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APPENDIX A.

16.03.09

Five essentials Australia must put into practice to turn around the World's Greenhouse Gas Emissions Climate Change Effect.

“A shift in societal values, is needed to maintain a habitable planet and extreme weather events highlight the risks of inaction.” Ian Dunlop CSIRO.

1. STOP WASTING THE WATER.

- (A) Divert, store water by pipe, canals and rivers; 1 m. ac ft (1233.48 Gl) of water pa, 70% of a possible *average recovery* flow of Queensland's northern, peninsular and gulf rivers, to S.A. **PRODUCING HYDRO-ELECTRICITY.**

Mt Glenroy at the Burdekin Dam has a height of 573 Metres (1,804 ft.) above sea level. (ASL) If the water level of Lake Dalrymple were raised by a high 1,000 ft dam, water can be gravity fed up the Burdekin Valley, past Blair Athol and Lake Theresa, past Emerald to Lake Maraboga and past Springsure, up Cona Creek, through the Carnarvon Range, past Carnarvon into Dooloogarah Creek to the Warrego River and into the Maranoa River near Consueo Peak to take water to Lake Kajarabie, and past St George to Sth Aust. A 1,000 ft dam provides hydro power, over 340 Kilometres. (See page 17, “A VOYAGE OF DISCOVERY”, Professor Lance Endersbee AO, FTSE; (PLE) “Libya, the man made river; 7.5 m. long, 4 M diameter, pre-stressed concrete pipes, with rubber ring joints, transport water 4,000 kilometres, using deep wells to tap fossil groundwater, which has no effective recharge as the resource is exploited.)

For Oz, recharges may come from cyclone and depression rain, but supplemented by very low cost, huge solar, hybrid, safe nuclear vacuum desalination, power stills; (S/H/S/N/V/D/P/G/S's) guaranteeing continuity of production, (COP) independent from food imports, able to export COP food to the world, for an expected 9.5 billion people in the future. Employing our people in modern agriculture and industry, by permanent stream flows like the Rhine River in Europe, to make it a reality.

Lake Dalrymple's S/H/S/N/V/D/P/G/S's resupply, sited between Abbot Point & Ayr.

- (B) A transmountain diversion from the Clarence/Richmond Basins (CRB; the upper Clarence, Nimboida, Macleay Rivers) to the Murray-Darling Basin. (MDB) Annual water flow available compares to the Snowy Mountains (from 3,000 Gl in 1930 to over 11,000 Gl now; see “Impacts of water Regulation and Storage”, MDB. <http://www.mdbc.gov.au/nrm/water>)

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To guarantee **COP**, S/H/S/N/V/D/P/G/S's and fish farming plants, must be sited between Ballina and Yamba to quiet the negative talk by local folk, and for adequate water for the Granite Belt, Darling Downs, Goondiwindi, and down stream sites etc. (See “National Infrastructure and National Development”, PLE.)

2. **GUARANTEE OF WATER IS ESSENTIAL FOR FARMING SUCCESS.**

COP, by S/H/S/N/V/D/P/G/S's, to create 1,500 Million ac.ft. (1.85 M.GL) of low cost (1 cent/100 M³, \$1/Gl.) **DESALINATED WATER for the eastern States, the MDB and the Lakes** to maintain basic production in droughts.

Based on the lease of 200,000 tons of U³⁰⁸, enough for 1,000 plants for China, India, Russia and the World, would provide 200,000 construction workers (CW's) @ \$31,360 pa, or \$6.32 B. in four years on five year leases.

One million tons of Australian/Canadian U³⁰⁸ on five year leases earns \$156.8 B. in four years, to employ 1 million CW's, to build new World infrastructure, to create a habitable planet and turn around climate change to reduce atmospheric pollution.

One million tons of U³⁰⁸ in 5 years provides 45 Gw hours of electricity, 50,000 Gl of water pa saving 45.5 GT of CO² pollution, relative to coal on current technology. (CT)

Countries providing CW's for our infrastructure development would have priority to our U³⁰⁸, which would be returned to us for re-constituting in our “Fast Breeder Reactors” (FBR's) at the end of its useful life. Only small quantities of waste remain at the end of this process, which Australia is best placed to deal with.

100, S/H/S/N/V/D/P/G/S's in China, would reduce their pollution by 50% and provide them with adequate, new quality **WATER**, to give their people good health.

“This technology claims a dramatically higher level of safety and efficiency. Instead of water, it uses pyrolytic graphite as the neutron moderator, and an inert gas such as helium, as the coolant at very high temperature, to drive a turbine directly.

This eliminates complex steam management systems from the design, increasing transfer efficiency (ratio of electrical output) to about 50%. The gases do not dissolve contaminants or absorb neutrons as water does, so the core has less radioactive fluids and is more economical and safer than light water reactors.”

The helium gas goes through pipes in the solar stills to keep the desalination process going 24/7. After being used by the turbine to produce electricity, the helium gas maintains the Solar Hybrid Nuclear vacuum stills at a temperature of 60-80° to give maximum distillate at low cost (1 cent per 100 M³) for quality pristine fresh water.

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The S/H/S/N/V/D/P/G/S's need to be located where adequate pristine sea water is available; where high tides enable sea water to be “gravity loaded” for still supply.

“The performance of the system (efficiency) depends on meteorological parameters, namely wind velocity, solar radiation, sky temperatures, ambient temperature. Besides the meteorological parameters, it also depends on water parameters, such as salt concentration, algae formation on water, and mineral layers on basin water.”

“The highest useful intensity wavelength is 0.47 microns, the range of visible beams. Intensity of solar radiation reaching the earth's surface ranges from 0 to about 1,050 W/m² at the equator. Most of this radiation comes directly from the sun, but about 10% comes as scattered light, even on cloudy days.”

“Efficiency rates for solar plants range from 25/40% in winter and from 30/60% during months of high radiation intensity; real rate depends on design, construction and operation of the plant and on ambient conditions. For example, a distillate flow rate of around 5 kg/m² is possible with an assumed water temperature of 80° C and mean radiation intensity of 24.5 mega joules per square metre (MJ/m²), conditions typical in the Northern Hemisphere in July; in such circumstances, the Still has a mean efficiency of 50 per cent. Combined with solar energy heating / evaporating water inside solar stills – heat transfer/storage from nuclear, geo-thermal or coal, radically improves productivity/reliability.” (*Desalination in the 21st Century*.)

“About 90 per cent of France's electrical power comes from hydro-electricity and nuclear power, which helps explain why France is able to reduce its dependence on imported petroleum, meet its greenhouse gas reduction targets, and export electricity to its neighbours with over 50 years of reliable U³⁰⁸ trading with Australia.”

“The contrast with Australia could not be more stark”.

“Australia is heavily dependent on coal-fired power stations which, according to the Australian Coal Association, produce about 85% of Australia's electric power which is used not only for domestic purposes, but also sustains some of Australia's largest industries, including the manufacture of aluminium, most of which is exported.”

“Combustion of coal produces carbon dioxide, and so the electricity generators, which have an outstanding record of producing low-cost energy on which Australia's prosperity is based, are now to be the victims of the new carbon-trading scheme unveiled by Canberra academic, Professor Ross Garnaut.”

“Mr Rudd is hell-bent on introducing an emissions-trading scheme which will be an effective tax on energy, forcing even more of Australia's beleaguered manufacturing industries to shut down or move off-shore.”

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“- with the impact of drought/rising fuel prices, it will also signal the death-knell for much of Australia’s agriculture, on which “our” prosperity has traditionally rested. The impact of Mr Rudd’s utterly futile policies will be felt by all Australians.” Peter Westmore, national president, National Civic Council; NW, p.24, 2.8.2008.

3. WE NEED QUALITY TREES TO IMPROVE RAIN AND AIR PURITY.

A full range of trees is vital to restore reforestation but without water, young trees die; mature trees are lost by “bushfires”, unless protected by fire breaks with sprinkler systems. We need a sound carbon credit system for positive planning. (See “Making sense of carbon-trading”, Peter Westmore, NW, p.24, 23/6/07, “If Australia was serious, it would forget about emissions trading; invest in biofuel technology instead”; and, “Picking winners is a losing proposition” Brian Toohey, TWAFR, p.63, 24-25.5.08; “Climate change policy is wrongly tilted towards carbon capture and storage (CCS).

“Plants are the key to removing carbon from the air” Landline, 15.02.09. See, Carbon Accreditation Scheme”, Dr Christine Jones, Chicago Futures Exchange. These 5 essentials provide low carbon tax of 1%, so Oz industry is very competitive.

“If a cost-effective way can be found to use coal with few emissions, fine. But the government and Garnaut are fixated on one type of technology, carbon capture / storage that they wrongly regard as synonymous with a different technology called clean coal. It is now highly unlikely that **CCS** will prove commercially viable for cutting emissions from coal-fired electricity generation”.

“Geothermal and wave sources will prove cheaper than clean coal, with solar thermal and wind power playing a role. CSIRO technologist Louis Wibberley argues it would be much better to put a sizeable slice of available R&D dollars into finding ways to turn waste CO₂ into something of commercial value or greatly improving efficiency of coal use by developing carbon fuel cells.(See TWAFR, 15-16.12.2007)”

“And then I noted that the same errors of understanding seemed to apply to the matter of climate change.” Page viii, line 25, “A VOYAGE OF DISCOVERY”, PLE.

4. WE MUST TOP UP OUR LAKES SO EVAPORATION BRINGS RAIN.

Creating 100,000 sq miles of Permanent Fresh Water Lakes (PFWL) for Australia, needs 384 million acre ft (473,657 Gl.) of water p.a. if seepage and evaporation *average* six feet p.a. If its 10 feet p.a., we need 640 M. ac. ft. pa. (789,411 Gl) Salt-water lakes, can be re-supplied by gravity-fed seawater, creating Japanese type tuna, whale farming and traditional aquaculture. (North America’s Great Lakes have 95,000 sq miles of PFWL.)

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5. **GEOTHERMAL.** Beneath our feet, is a massive source of efficient, emission-free 24/7 **THERMAL POWER TO PRODUCE ELECTRICITY**, if wind / rivers stop, to **SHUT DOWN THE DIRTY COAL FIRED POWER STATIONS BY 2020.** We can convert dirty coal by Underground Coal Gasification (UCG) Gas-to-Liquid (GTL) Coal-to-liquid (CTL) or by the Toffler process, to produce ultra clean, low cost diesel/petrol, Bio-fuels, *Hydrogen*.

(See “The future looks green and very hot”, Stephen Wisenthai, p.52, AFR,17.1.08, and “UH-OH; WE PICKED THE WRONG CURE FOR COAL”, B.Toohy, WAFR, 15-16.12. 07; Louis Wibberley’s paper, CSIRO energy technologist, on direct carbon fuel cells, using electrochemical process to generate electricity directly from carbon.)

“The warnings of BA Santamaria and the NCC over 25 years have proved dead right. Corporate, globalised capitalism has failed. It has led to an enormous concentration of economic power that have in turn manipulated governments into fatally flawed economic policies. These policies have led to the creation of huge national savings pools that have been leveraged to create massively inflated financial markets, which are now imploding.

The NCC’s solutions are based on the principle of subsidiarity, of savings rather than debt based economies, of restoring balances into world trade through rebuilding domestic industries using specialist banking and trade policies.

Communism fell overnight, now economic globalism is crumbling. This is the time for a new economic architecture, one rooted in the tradition of Christian Democracy. Now is the time for the NCC.” Patrick J Byrne, National Vice-President NCC.

Thank you for taking the time to read my investigative enquiry.

Best regards,

Rob Lemon 30-3-09

Rob. Lemon.