



**FORMAL COMMENT ON VICTORIAN STATE GOVERNMENT
“DRAFT NORTHERN REGION SUSTAINABLE WATER STRATEGY”**

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The following topics deserve diligent investigation and ongoing monitoring by community groups and private citizens.

The CFAWSA Project offers a framework that may assist such discussions and collaboration. See: www.foodwater.org.au

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FULL LIST OF RECOMMENDATIONS TO GOVERNMENT

SECTION A FAILURE TO IDENTIFY WORST-CASE SCENARIO WATER YIELDS

1. State Government to generate “worst-case” water yield projections based on figures similar to 2006 (Eildon) and 2008 (Eppalock), as well as recent trend lines (not the average of 1996/7-2006/7).
2. Bulk Entitlement must conserve water from very first inflows (not 30% trigger).
3. Bulk Entitlement must use only half the water in the reservoir in any one year so as to always have a reserve in place when no reservoir inflows occur.
4. Bulk Entitlement volumes be immediately reviewed and updated to reflect evident climate / hydrological changes.
5. View reservoirs only as a secondary or unreliable source of “high security” water, serving to supplement primary sources such as groundwater, rainwater tanks and stormwater.
6. State Government direct that reservoir inflows be separately accounted for on websites of water authorities on a weekly basis, to be applied retrospectively.

SECTION B : DEFINITION OF CRITICAL HUMAN NEEDS

7. State Government to make open declaration of its previous and currently preferred working definitions of “Critical Human Needs”.
8. State Government to establish open public consultation process for ongoing refinement of definitions of “Critical Human Needs” and methods for promoting their implementation through the new Murray-Darling Basin Authority.
9. Definition of “Domestic and Stock” water allocation to be split, given that “Domestic” is a “Critical Human Need” and “Stock” is a commercial / industrial activity.

DOMESTIC allocation might be based on a sliding scale relevant to seasonal and regional water availability, applicable to both country and rural households, and would provide:

- (a) at minimum, World Health Organisation standards for drinking, cooking, washing per occupant,
- (b) a garden/food production water allocation per occupant suitable to grow certain percentage of minimum World Health Organisation daily food requirements, thereby encouraging diversification and decentralisation of food production

STOCK allocation might be based on a combination of land size and the accepted carrying capacity of various animal species for that particular region.

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10. Domestic and Stock allocations wherever possible to be delivered by pipe and stored in tanks only, so as to reduce delivery losses and evaporation. Feasibility and costings for full rural reticulation to be undertaken immediately by Government, including the active encouragement of neighbourhood / township collective agreements and cooperation.

SECTION C : GROUNDWATER MODELLING

11. State Government to advocate that the current 3D Groundwater Mapping program conducted by Department of Primary Industries invite expressions of interest from public, so as to form a nucleus of an ongoing community research effort to assess all Victorian and national groundwater data and modelling.

SECTION D : STORMWATER

12. State Government to immediately fund Stormwater Capture research and development. Funds to be made available to water authorities and local governments in partnership with community groups to assess feasibility of pilot projects in critical/priority areas (e.g. Bendigo).

SECTION E IMPLICATIONS FOR LOCAL GOVERNMENT EMERGENCY MANAGEMENT

13. State Government to direct all local governments to review and update their Municipal Emergency Management Plans so as to include contingency planning for possible run-out of potable mains water with identification of preliminary trigger points and associated flow-on effects associated with "Critical Human Needs". All such local planning exercises to be undertaken with full participation of community.
14. State Government to direct all local governments to review and update their budget structures so as to prioritise availability of funds for water emergency measures (e.g. local infrastructure, tanks, pipelines) as well as associated "Critical Human Needs" (e.g. local food production systems, counselling services, local business restructuring).

COMMENTARY SECTION

A. Failure to identify worst-case scenario water yields

The Victorian Government Draft Strategy has **NOT PROVIDED** an honest appraisal of worst-case scenarios for likely water yields - either for the immediate next few years, or the next fifty.

The Draft Strategy considers a set of water yield and climate change scenarios, the driest of which is based on averages from the recent dry period (1996/7-2006/7). This is not even close to a worst-case scenario. Such an omission from the Draft Strategy is almost entirely inexcusable.

A true worst-case scenario would be based on figures similar to 2006 and 2008 when natural inflows to reservoirs were negligible (i.e. Eildon approx 1.6% of capacity rise, Eppalock approx 0.6% of capacity rise in the respective years). [NOTE: Approx rise figures have been used because precise weekly inflow figures *from separate sources* are not made publicly available on water authority websites.]

A worst-case scenario would involve MINIMAL INFLOWS to reservoirs (as above) occurring two out of four years as per the El Nino cycle, combined with the overall downward trend in decadal rainfall averages as evidenced in the last 30-40 years in the Northern Region.

In such a worst-case scenario, water use in two out of four years would be based mostly on groundwater, domestic tanks, stormwater capture and desalination, due to the failure of the reservoir system.

It may be unpalatable for politicians to acknowledge that the 2008 “worst-on-record” figures (incidentally from an intermediate year in the El Nino cycle – not a drought year) could be the climate “norm” for the foreseeable future. Bureaucrats and scientists must duly acknowledge the possibility that our long-term climate drivers and rainfall systems (e.g. four-year La Nina rainfall cycle and equatorial moisture flows) may already have drastically altered, *regardless of any future atmospheric changes due to the popularly promoted concern of CO2.*

The dire crisis of water shortages may well be faced within 12 months, not decades.

The water crisis in the north of Victoria can be very largely attributed to the inappropriate management inherent in Victoria’s disastrously outmoded “Bulk Entitlement” (BE) irrigation allocation policies. The BE only saves water for the next irrigation season when 100% allocation for the current season has been reached. The theoretically available BE water volumes have not been modified to reflect hydrological changes that have occurred since the Water Act of 1989. At that time the prevailing policy concern was how to mitigate the recurring flood waters which had been apparent in the previous decade of the 1970’s – the wettest decade ever recorded. In effect, the current BE’s function is to “use water as quickly as possible”, not to save it.

Proposal 5.2 in the Draft Strategy to amend the BE so as to “conserve water when 30-50% of current BE allocation is reached” is a correct conceptual shift towards conservation. However, this proposal is based on the potentially disastrous assumption that “inflows of greater than 30% of current BE” are a “safe bet” for the future. (In fact, the average reservoir rise for Eildon in the last five years *on its own would* only have provided the equivalent of approximately 30-35% of current BE allocation. The “safe bet” on average would have failed, with negligible water saved.)

If this 30% minimum figure is adopted, the new BE conservation measures will be entirely inoperable in the dry years when they are most needed. Therefore it is essential that any new BE water conservation measures must be active from the very first inflows (i.e. 0.1%)

B. Definition of “Critical Human Needs”

The Victorian Government’s working definition of the term “Critical Human Needs” is not spelt out in the Draft Strategy, nor is its process for community consultation around the ongoing refinement of this concept.

As a category of security for water allocation, “Critical Human Needs” is only just being grappled with as a political concept in Australia. There may be ongoing conflict between various levels of government, communities and industries as the detail and full implication of this “water rationing mechanism” emerges.

A brief chronology of the definition of “Critical Human Needs” follows:

A broad, formal definition of “Critical Human Needs” was adopted by the Australian Federal parliament as part of the Water Amendment Act on 3 December 2008 (incidentally only nine days before close-of-comment for this Victorian Draft Strategy).

CRITICAL HUMAN WATER NEEDS are the needs for a minimum amount of water, that can only reasonably be provided from [Murray-Darling] Basin water resources, required to meet:

- (a) core human consumption requirements in urban and rural areas; and
- (b) those non-human consumption requirements that a failure to meet would cause prohibitively high social, economic or national security costs.

SOURCE : Section 86(2) - Commonwealth “Water Amendment Act 2008”

In the lead-up to the passing of this Act, different definition/s of “Critical Human Needs” had been used by the several states involved in negotiations with the Murray Darling Basin Commission.

States have defined their own critical human needs as household use on level 3 or 4 water restrictions (minimal or no outdoor water use); basic industry needs; and essential services provision. This includes businesses relying on town water supplies, which will be required to have a water saving plan. All states have included a small component for stock and domestic use in their calculations of critical human needs.

SOURCE : “Murray-Darling Basin Storage Report – 31 August 2008”, Murray Darling Basin Commission

A year earlier, in August 2007, the Murray Darling Basin Commission (MDBC) appeared to have been operating under a much narrower definition of “Critical Human Needs”. When questioned by this author on the subject of water for the “basic industry” of Food and Agriculture, the CEO of the MDBC, Wendy Craik (at a public presentation for Engineers Australia in Bendigo on 22 August 2007) clearly stated:

THE MDBC’S CALCULATION OF “CRITICAL HUMAN NEEDS” AT THAT TIME DID NOT INCLUDE ANY WATER ALLOCATION FOR FOOD PRODUCTION OR AGRICULTURE

A NEW ERA OF WATER MANAGEMENT

Regardless of the actual definitions that may be applied or further developed, the adoption of the concept of “Critical Human Needs” flags a significant change of direction in water management in Australia.

“Critical Human Needs” clearly acknowledges the necessity for water to be regarded as a “common good” to be guaranteed and provided by governments to its citizens, at least for basic survival purposes.

“Critical Human Needs” signals that there must be a return to a basic “planned economy” such as water rationing and governmental directives to industry in order to meet these survival benchmarks.

This necessity for a “planned survival economy” presents a significant challenge to the “free market” approach to water that has been championed by successive Australian governments.

“Critical Human Needs” sets the platform for significant and direct government intervention in water markets, agricultural systems and broader industry in the near future, perhaps invoked under emergency or “state of disaster” legislative powers.

With “Critical Human Needs” now being the highest level water security available (in effect being a new “High Security Bulk Entitlement” system) - every industry will be trying to squeeze itself through the door as essential to the national security interest.

The question remains: “Who will guide the precise practical definition of Critical Human Needs”?

In theory it will be the new Murray-Darling Basin Authority (MDBA), created by the Federal Parliament through the Water Amendment Act 2008. However, the MDBA will need to be exceptionally well-informed in order to make its critical decisions.

Will the MDBA be informed from the “top down” or the ground up? By vested economic interests or the grassroots community? Behind closed doors, or in rigorous open debate?

It would be advisable to have the question of “Critical Human Needs” being addressed by **people who are familiar with holistic assessment of natural ecosystems and integrated low-technology solutions.**

The Australian devised design system of “Permaculture” (permanent agriculture) has been taught around the world since the 1970’s and has been critical in solving many food, water and energy security problems at various scales.

Australian permaculture teachers played a critical role in helping the people of **Cuba** overcome their major national food and energy crisis when its oil supplies were cut off after the collapse of the Soviet Union in 1990. (See further note in Section F)

C. Groundwater Modelling

Debates about the sustainable allocation of aquifer groundwater are doomed to be inconclusive until such time as we actually understand the structure of our aquifers. Once there is clear understanding of the relative scarcity or abundance of the groundwater volumes, then appropriate and sensitive use may be clearly implemented.

According to various claims, the size of some Deep Lead aquifers in Central Victoria has been significantly under-estimated by government authorities.

As recently as May [2008], the CSIRO noted that not enough was known about many parts of the [Campaspe] Deep Lead. For entire stretches of the aquifer there is no bore data, and the **CSIRO notes that it's not even sure where all the water in this vast aquifer comes from. Indeed some parts of the Deep Lead are *rising*, despite the years of drought.**

SOURCE: Damian Drum MLC (Victorian Upper House member for the Northern Region)
"Bendigo Water" Briefing Paper, July 2008

There is debate about the layering of major aquifer systems. One framework suggested by an experienced groundwater driller in Central Victoria is that a deep intercontinental aquifer system underpins the currently known Deep Leads and the Great Artesian Basin.

Other well-developed geological theories state the existence of "Primary Water" sites where water is actually created from raw elements in particular rock formations, often at immense geological depths.

A detailed introductory paper on this topic of "Primary Water" and its relevance to the Australian water crisis in Australia has been written by researcher Robert Gourlay, Managing Director of Environmental Research & Information Consortium (ERIC).

DOWNLOAD FROM: www.eric.com.au/docs/water/primary/eric_primary_water.doc

Recent government initiatives to undertake 3D Computer mapping of aquifer systems are commendable (i.e. Department of Primary Industries project lead by Dr Stuart Gill). However this project is based on existing datasets held by the government which are - as previously stated - contentious.

It would be advisable that this mapping process be subject to significant public scrutiny and for it to involve a wide range of community-based or independent researchers to ensure that the input data is comprehensively and systematically verified once available.

There is a great need to integrate the perspectives of "non-mainstream" or "dissenting" scientific views in the critical task of verifying and modelling groundwater systems. It is also critical to integrate local, informal and unorthodox knowledge systems (e.g. local "old-timers", dowsers, indigenous sources) in the research task.

D. Stormwater Capture

A number of locations in Victoria lend themselves to efficient Stormwater Capture and Treatment. Immediate funding for research and development is required to advance this critical component of urban water security.

BENDIGO PROVIDES A PERFECT CATCHMENT in which to pilot a world-class Stormwater Capture project which may greatly improve the water security of up to 190,000 people in the two cities of Bendigo and Ballarat which are now connected by the Goldfields Pipeline.

Both cities are currently dangerously dependent on potable water being piped from the Goulburn system via the Goldfields “Superpipe”. In coming drought years, supply from this pipe cannot be guaranteed. However stormwater volumes are guaranteed even in extremely low rainfall years, thus providing a much higher-level security of supply than other surface water sources.

BENDIGO RECYCLING SUMMARY

Class B rural water from the Bendigo Creek would be captured in a holding reservoir near Epsom, downstream (north) of Bendigo.

The existing \$47m water recycling plant at Epsom could process a significant portion of the stormwater up to standards that are very close to World Health Standards for human consumption if used via dilution in reservoirs, known as “indirect potable re-use” (IPR). Other options and uses may also be feasible (including reed-bed reservoir treatment, aquifer injection, third-pipe use, or for dilution of salinity in the recycled water facility).

VOLUMES

Bendigo uses **9,000 ML** a year on Stage 4 restrictions (15,000 ML unrestricted).

Bendigo Creek yields **6,000 ML** a year in a drought year (12,000 ML 15-year average).

Water Recycling Plant currently processes approx **4,000 ML** a year.

In an emergency situation, if recycled water were deemed acceptable for human consumption, **Bendigo could possibly be self-sufficient in water** without relying on water from external supplies (e.g. Goulburn System or Upper Coliban reservoirs).

WAYS FORWARD FOR STORMWATER CAPTURE IN BENDIGO

There is currently no lead agency promoting Stormwater Capture in Bendigo, and the momentum rests mainly with individual community members.

Coliban Water has undertaken only limited calculations and costings for Stormwater Capture and Treatment. A variety of models and systems have been proposed from other sources in the local community and these merit detailed investigation.

A number of issues relating to the Murray-Darling Basin Cap currently restrict the diversion or capture of water from the Bendigo Creek, but these are not insurmountable.

E. Implications for Local Government Emergency Management

A REVIEW OF LOCAL GOVERNMENT EMERGENCY PLANNING AROUND WATER ISSUES IS REQUIRED.

Until recent years, the concept of small towns – let alone large cities – running out of potable water was perhaps only thought of as uncomfortable theoretical possibility; perhaps a spectre that we thought had been avoided once and for all in the 1982-3 drought.

As such, the Emergency Management frameworks for local government areas in many cases may have largely failed to address this contingency, instead focussing on short-term critical incidents like train wrecks, bushfires, chemical spills or disease outbreaks.

In the case of Bendigo (population 100,000) this “state of avoidance” around water contingency planning by local government has been evident.

The Bendigo populace and local government seem to have been largely reassured on water security issues by the State Government’s construction of the “Superpipe” bringing water from the Goulburn/Eildon system, and also by press reports in mid-2008 of a Coliban Water proposal to build a channel through the Waranga Basin which would theoretically reduce evaporation losses, thereby freeing water for Bendigo’s use.

However, due to likely low reservoir inflows in the expected El Nino year of 2009, there is a high likelihood that there will be no available water in the Eildon system to send down the Superpipe in 2009 and/or the year after. The Waranga Basin is similarly dependent on Eildon inflows and would thus also fail to deliver significant water yield benefits.

Bendigo and Ballarat (total 190,000 people) are now both dangerously dependent on the Superpipe for their potable water needs and “run-out” is possible.

In the case of the Bendigo local council, there has been a great reluctance in recent years to even disclose the contents of its Municipal Emergency Management Plan (MEMP). In mid 2007, various requests for the MEMP by this author were met with the response that i) the MEMP is a “controlled document” due to confidential contact information contained within it, ii) that **the contingency of “water run-out” was not addressed** because the MEMP related only to “rapid response” scenarios, and iii) that on water issues, Council would only act as a support agency to State Water Authorities.

It is essential that the public be fully advised of all options relating to the possible run-out of potable water.

- Are there State Government plans to evacuate major population centres?
- Are there plans for emergency water infrastructure and transport?
- At what point might these actions be triggered?

EMERGENCY PLANNING IN CONJUNCTION WITH COMMUNITIES IS SUPPOSED TO BE NORMAL GOVERNMENT PRACTICE

The State Government has produced detailed procedures and guidelines to assist local governments in compiling Municipal Emergency Management Plans (MEMPs).

There are three main groups of users of the plan:

- those who have an involvement in the planning process
- those who will have to apply the plan or some part of it; and
- **the community for whom, and with whom, the plan has been developed**

SOURCE: "Emergency Management Manual Victoria" (2001) Section B - Part 6 p. 30

The State Government's intention in 2001 was that MEMPs would be:

- collaborative with the community
- thorough in their assessment of potential risk factors
- integrated with broader local government programs
- flexible, regularly reviewed, tested and evaluated

If there has been a departure from this intention by the State Government and/or a significant change of legislative responsibilities then this would need to be further analysed by community groups and private citizens.

The new concept of water rationing for "Critical Human Needs" would surely underline the need for active and well-resourced emergency planning at a local grassroots level.

A successful grassroots consultation processes worth considering is the Watermark Project run by the Victorian Womens Trust. See www.watermarkaustralia.org.au

It convened many independent clusters of people in numerous community settings to discuss all aspects of water in Australian life, over a period of years.

The result of the process was an extraordinarily well-rounded and informative book "*Our Watermark: Australians Making a Difference in Water Reform*" (2007, 168 p.)

F. Implications for Food Security policy

In recent history Australia has relied on “free-market” global trade mechanisms and imports to meet its food requirements, underpinned by high levels of consumer credit and relatively cheap transport costs.

This “free-market” approach has managed to provide basic “Food Security” for our population, while our “Food Sovereignty” (capacity for meeting basic needs through domestic production) has suffered.

Food imports are now increasingly threatened by global climate factors, contamination, increased transport costs, collapse of credit, geo-political factors, etc.

Hundreds of thousands of Australians are at risk as water supplies for “Critical Human Needs” appear to be rapidly dwindling. Even the concept of a famine in Australia is a much closer possibility - previously only associated with Third World countries.

Increasing reliance on water allocated for “Critical Human Needs” inevitably means water rationing for agriculture, and a degree of central planning of the economy.

Industry directives from government will be required to reorganise Food Production systems to meet minimum World Health Organisation nutrition standards.

As the formal body for implementing “Critical Human Needs” water policy, the newly created Murray-Darling Basin Authority (MDBA) becomes – by default – the Australian Government’s lead agency for Food Security and Food Sovereignty.

At a national policy level, we now have the opportunity to actively embrace the concept of “FOOD SOVEREIGNTY” (i.e. self sufficiency in domestic production).

A stunning example of a radical national approach to food security can be viewed in the recent video documentary : **The Power of Community – How Cuba Survived Peak Oil**

It tells of the five year transformation that Cuba undertook when its supplies of oil and agricultural machinery were cut-off from the Soviet Union after its collapse in 1990. The nation responded with a radical program of urban food gardening, alternative power generation and social re-organisation.

While Australia is very different to Cuba in geography, climate and political history, some extremely valuable lessons can be learnt from this remarkable national experience.

See: www.thepowerofcommunity.org

G. Re-evaluation of total economic structure

We are in times of “climate systems failure” and “capitalist market failure”.

There are no safe assumptions about the longevity of any current economic factors.

Agricultural and industrial sectors will continue being rapidly transformed.

Debt bubbles will continue to burst. Banks may fail. Entire currencies may fail.

A new era of economic “central planning” is called for if we are to provide water for “Critical Human Needs” and implement the associated re-organisation of our basic industries, including food production.

This central planning must be executed by governments, under the clear direction of the Australian people, actively involved in the development of creative solutions.

Any conventional economic objection to “tackling the water crisis” must be rigorously challenged and its underpinning assumptions deconstructed.

New economic structures and mechanisms for the issuing of currency and credit will no doubt emerge from the current financial crisis.

Domestically this may take the forms of:

- widespread emergency “Exceptional Circumstance” payments
- food stamps, water rationing
- various debt moratorium arrangements
- implementation of large scale infrastructure projects
- nationalisation of banks and industries
- industry re-tooling
- barter currencies
- evolution of “carbon trading currencies”
- evolution of “embodied water” accounting standards

Internationally this may also take the forms of:

- new trading blocs and alliances
- reorganisation and linking of global currencies (e.g. return to gold standard)
- elimination of speculative trade mechanisms and private central banks

H. Change needed in “Water Politics” and Communication

The Australian population has been too dependent on governments to “sort out the water situation”.

People need to re-assert their involvement and practical expertise in water and food security matters.

The question of defining “Critical Human Needs” for the Australian population may serve as a lightning rod for community mobilisation around the development of truly sustainable economic systems.

The basic survival benchmarks of “Critical Human Needs” might eventually be enshrined in a popularly accepted Australian “Bill of Rights”.

(The campaign for an Australian Bill of Rights was launched by the Federal Government on 10 Dec 2008.)

To guarantee minimum access to water would make an Australian Bill of Rights superior even to the UN Declaration of Human Rights which at present entirely fails to address the question of water.

Dealing with the unfolding water crisis presents us with the opportunity to put aside the “infantile bickering” of partisan politics referred to by Kevin Rudd in his “Sorry” speech.

Putting aside the similar hindrance of short term political cycles will enable us to create a new framework for governance, based on the simple needs of food and water.

The convening of groups using an egalitarian, circular structure will be most conducive to the many tasks at hand.

FEEDBACK ON THIS COMMENTARY PAPER IS ENCOURAGED.

Community Food and Water Security Australia **CFAWSA**

See: www.foodwater.org.au

