



INTERNATIONAL
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World Quality Forum of the International Academy for Quality

IAQ QUALITY FORUM

PANEL ON SUSTAINABILITY AND QUALITY

JOINING EFFORTS TO SAVE THE PLANET WATER

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THE WATER CRISES

In order to conquer the real SUSTAINABILITY, our PLANET EARTH has macro scenarios where QUALITY means combined actions from PRIVATE and PUBLIC SECTORS.

One of these scenarios is strongly related to the WATER PROBLEM.

At a very inspired momentum, AIQ and ASQ decided, in Dallas, May 2014, to structure a Task Force* to join efforts in global actions in benefit of the welfare of the Planet. The 1st challenge is focused on the WATER CRISES.

* Members: Stephen Hacker and Geoff Vining - ASQ and Joal Teitelbaum and Lars Sorqvist – IAQ



THE WATER ON, IN AND ABOVE OUR PLANET

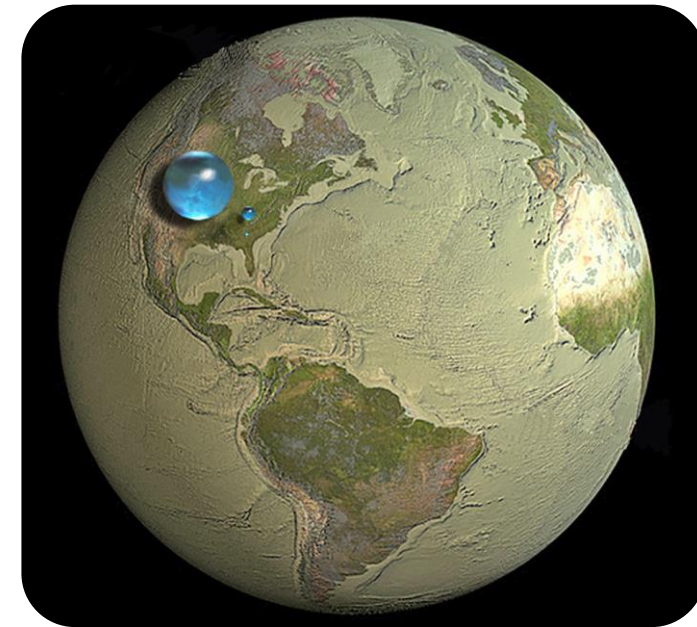
The Earth is a watery place. About 71 percent of the Earth's surface is water-covered, and the oceans hold about 96.5 percent of all Earth's water. Water also exists in the air as water vapor, in rivers and lakes, in icecaps and glaciers, in the ground as soil moisture and in aquifers, and even in you and your pet.

Water is never sitting still. Thanks to the water cycle, our planet's water supply is constantly moving from one place to another and from one form to another.

SPHERES REPRESENTING ALL OF EARTH'S WATER

The largest sphere represents all of Earth's water. Its diameter is about 860 miles and has a volume of about **1.386.000.000 km³**. This sphere includes all of the water in the oceans, ice caps, lakes, rivers, groundwater, atmospheric water, and even the water in you.

The smaller sphere over Kentucky represents Earth's liquid fresh water in groundwater, swamp water, rivers, and lakes. The volume of this sphere would be about **10.633.450 km³**. All of this water is fresh water, but much of it is deep in the ground, unavailable to humans.



Credit: [Howard Perlman](#), USGS; globe illustration by [Jack Cook](#), Woods Hole Oceanographic Institution



HOW ON EARTH ARE TWO OF THE MOST WATER-RICH NATIONS HAVING H₂O CRISES?

Brazil has been called the “Saudi Arabia of water.” The U.S. is home to the largest freshwater lake in the world. Both are having H₂O crises. What gives?

After two years of dry rainy seasons, the 20 million residents of greater Sao Paulo, the largest city in the Americas, are facing intermittent disruptions in water supply and could see strict rations during the coming years. In the USA, at the State of California, Government Jerry Brown ordered consumption cuts past April 2015 that could affect all 39 million residents of the state.

Sao Paulo (and California) were impacted by a sudden change in weather patterns that may last for a long time. Now, Brazil and California may adopt some of the fixes that Australia and Spain pursued. And Brazil may go even further, accelerating efforts to tap the waters of the Amazon regions on its western frontier for the benefit of the densely populated southeast part of the country. However, Sao Paulo’s drought could even benefit Brazil, because it may very well provide “the necessary momentum” to implement plans of infrastructure repair, costly projects that politicians had little incentive to demand during times of plenty.



HOW ON EARTH ARE TWO OF THE MOST WATER-RICH NATIONS HAVING H₂O CRISES?

For decades, São Paulo received supply from reservoirs with about 10 million people receiving water from the Cantareira system to the north. It is comprised of five reservoirs, each tipping into the other like a series of overflow ponds on a tiered water garden. Water is then pumped up a mountain into a sixth reservoir, which in turn feeds into the city's main water treatment plant.

The drought began during the 2013-2014 rainy season and lasted through late February, the worst dry spell in 80 years. After two years of rain failure, Sao Paulo may have to consider whether things will ever return to “normal.”

In the short term, Sao Paulo could well enforce rationing as California has done. If the rains fail again next year, Brazil may need to resort to more extreme measures.

WATER LOSS DURING DISTRIBUTION IN BRAZIL

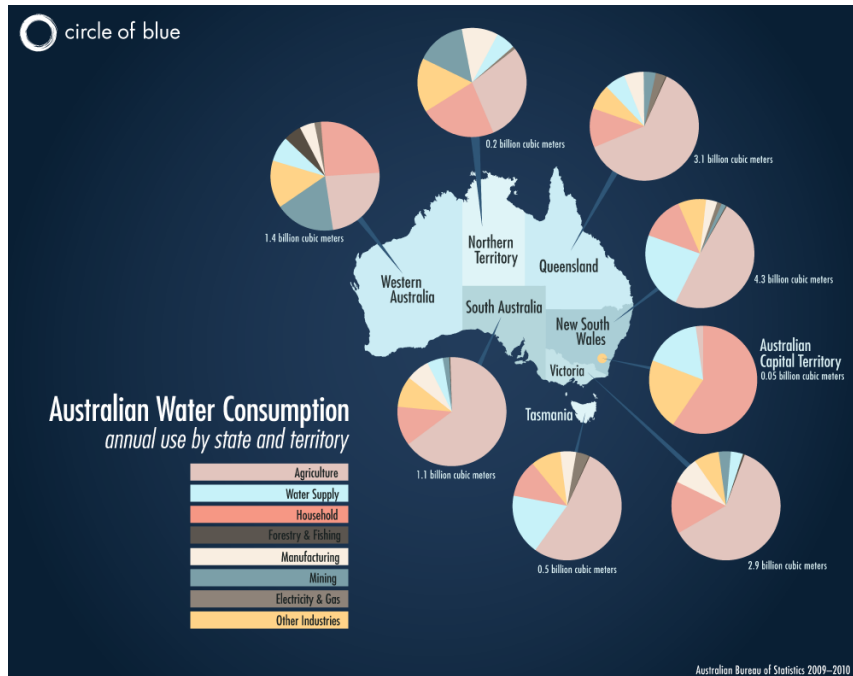
REGION	IN ₀₄₉ (%)
NORTH	49.3
NORTHWEST	44.6
MID-WEST	32.4
SOUTHEAST	33.5
SOUTH	36.4
BRAZIL	36.9

The indicators of physical water loss in the public water distribution networks are high when compared to developed countries. In the SNIS 2014 diagnosis, the considered water loss indicator made the comparison between the volume of water made available for distribution by the utility company and the volume consumed. According to SNIS, the water loss rate for the distribution was 36.9%. This Table shows the loss rate (SNIS 2014 – IN049) by geographic region. *

* *Professor Orestes Marracini Goncalves, Urban Water Demand and the Programs for Efficient Water Use*



GIVING WATER A RETHINK



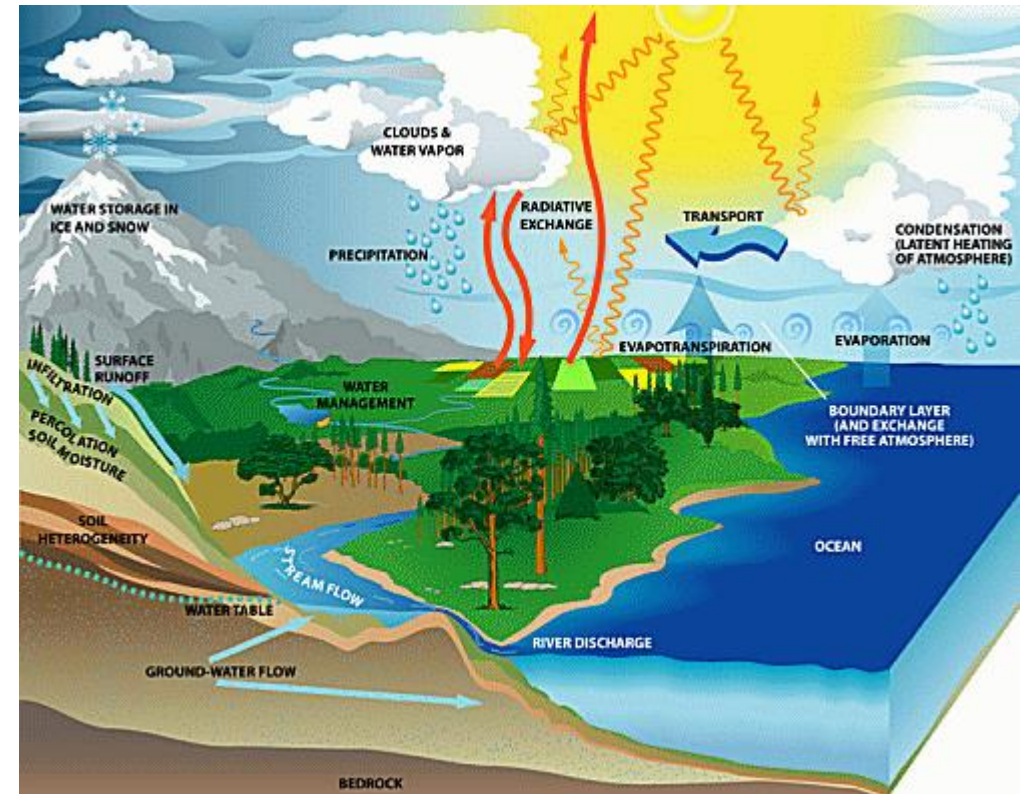
In the medium term, two of the wettest nations in the world could follow the example of the driest nation in the world, which made water security a top national priority after the “millennium drought” of 2001 to 2009. Australia invested heavily in water infrastructure, like desalination plants, and established a national market for water, where investors and users can now buy and sell futures of H₂O as they would of oil or other scarce commodities.



GIVING WATER A RETHINK

This situation in Brazil is indicative of a more widespread problem – our failure to assign an economic value to water which reflects its vital nature and scarcity.

The “commodification” of water beyond Australia, if it happens, could take decades and will involve bitter debate over public and private use. But Brazil and other “water surplus” nations are already trying to obtain economic benefits from their supplies.





GIVING WATER A RETHINK

All these matters passes through bitter and long term actions:

- Water waste reduction
- Separation rainwater runoff from the sewage system
- Remediation and recovery of water courses
- Waste treatment for contaminated water courses and sewage effluents
- Training and qualification of environmental education agents
- Invest in training and continuous education of the population
- Additional rules and regulations on water resources legislation for people and industries

FINAL MESSAGE

We continue very optimistic with the reaction we have already saw and this Presentation is our most recent contribution to the Project whose, under our point of view, is to be delivered in the next two years to the UN General Secretariat in New York City.

The concept is to collect technical elements around the Continents and prospect actions to be presented as a concrete contribution from ASQ and IAQ.

This Presentation follows two recent papers made by some brazilian colleagues.

The first paper sent to the Task Force and to the participants at the Meeting in Dallas was written by José Roberto Bernasconi and André Luiz de Medeiros de Barros. The second paper, whose author is Orestes Marracini Gonçalves, had the same address.

I considerer that those two works could serve as benchmarking to encourage professionals from other continents in order to bring their contribution to this challenge in helping “to save the Planet Water”.

Also I understand that with the effort and engagement of our Task Force Members and from those that were present in Dallas, 2014, we will get the participation of articles from all Continents.

Be free to send suggestions about how to build the bridges to conquer the aim “UN -2016 ASQ and IAQ Joining Efforts To Save The Planet Water”.