# BRAZIL IN NUMBERS

- **5th** largest country in the world (area of 8,514,876 km² - 3,287,594 sq mi)
- **213** million inhabitants (IBGE, 2021)
- **5,570** cities located in **26** States and **1** Federal District
- **12th** largest economy in the World and **1st** in South America (GDP US$ 1.42 trillion, 2020)
- **≈12%** of the Planet’s fresh water is in Brazil
- **83** boundary and transboundary rivers
Brazilian Agriculture

- Harvested area: 83.4 million ha (2020)
- 9 crops > 1 million ha:
  - Soy: 45%  |  Corn: 22%  |  Sugarcane: 12%
  - 2-3% each: Beans, Wheat, Coffee, Rice, Cotton, Manioc
- Second crop is usual: as Corn (14.5 million ha)
Context

Water uses increases
ANA monitors water use in Brazil

TOTAL WATER WITHDRAWN IN BRAZIL (ANNUAL MEAN)

- Livestock: 7.9%
- Irrigation: 46.2%
- Mining: 1.6%
- Industry: 9.2%
- Thermoelectric powerplants: 10.3%
- Rural Supply: 1.6%
- Urban Supply: 23.3%

TOTAL WITHDRAWALS: 2,098 m³/s

BRAZIL'S ELECTRICITY MATRIX

- Hydro: 64.5%
- Nuclear: 1.3%
- Thermo: 27.4%
- Solar & wind: 6.8%

WATER WITHDRAWAL EVOLUTION IN BRAZIL (PER USER SECTOR) – 1931/2030

YEAR OF 2030
Irrigated Agriculture

- Growing at 200,000 hectares/year (+ 2 trillion liters of water consumption/year)
- Actual areas: 5.3 million ha (irrigated) + 2.9 million ha (sugarcane fertigation = reuse from industrial processes)
- Potential of 55 Mha (total) or 13 Mha (effective)

http://atlasirrigacao.ana.gov.br
Figure 32 - Flow chart for the Estimate of Flows Demanded by Irrigation.

Results

Rainfed Agriculture

- Analysis and disaggregation of IBGE agricultural research microdata
- The Systematic Survey of Agricultural Production (LSPA) is an IBGE survey that monitors crops from the intention phase to harvest, since the 1970s
- As a result, we obtained the harvested areas from rainfed agriculture (by month, crop, and municipality - 2013-2017)

![Harvested area by crop - Brazil](chart.png)
Results

Challenging Years for Rainfed Agriculture

Precipitation Anomaly based on historical records
- Extremely dry
- Very dry
- Normal
- Very rainy
- Extremely rainy
Results

Rainfed Agriculture Consumption flow per hectare and municipality

Rainfed Agriculture Consumption Deficit per hectare and municipality

Liter per second per hectare
Avg 2013-2017

Avg 2013-2017
Results

WATER USE & DEFICIT/SHORTAGE
(annual avg 2013-2017)

- **Consumption**
- **Deficit – Effect**
- **Deficit – Close to harvest**

Water use statistics are very different from other agricultural indicators due to the length of cycles for each crop, the usual planting period, the regions where they occur and climate variability.

Ex.: Sugarcane: 12% in area and 26% in consumption | Corn: 23% vs. 11%
Results

Summary of water consumption by rainfed and irrigated agriculture in Brazil (m³/s) - 2013-2017

GREEN WATER
- Rainfed – Harvested areas
- Rainfed – Not harvested
- Irrigated (green consumption)

BLUE WATER
- Irrigated (blue consumption)
Water Crisis due to many aspects and reasons, including climate events

<table>
<thead>
<tr>
<th>Year</th>
<th>Basins/Areas Under Water Crisis (National Scale)</th>
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<tbody>
<tr>
<td>2012</td>
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<tr>
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<tr>
<td>2014</td>
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Other documents available in English:

http://ana.gov.br
Thanks!

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