

## **Annexe 2 : Filtration and desalination plants will be flooded .**

### **Case Study : Shanghai . water distribution**

Overview - Explications - Solution .

*Singapore, Singapore - July 8, 2018* - At Singapore Water Week Summit 2018 , French serial inventor Pierre Marconi demonstrated how innovation and technology can be entwined for sustainable Water Management. Countries across the world are facing a water scarcity crisis with the situation more acute in some countries than others. Cape Town in South Africa is probably the first serious victim of the water crisis currently. Beijing, Sao Paulo, Bangalore, Mexico city, Istanbul, Cairo, Jakarta, Moscow are other names in the list of cities next to run out of water. Climate Change, Global warming, environmental pollution are the prime reasons for the water scarcity woes and as per a United Nations report, more than 5 billion people could suffer water shortage by 2050. Of this looming water crisis, access to clean and safe drinking .

**From one part :** I went to Water Week Singapore and Water Leader Summit from July 8th to July 12th to attend lectures held by the world's leading water filtration specialists.

Numerous discussion panels and conferences held by leaders of water treatment companies, researchers and academics, as well as politicians.

July 8 2018, 4.15 pm :

Panel discussion of new disruptive technologies of water filtration with imminent and international specialists from all continents: Europe, US, Asia:

- Mr Dauthuille, Director Suez France
- Ms Ester Rus, Senior Research Engineer, Thames Water, Uk.
- Dr. Sudhir Murthy, CEO, NEWhub, USA
- Dr. Winson Lay, General Manager, PUB Singapore
- Ms An Lin, Senior Engineer, Beijing Drainage Group, China

Concluding remark are made by Mr Dauthuille.

The objectives of the companies are the same: to ensure a better quality of filtration by using technologies more and more perfected and less of possible energy resources.

- Pub Singapore is the national water agency. its expertise is recognized globally for innovation, particularly in filtration quality and safety, in the desalination and reuse of water and intelligent control of the network. More than 613 projects in 27 countries are engaged.

In appendix: a layout drawing of a filtration and desalination plant . Desalination plant is at sea level.<sup>1</sup>



## On the other hand:

July 10 2018, 9.00 Am . Keynote by His Excellency Ban Ki - moon, 8th Secretary - General United Nations.

Mr Ban Ki-moon opened the conference with a particularly clear address and I had the pleasure of asking a question. BKM warned humanity about the risks of global warming and the need for humanity to remain in solidarity in a difficult time. He also affirm his confidence in the strength of human innovation and new technologies.

This speech is clairvoyant but remains unique. I had the opportunity to ask a question that seems to me very important: « in case of flood or major climate disasters is a large filtration facility would not be more fragile than many small decentralized filtration stations? » .

Indeed, when we talk about global warming (or climate change), this notion remains very vague and its enormous impact in all areas. In addition, a strong anxiety effect blocks our thinking.

Concerning the area which concerns us more particularly the treatment of the water and the access to a healthy water of the very important news are awaited.

October 2018 .The new IPCC report will announce that the target temperature increase of 1°5 degrees will most likely be exceeded. Effects will be very bad for the general balance of the planet.

The carbon emission reductions decided at COP 21 in Paris will not be achieved. Worse, there are no reductions but emission increases.

**The result is exactly the opposite of what we expect. An increase and not a réduction.**

At present, the effects of global warming for access to water in **very near future** are already well documented<sup>2</sup>.

In summary:

- The temperature will accelerate ice melting. the level of seawater will rise and mix with fresh water. .Unlike sea-level rise and extreme weather events, changes in average weather will affect inland areas the most.
- More than 800 million people—almost half of South Asia’s population—currently live in areas that are projected to become moderate to severe hotspots by 2050 under the carbon-intensive scenario.
- A number of studies have looked at the consequences of extreme évents ;droughts, floods, heat waves, and storm surgés,as well as those of sea-level rise in general, and have found such events to damage the health and well-being of the population
- The onset of monsoon rains quickly reduces temperatures to more comfortable levels and brings much of the year’s water, which facilitates agriculture. These water resources are close to fully used in many parts of South Asia, resulting in strong agricultural productivity (though not at its full potential), but with high vulnerability to changes in water supply or demand.
- Too much water delivered too suddenly can cause significant damage.

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### Case Study : Shanghai water distribution.

- Antarctica is melting at an accelerated pace and reinforcing the rising sea level. Covered more than 98% by permanent ice - the ice sheet - the continent island surrounded by the Southern Ocean alone accounts for 90% of the land ice and contains the largest reserve of fresh water on the planet. If this whole mass of ice melted, it would raise the ocean level by almost 60 meters.



Shanghai – Pudong filtration station is 50 % owned by French leader Veolia. Several million people are served by this station.

More than 380 million m<sup>3</sup> water are distributed per year , with 2380 km network.

***Station is at an altitude of 4 meters above sea level .***

### Conclusion :

**With sea water 5 meter level élévation :**

**Filtration stations will be flooded . can not filter the water with salt and desalination stations at the seaside will be flooded ☹**

**Solution is innovation - use Quantum Technology - with new filtration materials.**

I explained that as in the past, the centralized computers left room for the PC, in the phone the phone has wires to give way to the smartphone.

**In addition** to large centralized filtration station ( or desalination plant) :

- high-tech, difficult maintenance , easily flooded , very difficult to repair

Thousands of small desalination, filtration and bottling facilities at home, easy maintenance and tested technology is the most economical, safe, resilient solution everywhere in the world .

- In 2012, in Strasbourg, France, researchers are starting to work on a new quantum water filtration technology.
- Quantum technology means no lost water, no lost plastic, no added chemical, does retain mineral salts. Only the atoms and ions (the smallest parts) of pollutants are modified. A constant stream of water under pressure passes through particular nanoscale components.
- In 2018, this quantum technology is ready to be manufactured and can be adapted to different portable devices, for the home, the office or the campaign. More than 8 different size and models can be made in very short time .

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See all information in « Information memo QTI »

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<sup>1</sup> Book: Innovation in water Singapore .Volume 10 July 2018.

<sup>2</sup> The World Bank's regional flagship, *South Asia's Hotspots: The Impact of Temperature and Precipitation Changes on Living Standards*