

# VELTWATER DISTIL-LERY

## KEEP CALM, IT'S NOT ALL DOOM & GLOOM

Volume 1 / Issue 3

Tuesday 13 October 2020



Topic #1 – Lockdown Continued



Topic #2: The Importance of Springs



Topic #3: Dam Level Buzz

# Note from the Authors

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

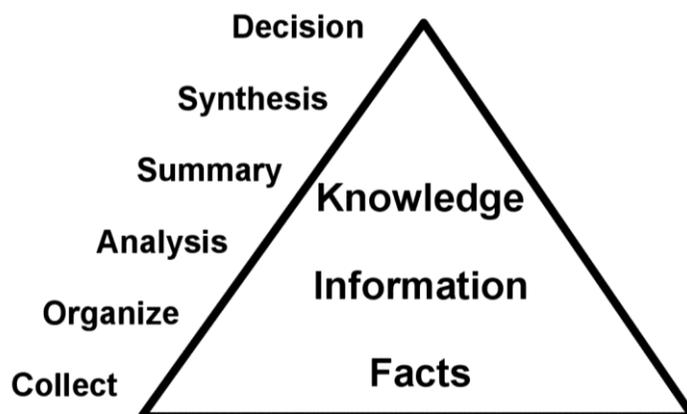
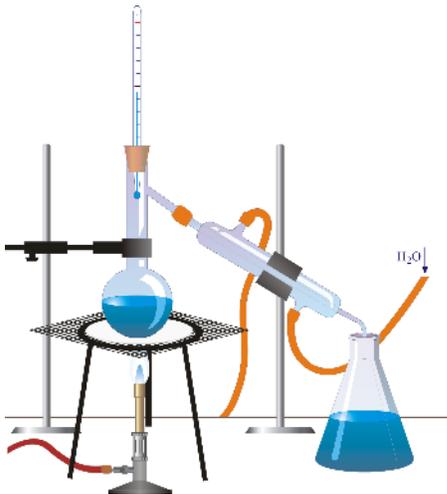
You will notice that each topic has a “Join in the Conversation” bit. We welcome healthy discussions, so please feel free to contact us and voice your opinion on the particular subject. Please also let us know what topics you would like to see in our next issue.

Where does the name Distil-ery 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)

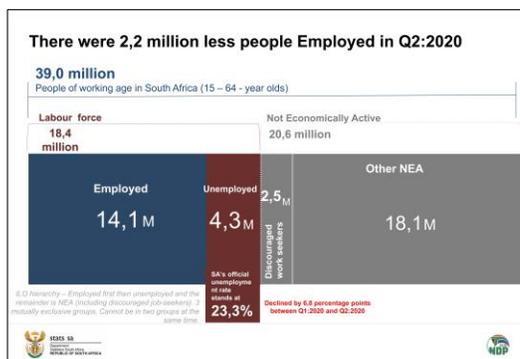


# #1: LOCKDOWN CONTINUED

## Aftermath – Project Drought?

*We all knew the situation is bad, but do we really know how bad?*

How bad is bad you ask? Well, not too long ago all of the major news casters announced the ever-increasing unemployment statistics for quarter 2 of this year (2020). Stats SA published the results of their survey conducted in September 2020, which indicated that the number of employed persons decreased by a further 2,2 million in the 2<sup>nd</sup> quarter compared to the 1<sup>st</sup> quarter. It was reported that this change was the largest quarter to quarter decline since the survey began in 2008.



The Wall Street Journal published an article on 8 September 2020 suggesting that the South African economy shrank by an annualised 51 % in the 2<sup>nd</sup> quarter, quoted as the worst quarterly decline in the last century and one of the steepest contractions recorded by any major economy during the coronavirus pandemic. According to the same article, when compared with the 2<sup>nd</sup> quarter of 2019, the GDP dropped by 17.6 %. Different sectors of the economy showed the following annualised contractions:

- The manufacturing industry –74.9 %,
- Mining sector – 73.1 %,
- Transport, storage and communications – 67.9 %, and
- Trade, catering and accommodation – 67.6 %.

The agriculture, forestry and fishing sector were the only positive contributor which showed an increase of 15.1 % between April and June.

A report by the World Bank Group, dated June 2020 described an activity contraction of 7.1 % for this year, however, growth in South Africa is expected to rebound in 2021, subject to substantial uncertainty.

**Spanner in the Works** – Ever considered that major tech companies are currently using machine learning to develop artificial intelligence and will ultimately replace most human functions in the near future? To automate or not to automate, that will be the question. Maybe a topic for the next time...

### So, what does this mean for your friendly neighbourhood groundwater specialist?

With a definite decline in the activities as demonstrated, some colleagues reported a 40 % groundwater related workload for the past 6 months and according to industry experts, it is unlikely that the outlook will improve in the next 6 to 12 months.

🙄 It might be a good time to consider making Pizzas for a living, although a nice juicy tender would be great right about now...*hint hint wink wink.*



#### **Join in the conversation:**

- One must wonder what a plan B would look like?
- Do you have one?

## #2: THE IMPORTANCE OF SPRINGS

Have you ever experienced the cold refreshing taste of natural spring water on a warm day? Even better when it bubbles...

*Sometimes springs are an oversight or an afterthought but remains an important aspect of groundwater movement and impact delineation.*



Seeing aQuellé in the news recently, this writer was reminded that we don't really question where the water of these readily available flavoured bottled water vessels come from.

In researching the water source of this particular brand, they state that since their inception in 1997, their water is obtained from underground natural spring sources in KwaZulu-Natal and also in Franschhoek, Western Cape.

### ***Did You Know?***

A spring is a location at the land surface where groundwater discharges from the aquifer, creating a visible flow either as a result of gravity or pressure (Neven & Kresic, 2010).

It is a common theme that spring water is used and harnessed to either be used as drinking water or to contribute to the farming process. Depending on the geology, some springs are what we call seasonal, where it is sustained by rainfall. In other parts, it flows throughout the year.

There are a few types of springs namely:

- Gravity springs,
- Artesian springs (under pressure), and
- Thermal springs (warm or hot).

A website named, Eat This, Not That!, stated that there are different regulatory systems in place between the bottled water industry and the governance of municipal water systems (specifically in the US). While municipal water systems are required to notify their customers of test results showing contamination that could pose a health risk, the companies that bottle water do not operate with the same safeguards in place. In fact, the bottlers are largely self-policing and conduct their own tests to keep for their own records but rarely publicly shared.

***Food for Thought*** – Previous experience showed that the water quality of springs is directly tied to its type (unconfined vs confined), and more often than not are not completely safe for human consumption.

**Considering this information, do you still trust that the standard breakdown of the water quality on the labels are really a true reflection of the quality?**



***Join in the conversation:***

- Do you know what the drinking water standards are and where to find them?

# #3: DAM LEVEL BUZZ

## What is the Dam hype about? Excuse the pun...

*Ever wondered why droughts and water crises are associated with the water levels in Dams?*

We can all agree that basic knowledge and understanding of groundwater systems are essential for efficient management of this resource. To answer the question posed in the headline, **groundwater and surface water are fundamentally interconnected and often difficult to separate because it recharges each other and hence can also contaminate one another** (Neven & Kresic, 2010).

*Through numerical groundwater modelling of a particular area, dependent on the amount of information available, we are able to calculate the volume / rate of groundwater that is contributed to the surface water systems.*

Recharge of groundwater may be recharged directly or indirectly. Direct recharge from precipitation percolating through the unsaturated zone and indirect recharge as a result of percolation to the water table from runoff. The relationship between groundwater recharge and discharge, when understood, is the most important aspect in the protection of the groundwater resources.



Now, for a nice picture that warms the hearts and eases the stress levels of us all. Threewaterskloof dam was 99.6 % full when

measured on 28 September 2020 as reported by the DWS. Day zero postponed ;)

The Department of Water and Sanitation defined a balancing dam as a multi-purpose facility. It serves as a distribution point from where water is diverted into pipelines, canals etc used for irrigation and urbanisation. In some instances, a balancing dam does not have a natural catchment of its own. Water is fed from one or more outside sources at one end of the dam and water is distributed from another end. This constant in and outflow will cause the dam levels to fluctuate. Other types of dams include storage dams and flood control dams; therefore, it is important to note what type of dam you're dealing with when reading the latest dam level data. Herewith the latest figures summarised for each province.

Summary Provinces	Full Supply Capacity 10 <sup>6</sup> M <sup>3</sup>	Water in Storage 10 <sup>6</sup> M <sup>3</sup>	Last Year %Full	Last Week %Full	This Week %Full
EC Eastern Cape	1809.6	880.7	52.8	49.1	48.7
FS Free State	15655.0	11489.5	76.3	74.4	73.4
G Gauteng	128.1	123.7	95.6	98.9	96.5
KN KwaZulu-Natal	4784.0	2549.8	55.1	53.9	53.3
L Lesotho	2362.6	388.8	20.5	17.1	16.5
LP Limpopo	1622.3	892.4	52.0	58.9	58.6
M Mpumalanga	2538.6	1658.0	61.3	65.8	65.3
NC Northern Cape	147.3	132.5	79.9	91.6	89.9
NW North West	867.3	533.4	55.5	62.2	61.5
S Swaziland	333.8	193.3	72.7	58.4	57.9
WCo Western Cape - Other rainfall	268.9	68.4	19.9	24.1	25.5
WCw Western Cape - Winter rainfall	1896.8	1439.6	73.8	88.7	90.2
WC Western Cape - Total	1865.7	1508	66.0	79.4	80.8
<b>GRAND TOTAL</b>	<b>32012.2</b>	<b>20350.2</b>	<b>64.2</b>	<b>64.2</b>	<b>63.6</b>



**Join in the conversation:**

- Seeing that alternative solutions are in our future, are planning effectively including the development of groundwater to supplement surface water systems?