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IRRIGATION PROPOSALS MIDLANDS TASMANIA

PART 1: SCHEMES DEPENDENT ON THE SOUTH ESK CATCHMENT

PART 2: SCHEMES DEPENDENT ON OTHER CATCHMENTS

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PART 1:
IRRIGATION SCHEME PROPOSALS DEPENDENT ON THE SOUTH ESK CATCHMENT

Several proposals designed to improve water availability in the region between Cleveland and Woodbury have been mooted in recent years. This area also includes the significant towns of Ross and Campbell Town, and lesser towns such as Tunbridge.

These proposals have depended in some manner on the South Esk River and its tributaries (especially the St Pauls and Macquarie Rivers). Basic details of such proposals are given by TIDB (2008). Each involves a large dam, either on the Upper South Esk River itself, Meadstone on the St Pauls, and either Upper Junction Hill or Maloneys Hill on the Macquarie River.

As an example of the fanciful nature of some of these proposals it may be noted that the 30 000 ML (30 GL) option on the Macquarie River has since been dismissed (Ministerial statement) and no longer on the agenda. The TIDB report, however, gave the proposal much space and recommended next stage analysis and it is interesting to note the balance and perspective of that work – should it have happened. There is no mention of a hydrological analysis for this definitely suspect river although such things as algal risk, local flora and fauna assessments, and aboriginal heritage were to be considered. One should have thought that the prime consideration would be: is the water likely to be available? If the answer to this question is demonstrably yes, and not some presumption, then it might be reasonable to ask the other questions. Old proverbs about horses and carts come to mind.

The Meadstone Dam proposal, however, remains live, as advised in Budget Estimate Hearings on June 22, 2009 when Minister Llewellyn noted that "we are anxious to get that moving along." (transcript)

It must be noted that the construction of storages in the Upper Esk, or along the St Pauls, regardless of precise location, must affect the water supply to any current irrigation scheme, or flow pattern, downstream – and this includes existing allocations between Llewellyn and Evandale or Perth. This fact is admitted in the Draft Water Management Plan for the catchment (Appendix).

The various ideas (e.g., TIDB, 2008) for watering the Midlands have involved

1. Water delivered from Great Lake via Poatina (and pipelines south). (known as the Midlands Water Scheme, 50 GL; one GL = 1000 ML)
2. Diversion of Upper South Esk (and pipelines). (known as the Midlands Water Scheme, 20 GL)
3. Diversions from the South Esk near Conara and piped directly. (also known as the Midlands Water Scheme, 9 GL, proposed in March 2009)
4. A dam at Meadstone to supply parts of the South Esk catchment. (30 GL)
5. Some combination of the above

Any uncommitted water, if there be such a volume, from any of these contributing catchments, ultimately reaches Lake Trevallyn where it has hydro electricity generation potential and further value.

Further, if the pulp mill proposed for Longreach is actually built then the amount of water reaching Trevallyn has to be sufficient to supply its demands of approximately 26 GL (but perhaps as much as 40 GL), since that is the nature of agreement between Hydro Tasmania supported by the Tasmanian Government.

It should also be noted that, when the water is available and of good quality, the Trevallyn storage also contributes to the water supply of greater Launceston. This usage has been very limited in recent years because the volumes and quality have been inadequate for much of summer.

It is clear that there are some complex and integrated hydrological questions in this situation and none of them are posed, let alone answered, in the TIDB literature. These are

1. How much water can the South Esk catchment supply and how much is allocated already?
2. How much does the end result at Trevallyn depend on the supply from Poatina and Great Lake and what would be the effect of a closure or loss of this source?
3. Can the catchment spare the 20 or 50 GL that would be diverted were the Upper Esk or Meadstone Dams be built?
4. Can the catchment spare the 9 GL share proposed for diversion south the Campbell Town?
5. Does Great Lake have systemic dependency on other sources and, if so, are they committed or likely to be committed?
6. Is there sufficient water in the Poatina release to share with existing commitments to the north (Cressy-Longford irrigation, Trevallyn, Launceston, pulp mill perhaps) and still provide the suggested up to 50 GL to the south, that is, to the Midlands?
7. How dependent is the catchment upstream of Perth dependent on the Meander River?

At the time of writing the Poatina supply is an important irrigation feed to the western plains with some overflow to Trevallyn and the river itself is the crucial supply for extant users in the eastern plains. Failure to maintain supply to this area and retain its existing production would be disastrous for all towns and land owners in the district north of Conara.

Consequently, any Midlands scheme depends on there being adequate excess capacity at either, or both of, Poatina and Llewellyn. With this consideration firmly understood, issues and proposals upstream of Llewellyn or Poatina can be reviewed in order to test where the required water could be sourced.

Upstream of Llewellyn

At least two dams have been proposed in the upper catchment of the South Esk River; including Meadstone on the St Pauls River. No details have yet been released for a dam upstream of Fingal but some indications are available for the St Pauls idea.

Leaman (2008) has published a hydrological summary of the St Pauls and Break O'Day catchments. Both are major tributaries of the South Esk River. That analysis suggested that the Break O'Day contributes relatively little to the South Esk other than at irregular intervals at times of flood. The St Pauls, however, has a more regular and reliable catchment and is a significant contributor to the flow as observed at Llewellyn.

Figure 1 indicates long term behaviour of the St Pauls catchment. The pattern of rainfall and river flow is erratic and lacks an obvious summer-winter regime. The demands of the catchment show relatively normal summer-winter variations. It may be commented that the Break O' Day system is even more irregular and these two catchments are unusual in a Tasmanian context, reflecting the balance of west and east-directed weather systems. Much of the catchment is in rain shadow from westerly systems and easterly systems are critical to yield but much less predictable.

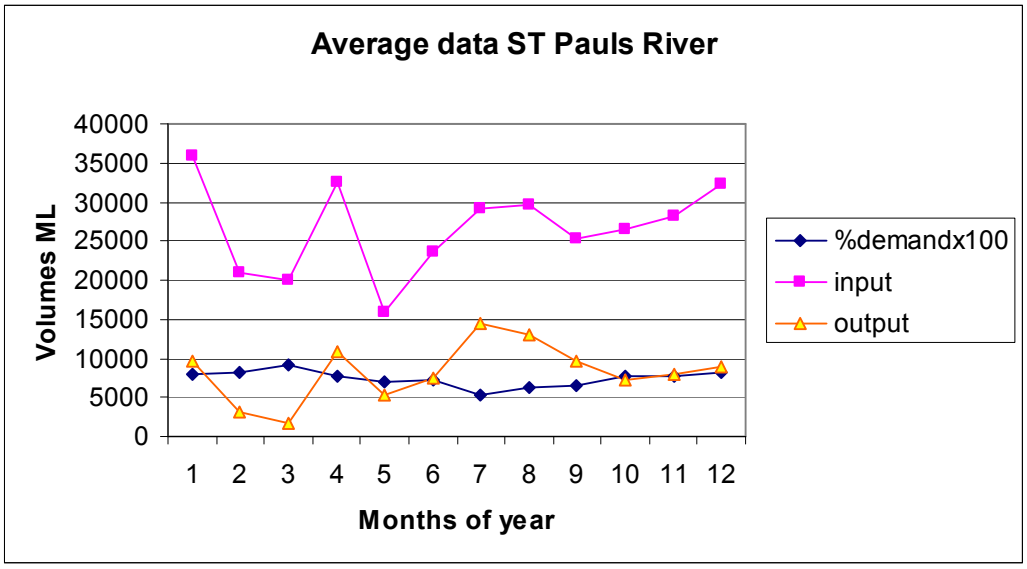

Figure 1: Long term average behaviour of the St Pauls River.

The long term water budget for the St Pauls River catchment is shown in Figure 2. This plot is based on rainfall integration from gauges at Gray, Lewis Hill and Avoca and is up to date (March, 2009). The diagram reveals a clear 130 month cycle and considerable variability in input with modest changes in output – at least until about 2004. The reduction in flow, since that time, is not explained by the change in rainfall: compare the previous cycle from 1993. Something else has happened, and possibilities include major depletion of the groundwater storage system, increased natural evapotranspiration due to gross temperature increase, or changes in land use.

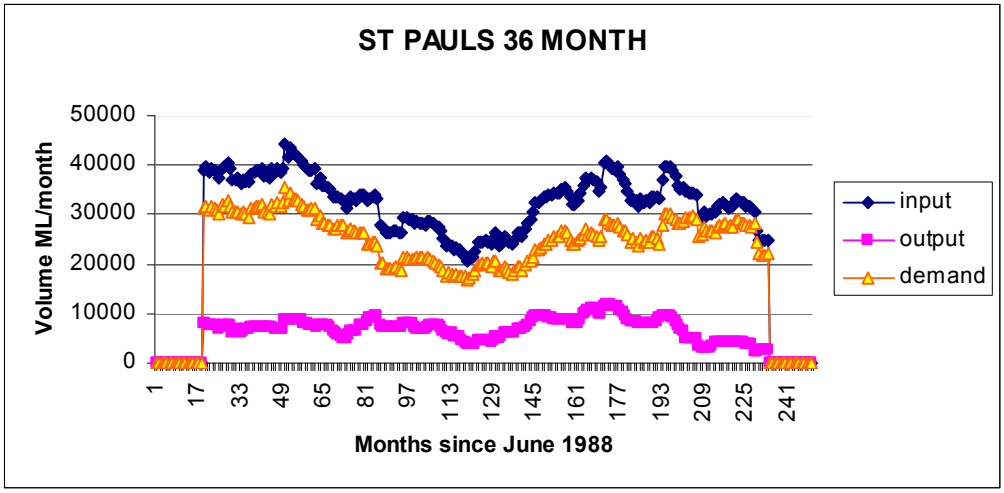

Figure 2: Water balance plot for St Pauls River to March 2009 using a 36 month running average filter.

Apart from high rainfall-high flow events in October 2005, July 2007 and December 2008, typical flows per month have been less than 100 ML/month for 21 months since January 2005, less than 200 ML/month on 27 months, and less than 500 ML/month in 35 months in the 51 months involved. The long term average implied in Figure 2 and other diagrams is about 3500 ML/month for this same period while the average for the entire period of information is about 8000 ML/month.
It is important to note this current reality, since it is comparable to findings for the Coal River (Leaman, 2009) and other catchments.

Leaman (2008) derived a long term yield of 2 ML/ha/year for this catchment but this applied up to 2004 and it is now likely that the yield is half this value. The catchment is lightly stressed by the applied climate with a long term overall evapotranspiration of 67% of the budget (50% in winter, 90% in summer).

Conditions in the Break O'Day catchment are summarised by Figures 3 and 4. Data in these figures has not been updated from status as of March 2004 but it should be anticipated that the volumes have been much reduced in recent years.
The long term filters applied in Figures 2 and 4 can be misleading since these smooth out short periods of high rainfall and long periods of no rainfall and provide only a likely estimate of volumes over the filter period (in each case here, 3 years).
No one should expect to receive more over the longer term than these graphs imply, and all should expect to receive much less over significant periods, perhaps one or two years.

This review suggests that, in recent years, these two rivers have provided no more than about 5000 to 6000 ML per month at Avoca (or Llewellyn).

Consider now the situation for the South Esk River as an entire unit.

The long term flow pattern at Llewellyn (Figure 5) is comparable to that at Perth (Figure 6) for the period where the two records overlap.

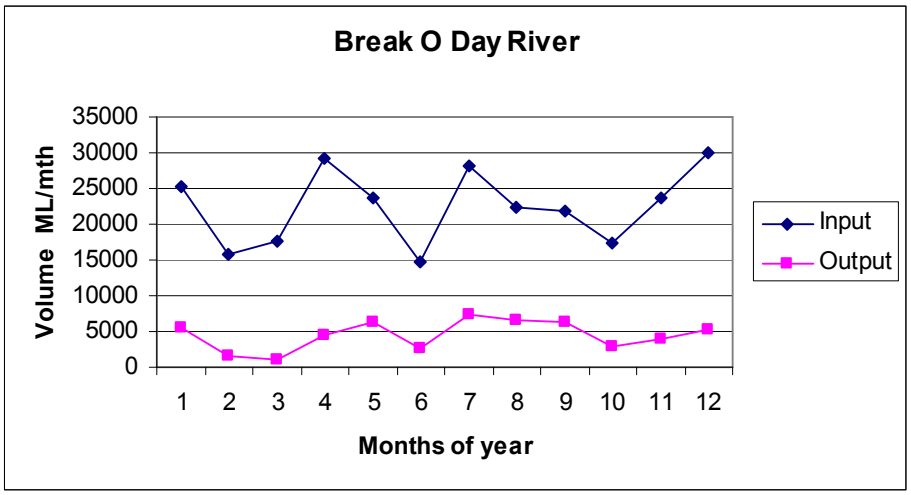

Figure 3: Long term input and flow pattern for Break O'Day river.

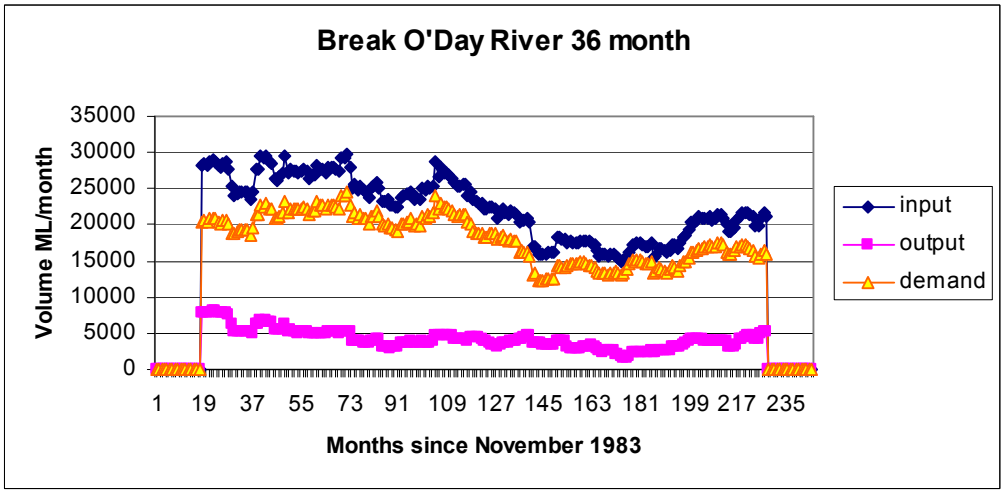

Figure 4: Water balances for Break O'Day River (Nov 1983-Mar 2004)

In the period which enables comparison (from December 1972) it is evident that little water was gained between the two stations implying that the flow from the Nile, Lake, Macquarie, and Liffey systems is either very small or almost wholly committed to towns, agriculture, irrigation, groundwater recharge and evaporation.
Note that the Perth gauge should also receive benefit from Poatina releases.

Primary water generation in the South Esk River catchment occurs upstream of Llewellyn and, probably, upstream of Fingal-Mathinna, given the rainfall distribution in the catchment. The proportion of upper catchment generation (including the St Pauls and Break O'Day) is of the order of 75% of total accumulation.

The Meander, prior to its damming, was the only other water feed to Trevallyn: the South Esk River was largely spent. See Figure 7 which indicates how often this major catchment (South Esk) is reduced to almost nothing.
Now that the Meander has been dammed the real issue has become, will it also be over allocated or will a forced release be retained, or able to be retained? With all such schemes there is pressure to encourage water use where, previously, there had been little. This is happening. What will be the longer term effect at Trevallyn?

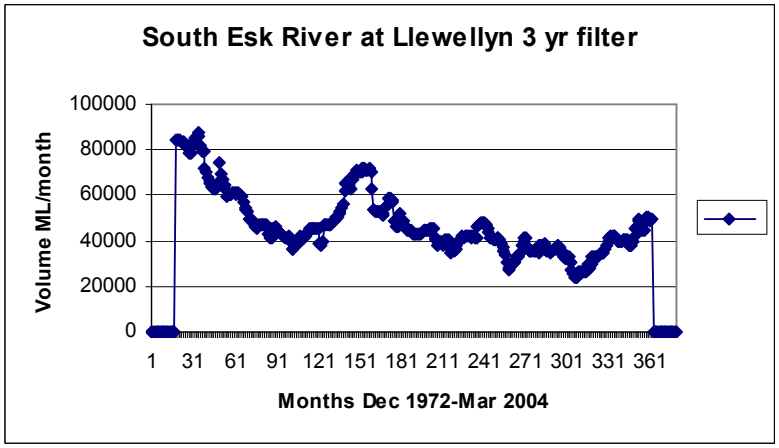

Figure 5: Flow, South Esk River at Llewellyn. (Diagram located on page to correlate with Figure 6)

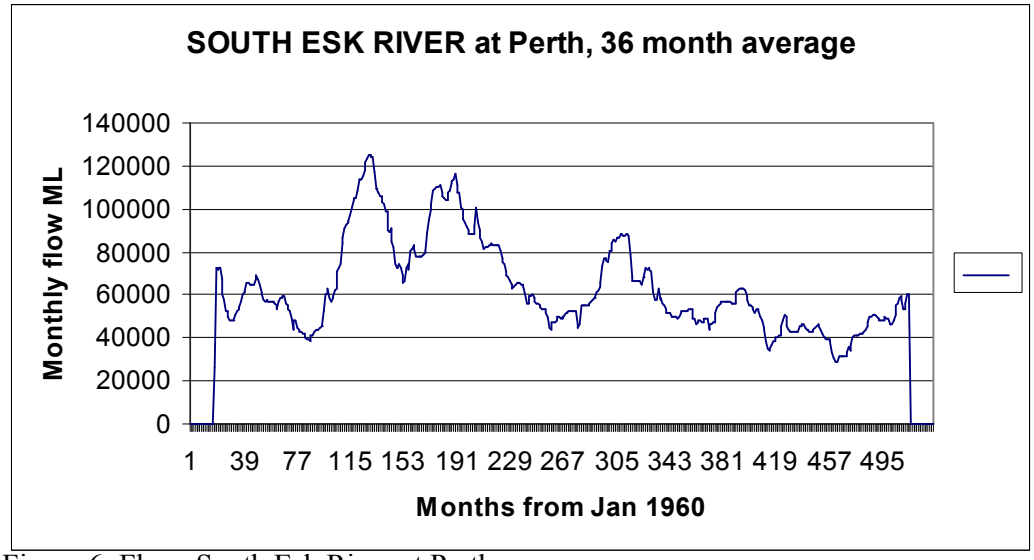

Figure 6: Flow, South Esk River at Perth.

This diagram also suggests the abnormal rain and flow pattern of the period between 1970 and 1976 and that, perhaps, "normal" levels are of the order of 50 000 ML. Long term averages may be distorted by anomalies of this type.

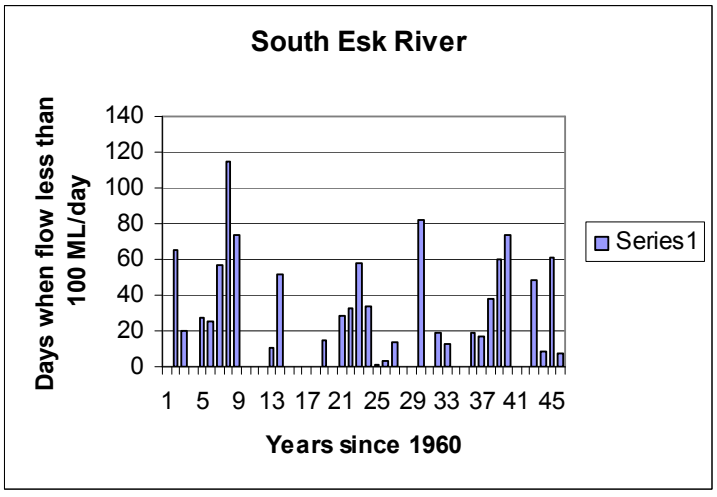

Figure 7: Number of very low flow days at Perth prior to 2005.

Some incidental facts include the general requirement that 129 ML/day must be released from Lake Trevallyn into the Gorge, and that Esk Water (now renamed) may take up to 40 ML/day for urban water. The role and balance of supplies can be implied from data, taken for example in late 2006, in which natural river flows were about 100-200 ML/day and yet releases from Poatina were 1000-1400 ML/day. This reveals exactly where the water is coming from. No Poatina input equals disaster. The problem for this system is, can Great Lake sustain these volumes? In recent years lake level has fallen markedly and diminishing annual average rainfalls has limited power generation and extraction from this source. Since indications are that an 8% decrease in rainfall amounts to a regional decrease in catchment yield of about 15%, climate variations remain critical (for short term surges and long term storage).

Stress on the Trevallyn system can be summed. If urban water and environmental flows amount to about 170 ML/day – and the environmental requirement is a massive understatement of actual need, then an additional 80-100 ML/day to a pulp mill would mean a total claim of about 270 ML/day, and this will exceed even the modest inputs of recent years which have included the Meander system. This sum exposes a serious lack of integration and planning of water resources and commitments.

It has been argued that the environmental flow release from the Meander Dam, of 100 ML/day, covers the mill and emergencies but the question must still be asked, how much of that water will reach Trevallyn? Or, will water reach Trevallyn by preventing those who have bought water, or who have legitimate allocations and rights to water, from taking it?
And, given the lack of comprehensive water management planning observed generally, can we be sure that the Meander Dam – and its supplies – are sustainable at the levels presumed. If the presumptions about that dam were of the same type as offered for all these other schemes then they have been predicated on long term yields based on past history which no longer applies. Further, the land use changes enacted in the upper catchment of the Meander system will, like those of the upper South Esk, ultimately depress the yield below levels based on climate trends. Typical forest plantation and regeneration claims in the upper Meander basin are likely to exceed 2.5 ML/ha/year and this factor has not been included in any planning estimates. I am not hopeful that all the assumptions about the system, and its users, can or will be met.

There is a further element involved: Arthurs Lake.

Great Lake is supplemented by water pumped from Arthurs Lake. Were this to be restricted, either naturally due to lack of rain, or by management due to diversion elsewhere or for environmental reasons, then the supply from Poatina would also be restricted in the absence of increased rainfalls in the catchment of Great Lake. Arthurs Lake becomes a critical element in all these equations because it has been proposed as a water source for the lower Midlands (Part 2 of this review).

The above information suggests that

1. There is not now, nor will there be, any spare water or uncommitted flow from Poatina to direct south into the Midlands unless extra water is drawn from Great Lake (problematic) or Arthurs Lake (a conflict as shown below).

2. Any scheme based on Poatina diversions are impractical or fall into the category of robbing Peter to pay Paul. This is especially true when the volume involved is nominally 50 GL. It means that water has to be diverted from existing users and allocations if such schemes are to work. This is silly as well as inequitable.

3. Existing allocations and commitments are already too high and should be trimmed dynamically in response to rain and flow reality to allow some flow as a modest environmental requirement – which is certainly not present now. It must also be commented that the bulk of the river system downstream of Llewellyn has been altered and degraded by years of mismanagement and unreality. This is a big catchment but it is not blessed with big rainfalls.

Any scheme which reduces flow past Llewellyn, such as insertion of dams on the South Esk River itself, or the St Pauls, must worsen the situation downstream for all current users (including environmental condition). Such storages, apart from any other consideration, waste water to evaporation. Further, the river is already suffering extreme losses in its upper reaches for various reasons; mainly climatic, but also due to an extreme and hydrologically unplanned forest policy. Even if climate trends reverse in coming years the catchment will still be left with a huge, and increasing, deficit due to forest growth take-up at a rate of 2 ML/ha/yr average for the life of a rotation with a maximum growth claim of 3 ML/ha/yr (see Leaman, 2008). These appear small claims until one multiplies by the number of plantation and regeneration hectares involved and the observation that the industry continues to "develop" more forest.

The conclusion:
The South Esk River system has no spare water, is highly stressed now, and is already over-allocated west of Llewellyn.
It should not be further involved in any diversionary scheme. None will work, not even the measly 9 GL idea of March 2009.

And, this conclusion is also held by DPIW, based on a copy of the Draft Management Plan. Extracts of this document and its precursors, which I have been able to receive or read, are reproduced and discussed in the Appendix.

There is a final policy-political issue involved.
If new users or investors in the proposed schemes are required to fund a large proportion of the development cost and, perhaps, also pay a water charge, will this mean that "those who are last (but have paid a lot), shall be first" in terms of receiving water or their allocation? Very clear management and share rules are essential in a situation where some have had "traditional" or long term rights of access, but may find that access, or availability, lost to those who have come along as part of the latest scheme.
Principles of water pricing and sale of the resource compound these problems. TFGA does not seem to have realised the tricky problems of equity and history implicit in the funding and delivery of these new proposals. Nor, in fact, has TIDB or the government. They are recipes for trouble – of all sorts.

PART 2:
IRRIGATION SCHEME PROPOSALS DEPENDENT ON OTHER CATCHMENTS

Various ideas for watering the central and lower Midlands have involved

1. Diversions from Arthurs Lake, via a power station and then piped directly (also known as the Midlands Water Scheme, 31 000 ML or 31 GL, first proposed in March 2009)
2. Extraction from the Derwent River (for Coal River expansion, and Jordan River dependents as proposed in July 2009).
3. Water from somewhere else.

The issue of **Arthurs Lake** was introduced in Part 1, above.
The 2009 proposals, for the central Midlands (south of Campbell Town to Mt Seymour) and for the lower Midlands (Kempton to Oatlands) require a significant take from Arthurs Lake: a minimum of 31 GL.
The total requirement is not yet confirmed but it does not matter much what it is: it is too much. A few basic figures demonstrate this. The average yield to the lake in the last few decades has been about 105-110 GL but in the last five, only about 75 GL. Hydro Tasmania has claimed more than this lower figure each year for Great Lake and Poatina and the Lake and Cressy irrigation schemes.

Much study is needed about the long term hydrology of this lake and recent trends in its water storage and availability. Diversion of 31 GL to the Midlands would have left Hydro Tasmania with only 44 GL in recent times. This would have caused problems for power generation and for the irrigation schemes already in place in northern Tasmania. Estimates of security quoted by the Irrigation Board do not recognise current reality, or likely future reality, or trends. We may hope for a turn-around in rainfall patterns but, until that happens and is confirmed, we should not assume long term averages are meaningful. See discussion in Leaman (2007, 2009).

This discussion, and the detail of the proposals, completely ignores the condition of the lake and its ecology and stability.

Even though the risk of failure of supply from the lake is apparent, as shown by recent events and flows, the Irrigation Board can blithely suggest a further diversion, south of Oatlands, from this lake. This is definitely ill conceived.
All proposals involving Arthurs Lake amount to robbing of a very poor Peter to pay Paul. The water can only be used and distributed once, not three times. It is not an unlimited supply generated or deliverable by magic or a sorcerer's apprentice.

The possibility of using another catchment has been mooted before and the Derwent was used to support emergency supplies to the Coal River Irrigation Scheme when the Craigbourne Dam failed to fill. As shown by Leaman (2009) this is the very problem which will arise with any ill-conceived scheme which does not deal first and foremost with hydrological reality.

None of the proposals for dams and irrigation schemes currently on the table for North east, Midlands and Southeast Tasmania have a skeleton of reality: they are focussed on commerce, economics and engineering and miss the point. Water is the issue, and it is not immediately, or ever (?), available from adjacent areas.

There can be little doubt that the Derwent River system can supply the necessary water to the lower Midlands and the South east.
The question is, should it?

It may be time to properly examine the associated issues listed in each proposal. It may be fine policy to make Tasmania the food basket of Australia but quite another to make it a commercial success. Matters of crop, market, buyer acceptance and price come to mind and the recent problems with dairy prices raise this spectre.
Publicity attached to the Jordan region supply proposals suggested that the water be used for pasture (very wasteful and costly of water), cereals, poppies, lucerne and potatoes with potential for expansion into perennials such as grapes, cherries and apricots. How realistic is this given experience nearby in the Coal valley? And, why are we applying water in a semi-arid region, for that is what it is, when better soils and rainfall conditions apply elsewhere in Tasmania for the production of many of these products. Perhaps they are not being grown in Northwest Tasmania, where conditions are suitable with less hydrological supplement, because they are basically not economic or planning has taken good land out of production by allowing replacement of vegetable production by plantations. Then, on the basis that we must grow more food, poor areas must be watered – at considerable cost and with difficulty. None of this seems logical or based on integrated planning.

The real issue, however, is two fold: are the soils capable and can the problem of salinity be avoided or controlled?

Few areas of soil class better than class 3 are available in the region. This means that productivity will be limited (see DPIW, 2008a).

The region, comprising the lower Midlands, the Coal River valley extended, Orielton and Sorell, is noted for its moderately saline groundwaters and, in some areas extremely saline groundwaters, and soil salts. A careful review of the history of irrigation in the Coal River scheme should be undertaken along with the presentation of advice to all potential water users of the risks being taken and the need for soil and crop assessment (Leaman, 1971, 2009).

Use of Derwent River water will mean, however, that salt problems – should they arise – will come after longer applications than was the case with saltier Coal River water. There may even be some flushing.

Note that use of the Derwent River does not require a dam or major storage and may not require much treatment for irrigation purposes. Provided the water is taken near Bryn Estyn there should not be any new environmental damage to the Derwent system.

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Report prepared by

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July 2009

APPENDIX

COMMENTS ON AVAILABLE REPORTS

DPIW (2008a) Report WP&P 08/01 on Future Water Demand

This is a complete misnomer. There is nothing in it which defines any trends or demands – whether of climate or usage.
We get no real idea of production forestry versus plantation forest areas nor any indication of current and likely future usage – which will increase.
The soils present do not offer any great encouragement either. Why are we/they bothering with irrigation schemes???
There is no sense of any planning or guidance.

DPIW (2008b) Report WP&P 08/02 on Water use and management arrangements

This is slightly more informative, but not much.
Current usage of the South Esk River is said to be 17986 ML, and allocations of 49576 ML. This is a fair discrepancy suggesting that the water is rarely available. Likewise with the storages, where 40392 ML have been permitted but only 18674 ML have been actually approved. Again, the gap is significant.

It is noted that the catchment is under Hydro control but the water simply is not there whoever controls it. Hydro control is fine since they can do little with it but it does not matter much provided no big dams are built. Dams destroy any sense of environmental flow and all those items quoted as values later. Hydro is clearly trying to optimise its receipts.

The triggers are creative and we are not told how often they are reached, nor how often a flood take is permitted. There is a complete lack of information here. Restrictions have also been applied but there is no support for the triggers on these either. How realistic is it to set Stage 4 takes on Tuesdays, Thursdays and Saturdays? I thought the week had seven days. Perhaps it does not rain, or the river does not flow on the other days.

Further, allocations should be for a particular use or property and should not be a quantity which can be traded off. An allocation should either be returned or granted to another property should variations be required.

All levels suggested for anything are meaningless unless compared to
-the range of flow levels experienced
-the trend in that range (climate etc over time)
-what is needed seasonally for appropriate environmental outcomes (whatever these are agreed to be)

For a management report there is no indication of the relationship between storages, dam permits, sureties etc. What is the likely storage or interception NOT under permit? Is there some? Forestry falls in this category. How well controlled is take experience – is too much taken, is it properly recorded etc? Finally, how do take periods match river flow history? Leaman (2008), after evaluation of these rivers, suggests that we need to shift off the winter take concepts.

South Esk Water Management Plan Information Package (Consultative Group): meeting August 2008.

We get some figures here.
Total water input of 3000 GL and on page 18 a total yield at Longford of 900 GL.
They claim that 43% of the water is run off – my calculation of 900/3000 is 30%! The vast majority of water is lost or used in various ways, indeed at least 70% of it.

Leaman (2008) spells a lot of these numbers out for the South Esk and its eastern tributaries.

DPIW agree with my long term graph that flow levels are reducing to 1960 levels – which may be the norm and all anyone can expect. Evaporation is rising.

Where did the data for the rainfall graph come from? Is it an average and, if so, of what stations? This is misleading.

If one takes their graphs and data we find that the annual average flow at Llewellyn is 575-600 GL and their means are BOD of 50 GL, StPauls of 97 GL, Nile of 110 GL, Llewellyn of 605 GL and Perth of 743 GL. Note that 743 GL is way less than their claim of 900 GL.

This is not a strong catchment and most of its water comes from east of Llewellyn and the lion's share of that from north of Fingal.

The groundwater section is poorly handled.
Leaman (2008) indicates that base flow amounts to more than 45% of ALL annual flow above Llewellyn. This is a major on-going transfer which can be badly damaged if water tables are lowered in the upper catchment – due to forest operation or land clearing. These things need to be planned and coordinated.
My estimate of the groundwater volume in the catchment is a minimum of 8000 GL (a very conservative estimate) and it is this volume (at least three times annual rainfall) which keeps things running. Proper monitoring of this is long overdue.

The groundwater bore yield and quality data is statistically meaningless. There is need to note how many bores were dry, where were they, how deep etc and to review locations (due to age of record and selection of site issues). For example, dolerite has long been considered a hazard but recent work and sites properly chosen have revealed it to be a good producer of fair to good quality, but one would not get that feeling here. The same applies to granite. There are gaps in information and knowledge evident here.

In the section on **regimes and objectives** we need to note
- that pre 1803 ALL flow was environmental flow.
- that environmental flow is that remainder after <u>essential</u> human and stock (life) needs are provided.
- that any allocation or interception diminishes environmental flows or patterns and alters the general ecology.
- the issue is really how to decide how much we wish to take – or change the conditions.
This includes use for farming, forestry, industry etc.
- there will be some conflicting elements in values and usage factors. These are evident in the appendices since not all of it can be done and what is done must be done inside the framework of equitable and non wasteful options.
- no one seems to have added up what is really being used – and where. My 2008 paper shows how much this may vary between catchments.

As for the **water management goals**:
- what are the levels required for habitat maintenance? No information is offered.
- what are the priorities for uses? Should irrigation even be considered for pasture or on low class soils, especially in areas which are said to be salinity prone?
- how much water has to go to Trevallyn, the coal washery etc? Some real figures would be useful.
- how is seasonal variability maintenance built into all this and linked to environmental flow. My 2008 paper suggests how to do this while noting how it constrains other things.
- why do we need a water trading system? How does that benefit the catchment?

There are a few other points.

If the monthly flow at Perth is of the order of 50 GL what is the effect of removing 50 GL annually from it? (the Midlands diversion). Presumably none can be taken in summer which shifts the proportions to winter when other wish to take storage and other allocations. We are not given the data to see how this can work.

If restrictions have been applied in recent times then more and longer restrictions have to be expected in future for three reasons (climate, forest demand, Midland diversion were that to happen).

There is no comment about current or future levels of forest usage although some appendices express concern about it. My 2008 paper offers some guidelines which range from about 0.5 ML/ha/yr in the dry areas to about 2.5 ML/ha/yr in the wetter upper catchments. It is not easy to determine the areas currently involved (nor their location) but the 1990 coverage was at least 25 000 ha above Fingal meaning that at least 60 GL was committed then. The peak commitment may be as high as 75 GL on those old figures. What is the condition today when there has been a substantial increase in forest and plantation working? I think we may conservatively double these figures.
The forestry commitment, given without planning or thought for implications, makes the proposed offering to the Midlands look like a small leaky bucket.

Nothing is said about the climate trends or the amplifiers affecting reduced recharge, base flow and surface yields. Nothing. Rainfall reductions have amounted to at least 10% across the catchment in the last two decades and the reduction in flow is at least 20-25%. We have no idea if, or whether, these trends will reverse. So much for climate policy. The management plan is sheer delusion.

There is no comment about waste or evaporation loss, or reduction of that loss, from storages. This volume is significant and for small-medium storages can be cut to zero.
There is also no comment about the proper planning of willow/tea tree swaps if that is what we want to do. A much longer term, funded view of this is needed to minimise erosion and sustain water flows and temperatures.

An extract from the Draft Water Management Plan for the South Esk River follows.

DRAFT SOUTH ESK RIVER CATCHMENT WATER MANAGEMENT PLAN

Water Resources Division
Department of Primary Industries and Water

20 March 2009
Version 1.1a

3.1.1 Catchment and Subcatchment Limits for Direct Allocations

In the catchment as a whole, the volume of water available for allocation for extraction as direct take allocations at a reliability of greater than 50% (generally designated as Surety 5 and 6) is 17,632 ML. However the volume currently allocated for this period is 21,306 ML. On this information it is apparent that the available water is fully allocated and hence no further water will be made available for extraction (including transfers from Hydro Tasmania) since to do so would impact upon existing water users and environmental requirements.

The figures in Table 3 demonstrate that while there is a degree of variation in the level of development across the water management zones, the catchment as a whole is over-allocated[1] at this level of reliability with the management zones lower in the catchment dependent upon inflows from the management zones upstream.

[1] While these data show that the water available for sustainable extraction at greater than 50% reliability is slightly over-allocated on a total seasonal basis, unsustainable extraction is prevented by maintaining daily extraction totals below the environmental flow threshold through the cease to take triggers for Surety 5 and 6 direct take allocations.

Table 3. Subcatchment allocation limits for Direct Take Allocations at greater than 50% reliability in ML per season/take period for some of the catchment's water management zones

	Allocation Limit with 50% and greater reliability	Existing extractive allocations
Upper Esk	13,783	3,089
Avoca-Break O' Day	2,882	2,529
St Pauls River	2,254	1,205
Nile River	2,740	4,660
Lower Esk	5,475	9,824

Table 3 shows that the existing allocations exceed the allocation limits in the Nile and Lower Esk zones.

In the case of the Nile this is due to the inclusion of two direct take allocations that are able to take their allocation over the whole year and this entire allocation has been included for the direct take period. Further, these allocations are extracted near the confluence of the Nile and South Esk Rivers and hence the taking does not impact on environmental flow or access to Part 5 entitlements upstream.

In the case of the Lower Esk, users are drawing on water from the South Esk that has flowed into the zone from the upstream zones (ie Upper Esk, Avoca-Break O' Day and St Pauls). Hence while the Lower Esk management zone itself is unable to meet the requirements for direct take allocations, these are in fact met through contributions from upstream zones.

3.1.2 Catchment and Subcatchment Limits for Storage Allocations

Table 4 presents the volume of water available for allocation in the catchment and each subcatchment at greater than 50% reliability (generally designated as Surety 5 and 6) during the period 1 May to 30 November. The Table also presents the volume of licensed allocations, both extractive and non-extractive, in each of the water management zones.

The Table shows that all the water available at this reliability has been allocated. This reflects the situation whereby under the Water Management Act, water not formally allocated in the catchment for extractive use is allocated to Hydro Tasmania under the provisions of Part 6 Division 6 of the Act.

Hence, any changes to the current allocations will need to result from transfers of part or all of existing allocations in accordance with the Act. In recent years, such transfers have been undertaken between Hydro Tasmania and irrigators and the Plan recognises such transfers as an appropriate process for the reallocation of water within the catchment to meet changing water use priorities.