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Lakes Based Seawater Vapour System - A permanent solution to fix Australian drought and wildfires

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Abstract

A system for pumping seawater from the ocean into a number of selected locations in Australia to form a network of inter-supportive shallow saltwater lakes, to provide a base for continuous water evaporation. This evaporation will increase the chance of condensation, and thereby convert seawater to rain. A number of natural basins will be filled with water pumped from the ocean, which is ducted from the pump facilities via pipelines. The selection of locations for lakes is based on considerations including size, depth, temperature, and geophysical structure of the basins.

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Lakes Based Seawater Vapour System

A permanent solution to fix Australian drought and wildfires

The Big Background

Prolonged drought and drought induced wildfires have been characteristic of Australia. Historically it is because of the country's geographic location. Up until later 20th Century such drought situation was not too much different than the majority parts of the world, i.e. the rate of evaporation generally equates the rate of condensation. Such balance took its turn since late 1960s when IT assisted industrial capacity exploded with exponential growth of productivity year-to-year into today. It is not a deep knowledge that man-made climate warming factors accelerated in the past decades are aggravating the frequency, severity and extreme of drought to date

While super-mass productivity and superfluous consumption is damaging the climate, we do have the ability to improve the climate. It is not God's will to destroy us by drought, wildfire, extreme climate and polluted environment. We never know we can unless we take action.

What are we doing or likely to do to fight drought?

Method One: Desalination Plant – *in production*
These plants supply a small portion of drinking water to major cities. Sydney's plant will only satisfy 15% of drinking water for its metro population when it is at full operation capacity. Factory type of desalination methods have been laboriously tested in searching for a useful outcome. But none of which will actually work due to the limit of capacity and cost. After all, we need rain, not just drinking water. No business will operate here and people will leave if our water is just enough for drinking. At the end we will not even have enough money to operate those plants.

Method Two: More reservoirs or artificial lakes – *in test*
Conventional methods of using reservoirs or artificial lakes to catch rain or storm waters have not been functioning and will not function to the minimum. In very simple words it is that evaporation is faster than condensation or rain fall on this land. No water in the ground means no rain from the sky.

Method Three: Harvesting underground water such as the Great Artesian Basin – *in study*
This maybe the best option so far by theory especially when we think there is enough water to feed us for 10000 years. That makes sense if the purpose is just for supply of drinking water. However use it as source for irrigation will have limited effect on huge cost. The vast areas of non-agriculture land will not get the water anyway. Also the impact to land due to large scale extraction of ground water remains at guess-work level and unpredictable. After all it will not solve the drought problem, and will not effectively reduce wildfires.

Other Methods:

a. Diverting coastal rivers inland – in test;
b. Pipelining water from reservoir or places like Snowy Mountains to drought areas – a public view.

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Both ideas are similar in a way as "borrowing lid from another teapot to cover this teapot". Both methods lack the means to monitor the climate. Also the combined water volume from those sources will be far from enough to feed a dry land which is 100 times bigger. Such methods will also not be able to sustain a diversified economy. Fix drought in area A shouldn't be at the cost of sacrificing water and eco system and industries in area B. That is the fundamental rule.

About Lakes Based Seawater Vapour System (LbSVS)

Pumping seawater into selected locations to form a network of inter-supportive shallow salt lakes will provide bases for continuous evaporation for a vaster region. Australia has never been lack of heat that makes evaporation naturally easy. Generally such continuous evaporation will increase the chance of condensation. This is a natural way of converting seawater to rain for the entire region/land.

How?

Refer to Lakes Based Seawater Vapor System illustration below. A number of natural basins to be filled with water pumped from ocean, the water is ducted from the pump facilities via pipelines similar to those transporting oil and gas intercontinental. Choosing a location for a lake need to have the following considerations:

a. It is overall a shallow basin, in average one meter in depth will be sufficient as our purpose is evaporation such that water coverage area matters;
b. It needs to be a very large area for a single lake at about 300 KM^2, such dimension is important for forming a relatively stable moisture layer above a vaster region;
c. It is in a hot half desert area (there are plenty) for fast evaporation;
d. The geo structure of the basin, i.e. formation of earth and rocks, to be harder the better so that water reservation to vapour ratio can be at optimum
e. It must not be an existing dried natural lake as these lakes will return to life once there are rain
f. Lakes must form an area layout, as vs a linear layout, so that vapours can have the best chance to intervene and stabilise over the regions, resisting random currents, and affecting local climate.

What is expected?

Overall the rainfall across the deployment regions will increase and in some areas will be abundant permanently. Fresh water reservoirs can thus be built in those abundant areas. It will also top up existing natural fresh water system, regenerate local flora and fauna, restoring and improving local eco system, resurrect agriculture and farming industry which is vital to our economy. The change will bring perpetual end to drought, and take full control of wildfires. With 3 pump facilities from various ocean inlets transporting seawater non-stop we could fill 6 vapour lakes in one year.

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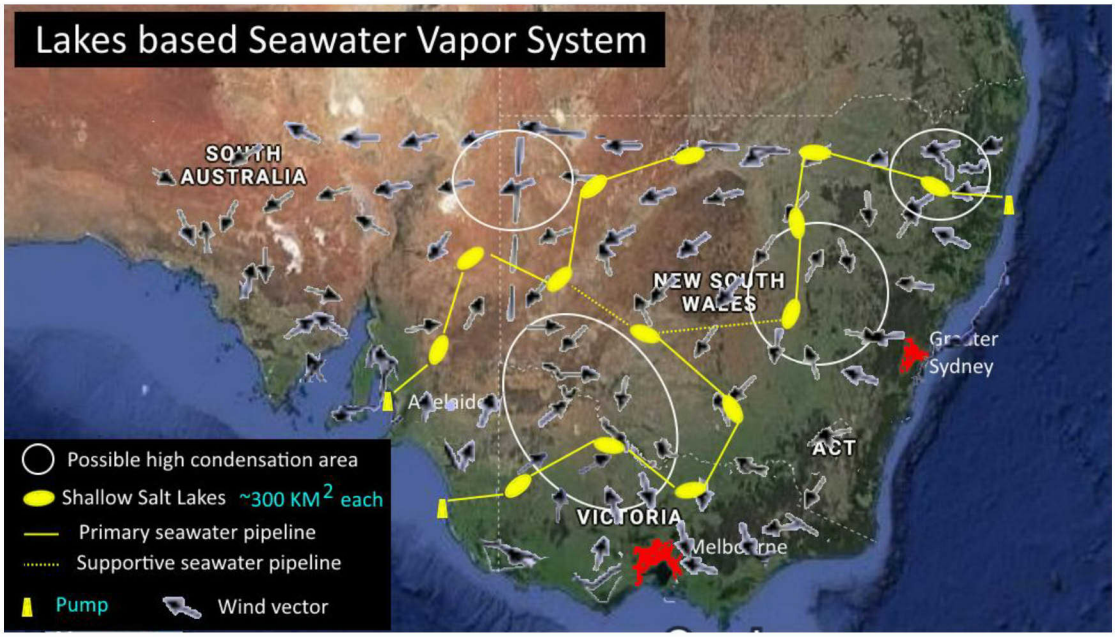
Is it just a theory?

While an LbSVS has never been built in the world the working principle is familiar with us in every family. A somewhat relevant example however can be taken from the giant Three Gorges Dam in central China. Research into its actual/non-official facts in the vaster region surrounding its 630 KM^2 water coverage surface plus taking some reference from official meteorology reports it becomes apparent rainfall increases in average overall while significant in some areas. Keeping mind that Chinese official meteorology reports usually exercise cautions to adjust current figures against historical figures so the chart trends smoothly.

Will an LbSVS be affordable?

Depends on how things are planned and executed. In general an LbSVS is a less complicated system than any factory type desalination system albeit it is at a mega grand scale. The ducting pipes does not need to be decontaminated in order to transport seawater. Just for comparison if we can build NBN then we can afford LbSVS.

In the map below the deployment of lakes are indicative only. Its actual location should follow the considerations set above. High condensation areas are hard to predict for its actual locations. At the places where dry and humid air meet maybe where the rain falls. It will largely depends on current vectors.



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