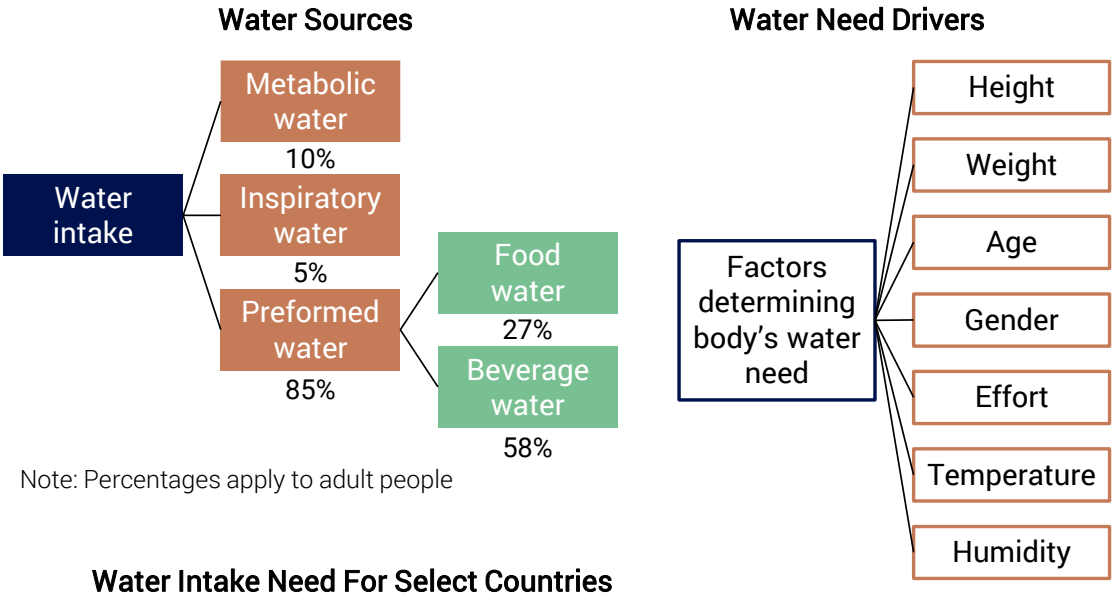
TELLUSANT QUICK READS

TELLUSANT'S WATER INTAKE CALCULATOR

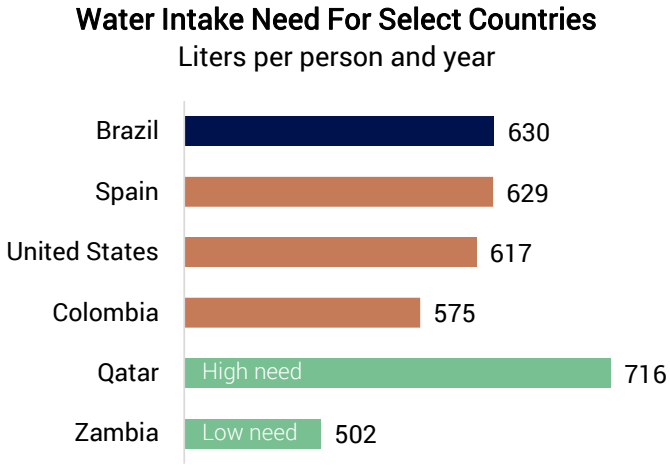
We often work with beverages companies, covering categories from bottled water to wine. A fundamental metric to understand when analyzing market growth is how much water the human body needs.

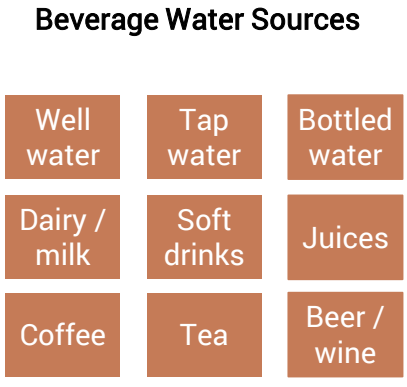
We therefore developed the Water Intake Calculator. It is based on a a few academic papers and a significant data collection effort.

OVERVIEW OF TELLUSANT WATER INTAKE CALCULATOR



Note: Percentages apply to adult people





Source: Adolph & Dill (1934) Raman et al. (2004); National Academy of Sciences (2000); Montain et al. [US Army] (2001); TelluBase; Tellusant analysis

The first graph shows how much beverage water the human body needs in a few select countries and a globally high (Qatar) and low (Zambia) country. The calculator covers all 218 countries in the world and a bit more. It is based on a 905 city-by-city data set aggregated to the country level (since large countries cover several climate zones).

The bottom left graph shows how the body ingests water:

- Metabolic water is water produced by the body's chemical processes when it creates energy.
- Inspiratory water is the opposite of perspiration (sweat). We absorb water through the air that we breath and through the skin.
- Preformed water comes either from food we eat or beverages we drink. Almost 60% of water needs come from beverages.

The lower middle graph shows what drives water needs. Each of these factors differ by country and by city. For example, if a country has a young population with many children the water need is lower. If humidity is high, more water is inspired and less needs to be drunk. These factors are considered in our calculator.

The water needed is compared to the water consumed. Consumption can be higher than 100% of needs. But if it is much higher we get sick or even die. The the source paper from the US Army discusses over-consumption's debilitating consequences.

The lower right graph shows the beverage categories. All except well and tap water are formal. If they add up to the water needed, then future market growth is limited.

Thus, the water intake calculator helps determine if a country's formal beverage market is close to or even above the water needed by the body. For high consumption formal beverage countries this puts a limit to future growth, something not always understood by beverages companies.

Adolph, E.F. and D.B. Dill (1938): Observations on Water Metabolism in the Desert. American Journal of Physiology. Vol. 123: pp. 369-378

Rahman et al. (2004): Water Turnover in 458 American Adults 40–79 Year of Age. Am J Physiol Renal Physiol. Vol. 286: pp. F394–F401

Montain, S. et al. [U.S. Army] (2001): Sustaining Hydration in Hot Weather. Paper presented at the RTO HFM Symposium on “Blowing Hot and Cold: Protecting Against Climatic Extremes”,

American Academy of Sciences (2001): Dietary Reference Intakes.