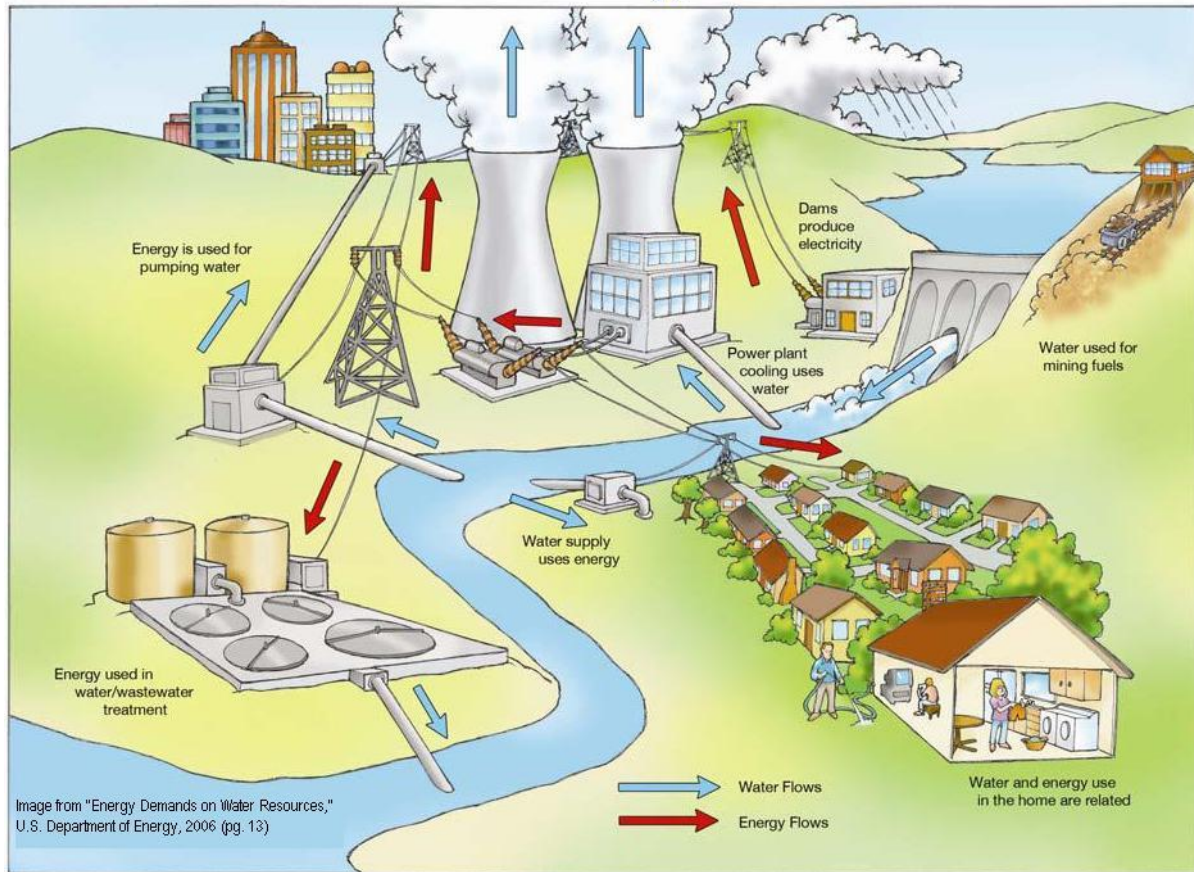


The Water-Energy Nexus



Why water cannot be decoupled from energy, an urgent South African perspective

South Africa is reeling from massive electricity load shedding, an already depressed economy with unsustainably high poverty and associated unemployment and yet the severe water situation is not on the lips of every citizen, why as it should be?

Energy and water are inter-dependent, so the collapsing energy utility, Eskom, must mean that the water sector is also collapsing? Truth be told is that the water sector has been collapsing on its own for some time and has been on a downward trajectory since 2002 when the water reserve was announced by the then DWAF as 98% allocated. This means that 98% of the available water for SA was already allocated more than a decade and a half ago with zero significant water added to our reserve by the mandated water custodian and bulk water provider in SA. The water custodian, DWS, is not only cash strapped due to blatant mismanagement and corruption, it is not regulated and in total disarray, why disarray?

Consider these few points and make up your own mind:

- No independent water regulator, so to regulate sector allocations, pricing and quality of potable water, sewage and industrial discharges.
- Land reform and water rights are not synchronised, we can transfer as much land as we want to meet social obligations but water rights are not transferred, the land is therefore useless for irrigated farming.

- DWS announced last week that water allocations in some areas set aside for transformation, so Land Reform Farmers, has not been taken up, why, can only be mismanagement?
- CMA's, Catchment Management Agencies, are not fully operational.
- The Water Tribunal is not operational with 594 cases outstanding waiting outcomes? Again this is a clear governance lapse allowed in an unregulated sector.
- DWS confirmed last week that their long outstanding water demand verification and validation process is not done. Cannot manage what we do not measure surely?
- Dozens of local municipalities are running out of water due to the failure of bulk water resources, pollution of water resources and inadequate governance and regulation.
- Municipalities are hemorrhaging 41% in water losses valued at a cost of some R9bn, this is what is termed as induced water scarcity.
- A questionable "National Water & Sanitation Plan" that only really focuses on water scarcity and not the circular economy ("Abundance of Water Paradigm") and the addition of New Water.
- More than 50% of the sewage works in SA are in a poor condition leading to non-compliant discharges of sewage. Is this why the Blue and Green Drop reports have not been published by DWS since 2014?
- Water is seriously under-priced adding to the collapse of the sector, an independent water regulator would remediate this aspect immediately.
- R870 bn has been mentioned by government, in 2015, as the investment required in the sector to achieve a modicum of water resilience, who is going to invest in an uninvestable sector in this state?
- The Lesotho Highlands Water Project, LHWP, phase two was supposed to be completed by 2020 to supply Gauteng's water deficit, now it's delayed due to DWS issues until 2025, what is Gauteng going to do for water for those five years? Gauteng is SA economic hub that is now at threat of a total shutdown!

A few major water inputs for a functional SA:

- South Africa depends mostly on coal fired power stations for its energy in the form of electricity, be they water cooled or not, they require significant amounts of water.
- Coal mining itself consumes significant amounts of water that is usually sourced from groundwater, so if the ground water is depleted, how do we mine for coal?
- The balance of our energy is mostly for petrol and diesel that requires large volumes of water to refine, we cannot refine more fuel for the economy without more water.
- Food and beverage producers require large amounts of clean water, ongoing pollution of our water resources by defunct municipal sewage plants poses a direct threat to this sector and SA's well-being.

- The production of renewables such as wind and solar PV cells requires water.
- The production of potable water requires energy as does its distribution to consumers in cities, towns, villages, industry etc.
- Bulk water is pumped to the Eskom power stations and Sasol Secunda complexes.
- Sewage treatment requires electricity to function at all

So the water-energy nexus is what drives civilisation these days in a highly urbanised society. Without energy we cannot produce the water required to produce food, supply industry and humans. Without water we cannot produce the energy required to drive the economy. Civilisation is extremely complex today and requires an integrated approach to life and not a myopic one that we have witnessed over the past while during our load shedding disaster.

It is not unrealistic to actually consider water as the fundamental resource required for all life as we currently know it in both the rural and urban settings, so why is it not a national priority? As our water resources are destroyed by pollution, wasted by municipalities not managing their infrastructure and not augmented by the custodian of our water, national government's DWS, it's impossible for the SA economy to not only recover but to grow. So water is indeed the ultimate economic enabler and should be treated as such by South Africa!