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From: Nobie [mailto:Nobie@SpiceAssociates.com]

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To: Nobie

Subject: Ten Steps to drought-proof Australia (6)

There must be **somebody** out there!!!

Ten Steps to "Drought-Proof" Australia

A submission to resolve our water crisis

by

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In December 2004, a submission to resolve the ongoing water crisis was sent to every member of the states, territories and commonwealth governments. Over two years later, only one of these steps has been addressed (the first step). To date, no one has supplied any valid arguments to this submission.

As a member of the public in his twilight years with no vested interests other than the subject in hand, I ask that you take a few minutes out of your busy day to consider this submission.

What is the greatest crisis facing Australia at this time? It is a countrywide problem that is facing every man, woman & child irrespective of race, creed, colour, or political persuasion.

This crisis dwarfs any other day-to-day problems that we face. We grumble when the electricity goes off now and then, the increase in petrol prices upset us and so on. These are minute problems compared to the current availability of abundant water for our country.

"Water will be more important than oil this century," says the former UN Secretary General (Boutros Boutros Ghali) - quizzed by a TV, radio and internet audience from around the world (3 March 2004).
http://news.bbc.co.uk/2/hi/in_depth/world/2003/world_forum/water/default.stm

Having identified the problem, I offer, what I feel is a sound, **cost effective, fully paid-up** plan that will take the burden off of Governments and leave a great inheritance to future generations of Australians.

Step 1:

THE COMMONWEALTH MANAGES ALL OF THE AVAILABLE GROUND WATER

The Western Australian government is trying at this time to resolve the problem facing Perth. Most, if not all of the other states and territories are looking at the same problem (from differing angles), also at a local level.

We shouldn't make the same mistakes as we did before Federation and go running off in different directions. I can still remember going from Melbourne to Sydney via train & having to change over in Albury as the train tracks were a different width!

We now have a unified system of travel between the states and territories be it via land, sea or air. Why not have unified approaches to the water problem that we all face? This is a Commonwealth problem and **MUST** be resolved at a Commonwealth level.

The time has come to “bite the bullet” and for all of the politicians to forget party affiliations and start looking out for the whole population! During times of emergency, Governments form coalitions of national unity to fight the common enemy. This is the sort of action that it needed to fight a different type of war; the War on Thirst!

Step 2:

BRING THE AVAILABLE WATER TO THE PEOPLE

A famous maxim states: “**If you can't bring the mountain to Mohammed then, bring Mohammed to the mountain**” My recommendation is the former rather than the latter.

The WA Sunday Times dated 11 Nov 2004, reports on a proposed plan to build a 2,500 km aqueduct from the Kimberley down to Perth, this I feel, is a **GIANT** step in the right direction but is still only a “band-aid” approach to a problem that requires major surgery.

The estimated cost of the Kimberley project is \$2 billion. What stands out to me in the article is that there is an annual discharge of 9,000 gegalitres from the Fitzroy River, whilst the average annual usage for Perth is only 310 gegalitres. This equates to less than four percent of discharge leaving a surplus of well over ninety-six percent.

The CSIRO is forecasting that rainfalls will increase in the area by up to 15% by 2030 (The Sunday Times 21 November 2004). This is a HUGE “mountain” of water that just flows out to the ocean!

Using a calculation of 1.4 million people living in Perth V's a total population of 20 millions for the country, (http://www.world-gazetteer.com/d/d_au_wa.htm) we find that Perth has only 7 per cent of the population.

If we were to look at the theory of using the Fitzroy to supply the total needs of Australia (to the exclusion of any other source), only 4,500 gegalitres or 50 per cent of the current total discharge would suffice.

As all the states have various amounts of reserves within current holding facilities, the sum requirements would be a lot less than the worst-case option of 50 per cent of the total output.

I would recommend that the Commonwealth Government look at the option of building a series of aqueducts (and pipelines, where required, i.e. Tasmania) to supplement the supply of water to **ALL** of the country. A constant supply from this option would eliminate the requirements for the States to build more dams to try to catch less & less run off, desalinate seawater, etc. In other words, capture this vast amount of water that **is being wasted (by its natural flow to the sea)** and supply it to the people that need it.

Desalination of seawater that was originally fresh does not make a lot of sense. Concerns have been voiced that the proposed desalination project for Perth will produce a huge increase in the salinity residue returned to the sea. The response is “we may have to dilute the residue with some of the desalinated water before discharging it! This sounds like a skit from “Monty Python”; give the population access to the water **BEFORE** it turns salty!

The use of aqueducts to move water from one source to another is as old as recorded time. A country that has made very good use of this technique over many years is the U.S.A.

Without Hoover, Glen Canyon, and Oroville dams and some of the longest aqueducts in the world, Los Angeles would still be a collection of outsize villages. The Bay Area — a deceptive place, as dry as North Africa behind its exotic camouflage — and Phoenix, Las Vegas, Denver, and Salt Lake City could not exist without complex and massive waterworks.

<http://www.earthinstitute.columbia.edu/library/earthmatters/spring2000/pages/page23.htm>

Below is a sample of projects carried out in the U.S.A.:

The Colorado River Project

The Southwest (of the U.S.) gets its water supply from a river that runs right through the middle of three major deserts on its way to the Sea of Cortez. The river and the use of its water has shaped the history of the states of Arizona, California, Colorado, Nevada, New Mexico and Utah, which all depend on the Colorado River and its tributaries for water. Behind Hoover Dam, Lake Mead holds almost a two-year supply of water for the Southwest. (http://www.desertusa.com/colorado/intro/du_introcr.html)

Many aqueducts have been built to filter water from the main body of water including: The Central Arizona Project Aqueduct (CAP), a 336 mi (541 km) diversion canal in Arizona in the United States. The aqueduct diverts water from the Colorado River from Lake Havasu City near Parker into central and southern Arizona. The CAP is the largest and most expensive aqueduct system ever constructed in the United States. CAP is managed and operated by the Central Arizona Water Conservation District (CAWCD). (http://en.wikipedia.org/wiki/Central_Arizona_Project)

The California Aqueduct

An artificial concrete-lined water transport channel. It is the main water transport structure of the California State Water Project and at nearly 750 km in length; it is the longest river in California. It moves water from Northern California to Southern California. It begins at the Sacramento River Delta, carries water south through the Central Valley and then is pumped up 2,000 feet to cross the Tehachapi Mountains. At this point, it divides into two branches. The east branch feeds Lake Perris in Riverside County, while the west branch heads toward Castaic Lake in the Angeles National Forest.

Sizes of channels vary along the aqueduct; a typical section has a concrete-lined channel 40 feet wide at the base. The water averages about 30 feet deep. Water flows through the aqueduct in a series of abrupt rises and gradual falls. The water flows down a long segment, built at a slight grade, and arrives at a pumping station. The pumping station raises the water, where it again gradually flows downhill to the next station. The initial pumping station fed by the Sacramento River Delta raises the water 240 feet, while a series of pumps culminating at the Edmonston Pumping Station raises the water 2,000 feet to cross the Tehachapi Mountains. (http://en.wikipedia.org/wiki/California_Aqueduct)

Los Angeles Aqueducts

There are two Los Angeles Aqueducts--the original Los Angeles Aqueduct was designed by William Mulholland and completed in 1913 to deliver water from the Owens River to the city of Los Angeles, California. Mulholland has often been denounced for having used deceptive tactics to obtain the Bureau of Reclamation rights to the Owens River's flow. However, the aqueduct's water was crucial in the development of what is now one of the world's most important cities. (http://en.wikipedia.org/wiki/Los_Angeles_aqueduct)

The Colorado River Aqueduct is a 242-mi (392 km) diversion canal and was constructed between 1933-1941 by the MWD to ensure a steady supply of drinking water to Los Angeles and surrounding communities. Designed by Chief Engineer Frank E. Weymouth of the MWD, it was the largest public works product in southern California during the Great Depression. The project employed 30,000 people over an eight-year period and as many as 10,000 at one time. The construction of the

aqueduct is widely credited as being a principal reason for the industrial growth of the region during World War II and the following decades. In 1992, the aqueduct was recognized by the American Society of Civil Engineers (ASCE) as one of the seven "wonders" of the American engineering world.

(http://en.wikipedia.org/wiki/Colorado_River_Aqueduct)

STEP 3:

THE SOURCE OF REVENUE TO FUND THE SCHEME

As stated in the first paragraph, this problem affects us all. Therefore, we should **ALL** pay for it! A special "war on thirst" tax should be levied at the Federal level via the GST system. At this time, the full sum collected is dispersed amongst all of the states. The estimated revenue from this (10%) tax during 2004/05 is \$34.3 Billion!

(<http://www.taxpayer.com.au/oursay/editorials/editorial240504.html>)

An extra one per cent added to this sum (used only for the funding of the project, **NOT** ongoing running costs) would bring in about \$3.4 Billion per year. Subject to thorough costing, this special tax should only be needed for about four or five years.

The pool of money collected must be made transparent to the people to ensure that 100% of the funds are used only for the stated purpose. I foresee a surplus of monies being held "in the bank" during the project. These funds could be used for blue chip investments and thereby reducing the life span of the special tax.

These days, it seems that the major activity of the State Governments is finding excuses of why it can't do anything better with lack of capital being one of the reasons. This falls away with my recommendation for funds. In addition, by having the initial project under the control of the Commonwealth, there would be less chance of vested interests adding to the overall costs and slowing down the work.

STEP 4:

ONGOING COSTS, etc.

The cost of water royalties to Western Australia, land rights royalties and day-to-day maintenance of the system would be handed over to the States with perhaps an Ombudsman to oversee any major disputes. Alternatively, the whole scheme could remain under the Commonwealth umbrella.

STEP 5:

GREENHOUSE GASES and SAVING the MURREY-DARLING RIVERS

Australia is the continent with the least rainfall, apart from Antarctica. Its two largest rivers, the Murray and the Darling, have been extensively dammed for power and irrigation, reducing flows to the sea by three-quarters – but providing three million people and 40% of Australia's farms with water. Salt rising to the surface as the lower reaches of the Murray dried out has destroyed prime agricultural land. Wetlands have shrunk, species numbers have dropped and the Australian National Trust has declared the whole river an "endangered area". In the east, the Snowy River was dammed and diverted to the Murray basin decades ago to water the country's dry interior. But the ecological impact on the depleted river was so great that some flow was restored in 2002. Water extraction from the Murray river was capped in 1995 and programmes to repair some of the destruction are now under way.

(http://news.bbc.co.uk/1/shared/spl/hi/world/03/world_forum/water/html/southern_australia.stm)

The overall impact on Greenhouse gases will be minimized with this plan when compared to current and proposed recommendations of desalination, etc.

This proposal will go a long way in easing the pressure on the major river systems that are way over-used for irrigation including the Murray & Darling.

STEP 6:

REDUCE WASTED EFFORTS

It would seem that various governments have, in the past, been on a wasteful building “binge” of dams. With most of the country crying out for water, research shows that:

Australia has 443 large dams These large dams alone, if full, has the capacity to store five times Australia’s annual water consumption. (The Australian Water Directory 2002, Australian Water Association, p 16).

Surly we are not going to have the burden of another fiasco of a costly building “binge” of desalinations plants, processing sewage water for reuse, etc!

With only half of these existing dams always filled to capacity, approximately twice the required demand would be available on demand. The remaining dams could be retired (with a great saving on maintenance, etc.) and the lands returned to the environment.

STEP 7:

NET SAVINGS to STATE GOVERNMENTS (PAY WHEN NEEDED)

With the promise of a continual supply of water and the prospect of current storage areas holding a constant capacity; the pressure on the states to build more very costly and ineffective desalination plants, etc. would diminish.

States would only be required to pay for the water needed (along with a proportion of maintenance costs); an abundance of stored backup would result in lower costs.

This would equate to having an outlet stationed at each required storage location. One would only “turn it on” and purchase the water as required!

STEP 8:

SOURCE of ENGINEERING EXPERTISE and LABOUR REQUIREMENTS

In times of conventional war, we call on the military. This project would be perfect for the Army, namely the Royal Australian Engineers. I would bring to your attention **The Tennessee Valley Project** started in the 1930’s in the USA. This was one of the biggest projects of its day and built by US Army Corps of Engineers. The Engineers still, to this day, maintain the system and is the great source of knowledge and expertise for use in times of war. Until the 1960’s, National Service was in use. A form of **Peace Corps** could be introduced to draw on the available large pool of unemployed or underemployed youth, this would be a great way of giving youngsters a learning experience along with a sense of pride (sadly in short supply these days) in doing something for the country.

STEP 9:

INDIGENOUS POPULATION

This scheme would be a very big win for the Aboriginal peoples, as royalties would need to be paid for the use of local lands. Hospitals, schools and better housing would be a great spin-off for these new revenues. This, along with perhaps an option to give preference to the Indigenous to help both build and maintain the system would open up a continual source of income to the outback that is sadly lacking today.

STEP 10:

WATER and the “DEAD HEART of AUSTRALIA

With an over-abundance of water, sub-branches of aqueducts built in strategic locations, could open up the “Dead Heart” of the country to farming and industry making Australia the “bread-basket” of the world! With larger volumes of food available from “drought-proof” farms, the end costs to consumers will decrease dramatically, another win-win situation. As most of the aqueduct system will traverse one of the sunniest areas on earth, strategically placed pumping stations could be mainly fueled by solar energy along with wind powered energy for backup.

In Conclusion

I would submit none of these recommendations are “pie in the sky” ideas but are tried and tested the world over. If this country is to continue to grow successfully, we must resolve the water problem once and for all. Just as we thank earlier generations of Australians for the hard work and sacrifices to make our country what it is, it’s time for THIS generation to do its bit for the future.

About sixty years ago, Australia started work on the mammoth Snowy Mountains scheme. This was, in its day, one of the biggest engineering projects ever undertaken in the world.

“The Scheme stands as a tribute to the men who had the foresight and courage to initiate the construction of what became the largest single engineering project ever undertaken in Australia”.

<http://www.austehc.unimelb.edu.au/tia/422.html>

The Snowy project was and is of immense importance to Victoria & New South Wales. Let us make this the major project for the 21st century to the benefit of **ALL** of the country

The bottom line is that in the short term, say 3 years, Perth would be up and running with the balance OF THE COUNTRY within 8 years from initial startup and the project outlay totally paid for. The country as a whole would see a marked **decrease** in the cost of living with industry having a large **increase** in exports all due to bigger and better farming output.

With proper planning, the overall dimensions of the aqueduct system should take into account future “add-ons” of flows from other suitable rivers that flow out to sea.

Too long and too hard some will say; two years have gone by since this submission was first put forward. To date, only a few “band-aid” solutions have surfaced whilst the patient is bleeding to death!

I solicit comments (good, bad or indifferent) to this submission, thank you.

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