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Socio-economic impacts of Groundwater Amendments to the Basin Plan

Murray Darling Basin Authority

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Contents

Executive summary

In developing the Basin Plan, the Murray–Darling Basin Authority (MDBA) considered existing socio-economic analyses, and commissioned over 20 further studies to assess the potential impacts of meeting the environmental water requirements of the Murray–Darling Basin.

This socio-economic study has been commissioned by MDBA with the intent of assessing the costs and benefits of proposed changes to the Basin Plan. This, therefore, is a subsequent study to the initial development of the plan. The study aims to understand the socio-economic impacts of:

- The proposed changes to groundwater Sustainable Diversion Limits (SDLs) for four Water Resource Plan (WRP) areas. Three of these areas are proposed increases to SDLs and one is a proposed decrease.
- A change to the methodology for ensuring state level compliance for groundwater extraction.

This study has drawn upon the Review Panel reports, Technical Synthesis reports, State Water Registers and local resource and management plans to understand how proposed changes to SDLs might affect water use in regions and across the Basin and therefore result in socio-economic costs or benefits.

SDL changes

Changes to SDLs may result in socio-economic impacts if the changes translate into changes to water use in the future. The increase in SDL volumes for three groundwater areas, and the decrease in the SA Murray region, potentially means that water use can increase or decrease respectively in the future.

In the case of the three groundwater areas that are proposing increases, the socio-economic impacts (benefits) may only occur if actual water use (or water 'take') increases above the point of the current SDL stated in the Basin Plan (or the 'base case SDL'). The impacts then accrue for every ML used until this use reaches the proposed SDL (as this is the new cap). For the SA Murray, the reverse is true, socio-economic impacts (costs) may only occur if future water use hits the proposed SDL (as this is lower than the base case SDL).

Overall, the analysis on SDL changes found that there is likely to be negligible impact on communities in the four regions where changes to groundwater SDLs are proposed. In the three regions where it is proposed for SDLs to increase, at some point in the future the changes may result in a benefit to these communities (when water use reaches the current SDL) however the timing of when those benefits would occur is highly uncertain. For the SA Murray WRP it is considered there is no impact of the change to SDL as the reduction relates to a salt interception scheme which is not a productive use.

Compliance method

The 'base case' compliance methodology (as outlined in the Basin Plan) requires the MDBA to develop a 'register of take' which is an account of the cumulative difference between the 'annual permitted take' and the 'annual actual take' for each SDL resource unit. The change to the compliance methodology aims to address the issue of the accumulation of credits which, due to

groundwater use being well below the SDL, would mean a large sum of accumulated credits by 2028 for many resource areas.

Overall, it is considered that the proposed change to the compliance methodology would have negligible impact on water use, and therefore negligible socio economic impacts. The reasons for this include:

- The 'register of take' in the Basin Plan is designed to construct a baseline dataset where a Basin state may be assessed for non-compliance. It is not the intent of this register to establish a balance of available water for use.
- Water use at the Basin level is tracking well below SDL, which is the reason for the potential accumulation of credits in the first place. It is considered unlikely that the surplus water accumulated would be demanded in the areas where it accumulates most.
- In any event, any demand for accumulated credits does not mean water can automatically be used by individual users. Any changes to water use from the 'release' of accumulated credits under the base case methodology is dependent on the actions of State Governments rather than on individual water entitlement holders who operate under separate state-based and local management rules.

1 Changes to SDLs

This section discusses the potential socio-economic impacts of proposed amendments to groundwater SDLs for four WRP areas being:

- Proposed increases to SDLs for three groundwater areas namely the Western Porous Rock Water Resource (WRP) area, the Easter Porous Rock WRP area and the Goulburn-Murray WRP area, resulting from completion of scheduled reviews foreshadowed in the Basin Plan
- A reassignment of a Baseline Diversion Limit (BDL) amount from one resource unit to another in the SA Murray region WRP area and, as a result, a reduction in SDL for the GS3 Mallee (Murray Group Limestone) resource unit

1.1 Overall approach to assessing socio-economic impacts of SDLs

Changes to SDLs may result in socio-economic impacts if the changes translate into changes to consumptive water use in the future. The increase in SDL volumes for the three groundwater areas, and the decrease in the SA Murray region, potentially means that water use may increase or decrease respectively in the future in comparison to the base case (being the current SDL volumes specified in the Basin Plan).

In the case of the three groundwater areas that are proposing increases, the socio-economic impacts (benefits) may only occur if actual water use (or water 'take') increases above the point of the current SDL stated in the Basin Plan (or the 'base case SDL'). The impacts then accrue for every ML used until this use reaches the proposed SDL (as this is the new cap). For the SA Murray, the reverse is true, socio-economic impacts (costs) may only occur if future water use hits the proposed SDL (as this is lower than the base case SDL).

Socio-economic impacts may only be realised if the water is put to productive use (or in the case of SA Murray, taken away from productive use) e.g. for irrigation, stock and domestic, mining or town supplies.

The timing and extent of future water use patterns depends on current and future demand for the resource. The key drivers for groundwater demand are many and include; water scarcity, prospective new water users, water quality, accessibility, current bore infrastructure, the costs of developing new bores (or drilling deeper into existing bores), energy and fuel costs to pump bore water, the availability of alternatives (and therefore the region's dependence on groundwater), climate impacts, and commodity prices (in particular agricultural produce, mineral resources and energy commodities such as coal and gas). These variables are dynamic, and often volatile, and thus result in a highly variable demand profile for groundwater making any future demand projections uncertain. Nevertheless, we have provided a qualitative discussion on some of these key demand variables for each water resource area in question, to enable a qualitative evaluation of possible effects of changing the SDL limits.

Ideally, any projections of future water use in these groundwater areas would begin with an analysis of long term historical trends, enabling an assessment of water use patterns (especially the extent of variability) under a variety of conditions. Given groundwater use can be highly variable,

understanding the extent of variability is important as the 'peak' years have potential to hit the base case SDL, even if average use is well below the SDL. Any analysis of average use falls short of analysing this variability question. Unfortunately, however, time series data of water use information is quite short for some areas (ranging from 3-10 years) which limits its usefulness. Our discussion on socio-economic impacts, therefore, is a qualitative discussion rather than an attempt to quantify such impacts. Any attempt at quantifying the impacts would rely on some very simplistic assumptions on water use and water unit values and may therefore misrepresent the inherent uncertainty of impacts of the changes.

In addition to impacts from changes in water use, the SDL also provides an 'option' or insurance value. Furthermore, it is noted that any direct benefit of groundwater use to mining, urban water supply etc. leads to flow on socio-economic benefits beyond the water user. These elements of value, however, are not quantified here.

The table below summarises the potential socio-economic impacts of SDL changes for the four groundwater areas.

Table 1.1: Socio-economic impacts of changes to SDLs

Area	Change to SDL (GL/y)	Potential socio-economic impact
Western Porous Rock WRP Area (NSW)		Historical water use from aquifer licenses and salt interception schemes (of around 20 GL per year) is a fraction of the base case and proposed SDL. With poor water quality limiting potential uses, little substitution occurring between surface and groundwater resources and limited variability in historical use, any socio-economic impact from the increased SDL is largely dependent on key mining projects proceeding – in particular the Hawsons magnetite (iron ore) mine. In the event that the SDL is not increased, the Hawsons magnetite mine may need to source an alternative source which may be cost-prohibitive.
Western Porous Rock SDL	+109.4	
Eastern Porous Rock WRP Area (NSW)		Data on water use over the last two years from aquifer licences and town supplies (of around 5 GL per year) is well below the base case and proposed SDL. The limited time series of water use limits analysis of variability and we note the last two years were wet. However with relatively small demands projected from new mine projects it is unlikely that there will be any socio-economic impact from increasing the SDL in the foreseeable future.
Gunnedah – Oxley Basin SLD	+13.0	
Sydney Basin SDL	+1.9	
Goulbourn-Murray WRP Area (Vic)		Water use for every year over the last eight years in the area has been well below the base case and proposed SDL even during dry times when water use hit a peak. Furthermore, even in the region's hot spots (such as
Goulburn-Murray: Sedimentary Plain SDL	+19.5	

Area	Change to SDL (GL/y)	Potential socio-economic impact
Goulburn-Murray Highland SDL	+18.2	Katunga) water use was well below the allocation in this area. We also consider it unlikely that the 70% allocation in the Katunga area will increase in the foreseeable future. Therefore, any socio-economic impact from increasing the SDL limit is likely to be negligible in the foreseeable future.
SA Murray WRP GS3 Mallee (Murray Group Limestone)	- 2.14	Given the 2.14 GL was associated with a salt interception scheme, there is no socio-economic impact of reducing the SDL amount for the GS3 Mallee as it does not relate to productive use.

1.2 Western Porous Rock area

The proposed SDL change to the Western Porous Rock area was the result of a change in methodology used to calculate the recharge rate and sustainability factors.

Groundwater is currently extracted from the Western Porous Rock SDL primarily for stock and domestic purposes, mining activities and salt interception schemes. There is little (if any) water extraction for irrigation and town water supply due to poor water quality (high salinity). There is 11 years of publicly available data on historical groundwater use in the Western Porous Rock area (from 2005 to 2015), therefore variability in groundwater use can be observed in a range of climatic conditions (dry, average and wet times).

In short, water use is a fraction of the base case and proposed SDL and very little variability is observed with respect to historical use, demonstrating that groundwater is not really used as an alternative (or buffer water) to surface water in times of drought. Therefore, overall, we consider that there is likely to be negligible socio-economic impact of increasing the SDL limit in the foreseeable future (i.e. over the next 10-20 years).

However, we do note that there are some prospective mining projects for the area with large combined anticipated water demand of 121 GL (one project in particular, the Hawsons Magnetite mine, has anticipated annual water demand of at least 100 GL per year). Should this project eventuate then socio-economic benefits of increasing the SDL may occur as water use from this mine alone may hit the base case SDL. By not increasing the SDL, the Hawsons magnetite mine may require an alternative water source which may be cost-prohibitive.

1.2.1 Historical water use

There are currently 63.1 GL of water rights in the Western Porous Rock area[1], consisting of 42% domestic and stock rights, 35% aquifer licences and 23% salt interception licences. In short, historical water use has tracked well below licenced volumes. Licenced volumes are also well below the base case SDL (of 116.6 GL), let alone the proposed SDL (of 226 GL).

[1] NSW Office of Water 2011, *Water Sharing Plan for the NSW Murray-Darling Basin Porous Rock Groundwater Sources*

Water use associated with aquifer licences (predominantly mining) has been tracking at an average 5.1 GL (or 23%) of licenced volumes for the four years 2012 to 2015, ranging from 2.5 GL to 8.2 GL.[2] Recent data is unavailable for water use associated with stock and domestic (as unmetered) and salt interception schemes. Prior to 2012, however, water use associated with salt interception schemes ranged between 4.5 and 6.3 GL per year (between 2005 and 2011) or around 50% of salt interception entitlements at that time. Water use associated with mining began in 2005, with water use ranging from 2 GL to 8 GL per year. There are currently five mines in operation.[3] This historical water use data shows limited variability relative to the SDL, indicating that groundwater in this area is not widely used as a substitute for irrigation. This is likely due to both its poor water quality and the costs of extraction. While water use is used for stock and domestic purposes, these bores typically target the shallowest supply at the most acceptable salinity levels[4].

1.2.2 Potential future use

The Western Porous Rock area is a highly saline water source which limits potential future end use options, particularly irrigation and town water supplies.

Therefore, any significant potential future use in the area is dependent on whether mining activity increases. There are currently three potential mineral sands projects and one magnetite project (according to the NSW Planning System) with an estimated combined water demand of 121.5 GL per year[5]. In particular, the magnetite mine (the Hawsons Iron Ore project) would have a groundwater demand of around 100 GL per year according to information in the NSW planning system[6]. The project is currently undergoing a bankable feasibility study, with no significant technical barriers identified to date[7].

1.2.3 Socio-economic impacts

Any socio-economic impacts from increasing the area's SDL are entirely dependent on future water demand from future mining projects. This is because:

- Historical water use over the last 11 years has tracked well below water entitlements and at a fraction of the base case and proposed SDL
- There has been very little variability in water use over this time, indicating that groundwater in the area is not considered as a substitute for irrigation or town supplies. This low variability limits any potential of any 'peak' years hitting the cap
- The high salinity levels of the region and high costs of drilling new bores limit further development in the region for particular uses.

In terms of future mining projects, of particular importance is the Hawsons Iron Ore project given it has an anticipated large demand for its processing activities. Without the Hawsons project, water

[2] NSW Water Register 2015

[3] NSW Office of Water 2013, *Western Murray Porous Rock and Lower Darling Alluvium Groundwater Sources – Groundwater status report 2011*

[4] SKM 2014, *Western Porous Rock Synthesis Report*, p9

[5] SKM 2014, *Western Porous Rock Synthesis Report*, p31

[6] The project proponent Carpentaria Exploration Pty Ltd suggested in its submission to the draft Basin Plan 2012 that developing this site would require an estimated 130 GL per year

[7] FinFeed 2015, *CAP ready to accelerate Hawsons Iron Project, 25 May 2015*

use from the remaining three potential Mineral Sands projects (of 21.5 GL) would not reach the base case SDL. There may be other mines considered in the area in the next 10-20 years however water use would need to be significant to reach the cap. Therefore, on balance, we consider the socio-economic impacts to be negligible unless the Hawsons project goes ahead.

1.3 Eastern Porous Rock area

The proposed SDL change to the Eastern Porous Rock WRP was the result of a change in methodology used to calculate the recharge rate and the approach used to derive the deep groundwater resource for the SDL resource units.

In summary, the last four years of groundwater use in the area is well below the base case and proposed SDL. Therefore, it is unlikely that there will be any socio-economic impact from increasing the SDL limit in the foreseeable future (in the next 10-20 years). This is so even if all proposed mine sites are progressed.

1.3.1 Historical water use

There are currently 25.4 GL of water rights in the Eastern Porous Rock area[8], consisting of 33% domestic and stock rights, 76% aquifer licences and less than 1% town water supplies. Publicly available data for historical water use in the area is only available for the last four years. Without a longer time series, there are no observations on which to draw regarding the variability of groundwater use and the extent to which it acts as a buffer when surface water resources are scarce.

The last four years of water use data show that groundwater use in the Eastern Porous Rock area is well below the current and proposed SDL for the combined Gunnedah-Oxley and Sydney resource areas. Specifically water use associated with aquifer licences has averaged 21% of licenced volumes between 2012 to 2015 and ranged from 2.6 to 6 GL.[9] Furthermore, the total entitlement volume associated with water rights (of around 29 GL for combined aquifer and stock and domestic rights) is well below the base case SDL for the combined areas (of 131.7 GL) let alone the proposed SDL (of 146.6 GL).

We recognise that the last four years (2012 to 2015) were wetter than the previous four years (2008 to 2011), and therefore the annual average water use is likely to be higher should these drier years be included.

1.3.2 Potential future use

With limited historical data for water use associated with aquifer licences, is it difficult to determine what future use might be with respect to irrigation demand and stock and domestic use. In terms of new mining projects, the NSW Planning System has around 16 potential coal and coal seam gas projects, with relatively small anticipated demands on water resources (between 0.01 and 2 GL per year).[10] We also note also that these mines are only prospective and may not go ahead. There are

[8] NSW Office of Water 2011, *Water Sharing Plan for the NSW Murray-Darling Basin Porous Rock Groundwater Sources*

[9] NSW Water Register, accessed June 2015

[10] SKM 2014, *Eastern Porous Rock Synthesis Report*

also accessibility issues for the deeper groundwater areas, limiting the development of the resource as it is too costly to drill deep bores.

1.3.3 Socio-economic impact

While historical water use associated with aquifer licences is limited to the last four years, we consider that, even under quite optimistic future water demand scenarios and high water use variability and assuming all 16 mining projects went ahead, the base case SDL is unlikely to be reached. Therefore, it is unlikely that any socio-economic impacts would occur in the foreseeable future.

1.4 Goulburn-Murray groundwater area

The proposed SDL change to the Goulburn-Murray WRP represents an increase to include 100% of Katunga entitlement (rather than the 70% allocation that has been in place since 2003), an additional 5 GL per year for the Wangaratta township (as a back-up supply in drought years) and a redefining of the boundaries between the Goulburn-Murray Sedimentary Plain area and Goulburn-Murray highlands area, increasing the area where recharge occurs.

In summary, historical average groundwater use over eight years (between 2007 and 2014) is well below the base case and the proposed SDL. Even when considering the highest peak in groundwater over this period (of 104 GL in 2006-07) it is still only around 40% of the base case SDL. Therefore, overall, we consider that there is negligible socio-economic impact of increasing the SDL limit in the foreseeable future (over the next 10-20 years), as water use is unlikely to reach the cap.

1.4.1 Historical water use

Eight years of water use data (from 2006-07 to 2013-14) was analysed for the Goulburn-Murray area[11]. This time series was considered long enough to observe the variability in groundwater use over both wet and dry times. Groundwater use in the region is largely associated with irrigation use and stock and domestic use, with a minor amount used for town supplies. Due to the abundant surface water resources in the region, there are substitutes for groundwater. Groundwater is often used as a buffer for surface water resources and therefore is affected by surface water scarcity.

Over these eight years, groundwater use associated with aquifer licences has tracked between around 27 GL and 104 GL of entitlement in 2010-11 and 2006-07 respectively. Apart from these two extremes, however, water use has been relatively consistent generally tracking between 80 to 90 GL.

For the Katunga Water Supply Protection Area (WSPA) (which along with Campaspe is considered one of a handful of groundwater use 'hot spots' in the Goulburn-Murray) groundwater use was around 50% of entitlement volumes between 2007 and 2010 (dry years) and around 20% in 2011 (a wetter year).[12]

[11] Victorian Water Accounts 2006-07 to 2013-14. This included use against entitlement from groundwater areas of Katunga, Loddon Highlands, Lower Campaspe, Alexandra, Barnawartha, Lower Ovens, Mid-Goulburn, and Mid-Loddon. It excludes the Shepparton Irrigation Area.

[12] Goulburn Murray Water 2012, *Katunga WSPA Annual Report 2010-11*

1.4.2 Potential future use

Groundwater demand is likely to increase in the area to some extent as a result of there being less surface water resources available from implementation of the Basin Plan. However, given all historical water use over the last eight years (even in peak times) is below half the base case and proposed SDLs, it is considered unlikely that groundwater use will develop to more than double its current use in the foreseeable future.

Given the Katunga area has had a 70% groundwater allocation since 2003 and that Katunga has not reached the allocated volumes even in dry years, we consider that demand growth in the region is reasonably limited. For example, in the midst of drought in 2008-09, Katunga was allocated 42.4 GL (70% allocation) but only used 32.8 GL (which represents 73% of its allocation).

The 5 GL increase to SDL to represent additional groundwater allocated to the Lower Ovens for Wangaratta, has been nominated as a back-up supply in times of drought. Therefore, potentially, this 5 GL may be used in drought times.

1.4.3 Socio-economic impacts

In terms of potential future water use, it is unlikely that water use would reach the base case SDL in the Goulburn Murray area (or even in the region's 'hot spots' such as the Katunga area) in the foreseeable future. Therefore the increased SDL is unlikely to result in any socio-economic impacts. The 5 GL allocated to Wangaratta may be used in drought times.

1.5 SA Murray changes

The proposed SDL change to the SA Murray was the result of an incorrect assignment of 2.14 GL associated with the Murtho Salt Interception Scheme to the GS3 Mallee (Murray Group Limestone).The correct assignment of this amount is to the GS7 SA Murray Salt Interception Schemes. To make this correction, South Australia proposes a reduction of 2.14 GL per year to the BDL and SDL of GS3 Mallee (Murray Group Limestone); and an increase of 2.14 GL per year to the BDL of GS7 SA Murray Salt Interception Schemes (but no corresponding amendment to the SDL).

In summary, given the 2.14 GL was associated with a salt interception scheme, there is no impact of reducing the SDL amount for the GS3 Mallee as it does not relate to productive use. Because of this, no further analysis is required on historical or prospective future water use.

2 Change to compliance methodology

This section discusses the potential socio-economic impacts of the proposed change to the methodology for ensuring compliance at the state level for groundwater extraction.

2.1.1 Overall approach to assessing socio-economic impacts

The assessment of socio-economic impacts of the change to the state-level compliance methodology is similar to the change in SDLs in the sense that impacts only occur if the new compliance methodology changes water use. The changed methodology, in and of itself, does not directly result in any impact. Rather, it is only when actual water use increases or decreases compared to the base case (i.e. the current compliance methodology) that socio-economic impacts occur. In addition, the compliance methodology relates to State Government compliance with the Basin Plan and not the compliance of individual entitlement holders (individual compliance is undertaken by the states under various state and local management arrangements). Therefore, it is only through the actions or policies of State Government in response to the change in compliance methodology that future water use could potentially be influenced.

The 'base case' compliance methodology (as outlined in the Basin Plan) requires the MDBA to develop a register of take which is an account of the cumulative difference between the 'annual permitted take' and the 'annual actual take' for each SDL resource unit. If the actual take is less than the permitted take within a water year a credit is recorded and, conversely, a debit is recorded. There is no cap on the volume of credits that can be accumulated under the Basin Plan. A state is considered non-compliant if the cumulative debit is greater than 20% of the long-term annual diversion limit for the resource and the Basin State does not have a reasonable excuse for that excess.

The proposed change to the compliance methodology removes the annual accumulation of credits and debits from 2019. It consists of two phases, a transitional phase 'from 2019 to 2028' and 'post 2028'.

- For the period 2019 to 2028, the proposal is that there is State non-compliance with the long-term annual diversion limit for a groundwater SDL resource unit if the accumulated annual actual take is more than the accumulated annual permitted take plus 20% of the long-term annual diversion limit. This will be assessed annually.
- For the period after 1 July 2028, the compliance method will be a 10 year rolling average without the annual logging of debits and credits or the 20% allowance for determining non-compliance. A 'non-compliance' will occur if the 10 year average of actual take is greater than the 10 year average of permitted take.

The change to the compliance methodology aims to address the issue of the accumulation of credits which, due to groundwater use being well below the SDL, would mean a large sum of accumulated credits by 2028 for many resource areas.

It should be noted that assessing any impacts resulting from the change from the base case to the proposed methodology is purely hypothetical. The base case compliance methodology, as stipulated in the Basin Plan, has not yet been put into practice – therefore there is no observed behaviour in which to draw upon to understand what the change might represent for actual water

use. Because of this, this section consists of a discussion of any potential impacts and not an attempt to quantify this change.

2.1.2 Socio-economic impacts

Water use patterns

At a Basin scale the total of groundwater SDLs has been set at 3,334 GL per year, well above the baseline diversion limit (BDL) of 2,385 GL which is generally based on current volumes of groundwater entitlement (with a handful of exceptions). The current groundwater take is approximately 1,750 GL per year. The difference between the SDL figures and the BDLs and between the BDLs and the average groundwater take reflects the lack of groundwater development in areas of the Basin.

Groundwater take is not expected to reach SDLs in many resource units between 2019 and 2028 due to water quality issues and the difficulty or cost of extracting the water in many areas. There are some resource unit areas, however, where water use is much closer to, if not at, the SDL. However, in such areas, the restriction of the SDL means there will not be further groundwater development.

Under the base case methodology, there is likely to be an accumulation of credits across the Basin between 2019 and 2028, which will result in a significant volume of water being on the state's 'account' in credit (not individual accounts). Assuming the current average water use is sustained over this period, the accumulated credits could reach around 14,000 GL (more than four times the annual SDL) by 2028 at the Basin level assuming permitted take is 100% allocation of SDL. On the other hand, the accumulation of debits is restricted as this is the subject of non-compliance.

The credit accumulation issue is not uniform across the Basin, and will differ for each SDL resource unit depending on its level of development. In considering what the socio-economic impacts might be, we have considered two resource unit scenarios which represent the two extremes within the Basin.

1. Areas where water use is tracking well below SDL
2. Areas where water use is tracking at or around the SDL

Scenario 1: Areas where water use is tracking well below SDL

For those resource unit areas where water use is significantly below the SDL (i.e. the under developed areas), the 'base case' would result in substantial credits being accumulated. An example is the Western Porous Rock Area in NSW where current use is a fraction of the SDL. In these areas the low development, because of water quality issues or prohibitive costs in extraction, means that it is also unlikely that the accumulated credits would be demanded by users in the area. Therefore the proposed compliance methodology, which does not allow the accumulation of credits, is unlikely to have any impact on future water use. Any likely future demand in the nine years to 2028 would be reasonably met by the current SDL. In the unlikely event that there is demand above the SDL in any one year, the proposed methodology enables this so long as, at the end of the nine years, average annual use is below the long term average.

Scenario 2: Areas where water use is tracking at or around the SDL

Those areas where water use is well developed and where water use is closer to the SDL, there would be a smaller amount of credits being accumulated (than Scenario 1) under the base case compliance methodology. In these areas it is more likely, in comparison to scenario 1, that these credits might be demanded by water users in the area however the amount in credit would be much smaller.

For both scenarios, however, the demand by water users for any accumulated credits does not mean there is a right to those credits. This is because the accumulated credits are in the state's 'account' rather than water user's account. Water user's accounts are managed by state based and local area management rules such as carryover rules, hydrological constraints etc. Therefore the potential to make these credits available to water users (and thereby increasing water use) rests with the State Government. While it is theoretically possible that State Government could issue these credits to water users in the area, it is considered unlikely.

A further point is that the purpose of the register of take in the Basin Plan (section 6.08) is to construct a baseline dataset where a Basin state may be assessed for non-compliance. It is not the intent of this register to establish a balance of available water for use.

Conclusion

Overall, it is considered that the proposed change to the compliance methodology would have negligible impact on water use, and therefore negligible socio economic impacts. The reasons for this conclusion include:

- The register of take in the Basin Plan is designed to construct a baseline dataset where a Basin state may be assessed for non-compliance. It is not the intent of this register to establish a balance of available water for use.
- Water use at the Basin level is tracking well below SDL, which is the reason for the potential accumulation of credits in the first place. It is considered unlikely that the surplus water accumulated would be demanded in the areas where it accumulates most.
- In any event, any demand for accumulated credits does not mean water can automatically be used by individual users. Any changes to water use from the 'release' of accumulated credits under the base case methodology is dependent on the actions of State Governments rather than on individual water entitlement holders who operate under separate state-based and local management rules.

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Contact us

Deloitte Access Economics
ACN: 149 633 116

Level 1
9 Sydney Avenue
Barton ACT 2600
PO Box 6334
Kingston ACT 2604 Australia

Tel: +61 2 6175 2000
Fax: +61 2 6175 2001

www.deloitteaccesseconomics.com.au

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