation planning requires strong stakeholder participation so that they are informed of planned changes and understand how different stakeholders use water. This knowledge can result in greater water efficiency. Seasonal water rationing is often implemented together with measures to introduce alternative water sources, such as added storage, rainwater capture, etc. to improve water availability during both wet and dry seasons.

Environmental Benefits

- Mitigates water source depletion and degradation, and ensures environmental water needs are met. Provides ecosystem services in the dry season.

Socioeconomic Benefits

- Reduces costs for water conveyance and treatment during periods of reduced demand. Mitigates critical water shortages.

Opportunities and Barriers

Opportunities:

- Rationing can lead to introduction of alternative water sources which do not require extraction (e.g. rainwater capture in households or water recycling in industry)
- Seasonal rationing considers both environmental water needs and various water users

Barriers:

- Seasonal rationing may decrease productivity in agriculture or industry during prolonged dry seasons
- Weak institutional capacity and lack of political will can lead to a struggle to enforce allocation plans
- Seasonal restrictions may be difficult to enforce and monitor in some user groups (e.g. restrictions for specific uses at the household level)

Implementation considerations*

Technological maturity:	4-5
Initial investment:	1-2
Operational costs:	1-2
Implementation timeframe:	1-3

* This adaptation technology brief includes a general assessment of four dimensions relating to implementation of the technology. It represents an indicative assessment scale of 1-5 as follows:
Technological maturity: 1 - in early stages of research and development, to 5 – fully mature and widely used
Initial investment: 1 – very low cost, to 5 – very high cost investment needed to implement technology
Operational costs: 1 – very low/no cost, to 5 – very high costs of operation and maintenance
Implementation timeframe: 1 – very quick to implement and reach desired capacity, to 5 – significant time investments needed to establish and/or reach full capacity
This assessment is to be used as an indication only and is to be seen as relative to the other technologies included in this guide. More specific costs and timelines are to be identified as relevant for the specific technology and geography.

Sources and further information

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