Submission by Peter Gill Dated 07 December 2022

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** To be Redacted

DUNGOWAN DAM SSI-10046

My submission is **Against the Proposal**.

This submission is lodged on a personal and individual basis.

I have attended all but one of the Community Consultation Sessions held. I would like to compliment the team involved albeit that they worked to directions provided by their masters.

The proposed New Dungowan Dam proposal is based on providing an addition 7GL per annum additional above the yield of the existing dam (6.3 GL) currently licenced at 5.4 GL per annum. Over 100 years and a yield of 700GL this represents a cost of $1.85m per GL of additional yield.

Significantly, in the latter parts of Community Consultation, it is now being acknowledged that the Proposed New Dungowan Dam is only a stop gap measure for Tamworth's Water Security which will need to be augmented with other supplies in the future.

Significantly during the Namoi Water Strategy Public Session of 08 September 2022 (Tamworth) a statement was made by DPIE representatives that the NSW Government had decreed that large towns such as Tamworth could not be allowed to run out of water. The solution presented in the EIS Exhibition remains reliant on Climate and subject to the effects of Global Warming.

The point is made that should the Capital cost of $1.3B be "granted", what does Tamworth not get in other funding? Infrastructure and services in the area are critical and struggling.

I wish to make the following comments on the Exhibition Documents:

1) **Biodiversity**
    - A significant area of largely un-molested habitat will be destroyed as part of the dam wall construction and the impoundment area clearing. This contains ecosystem and endangered species. Whilst the EIS report discusses measures to minimize damage and purchase of offsets, the very nature of the existing is unable to be replicated. Many of the species are highly territorial and simply forcing them to move will create competition for territory and food.
    - On a positive note a suggestion is: (and this is after completion of Construction and draining of the existing dam), the area of that impoundment of the existing dam be reinstated to match the general locality which will provide area for re-establishment of ecosystem and colonies. This is by far a lesser outcome delivered well after the initial disturbance.

2) **Water Sharing Plans (WSP's)**
    - Licences for both Surface and Groundwater Sources in the Peel/Namoi are significantly over-allocated.
    - Under the MDBA plan, there is no more water available in the system.
    - It has now been stated that the WSP's will not be amended until completion of the New Dungowan Dam.

- Meanwhile statements are being presented on how much additional water may be available.
- As such any statements being made without the WSP's in place are most likely at risk of being regarded as deceptive.
- The passage of time in construction and commissioning (5-10 years), pressure from irrigation lobbies, change in constitution of the existing Government with the passage of time, the potential for change of Government at an election serve to make any promised yields at this juncture a high risk conjecture to be legislated at some time well into the future.

3) Impact on Irrigators

- Whilst claiming to not affect irrigation supplies as an option criteria, the very EIS proposal for Dungowan Dam states that increased Town Water (High Security) will be achieved by applying reductions to the wider Namoi Irrigators.
- In relation to an increased reserve for Town Supply proposed to be held in Chaffey Dam, should this be implemented in current climatic conditions, there is no loss to irrigators if the reserve were to be implemented whilst the dam is full and before AWD's are determined.

4) Consideration of Alternatives

- Options analysis within the Exhibition Report (EIS) has been constrained to:
  - Improving Water Supply Security for Tamworth
  - Not impacting Irrigation Supplies

  This has limited consideration of far more cost effective options.
- At **Appendix A**, I have presented (at a very high level) a proposal for a PLAN B for TAMWORTH should Dungowan Dam not proceed based on constructing a pipeline grid connected to a desalination plant. The proposal has deliberately been based on a connection to Sydney and Warragamba Dam as an initial start point utilizing initially the capacity built into the Botany Desalination Plant for future expansion. Water taken from Warragamba can be substituted into the Sydney system or alternatively Country supplies could be connected directly to the Desalination system. The concept involves supporting growth in Country areas by providing a secure backup supply independent of Climate Change.
- My belief is that $1.3B could be spent better to benefit the wider State of NSW and provide resilience under drought conditions.

5) Namoi Water Strategy

- The concurrent preparation of this alongside establishment of an EIS for New Dungowan Dam is noted. It is unclear whether the intent was to have the Namoi Water Strategy as a backup to the Dungowan Dam EIS.
- The Dungowan Dam EIS does not detail the relationship with the Namoi Water Strategy.
- The Namoi Water Strategy was heavily dependent upon the New Dungowan Dam proceeding.
- At Appendix B, I have appended a submission I made. This details a range of points which support my opposition to the proposal which are additional to those raised within.

6) Hydrology

- The existing Dungowan Dam catchment is 125km2. For 6.3 GL capacity this requires runoff of 50mm to fill.
- The proposed New Dungowan catchment is 33% additional making 166km2. For 22GL this requires runoff of 132mm to fill.
- Tamworth Regional Council Drought Management Plan (2015) states that Dungowan has typically supplied 60 percent of Tamworth's water (to licenced 5.4 GL per annum).
- Appreciating the modelling is specialist and computer generated, it remains a model pitched against the vagaries of climatic events.
- Reasonably scaling the increased catchment against the existing would give 6GL x 1.33 = 8GL per annum average.
- The point being made is that a yield of 12.5 GL per annum represents a 50% increase on the scaled 8 GL per annum. There is insufficient information within the exhibited EIS on which to draw further conclusion, suffice to say that a project already considered marginal would need to be absolutely certain of the projected yield.

Thank you for considering my submission.

Peter Gill

07 December 2022

APPENDIX A – TAMWORTH – PLAN B

The purpose of this submission is to generate some "Out of Box" and Holistic thinking which may well involve the challenge of conventional wisdom and a focus in incremental thinking.

The debate I believe should consider National and State Government objectives with Tamworth region as part of that. It just happens that the Morgan Whyalla pipeline concept would serve the "New England Highway Corridor from say Murrurundi to Tenterfield. This is a small part of a statewide grid concept which needs to be derived on a holistic basis rather than a bit by bit approach.

Of course should the stranglehold of "irrigation" be removed against security of Town Supplies then perhaps there are some easier options.

The proposal is about ways to secure inland town water security in the most absolute way without reliance on Climate. Ironically a pipeline could easily deliver the 5.4 GL requirement of the 6500 ha of Peel Irrigators albeit at some cost.

The proposal will come at a cost and touches on "postage stamp pricing" for town water supplies. People of Major Metro areas rely on food and other services (maintaining transport routes for example) from country people and there has been a far greater emphasis on their water security than ours.

There are costs involved in Osmosis and Pumping, however firstly they only become applicable when water is used and secondly the water used is supplementary to existing sources and would only apply to to a small percentage of overall use.

Perhaps the concept of tapping into "their" system might make major metro populations more aware of the plight of their country cousins whilst at the same time they push decentralization as a solution to their issues.

Arising from recent Public Consultations and Community consultation events:

Namoi Strategy 08 September 2022

- Government has decided Towns like Tamworth cannot be allowed to run out of water. Trucking of water not viable.

New Dungowan Dam Community Consult Session 04 October 2022

- Government has decided Towns like Tamworth cannot be allowed to run out of water. Trucking of water not viable.
- Perhaps a little freudian slip was that the capital cost ($1.3 B) being "free to Tamworth" was only a recommendation.

The Following Strategies are suggested by me and supported:

Short Term

- Continue investigations into how Tamworth Water Security can be improved. Remove restrictions on what objectives are to be met to enable robust considerations of options.
- Improve Town Reserve held for town use (approx.40% Chaffey) – No Cost
    - As practice on 63 GL Chaffey (pre augmentation) – Irrigators get benefit from the additional capacity
- Better longer term algorithm for AWD determinations (ie 5 to 6yrs v's current 2yrs) – No Cost
- Only allocate water actually held (prevents reliance on predicted future inflows) – No Cost
    - Easily implemented as Chaffey is full
- Ongoing demand reduction strategies
    - Based largely on current initiatives

- Smaller Allotments
- Investigate proscribed landscaping details into new developments and retrofit existing on voluntary basis
- Differential water use pricing

Medium Term

- Recycled effluent for industrial process – Reverse Osmosis basis. Based on 4 GL per annum of effluent less 1.0 reserved by TRC = 3.0 GL for treatment x 75% yield = 2.25 GL per annum = 25% increase on available water (currently).
- From above whilst it helps, recycled water is not the entire solution
- Personally I have reservations about placing recycle into the human food chain due to unknowns able to be added and chemicals not able to be removed.
- Many use the example of Singapore:
  - Personal experience 2017 to 2018 on 3 visits
  - Quite happy to use water for domestic uses except drinking.
  - Observation that bubblers in public not used as much as we see in Aust.
  - Large quantities of bottled water are on display in convenience stores and purchased by locals

Longer term

- Alternative Sources outside catchments of Chaffey and Dungowan dams
- The only strategy which will provide absolute security without regard to climatic conditions remains as having unlimited supply from outside the local catchment. Clearly this is dependent upon reliable dam supplies or a water source independent of climate conditions.
- This leads to desalination as the only source of new water independent of climate. This also resolves issues of:
  - Accessing supplies of others oft in similar times of need
  - Water Extraction caps

The proposal I put forward is based upon:

- The Morgan Whyalla Pipeline in South Australia
  - 400km at 475m lift, 4 pump stations, Mild Steel Cement Lined (MSCL) Above Ground Welded
  - Services a population of 130,000 highly dependent on pipeline water
    - Stage 1 1940's 750/525 delivering 9.6 GL per annum
    - Stage 2 1960's 1050/825mm in combination with Stage 1 delivering 66 GL per annum – 180 megalitres per day
- The Botany Desalination Plant in Sydney
  - Currently exists sized for eventual 500 ML per day
  - Equipment installed for 250 ML per day currently
  - Activation for the additional only requires installation of additional 250 ML equipment as inlet/brine outlet and delivery pipeline (to Erskineville) is already in place to suit final capacity.
- The Southeast Queensland Water Grid
  - Online 2008 at $6.9 B 535 km 825/1500mm
  - 12 connected Dams, 1 Desal Plant, 32 WTP's (conventional), 3 Advanced WTP's (recycled 220 ML per day) 28 Bulk water reservoirs, 22 pump stations.
- The proposal put forward is not based on total supply to Tamworth (and other parts of grid) , rather it is based on perhaps (at final capacity 50 yrs hence roughly double current needs) of providing

Level 5 (16.5 ML x 2) = 33 ML per day. This could be operated (as a minimum) from the point supplies become subject to Level 3 restrictions to supplement and extend the durability of supply.

- The proposal envisages maintaining a mix of domestic/industrial at the existing Level 5 50:50 ratio as being continuation of current town usage patterns. Similar processes should be applied for other connected towns.

Construction and operation of these facilities are well known and documented.

The information presented here-in is based on desk top searches although I spent my early years in S.A. and am certainly well aware of the pipeline.

Pending final detail design incorporating route, access agreements, pump stations etc the proposal should be able to be developed to a high degree of accuracy for both construction and operation.

The many parameters involved make any reliable forecasting of outturn and operating cost difficult until the concept is developed in a little more detail.

The proposal is thus:

The criteria which stalled options for supplementation from dams near to Tamworth was their use for agriculture. The proposal presented is premised on this remaining as a condition.

The over-riding principle is to source water not reliant on climate conditions and which does not deplete sources for other communities.

The closest Major Drinking Water (Only Dam) Source to Tamworth is Warragamba Dam at 2000 GL.

Use of Water by Sydney is able to be supplemented by Desalination.

The concept put forward is:

Supply to Tamworth and North approx. 100 ML per day capacity pipeline. This includes Armidale to Tenterfield at decreasing diameters with length. This would enable supplementation of water supply to currently 100k population in times of drought with future growth to 200k population.

There are many combinations and permutations here, some options are:

- Water thus supplied from Sydney system is made up from desalination water pumped into the Sydney Reticulation system. This would be able to be supported from enabling the option of the second phase of expansion of the Botany Desal from 250 ML to 500 ML per day.
- Pipeline Warragamba to Tamworth (and beyond) 1100m Pump head from Katoomba 480km. Water taken from Warragamba would be made up by additional Desal output into Sydney system.
- Pipeline Erskineville to Tamworth (and beyond) 700m Pump head following road route 420km. This would be a direct connection to the Sydney System

The possibility of extending westward to Bathurst/Dubbo from Warragamba also exists as does trunking/branching in other configurations.

Desalination Plants in other locations remain a possibility, although at significant additional capital cost which can be offset by reduced pipeline lengths

Interlinking dams is considered only viable for quantities associated with town use and is not considered viable for large scale broadacre irrigation.

$1.3 B allocated to New Dungowan Dam would go a long way to getting a pipeline to Tamworth with the added benefit of spreading the cost over a wider base or even now that Water NSW is the lead agency give rise to a basis for NSW wide postage stamp pricing for drinking water supplies.

Of course should access be allowed to Dams reserved for irrigation then that is a game changer, albeit there is still provision to supplement these from desalination.

As part of this option given the existing situation with Dungowan dam and pipeline consideration could be given to use Dungowan Dam as a “break tank” (evaporation??) in the pipeline grid. That keeps water away from “irrigation” in Chaffey and perhaps assists in justification for the safety upgrade and pipeline replacement.

Figures and calculations within are more oriented to being an informed guess to support the concept and clearly need to be revised if the concept develops further.

Peter Gill

11 October 2022

APPENDIX B – SUBMISSION TO NAMOI WATER STRATEGY

DRAFT REGIONAL WATER STRATEGY: NAMOI

PUBLIC EXHIBITION: SHORTLISTED ACTIONS CLOSING 18 SEPTEMBER 2022

This submission is lodged on a personal and individual basis.

The context of my experience is:

I am a resident of Tamworth (31 years) and have lived somewhere in the Murray Darling Basin for some 55 years. I have never farmed or irrigated. I spent my younger years in a horticultural area (Riverland SA) and have during my life travelled and observed/taken an interest in the Murray Darling System. Professionally as a Civil Engineer (45 years) in Construction (mainly pre-contract phases) I have worked on a wide range of water infrastructure projects.

Having perused the Draft Regional Water Strategy Shortlisted Actions – Namoi August 2022, attended a Public information session and conducted my own enquiries, to the limit of my best endeavors as an individual, I make the following comments relating to the Peel/Namoi.

The primary focus of my comment is from the perspective of water security for Tamworth as a resident. Having sated this though, I believe that my experience and thought process takes account of the wider spectrum of matters water.

Response Overview

I have previously made a submission (ref: 210328_Submission_DPIE_Draft NSW Water Strategy) in relation to the wider NSW Water Strategy. It would appear that the issues raised in that submission have not filtered down to the level of the Namoi as a region.

My view is that the exhibition document presented is seriously deficient in terms of the analysis of factors which underpin the subject of water security.

Major deficiencies in my view are:

- Water Security for Tamworth is based upon a New Dungowan Dam.
- There is no contingency item should construction of this dam not proceed
- Many of the points are couched in actions which are ongoing yet to be finalized or soft actions which are not fully defined
- It appears the case that this document is a final exhibition prior to the draft report being further actioned.
- The report in my view does not reflect a Holistic approach to the management strategy of water management.
- The report requires such modification to counter the construction of a New Dungowan Dam not proceeding that necessitates a further exhibition in order that revisions made may be scrutinized prior to proceeding to be actioned as part of a Strategy,
- Ditto the above point for other changes made to the Strategy document as highlighted in this submission.

The Document Presented for Public Comment

At page 101 Figure 19 states that we are at Public consultation 2, assess and shortlist actions, the next phase being Implement and review. Integrate existing initiatives with new solutions. As such it is interpreted that apart from modification due to Public comment that this document constitutes the Strategy to be implemented.

The document proposes that a New Dungowan dam (at $1.3 B cost) is the solution to Tamworth's water security to support growth upto 20%. (page 29)

Meanwhile the very subject of Water Sharing Plan(s) which provide the very basis of how water is allocated is not covered in this document. It should be noted that 60 percent ie 60GL of the capacity of Chaffey Dam was released in the 18 months January 2018 to June 2019 (in addition to any inflows).

In addition to the above, the document is (in my view) somewhat dis-jointed, contains significant numbers of actions that are couched in open ended and non-specific language.

Furthermore a number of actions make reference to the NSW Water Strategy, however, the details of how that informs the actions is pending/not provided.

Likewise some of the options provided for progression will have impacts on other Regions (ie water diversions), yet there is no feedback as to what those Regions see as the effect upon them.

Similarly there is reference to "Rapid Cost Benefit Analysis" wherein many options were curtailed, yet the rigor of such evaluations is not further closed out.

Given that the time to construct and commission a new dam might be 5 plus years (weather dependent on top of that) it would seem prudent to have a short term strategy covering such period. There is none provided.

Whilst history can be ignored, it is a fact that such history informs the future. Having watched and waited for the Chaffey Dam Upgrade to come on line in 2016, the Political posturing about the improvement in Tamworth's water security had evaporated into "pixie dust" by mid 2019 following the release of 60 GL of Chaffey capacity in a 18 month period. Noting that an additional 40 GL of capacity was generated by the upgrade, the reality was that Tamworth town users obtained Nil benefit from that and faced drastic water restrictions.

The point made is that this happened once and that unless there are actions to prevent it happening again it can happen again. The reality is that in the Drought of Record had Tamworth scored 10 GL of the 40 GL volume upgrade, Tamworth would have fared much better.

Further issues the Strategy is silent on include:

- The gross over allocation of Licensed Shares (surface and ground) compared with sustainable yield by factors of 5 or 6. There is no solution provided as to how this may be rectified.
- Sleeper Licences. There is no solution provided as to how this situation may be rectified

The Public Information session I attended at Tamworth on 08 September 2022 was informative in provision of perspective from DPIE officers and in Public comment on the document presented. Arising from that was some strong negative comment about the "robustness of the report". For future reference it is my view that such consultation be conducted much earlier in the exhibition period.

One aspect of the DPIE address was that large centres like Tamworth cannot be allowed to run out of water. Concurrently a risk based approach was espoused which clearly is counter-intuitive to that scenario.

A Holistic Approach

For a whole number of reasons it becomes expedient to "cherry pick" solutions without giving full regard to the overall scenario and how all the factors inter-relate.

It is easy for attention to be given to points focused on by vocal proponents and to focus on matters in isolation to the combined view.

As a final outcome, the strategies within each region must work for the individual region whilst sitting within a NSW wide strategy which then fits within a Nationwide strategy providing for downstream users.

Within the region(s) Water Sharing Plans provide the framework within which available water is allocated supplemented by demand management, recycling

Meanwhile the needs of the stakeholders, Critical Human needs, Stock/Landholder Basic Rights, Environment, First Nation people High Security Industrial Use must be considered and provided for.

A holistic approach will consider all factors and consider their inter-dependence and provide a balanced outcome.

Recycled Water - Industrial Process

Many commenting on this process seemingly do not appreciate the dynamics of the situation from a Holistic viewpoint.

It is important to realize that as the percentage of water available for is less than unity, it will never be a standalone solution.

Currently the Tamworth Regional Council (TRC) generates around 4 GL per annum of waste water. Currently it is understood that TRC reserve about 1 GL of this wastewater for construction and watering purposes with the other 3 GL going to a re-use farm which produces fodder under a commercial lease arrangement.

It is understood that some trials are taking place regarding further treating the wastewater using a form of reverse osmosis to produce potable quality water for use in industrial (abattoir) process. It is understood that the process generates a byproduct of brine of about 25 percent of input that requires treatment and disposal. This means that of the original 4 GL less the 1 GL reserved for TRC use that a useable output of 3 GL by 75 percent = 2.25 GL per annum is available equating to approximately 25% of the existing raw water usage.

It is understood that this quantum of recycled water would support an abattoir expansion proposed and that it would provide a relatively secure supply basis irrespective of drought restrictions applied to the town water supply.

At this juncture I must point out that I am not in favor of introducing recycled wastewater back into the drinking water system or the food chain (especially when raw water bypasses the Town Supply and is used for irrigation of Cotton and Fodder) due to lack of control over what may enter the wastewater stream. (Having made this point I could concede that I would have no issue with using recycled water within a closed system eg in say a Space Station scenario where the inputs are closely monitored/managed).

I further comment on the use of Singapore as an example of recycled water. From experience I have happily used the water to wash/bathe in a domestic situation. However, it is my personal observation that the Government of Singapore exerts far more influence on the lives of the population and that the population are generally more attuned to these values compared to Australia. I observed the use of copious amounts of bottled water and use of public water bubblers being far less frequent than what I observe in Australia

To consider the issue of Recycled Water in a Holistic manner, it can account for approximately 25 percent of the raw water intake, there is the ability to use the volume available after processing to a potable standard to underpin an abattoir expansion and provide a stable water supply. That in itself solves the issue of recycled water in the drinking water.

However, the issue of the byproduct (brine) remains, although there is potential for recovery of constituent chemicals for non food uses.

A further issue remains in that the reuse farm is then denied water for fodder production meaning fodder must be sourced from elsewhere or other arrangements must be made to secure water for fodder production, potentially increasing demand for General Security allocations.

There are costs involved in generating recycled water which I will not go into detail on, however, these could be considered a trade-off for security of supply and could be offset by not applying sewer disposal costs for process wastewater.

Above, I have used the term Holistic approach, the argument put forward above for recycled water is (in my view) illustrative of what I deem to be a Holistic approach for the subject.

The Strategy on Exhibition does not provide the level of detail used above, something I consider it being deficient in.

Reticulated Recycled Water (Purple Pipe Scheme)

For Tamworth this is probably a lower priority as Wastewater is already recycled to the re-use farm and potentially this could be re-purposed to purified industrial use.

The Drought Cycle and Drought Resilience

My observation(s) (without the benefit of comprehensive data) is that typically Tamworth runs on a 5 to 6 year full to empty cycle.

Part of the issue with droughts is that drought itself exacerbates demand on the remaining water. Having water available requires either storage or supplementing from elsewhere.

Various options are available to “augment, stretch or enhance” the available water supply.

- **Substitution**
  Effected by changing processes and substituting recycled water to reduce demand for raw water. (or additionally provide scope for Industrial Expansion. Views on this are covered under the heading Recycled Water – Industrial Process above.

- **Supplementation**
  Effected by sourcing water from new sources within and/or sources outside the catchment. It is important that such sources are drought proof and do not compromise supply in those other regions. Practical realities of scale limit this to Township supplies. The concept of a State Wide Distributed Water Grid is expanded under a separate heading later.

- **Recycling of Runoff (Rain/Stormwater)**
  My understanding is that BASIX requires all new dwellings to have 5 kL tankage with linkage to toilet flushing and garden use. There is scope to increase the minimum size tank in order that an improved annual yield is obtained.

  In terms of domestic residences encouragement should be provided for tankage installation for garden and pool usage.

In terms of capture and re-use from Stormwater systems options should be evaluated and further considered, especially for public spaces.

The point is made that water captured in this fashion is removed from the general environment as it would otherwise end up on the ground to soak away or in the case of capture from stormwater systems, not end up in river systems.

- **Demand Management**
  The annual treated water usage for Tamworth has remained steady around 10 GL per annum for a period approaching 30 years, despite the growth which has occurred over that period. The document on exhibition does not appear to analyze any factors which may have contributed to this outcome. Drought management strategies are mentioned, however, those in existence for Tamworth whilst well trued and proven are in reality reactionary responses once a drought has commenced ie dam levels have dropped below the defined trigger points.

  What is needed in conjunction with these reactionary measures, are measures which act to reduce demand overall ie ongoing efficiency measures.

I comment that the Draft Strategy on Exhibition does not deal in detail with the aspects raised above. It is appreciated that some of these activities are day to day business for Councils, however, they are part of considering a Holistic solution.

<u>Water Portfolio Management</u>

- **Use of Chaffey Pipeline**
  The present position where-in use of this pipeline is only invoked once Chaffey falls below 20 percent should be reviewed. This puts Tamworth in a situation where reserves are seriously depleted before the significant savings realized by not transmitting water to Tamworth via river are realized. Operation of this pipeline effectively doubles the remaining endurance of supplies. Operation should be incorporated into Tamworth Drought Management Plans.

  This review will need to be accounted for in Water Sharing Plans (WSP) and considered in conjunction with Environmental releases.

  This point is not considered within the Draft Strategy Exhibited for comment. There would be a Nil Cost to implement this operation.

- **Timing of Environmental Releases**
  It appears to me that currently Environmental releases happen according to a prescribed program rather than being based upon need. As the drought of 2020 broke and there were reasonable flows in the Peel many (myself included) queried this with the authorities. Advice offered at the time was that this was in accord with the WSP. Any water thus saved could be “banked” for future Environmental release providing for enhanced outcomes and resilience. Arguably some of this could be applied to aquifer recharge in the Peel.

  This point is not considered within the Draft Strategy Exhibited for comment. There would be a Nil Cost to implement this operation.

- **Town Water Savings**
  For Town Water Supplies it seems counter-intuitive that savings made are not applied to the benefit of the townfolk who have made the effort. As such any benefits accruing should be banked as a holding in storage.

  This point is not considered within the Draft Strategy Exhibited for comment. There would be a Nil Cost to implement this operation.

- **Water Source/Zone Amalgamations**
  In recent years the Peel Alluvium Groundwater Source has been amalgamated with the Namoi source. This is believed to facilitate the transfer of entitlements in and out of the former Peel Alluvium area.

  In terms of Surface Water should any amalgamation occur this could have implications for Peel Valley users, and in my opinion should not be allowed.

  This point is not considered within the Draft Strategy Exhibited for comment.

- **Water Trading**
  This point is not considered within the Draft Strategy Exhibited for comment.

  Particularly with Surface Water there is potential for water to be transferred downstream through trading. This may not be such an issue when a water holder sells surplus unused entitlement within a water year (without any addition for carryover), however, wholesale transference of licenses could become problematic.

- **Other**
  Issues raised under this point also interact with other points made in this submission. Again indicating why I hold Holistic evaluation of such high import.

Water Sharing Plans (WSP's)

The Draft Strategy Exhibited for comment does not deal with WSP's. Of predominant comcern to Tamworth is the Peel Surface Plan.

It is considered that some changes can be made with little effect and Nil Cost which would significantly enhance Water Security for Tamworth.

Significantly right at this juncture whilst Chaffey is full there would be no effect on Non Town ie High Security (HS) and General Security (GS) users.

- **Longer Term Allocation Algorithm**
  Whilst perhaps appropriate for Irrigation, the current basis of AWD's being made on a two year basis fails the longer term needs of Town Supply.

  It is my view that such algorithms should reflect the Fill/Empty cycle of Tamworth's storages and water sources. This should allow updating on a rolling basis and be updated to consider inflow and be based on water actually held.

  This point is not considered within the Draft Strategy Exhibited for comment. There would be a Nil Cost to implement this operation. Water Security for Tamworth would be enhanced as a result in that due consideration of the longer term situation would be mandated as part of the process.

- **Larger Town Supply Compartment In Chaffey Dam**
  When Chaffey augmentation was completed (and filled) in 2016 to great Political fanfare of greatly improved water security into the future an additional capacity of 40 GL was added.

  During Consultation sessions in updating the Tamworth Regional Council Drought Management Plan 2015, in response to this matter it was advised that practice with the former capacity was to stop General Security releases when a dam capacity of 40 percent was reached. It was the expectation at that time that this would be the case for the augmented capacity. However, as history reveals this was not the case in 2019 when Chaffey was run to 22 percent capacity before General Security releases ceased.

The point made is that it appears all of the capacity increase (40 GL) was not applied to Town Security ostensibly due to the Water Sharing Plan not being updated for the revised capacity. This also was an emerging situation wherein whilst storage decreased and inflows were lower than ever previously recorded, no corrective action was applied.

It remains significant that in 18 months from January 2018 to June 2019 some 60% capacity (plus inflows) of Chaffey Dam was released. Considering Tamworth Water Supply at 10 GL per annum, Peel Irrigators at 6.4 GL per annum and Environment at 7 GL per annum this volume of release was almost double needs.

Had a pro-rated share of the 40 GL increase ie 63 GL x 40% to 100 GL x 40% = 15 GL been fairly applied to the security of Tamworth's Water supply, Tamworth would have breezed through the drought of record.

It is considered that changes can be made with little effect as Chaffey Dam is full and Nil Cost which would significantly enhance Water Security for Tamworth.

It is appreciated that this is based on current usage levels, however, it does provide a short to medium term option and the timing with the dam currently full means that there would be no impact to General Security users.

- **Only allocate water actually held**
  It remains my view that Tamworth was placed in a dire water Security situation in 2020 because of poor management practices. Public sessions of the time attempted to portray lower than anticipated inflows (whilst at the time ignoring other droughts of record). Meanwhile releases continued irrespective of this situation developing. This lead to Tamworth being left with 22 GL when GS releases were curtailed. Again "compliance with terms of the WSP" was the reason provided at the time

  If only water actually held were released (instead of relying on predicted inflows) this situation would have been averted. This would apply as the Available Water Determinations are considered for each forward Water year.

  It is considered that changes can be made with little effect and Nil Cost which would significantly enhance Water Security for Tamworth.

- **<u>Aspects of Water Licensing</u>**

From enquires I have made it appears that in the Peel Valley irrigates 6500 Ha which is restricted to an annual licensed average take of 6.4 GL.

The licensing is greatly over-allocated in share. This is converted to shares against which Available Water Determinations are applied by share.

There are a significant number of Sleeper Licenses which if activated will cause problems for established irrigators as the AWD yield per share for their holdings will reduce as more shares are activated.

Understandably this situation has arisen from years of poor practice. For Surface water significant risk arises should a one megalitre for a one share allocation be made (as appears to be the case referenced at page 40 of the report. It was certainly the case in 2018-2019 water year where it was 1.0 ML per share reduced to 0.38 ML per share.

Reference is made to conversion from General Security to High Security based on a ratio of license units. This is not supported without rationalization of the share numbers back a match with the license volume.

The point is made that some irrigators hold both surface and ground licensing where proximity to the Peel permits. The connectivity between surface and aquifer in the Peel would seemingly confer an unfair advantage to some who are able to 'double dip".

Storage

- Aquifer Recharge/Storage was mentioned, however, without any specific detail. It is certainly something that needs more detail consideration. Virginia in South Australia utilises recycled effluent from Bolivar which is pumped into the aquifer.
- With the Peel similar might be easily accomplished using a series of offstream (storages) which capture water from high flow events which invoke supplemental take under license conditions provided downstream flow targets are achieved. This could be as simple as establishing suitable offtake weir levels.

A State Water Grid

I am quite familiar with the South Australian Morgan – Whyalla Pipeline and the Mannun – Adelaide pipelines. In the case of Morgan/Whyalla the pipeline is the sole source of water.

During the drought of 2020 it was not only Tamworth that faced severe water security issues.

The concept I propose is based on the interconnection of existing and new dams and potentially a desalination plant which provides the ability to transfer water between storages and to augment this with desalination when necessary. The idea in the case of Tamworth is that it acts as a supplementary source to bolster supplies from dams especially in times of drought.

I would envisage a system with a trunk capacity of around 100 ML per day, roughly about 1200mm diameter. Laterals could be run to towns as required where they rely on a bore source or do not have a suitable dam.

In order to keep this submission concise, I will not further expand on detail. Routes/capacities, design will further inform the case as it develops. There are numerous options with development timing and phasing which may allow a phased delivery.

Compared to a singular 22 GL Dam (New Dungowan) providing a singular town this could additionally support other towns especially considering the wishes for de-centralisation.

A pipeline from a source outside the catchment will provide additional reliability of supply moving to an absolute one if coupled with desalination.

Preferred Options/Solution

Ensuing from the points raised within this submission:

- Re-draft Water Sharing Plans
- Provide a larger Town Water compartment in Chaffey Dam
- Prevent a repeat of 2019/2020 by drafting specific legislation/protocols
- Utilise Recycled Water from Effluent discharge for Industrial Process (about 25% additional to existing treated water use)

- Establish a State Pipeline Grid
- Build a Desalination Plant

Conclusion

The Draft Document placed on Exhibition is limited in scope and reliant upon construction of a New Dungowan Dam as the sole (major) option for Tamworth Water Security. There is no plan B alternative should the New Dungowan Dam not proceed.

I consider the rigor of the outcomes proposed to be low, and detect an emphasis on the use of figures to justify cases which are less than can be achieved. I also detect a strong emphasis on Irrigation ruling the discussion with relatively little emphasis genuinely being given to Environmental. First People's and Town Water Security issues.

The Draft Document appears incomplete/inconsistent as a Holistic consideration of the Water Issues especially in that it does not incorporate consideration of how it interfaces with Water Policy, Water Sharing Plans, Relationship with similar Draft Strategies of other regions and the overall NSW Wide Strategy.

Furthermore many of the Actions are couched in open ended language and contain non-specific outcomes.

Within my submission (focused on Tamworth's Water Security) I identify a number of solutions which provide immediate effect at no cost, especially when Chaffey Dam is currently full.

Water Policy in NSW is in my view a mess and lacking in direction unless to do with irrigators and over-extraction. It is galling for Tamworth and residents to have been placed in the situation it was during 2019 and 2020 when this was due to nothing more than mis-management of our water supplies by NSW Government operatives.

Hopefully from this process, should comments from this process be duly considered, solutions will be devised such that these events are not able to be repeated.

Thank you for considering my submission.

Peter Gill

18 September 2022