VELTWATER DISTIL-LERY

KEEP CALM, WE ARE ON IT

Volume 1 / Issue 2

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Topic #1 – Lockdown Continued

Topic #2: Groundwater Resources

Topic #3: Eastern Cape Drought

Note from the Authors

Welcome to our quarterly Distil-lery where we will pick topics from the most recent events and discuss these important aspects from a purely groundwater point of view.

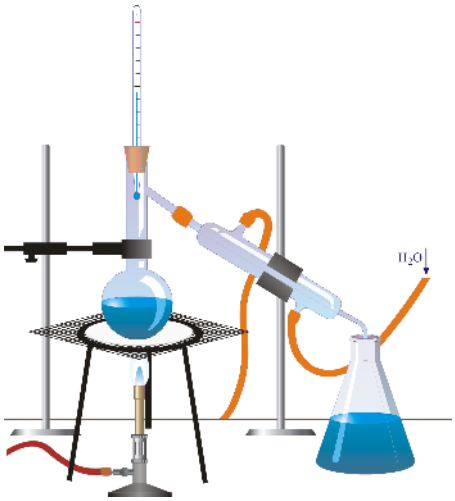
You will notice that each topic has a “Join in the Conversation” bit. We welcome healthy discussions, so please feel free to contact us and voice your opinion on the particular subject. Please also let us know what topics you would like to see in our next issue.

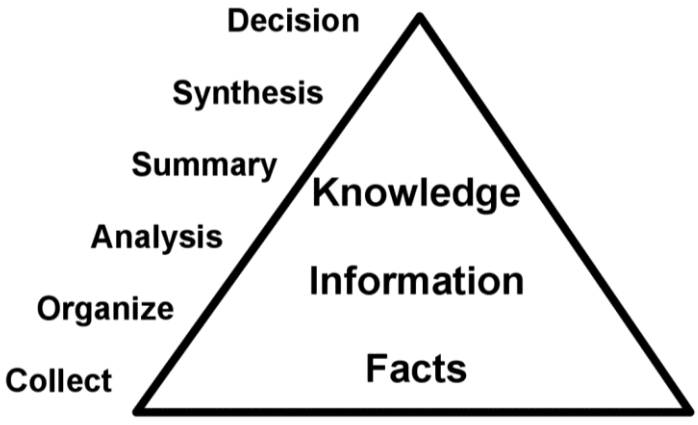
Where does the name Distil-lery come from you ask? Well, it is a triple play on words on what the word distil means, combined with what we like to have and also enjoy doing.

Let’s break it down.

Dictionary: Distil (verb)

1. Purify (a liquid) by heating it so that it vaporises, then cooling and condensing the vapour and collecting the resulting liquid (Similar: purify, filter).
2. Make spirits (or an essence) by distilling (Similar: brew).
3. Extract the ***essential meaning or most important aspects*** of (Similar: condense, digest)





#1: LOCKDOWN CONTINUED

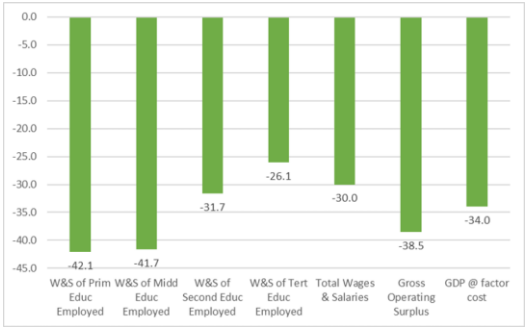
Open the floodgates!! – Figuratively speaking…

We are clear to travel across provincial borders for business purposes. Time now to get up and dust off the steel tips and get back out there. Of course, we will take every precaution to ensure our clients' health and safety.

South Africa experienced hard lockdown levels under specific regulations in recent months. A sigh of relief came with the relaxation of level 3 regulations by re-opening further business sectors.

Stats SA published the results of a survey they conducted in April 2020. The survey included 707 businesses (excluding micro businesses with an annual turnover less than R 2 mil) in an attempt to measure the expected future actions due to the lockdown. The conclusion was that 65 % of businesses anticipated that the pandemic would have a substantially worse impact on their businesses compared with the financial crisis during 2008/2009.

An article published on The Conversation website in June 2020 by authors from the International Food Policy Research Institute (IFPRI) stated that the negative economic shocks pushed many households into positions of food insecurity, even further than the availability of food in a drought situation. The graph below shows the impact on wage earning and income GDP components, as percentage deviation from their pre-crisis levels.



As crisis levels for water security, food security and job security rise, as groundwater specialists we are most familiar with water shortages from drought situations.

In uncertain times, it is understandable that investment in new water is unlikely. However, when investing in water security, it is of the utmost importance to do it right from the start.

Ready, Set, GO! Look out world. We are here to support, advise and where possible, meet you for a chat and a nice cup of coffee.

In the previous issue of our Distil-lery we touched on the fact that a drilling project is almost always planned at minimal cost, with no room for fees available to employ a friendly groundwater consultant near you.

You might be wondering if it will be worth it to invest after all? In short, yes it will, just make sure you have the right people on your team.

Join in the conversation:

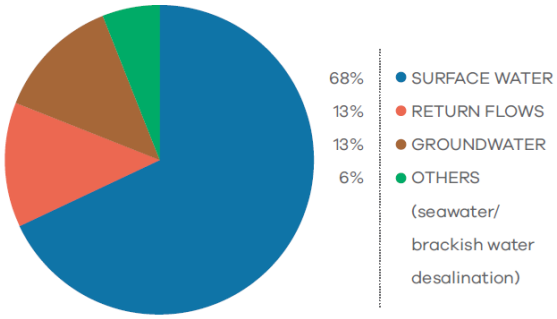
- How has the lockdown negatively affected your business?
- What is your outlook for the future?

#2: GROUNDWATER RESOURCES

Ever wonder how much water is available for use in South Africa?

Water scarcity is a major challenge in South Africa as it ranks as the 30th driest country in the world.

According to the GreenCape Market Intelligence Report (2019), despite being a water scarce county, the water consumption in South Africa is around 233 litres/capita/day (l/c/d) compared to the international benchmark of around 180 l/c/d. The supply from current infrastructure equates to around 15 billion kl/year (at 98 % assurance of supply or 2 % annual probability of supply failure), where the majority is from surface water (68 %), return flows that support surface water (13 %) and groundwater (13 %) (see figure below).



The water usage as reported (in 2019) was between 15 and 16 billion kl/year, increasing the probability of supply failure. Based on population growth projections, it was estimated that the water demand in South Africa will be around 17.7 billion m^3 in 2030. This means that there could be a 17 % gap between supply and demand by 2030.

Groundwater is often the primary source in the rural and more arid areas, as well as for many towns.

The groundwater potential yield stored in aquifers are estimated at 7,500 million m^3 per annum (m^3/a) with 2,000 million m^3/a already in use and 5,500 million m^3/a that is still available (National Water Security Framework, 2019).

During the extreme drought period experienced in the Western Cape during 2017/2018 the area exploded with drilling projects for emergency water supply. This actually occurs across the whole country as a rule, but let me not digress. Majority of these were completed without input from either hydrogeological professionals or the Department of Water & Sanitation (DWS). Therefore, it can be argued that the reported estimations are only based on documented or licensed uses and not completely representative of actual groundwater abstractions.

In the words of a groundwater legend, Mr. Fanus Fourie of the DWS, the biggest challenges groundwater development are faced with include bankability of regional schemes, the credibility of groundwater as a bulk scheme source, poor management of boreholes and well-fields, institutional responsibility, acceptable quality and the treatment of groundwater (Farmer's Weekly, 2013).

Join in the conversation:

- Have you seen more updated figures recently? Sharing is caring.

#3: EASTERN CAPE DROUGHT

Is anyone also experiencing a serious case of déjà vu?

Much like the water crisis experienced in the Western Cape where the anticipation of Day 0 loomed, the Eastern Cape is not far behind.

In an article by News24 in Dec 2019, the Eastern Cape has been battling a brutal drought for five years with absent or erratic rainfall and record high temperatures.

The Maverick Citizen (Feb 2020) reported that the municipalities imposed emergency restrictions of 10 litres per person per day. The water shortages are further aggravated by load shedding and vandalism of infrastructure.

Kouga Dam water users (a total of 132) were restricted to 20 % of their full water allocation for the new 2020/21 hydrological year (reported by The Gamtoos Irrigation Board on their website). The Kouga Dam is the largest dam in the Algoa water supply system and provides water to the agricultural water users in the Gamtoos Valley and urban users in Nelson Mandela Bay and Kouga Municipalities. **The latest dam level is at 6.92 %.**

During the recent South African Groundwater Conference, held October 2019 in Port Elizabeth, another groundwater legend, Dr. Ricky Murray, described having great success with high yielding production boreholes drilled in PE. In an article by The Water Wheel (2020), described the drilling of five production boreholes that make up the Coega Kop Well-field and the combined drilling blow yield is 357 litres/second (l/s). As of February 2020, construction of a dedicated biofiltration plant for the treatment of the groundwater has not yet commenced and therefore cannot be added into the NMB Municipality's water supply system. This project included the drilling of over 23 km of boreholes between 2018 and 2019 with total drilling yields just under 1,000 l/s.

It was reported that there are some boreholes that could very quickly be brought online if the water supply situation got really bad.

According to a paper from the International Association of Hydrogeologists (2005), there are multiple reasons why newly implemented drinking water supplies and irrigation systems should be based mainly on groundwater resources:

1. Groundwater infrastructure is often cheaper than surface water infrastructure;
2. Investments into groundwater schemes can be easily distributed over time, while yielding immediate results; in contrast, hydraulic works from surface water resources are rarely fully functional in less than 20 or 30 years;
3. Groundwater supply and irrigation systems are smaller scale allowing for active participation in groundwater management; and
4. Groundwater irrigation systems present a high degree of insurance against drought.

Join in the conversation:

- What do you think can reduce water supply risk?
- In-time future planning or emergency reaction?