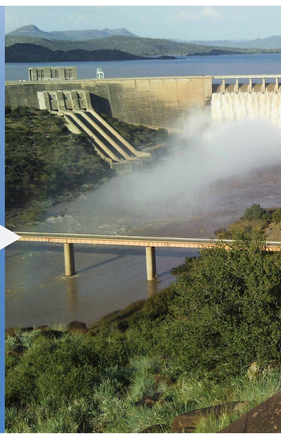
the LINK

LONG TERM PLANNING & DROUGHT MANAGEMENT



So what's the link? Drought is a current problem: How is planning for the future going to help, and how do we plan for droughts?

We don't know when the next drought is coming, so we manage the risk of drought. What level of risk is acceptable? Like different investors or business models, different water use has different risk appetite.

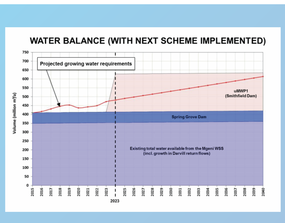
Example: Water for cooking, hygiene and basic human needs is required at low risk - we need this stuff to survive. Water for irrigating, washing cars and filling pools can be supplied at higher risk - we want it, but if things get critical (like water shortages, or if water becomes really expensive), we can live without. You don't see many people irrigating their lawns with bottled water.

Water use risk Criteria

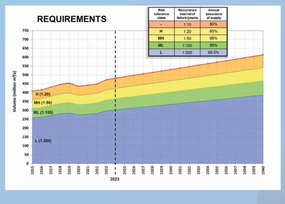
Risk tolerance class	Recurrence interval of failure (years)	Annual assurance of supply
-	1:10	90%
H	1:20	95%
MH	1:50	98%
ML	1:100	99%
L	1:200	99.5%

Important water we need at low risk, e.g. cooking and hygiene (not supplied once out of 200 years)

To illustrate how we plan and manage risk, the Mgeni Water Supply System is used as an example: The Mgeni WSS is a Large system (4 big dams on Mgeni River, plus transfer from Spring Grove Dam), and supplies Durban & Pietermaritzburg plus north and south coast.



Water requirements continue to grow, and a long term solution is needed if a large deficit is to be avoided.
The long term solution identified in this example is the Smithfield Dam as part of the uMkhomazi Water Project (uMWP1).

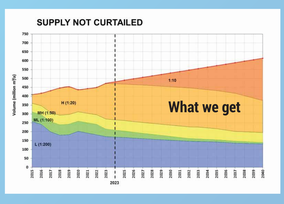


Water requirements can be spilt into different risk levels that users accept. Most of the water is at a low risk (blue zone). Some water can be accepted at increasing levels of risk (green, yellow and orange zones).
A recurrence interval is the easiest form of expressing risk - i.e: average number of years between failure (non-supply).

What happens if we do not plan or implement scheme's on time?

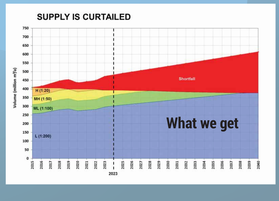
One of two options depending on how we manage drought

EITHER



Water supply continues with increasing risk to drought (both large & small), and users risk criteria is severely compromised. There is an increasing risk of dams going empty.

OR



Water supply is regulated through restrictions to maintain users supply criteria. The volume supplied is reduced, but the risk of dams emptying is minimised.

To manage drought, we have to plan for it. This means on-going water resources planning and water loss reduction. More importantly, the plans need to be implemented on time.
If water loss reduction and water resource infrastructure are not implemented on time, the risk of drought impacts increases to an unacceptable level. We then have to make more regular and more drastic emergency responses when droughts occur (even small ones). These emergency responses usually use resources ineffectively, and waste money that could be better used for service delivery.

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