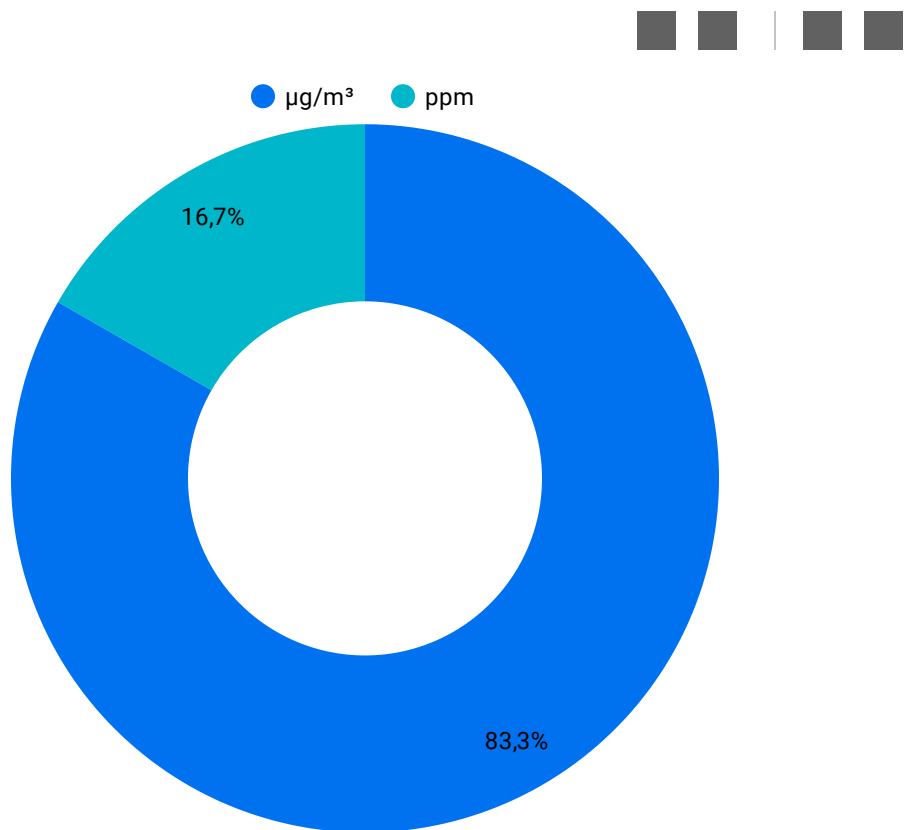


Air Quality Index(AQI)

The AQI is an index for reporting daily air quality. It tells you how clean or unhealthy your air is, and what associated health effects might be a concern

Distribution of measurement unit



```
SELECT unit,COUNT(unit) as `count`  
FROM `my-project-  
335705.openaq.1`  
GROUP BY unit
```

Majority of them uses unit = microgram per meter cube

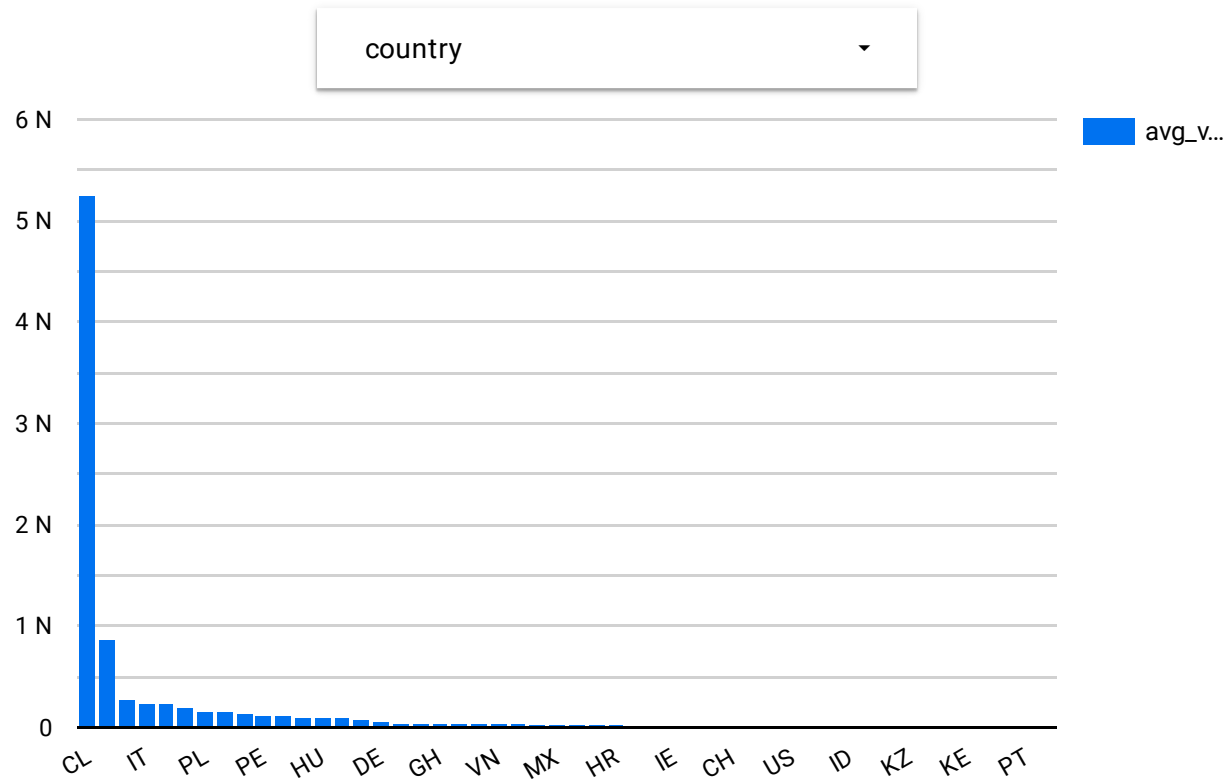
Distribution by years

```
select  
EXTRACT (year FROM timestamp) AS year,  
count(value)  
FROM  
  `my-project-335705.openaq.1`  
group by year  
ORDER BY year DESC
```

So there is an error while recording the year as 2028 isn't possible. Therefore, removing/ignoring that year would be the way to go

	year	f0_
1.	2028	2
2.	2020	16.477
3.	2019	1.004
4.	2018	1.808
5.	2017	1.286
6.	2016	616
7.	2015	30
8.	2014	4
9.	2008	10
10.	2007	12

Average pollution of air by countries in unit $\mu\text{g}/\text{m}^3$



*It seems like Chile (CL) is definitely an outlier and have to look closer to it's values.
Rest India(IN), Singapore(SG), Italy (IT), Spain (ES) are in top 5 with worst
average AQI.*

```
select country, round(avg(value)) as avg_value
  from `my-project-335705.openaq.1`
 where unit = ' $\mu\text{g}/\text{m}^3$ ' and extract(year from timestamp) < 2020
 group by country
 having avg_value > 0
 order by avg_value desc
```

Pollutant distribution in CL by cities

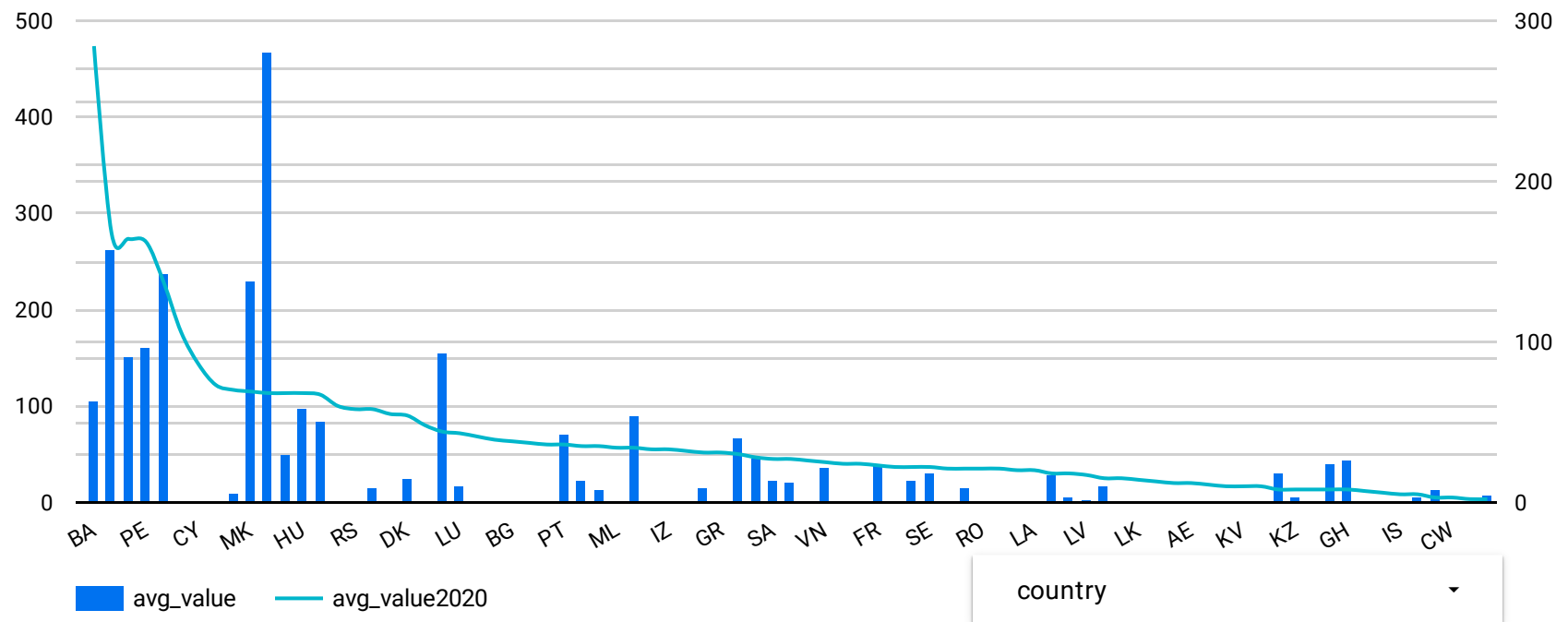
	city	month	year	value
1.	Huasco	tháng 1	2019	2,58
2.	Chiu Chiu	tháng 4	2019	0
3.	Talagante	tháng 8	2019	0
4.	El Sauce	tháng 8	2019	18,3
5.	Talagante	tháng 12	2019	134,8
6.	QUILICURA	tháng 8	2019	191
7.	Escuela E-10	tháng 7	2019	825.838,68

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```
select city, value,extract( year from timestamp)
as year, extract(month from timestamp) as
month
from `my-project-335705.openaq.1`
where country = 'CL'and extract( year from
timestamp) = 2019
```

Clearly we see that there is an error in getting the value on month 7 i.e july of 2019. Removing that value will help us to understand the overall situation of CL properly.

Air Quality of different Countries(till_2019: Bar, 2020: Line)

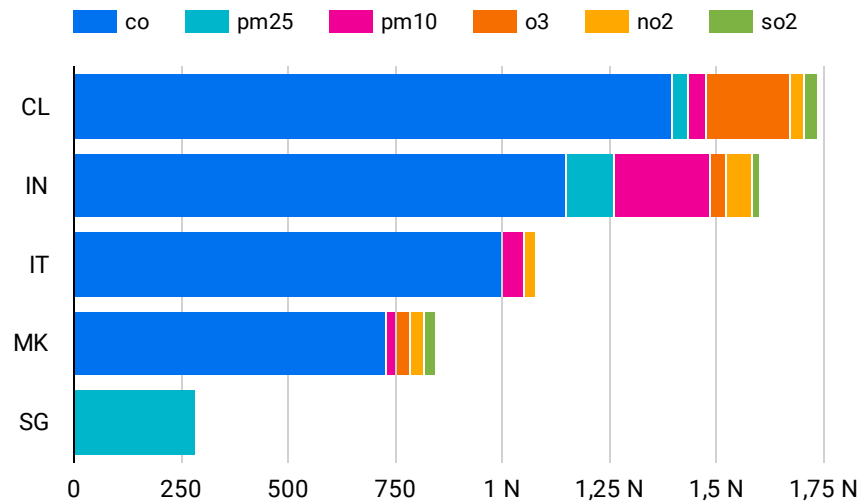


*We observe that the max avg_value has dropped down from 467 to 284 approx 50% reduction
Though India remains in 3rd position the avg AQI has seen a drop from 263 to 168 approx 36% reduction.
Major change we can see in the countries like BA, IT, PE which has a tremendous affect in 2020.*

```
select country, round(avg(value)) as avg_value
from `my-project-335705.openaq.1`
where unit = 'µg/m³' and extract(year from
timestamp) < 2020
and value > 0 AND value < 10000
-- value > 100000 to be considered as outliers
group by country
order by avg_value DESC
```

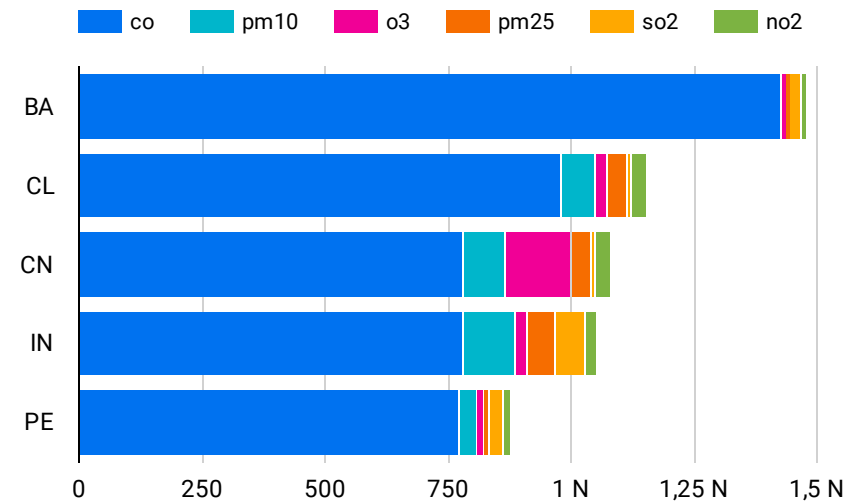
```
select distinct country, extract(year from
timestamp) as year, round(avg(value)) as
avg_value
from `my-project-335705.openaq.1`
group by country, year
having year = 2020 and avg_value > 0
order by avg_value desc
```

Distirbution of Pollutants in Top 5 Countries till 2019



```
select country, pollutant, round(avg(value)) as
avg_value
from `my-project-335705.openaq.1`
where country in (select country from `my-project-
335705.openaq.1`
                    where value > 0 and value < 10000 and
unit = 'µg/m³' and extract(year from timestamp) < 2020
                    group by country
                    order by avg(value) desc
                    limit 5) and value > 0 and value < 10000
and unit = 'µg/m³'
and extract(year from timestamp) < 2020
group by country, pollutant
```

Distirbution of Pollutants in Top 5 Countries in 2020



```
select country, pollutant, round(avg(value)) as
avg_value
from `my-project-335705.openaq.1`
where country in (select country from `bmy-project-
335705.openaq.1`
                    where value > 0 and value < 10000 and
unit = 'µg/m³' and extract(year from timestamp) =
2020
                    group by country
                    order by avg(value) desc
                    limit 5) and value > 0 and value < 10000
and unit = 'µg/m³'
and extract(year from timestamp) = 2020
group by country, pollutant
```