

WaterFoot Print data Analysis

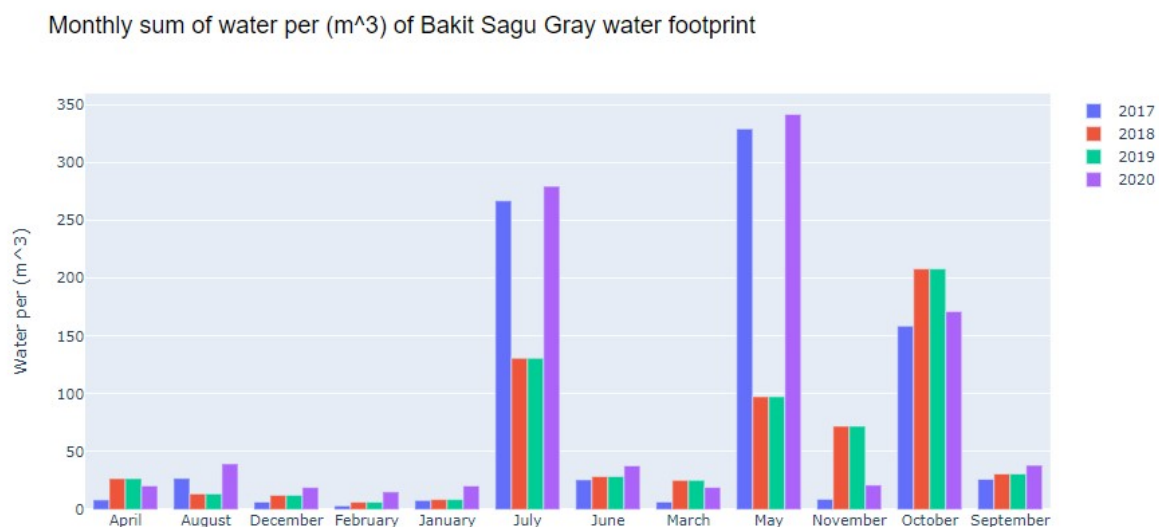
Introduction:

I have Got the Water footprint data of Gray and Bluewater from different Water treatment companies in Malaysia. There are a total of 10 datasets and 2 datasets belong to each company. My task is to analyze the data and fetch useful information to see results of the consumption of freshwater by specific human activities or the production processes of a product and how they contribute to issues of water scarcity and pollution. I have to find out what will be the future trend of Gray water and Blue, So first I will do exploratory data analysis and then build machine learning models which predict the future trends.

Exploratory Data analysis:

In Exploratory data analysis, I will visualize the datasets of each company, There are 5 companies (Bukit Sagu, Bukit Ubi, Panching, Semambu, and Sg Lembing) and 2 datasets belongs to each company, The first dataset is about Gray water and the Second dataset is about Bluewater FootPrint. So I will look through each companies datasets and at the end I will give the conclusion.

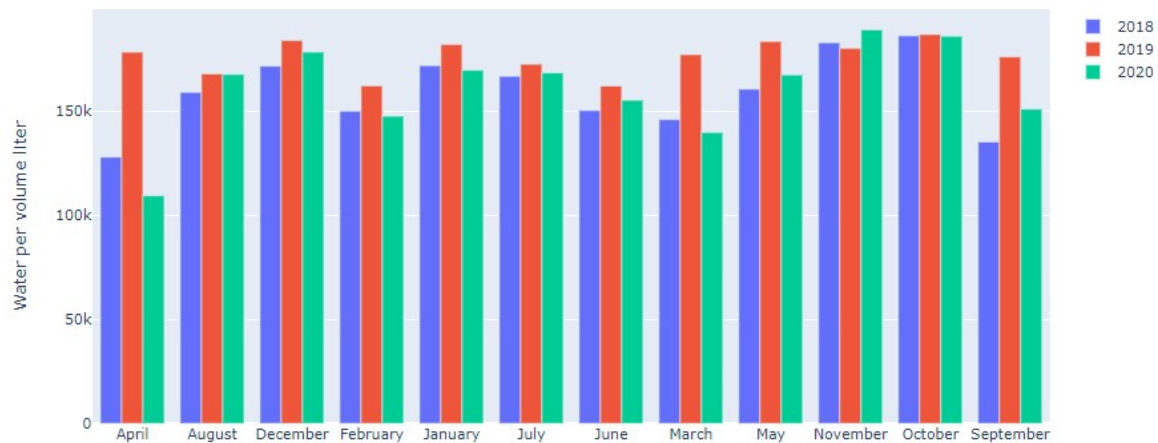
Bukit Sagu Data Visualization



This is the Monthly Gray Water sum of the last 4 years. This comparative analysis of 4 years shows that in July, May, and October, Bukit Sagu produced a lot of Gray Water.

Blue Water Analysis(Bukit Sagu)

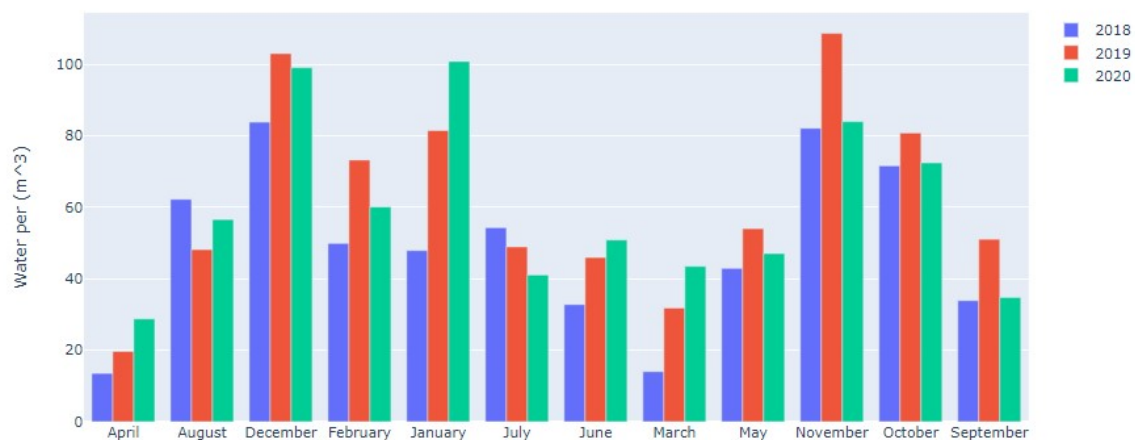
Monthly sum of water per (m³) of Bukit Sagu Blue water footprint



This is the Comparison Analysis Graph of the Monthly sum of blue water footprint. As you can see in each month Bukit Sagu produces more than 150k m cuber water footprint.

Rain Analysis (Bukit Sagu):

Total Raining by month



This is the Comparison of total rain by month of the past 3 years. As you can see the most rain occurs in January, November, and December every year.

Water Evaporation Analysis (Bukit Sagu):

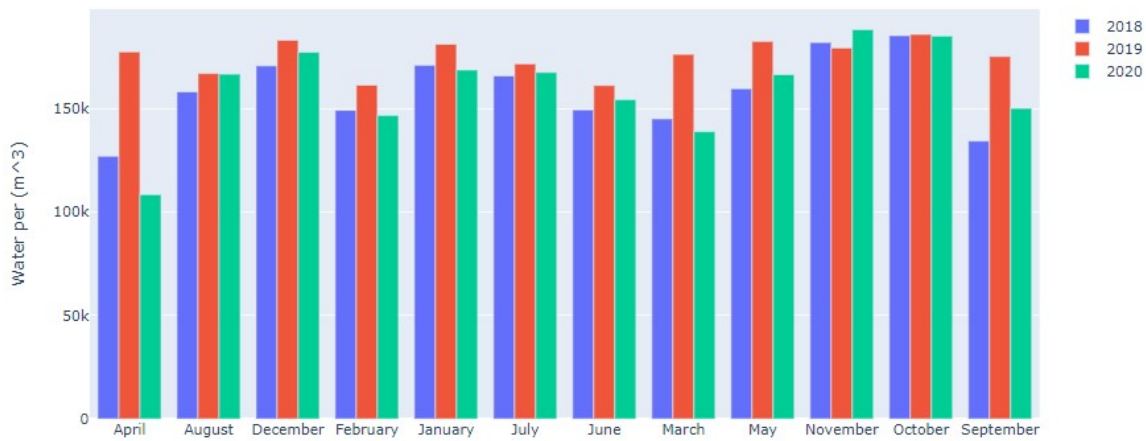
Water Evaporation by month



This is the Comparison Analysis of Water Evaporation by Month of past 3 years. As you can see the most water evaporation occurs in March, May and July.

Water Intake Analysis (Bukit Sagu):

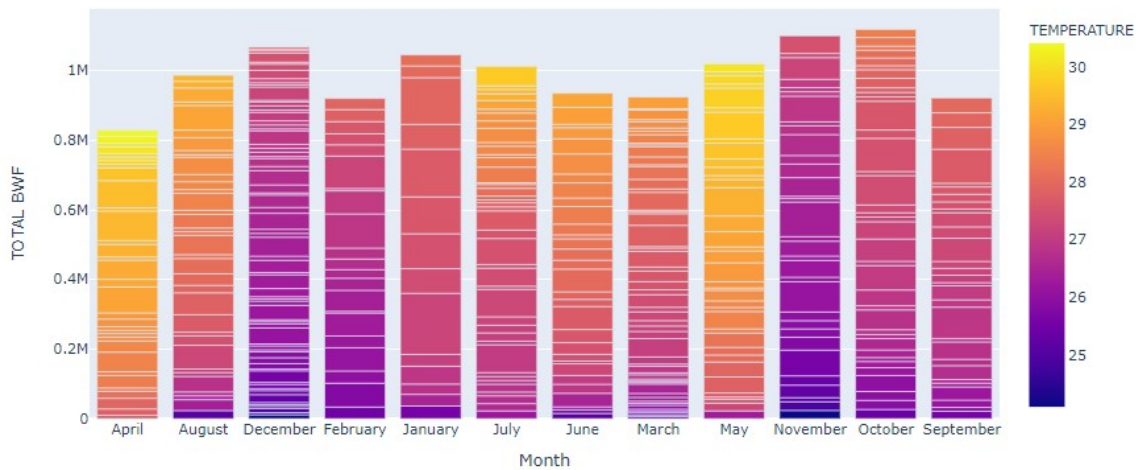
Total Water Intake by month



This is the Comparison Graph of Water Intake monthly for the past 3 years. As you can see every year the water Intake monthly sum is higher than 150k meters per cube.

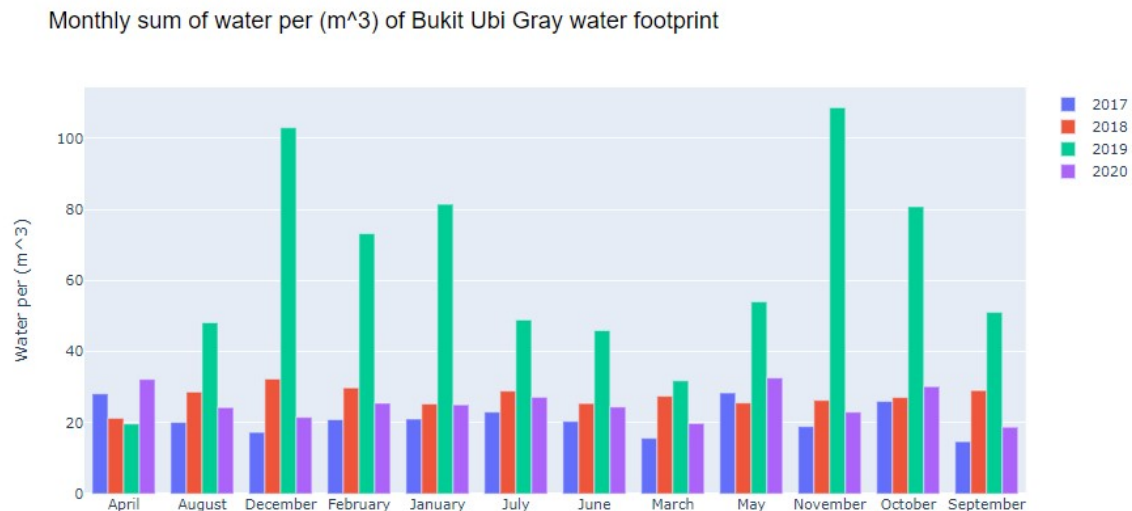
Temperature analysis (Bukit Sagu):

Blue Water by monthly sum in a specific temperature



This is the Bluewater Monthly sum with Hue temperature. As you can see where the temperature is Low the Sum is high.

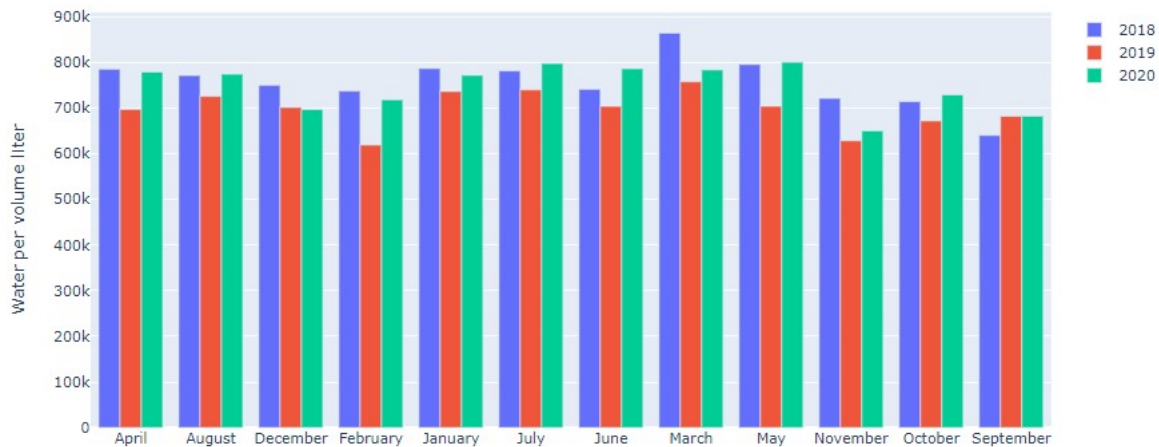
Bukit Ubi Data Visualization



This Graph Shows the Comparison analysis of Gray water Footprint Monthly sum of Bukit Ubi. As you can see Bukit Ubi produced more gray water footprint in December and May.

Blue Water Analysis(Bukit Ubi)

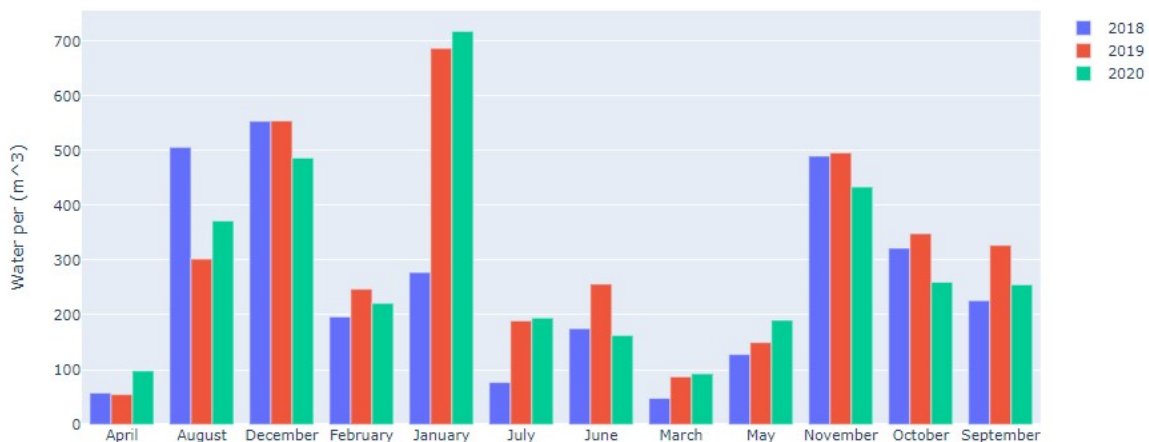
Monthly Blue Water Foot Print sum per (m³) of Bukit Ubi



This Graph Shows the Comparison Analysis of Blue water Monthly sum of past 3 years Bukit Ubi. As you can see Bukit Ubi producing Blue water footprint between 700k to 800k.

Rain Analysis (Bukit Ubi):

Total Raining by month (Bukit Ubi)



This Graph shows the comparison analysis of Total Monthly Rain of past 3 years Bukit Ubi. The results show that the most rain occurred in November, December and January.

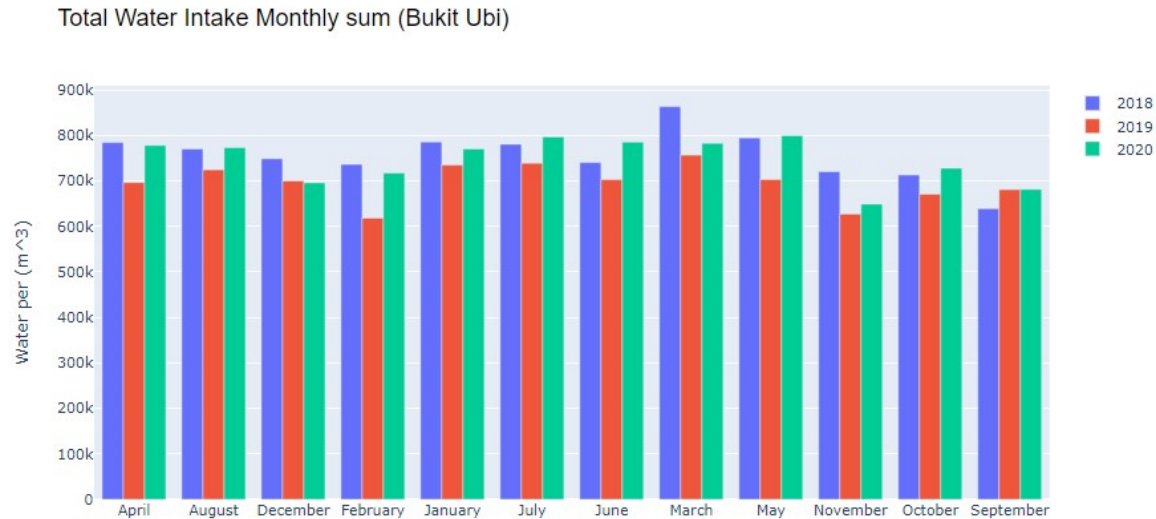
Water Evaporation Analysis (Bukit Ubi):

Water Evaporation by month (Bukit Ubi)



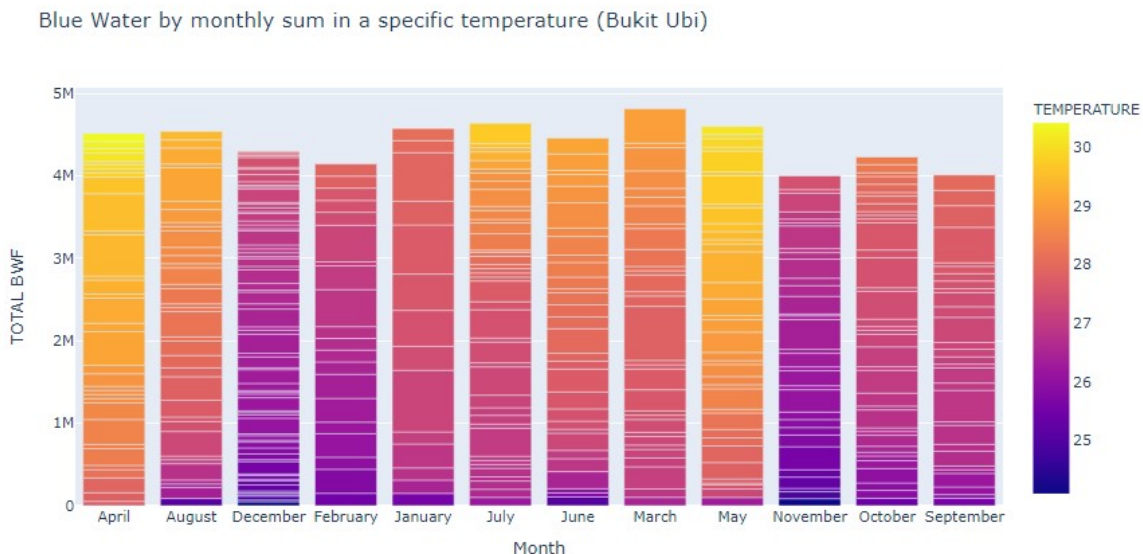
This Graph Shows the comparison Analysis of Water Evaporation Monthly sum of Past 3 years Bukit Ubi. The Most Evaporation Occure in Marc , May and August.

Water Intake Analysis (Bukit Ubi):



This Graph Shows the comparison analysis of Water intake monthly sum of past 3 years Bukit Ubi. As you can see In every Month Water Intake Sum is between 700k to 800k.

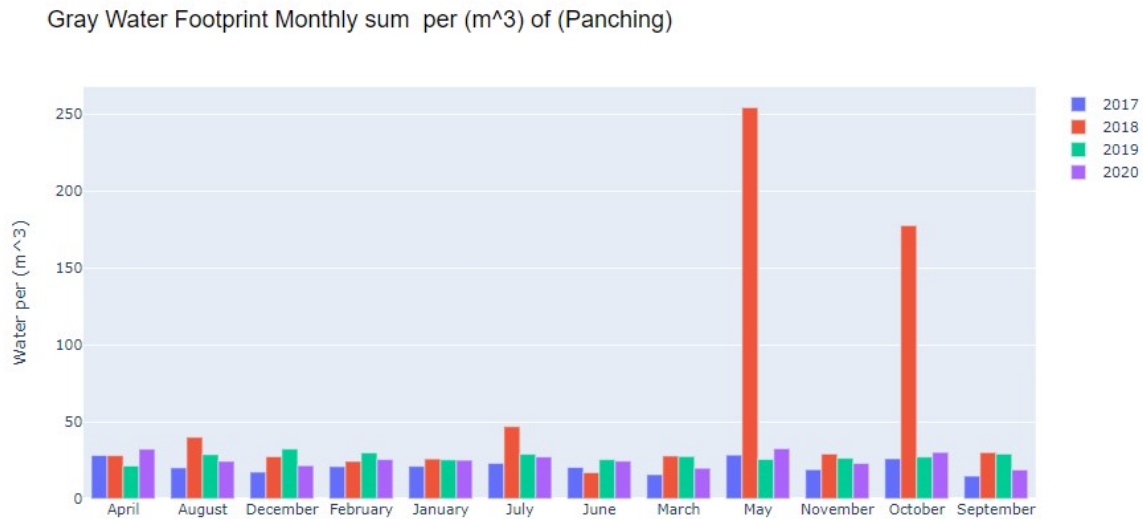
Temperature Analysis (Bukit Ubi)



This Graph Shows the total sum of BLue water Foot print with Respect to temperature. As you can see Most blue water foot print

Caused in High temperature.

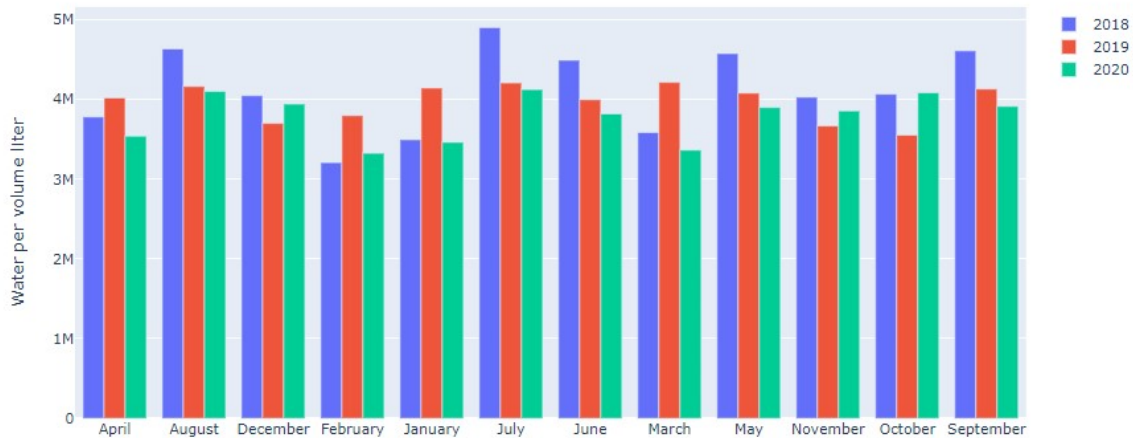
Panching Data Visualization:



This Graph shows the Comparison Analysis of Gray Water footprint Monthly sum of past 4 years of Panching. As you can see Every month Panching cause gray water foot print less than 50(m³).

Blue Water Analysis(Panching):

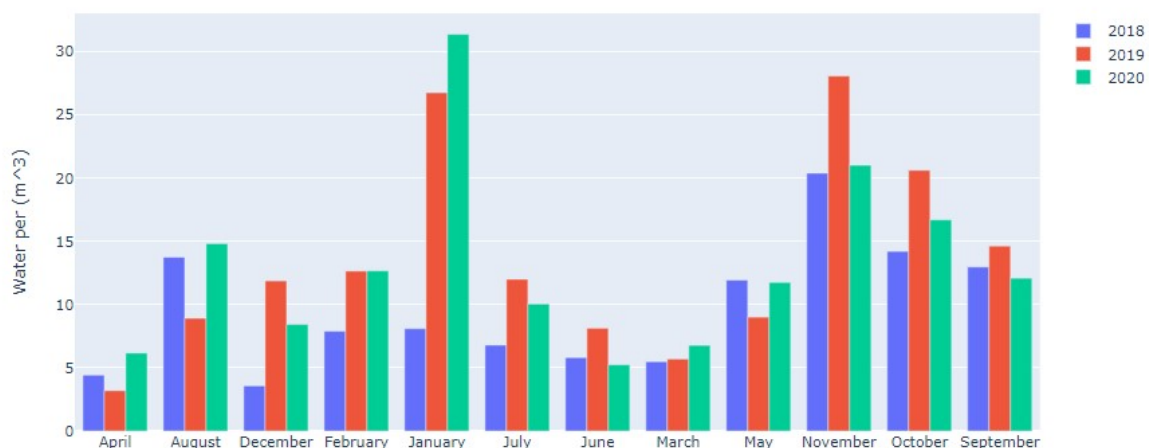
Monthly Blue Water Foot Print sum per (m³) of Panching



This is the comparison Analysis of Blue water Monthly sum of past 3 years of Panching. As you can see this graph shows that every month panching caused Blue water footprint almost near to 4 million.

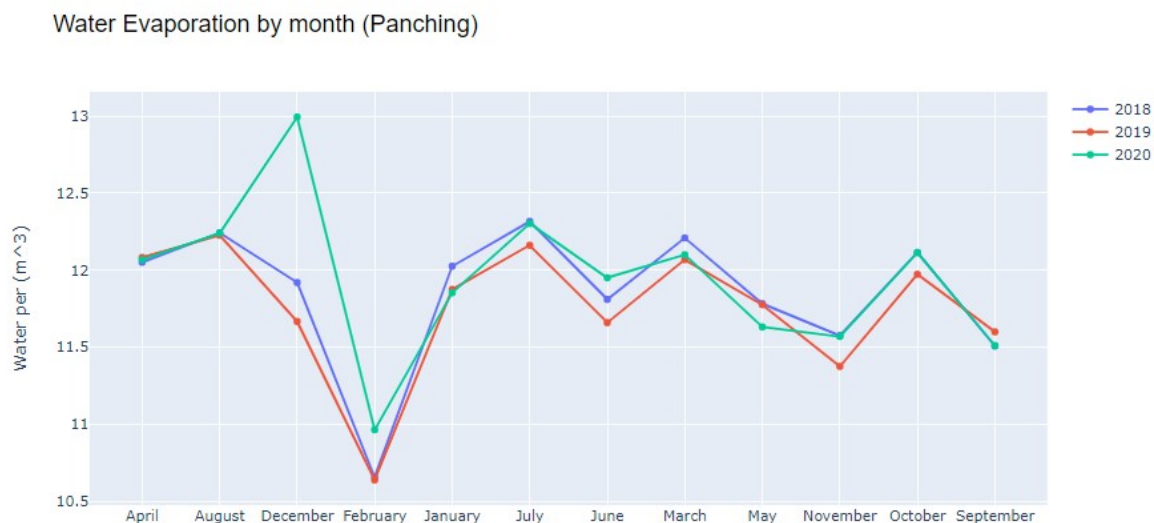
Rain Analysis (Panching):

Total Raining by month (Panching)



This is the Comparison Analysis of total rain by month . As you can see most rain occur in november and January according to Panching data

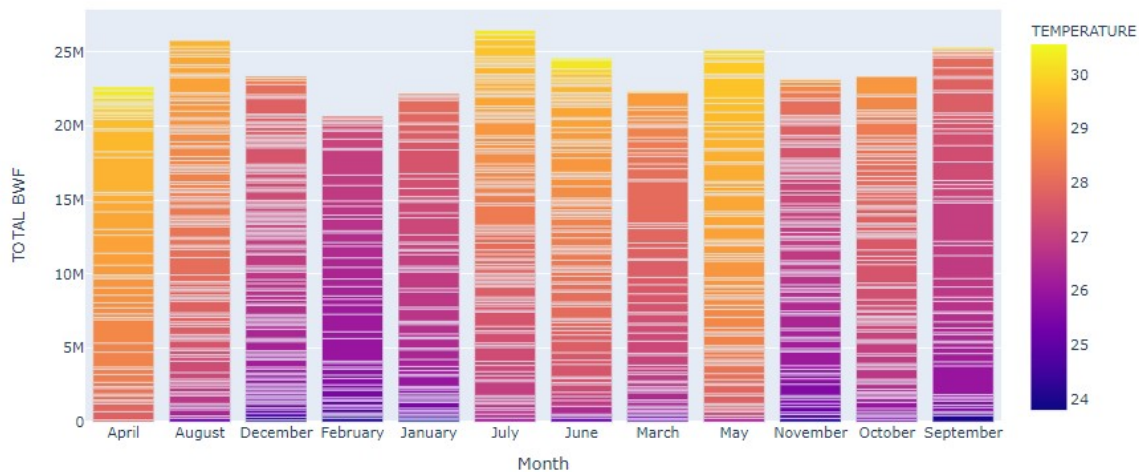
Water Evaporation Analysis (Panching):



This the Comparison Analysis of evaporation of past 3 years of Panching. This Graph Shows that More Evaporation Occured in March, July and August.

Temperature Analysis (Panching):

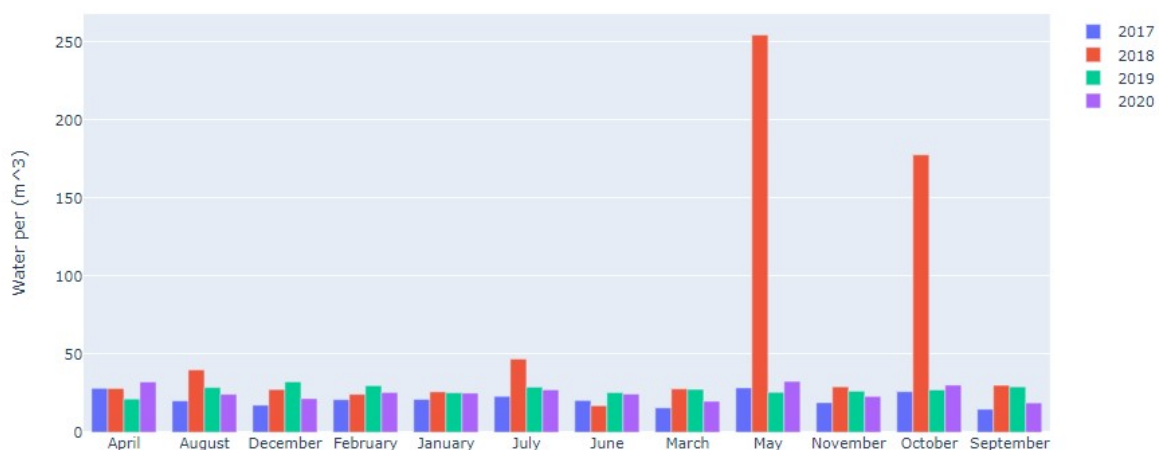
Monthly sum of Blue Water Footprint in a specific temperature (Panching)



This Graph Shows The Comparison Analysis of BLue Water Footprint Monthly sum with respect to temperature. As you can see The most blue water foot print caused in High temperature.

Semambu Data Visualization:

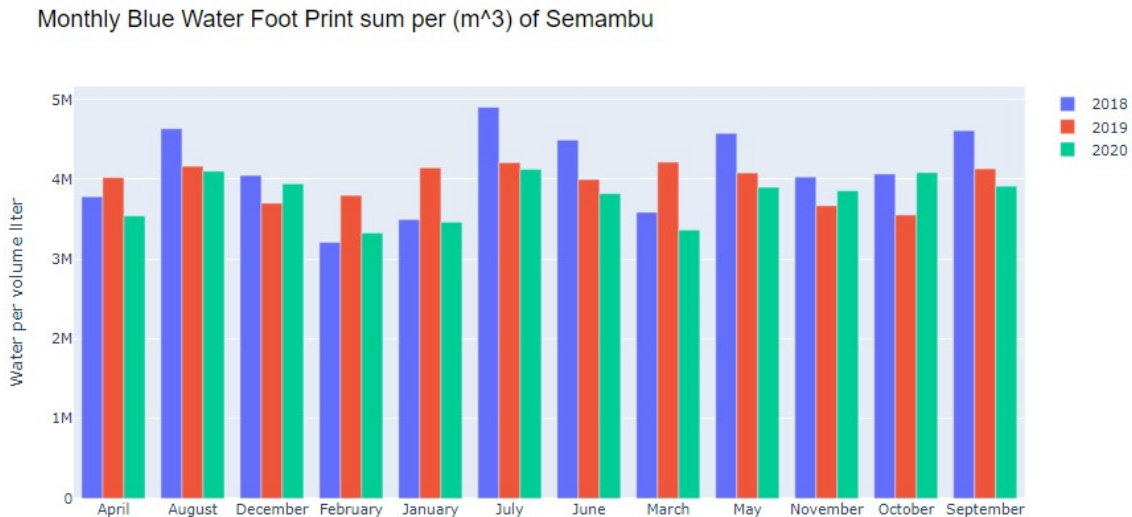
Gray Water Footprint Monthly sum per (m^3) of (Semambu)



This is the Comparison Analysis of Monthly sum of Gray water foot print of Semambu. As you see every month Semambu

causing gray water foot print less than 50 (m³) but in 2018 there was a high sum in may and october.

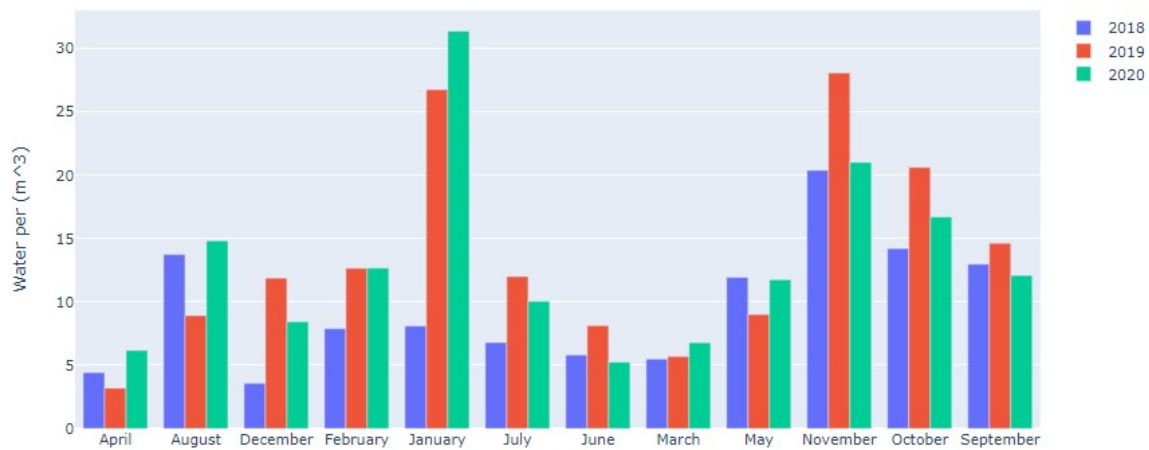
Blue Water Analysis(Semambu):



This is the Comparison Analysis of Blue water foot print Monthly sum of past 3 years Sg Lembing. As you can see In every Month Semambu producing Blue water Footprint near to 4 million(m³)

Rain Analysis (Semambu):

Total Raining by month (Semambu)



This graph shows the Comparison Analysis of Total rain of past 3 years of Semambu. As you can see The Most rain Occured in January , October and November.

Water Evaporation Analysis (Semambu):

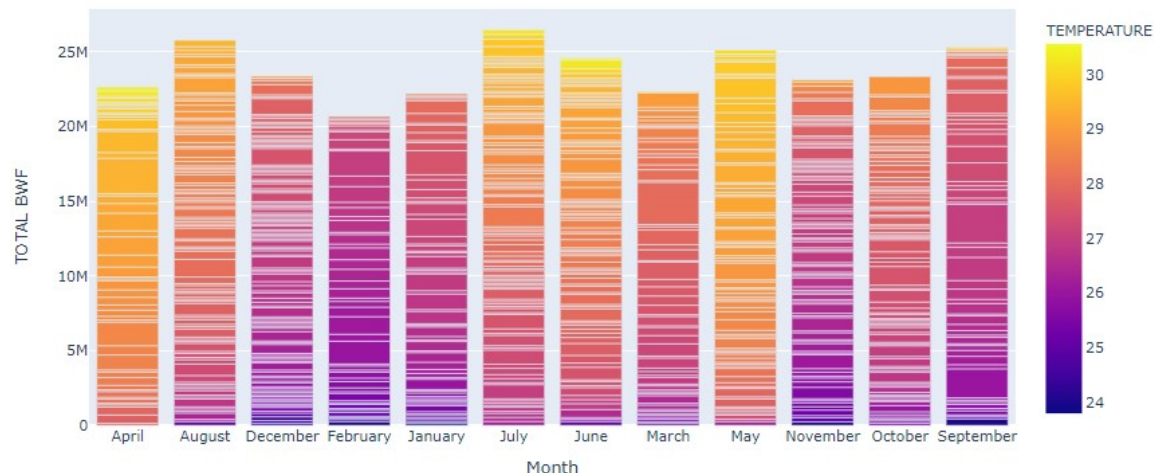
Water Evaporation by month (Semambu)



This the Comparison Analysis of evaporation of past 3 years of Semambu. This Graph Shows that More Evaporation Occurred in December and July.

Temperature Analysis (Semambu):

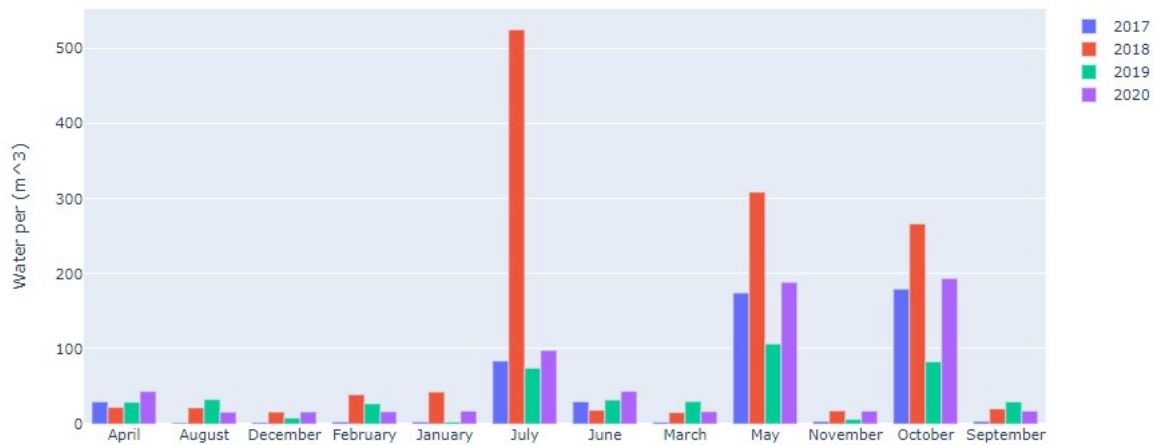
Monthly sum of BLue Water Footprint in a specific temperature (Semambu)



This Graph Shows The Comparison Analysis of BLue Water Footprint Monthly sum with respect to temperature. As you can see The most blue water foot print caused in High temperature.

Sg Lembing Data Visualization:

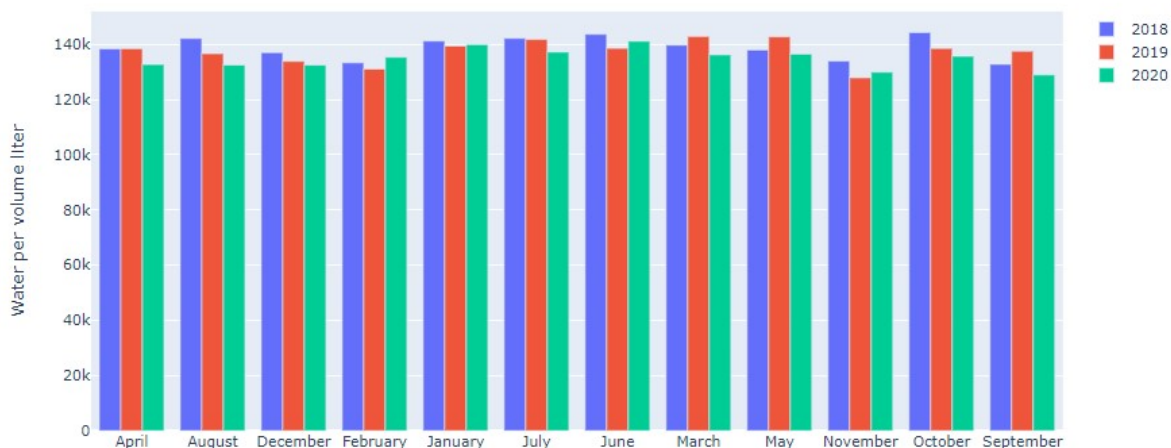
Gray Water Footprint Monthly sum per (m³) of (Sg Lembing)



This is the Comparison Analysis of Monthly sum of Gray water foot print of Sg lembing. May, July and October producing the most Gray water FootPrint

Blue Water Analysis(Sg Lembing):

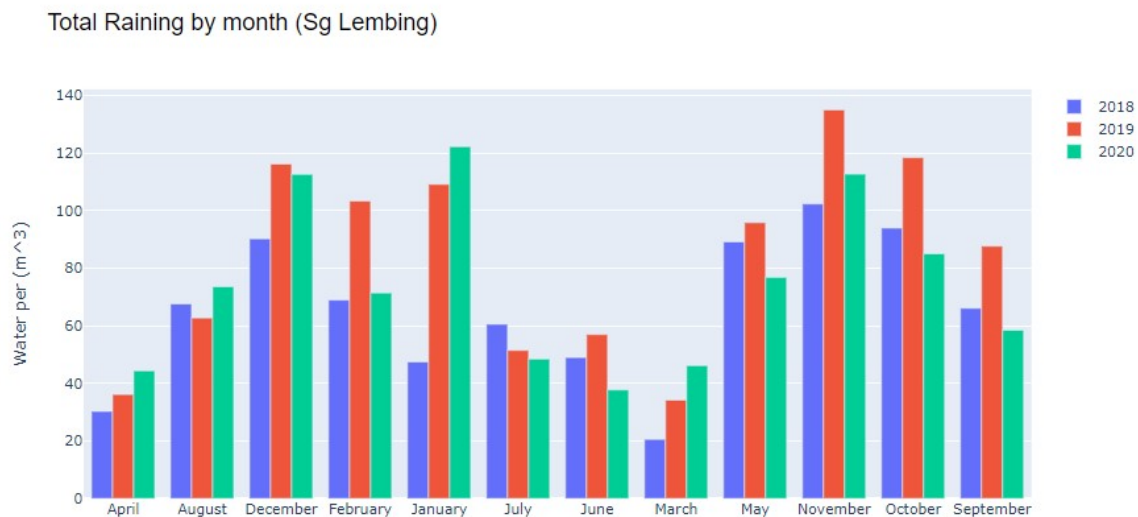
Monthly Blue Water Foot Print sum per (m³) of Sg Lembing



This is the Comparison Analysis of Blue water foot print Monthly sum of past 3 years Sg Lembing. As you can see In every Month Sg

lembing producing Blue water Footprint between 120k to 140k

Rain Analysis (Sg Lembing):



This graph shows the Comparison Analysis of Total rain of past 3 years of Sg Lembing. As you can see The Most rain Occured in September , October, November and December.

Water Evaporation Analysis (Sg Lembing):

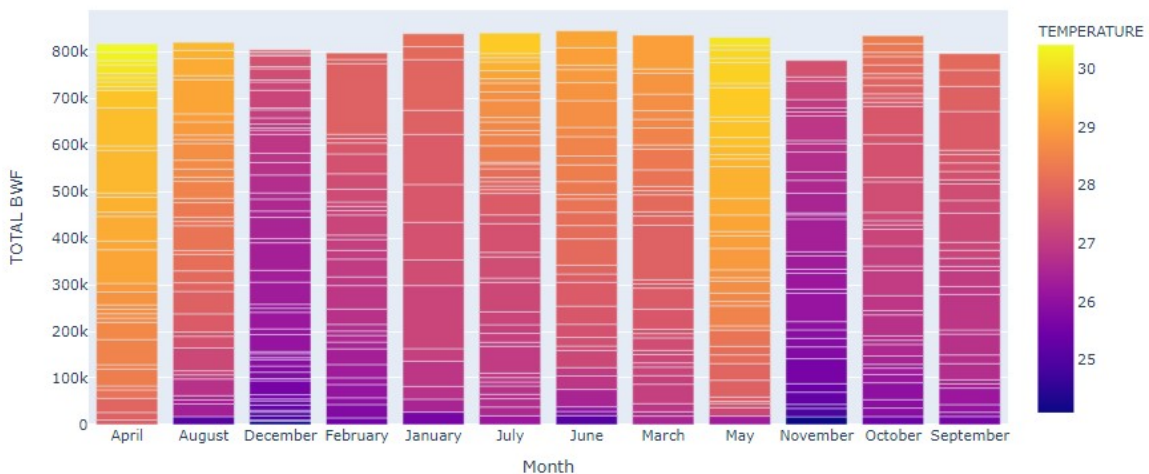
Water Evaporation by month (Sg Lembing)



This the Comparison Analysis of evaporation of past 3 years of Sg Lembing. This Graph Shows that More Evaporation Occured in March, May, July and August.

Temperature Analysis (Sg Lembing):

Monthly sum of BLue Water Footprint in a specific temperature (Sg Lembing)



This Graph Shows The Comparison Analysis of BLue Water Footprint Monthly sum with respect to temperature.As you can see The most blue water foot print caused in High temperature.

Conclusion :

Gray Water Monthly sum of Past 4 years:

- In July, May, and October Bukit Sagu produced a lot of Gray Water Footprints.The Total sum of Gray water footprint from 2015 to 2020 is [5045.512 \(m3\)](#).
- In December and May Bukit Ubi producing causing a lot of Gray water Foot prints.The Total sum of Gray water footprint from 2015 to 2020 is [2529.87\(m3\)](#).
- Panching Causing Gray water footprint every month less than 50(m3) .The Total sum of Gray water footprint from 2015 to 2020 is [2529.86\(m3\)](#).
- every month Semambu causes a gray water footprint of less than 50 (m3) but in 2018 there was a high sum in May and October.The Total sum of Gray water footprint from 2015 to 2020 is [2529.87\(m3\)](#).
- In July, May, and October Sg Lembing produced a lot of Gray Water Footprints.The Total sum of Gray water footprint from 2015 to 2020 is [4583.4 \(m3\)](#).

Blue Water Monthly sum of Past 3 years:

- Bukit Sagu producing more than 150k water footprint per m^3 every Month. The Total sum of Bluewater footprint from 2015 to 2020 is [11879190.41\(m3\)](#).
- Bukit Ubi producing Blue water footprint every month between 700k to 800k. The Total sum of Bluewater footprint from 2015 to 2020 is [52836504.88\(m3\)](#).
- Panching Causing blue water footprint near to 4 Million every month. The Total sum of Blue water footprint from 2015 to 2020 is [285044795.21\(m3\)](#).
- In every Month Semammbu producing Blue water Footprint near to 4 million(m^3). The Total sum of Blue water footprint from 2015 to 2020 is [285044795.21\(m3\)](#).
- In every Month Sg Lembing produces Bluewater Footprint between 120k to 140k. The Total sum of Bluewater footprint from 2015 to 2020 is [9840546.49\(m3\)](#).

Total Rain Analysis of past 3 years:

- According to Bukit Sagu blue water footprint dataset most rain occurs in January, November, and December. The Total sum of rain from 2015 to 2020 is [4108.82\(m3\)](#).
- According to Bukit Ubi's blue water footprint dataset most rain occurs in November, December, and January. The Total sum of rain from 2015 to 2020 is [20461.84\(m3\)](#).
- According to Punching blue water footprint dataset most rain occurs in November and January. The Total sum of rain from 2015 to 2020 is [867.70\(m3\)](#).
- According to Semambu blue water footprint dataset most rain occurs in December and July. The Total sum of rain from 2015 to 2020 is [867.70\(m3\)](#).
- According to Sg Lembing's blue water footprint dataset most rain occurs in September, October, November, and December. The Total sum of rain from 2015 to 2020 is [5372.07\(m3\)](#).

Water Evaporation Analysis of past 3 years:

- According to Bukit Sagu, Bukit Ubi, Panching , Semambu, and Sg Lembing the most evaporation occurs in March, May, July, and August.

Temperature Analysis:

- According to Bukit Sagu, Bukit Ubi, Panching, and Sg Lembing blue water footprint dataset where the temperature is High the monthly sum of blue water footprint is high.