

LEX 21109  
Document 1

COLLIERS INTERNATIONAL  
VALUATION & ADVISORY SERVICES



Rural Valuation  
126 Margaret Street  
Toowoomba, QLD 4350

MAIN | 07 4659 7875  
Shaun Hendy | Mob 0427 638 479

www.colliers.com.au

21 September 2016

s 22

**Water Markets Policy Section**

Department of Agricultural and Water Resources  
GPO Box 858  
Canberra, ACT 2600

Email – s 22 @agriculture.gov.au

Dear s 22

Re **Valuation of Overland Flow Licences  
Condamine Balonne Water Resource Plan**

I refer to your **Commonwealth Contract – Services, Reference No 2016-012** for Colliers International (CIVAS (QLD) Pty Limited) to provide valuation advisory services to the Department of Agriculture and Water Resources (The Department) for the valuation of Overland Flow Water Licences within the Lower Balonne region of the Condamine Balonne Water Resource Plan.

<b>Reliant Party</b>	Department of Agriculture and Water Resources
<b>Specific Instructions</b>	<p>The Department requires the Service Provider to:</p> <ol style="list-style-type: none"><li>(1) Provide an assessment of the market value of Lower Balonne Overland Flow (OLF) water entitlements.</li><li>(2) The value provided must be single point as well as a value range.</li><li>(3) Indicate the timing and period of validity for the report, and comment on any known factors that may be reasonably expected to change in the near future.</li><li>(4) Document the method (e.g. volume-weighted average prices, mean, media, expert knowledge and experience, etc.) and logic used to arrive at a value/ range. If using expert knowledge and experience as the method, it must be justified with evidence/ logical arguments.</li><li>(5) Use graphs, tables, as appropriate to present analysis and results, as appropriate.</li><li>(6) Include reference sources, data used (in spreadsheet format), as relevant.</li></ol>
<b>Definition of Market Value</b>	Market Value is the estimated amount for which an asset or liability should exchange on the date of valuation between a willing buyer and willing seller in an arm's length transaction, after property marketing, wherein the parties each had each acted knowledgeably, prudently and without compulsion.



CIVAS (QLD) Pty Limited | ABN 87 168 282 522  
Liability limited by a scheme approved under Professional Standards Legislation.

## Key Assumptions and Important Comments

In the preparation of this valuation report we have made a variety of key assumptions and important comments. In this regard we advise that this entire report, including appendices, must be read and understood by the nominated parties to whom reliance is extended in order that the various assumptions and comments are understood in the context of the adopted valuation. Should the parties to this report have any concerns or queries regarding the contents or key assumptions made in the preparation of this valuation, those issues should be promptly directed to the nominated Valuer for comment and review. A selection of Key Assumptions and Important Comments are as follows:

### General

- (i) This valuation is provided for **market valuation** purposes and is provided subject to terms and conditions, limitations, exclusions, assumptions and important comments set out in **CIVAS Standard Terms of Business in Appendix A** attached to this report.
- (ii) We assume that the instructions and subsequent information supplied contain a full and frank disclosure and that all information provided to us for the purposes of preparing this valuation is correct and current.
- (iii) This valuation can only be assigned, confirmed, reissued or dealt with in some other way which has the effect of assuming or extending responsibility to any person other than the reliant party (other act) if the (a) initial valuation is dated within three months of the assignment, confirmation, reissue or other act and (b) the assignment, confirmation, reissue or other act is provided on the basis that the property has not been reinspected nor has any further investigation or analysis as to any changes since the initial valuation been undertaken. We accept no responsibility for reliance on the initial valuation other than as a valuation of the property as at the date of the initial valuation.

### Asset Specific

- (iv) The valuations are of unspecified, un-supplemented water allocations associated with the Condamine Balonne Resource Operation Plan (ROP). The source documents referring to the conditions of use, transferring and sale of assets comprise the Water Act 2000 (QLD) and the Condamine Balonne Resource Operation Plan which forms sub-ordinate legislation to the Water Act.
- (v) As the valuations are of unspecified, un-supplemented allocations there can be a variation in value due to various factors and as such our opinion of value is general in nature only. For more detailed opinion of the value of specific water allocations a more individual report may be required.
- (vi) We reserve the right to review and in appropriate circumstances revise our valuation report should any of the above key assumptions and important comments result in matters that will have a material impact on valuation.

### Australian Property Institute Valuers Limited (APIV) Standards

- (vii) This valuation is current at the date of valuation only. The value assessed herein may change significantly and unexpectedly over a relatively short period of time (including as a result of general market movements or factors specific to the particular property). Liability for losses arising from such subsequent changes in value is excluded as is liability where the valuation is relied upon after the date of the valuation. (See Appendix B - Australian Property Institute Valuers Limited (APIV) Insurance Standards (for the APIV Professional Standards Scheme) Standard 7).

Without limiting the generality of the above, we do not assume any responsibility or accept any liability at all in circumstances where this valuation is relied upon in any way after the expiration of 90 days from the date of valuation, or such earlier date that the client or reliant party become aware of any factors that may affect the valuation. The value of the property may change within 90 days from the date of the valuation. The valuation is a valuation at the date of valuation only.

### Introduction

This report will provide a description of the Condamine Balonne Region in which the Overland Flow (OLF) Water Licences and water resources are located. To attribute a value to a resource it is important to understand the local market dynamics which include:

- the size of the resource;
- distribution of the resource;
- rules of operation (Resource Operation Plan (ROP));
- the extent of the existing market and history of transactions;
- drivers of value/ change.

Water rights and water markets within Australia have evolved over the last 40 years, with the last two decades seeing the greatest level of change. Water as a property right has also evolved and with the establishment of a stronger and more transparent property right, investors and land owners have become more comfortable with the risk profile as an investment. There are large variations between water markets in regards to:

- size of resource (volume of megalitres);
- type of water rights;
- reliability of water rights;
- transparency of water rights;
- type of industries supplied;
- level of technology used;
- size of market and the volume of transactions.

What is important to understand is that the value of water is derived from the products/commodities that it contributes to the production of. Water rights are an asset separate to land, or in the case of an OLF licence, are a right granted and attached to land and underpins the highest and best use of the land. Water used is an input within a production system. Therefore, when buying water rights, a buyer is placing a value on the ability to access future physical water to grow particular crops (assuming agricultural use) with an estimated level of reliability underpinning the acquisition.

Water as a resource can improve the production capability and reliability of a cropping enterprise. However, in most instances it is not water in isolation that makes this possible, but also the investment in infrastructure such as water storages and irrigation systems. These combine to underpin the value of water as part of a larger investment that has the productive capacity to create positive cash flow and sustainable Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA).

Most business enterprises are seeking to expand and their decision making process will be based on a number of factors including, but not limited to the following:

- availability of capital (debt and equity);
- existing utilisation of current and potential productive resources; and
- cost of developing further capacity (if available) verses cost of buying similar or equivalent.

Following the evolution in water markets, the value of water helps to understand how the market is likely to react under certain circumstances. Initially when licences/entitlements were issued they had little value, as there was more water available than demand required that existed at that time.

There was also greater risk as the industry was in the development phase and the risk reward profile was much higher as the knowledge and experience that is now established did not exist.

The irrigation industry, as it developed, moved to a situation where water supply was determined as being less reliable, however returns from the activities of irrigation (eg cotton growing) limited what could be paid for water. Water users became more focused on where they could improve. This included crop agronomy and water use efficiency. With water reform and the establishment of more secure property rights in water, water users had more confidence to invest. There were a number of types of users, including some having infrastructure that was not as well utilised as other users. Reviewing the various markets it can be seen that these users help set the initial market value for water.

They essentially had an asset that had no value, as it could not be utilised without access to the required water resource. They had a high propensity to justify paying more for water rights than other users who had to expend additional capital to utilise any additionally acquired water resources.

Focus then shifted to reviewing irrigation methods and agronomy systems that assisted in increasing production with a restricted quantity of water. We have seen the cotton industry evolve from a production target of 7.5 bales per hectare in the late 1980s to 15 bales per hectare in 2015. Some individual properties achieved yields in individual fields in excess of 16 bales per hectare. This gain has been achieved with the use of the same or less amount of irrigation water as that which was required in the 1980s. We have seen the renewal and development of irrigation in major irrigation regions in the southern Murray Darling Basin as the adoption of new cotton varieties extended into these new cotton producing areas. Overall production has increased from less than 1 bale per megalitre of water to about 2 bales per megalitre of water.

The focus on agriculture and the demand for soft commodities globally has increased as economic regions such as China and India grow their middle class and experience a growth in average personal income. Agriculture has also increased its profile with corporate and institutional investors and we have seen the evolution of companies that specialise in the investment of water assets. With large enterprises, water rights can represent a very significant proportion of a transaction and for various reasons many are opting not to own all their assets. As long as they have control over the water resource, (such as a lease), they can often improve their return on capital invested.

The Lower Balonne region as a water market does not have a mature trading market as the water rights are predominantly un-supplemented allocations, which are not traded as often or as easily as supplemented allocations. Secondly the volume of water (nominal volume) in the system is not large enough to see a reasonable turnover within the "market". With regards to the OLF water licences there is no true market as trading is limited to sales only to the Commonwealth Environmental Water Holder (CEWH). The Commonwealth Government is also a major participant in the market buying water for the environment through the Restoring the Balance purchasing program and via the Healthy Headwaters Water Use Efficiency (HHWUE) Project.

Future trends that we see to the development of the resource in the Lower Balonne region is an increase in investment in water use efficiency projects that improve production and reduce water losses.

The factors that we consider contribute to and /or affect the value of water include, but are not limited to the following:

- Supply and demand conditions in the area of the particular water resource;
- Water use efficiency;
- Cost of water use efficiency options;
- Value of cropping options;
- Resource reliability;
- Transferability;
- Type of water right; and
- Location – resource management area.

Overall, water is a limited resource and as the users become more efficient these two factors, limited supply and improved efficiency will drive the value of water higher.

### Overview of the Condamine Balonne Catchment

The Condamine Balonne region is mostly located in Queensland. This river system originates in the border regions of Queensland and New South Wales near Warwick on the Southern Darling Downs. It flows in a north westerly direction until reaching the Condamine area, after which it then traverses westerly and south westerly. There are numerous tributaries into the river of which the most significant is the Maranoa River that originates near the Carnarvon ranges. The river starts to diverge into multiple streams south of Dirranbandi where it discharges into the Barwon River, west of Brewarrina (NSW) or into the lakes and wetlands of the Narran River. As a river catchment the region covers approximately 150,101 square kilometres (14.4 percent) of the Murray Darling Basin (MDB) area.

There are two main public storages that provide water for irrigation purposes and they comprise the Leslie Dam near Warwick and the Beardmore Dam at St George. They have a combined capacity of 188 gegalitres. These storages manage the majority of the supplemented allocations managed under the Water Resource Plan. The region’s irrigation development is underpinned predominantly by on-farm storage systems spread throughout the catchment. These private dams are authorised to access water from flood events within the river and overland flow events outside of the various rivers beds and banks.

Commented [LE1]: supplemented

Commented [LE2]:

Commented [LE3]: by

The access to the flood events and overland flows is obviously event based, that is, as a flood occurs water becomes available for diversion into these private storages. These private storage works have to be notified and acknowledged by the Queensland Department of Environment, Resources and Mining (DERM) as authorised works. The acknowledgement of these works that have the ability to divert overland flow were part of the original Moratorium process implemented by the Queensland government within the various catchments. The moratorium had the effect of halting any new infrastructure works that had the potential to take additional water from a catchment for any purpose other than stock and domestic. This created the base line for the water planning required to assess the sustainable diversions. The moratorium has now been lifted and private infrastructure works have been certified.

Commented [LE4]: private storage works

Commented [LE5]: in not needed

The standard of irrigation development within the Lower Balonne varies and the design of irrigation systems is influenced by access to flood events. At St George, the northern end of the Lower Balonne River is narrow and flood events are characterised by fast flows and river heights that rise faster and fall faster than lower within the system.

Commented [LE6]: faster

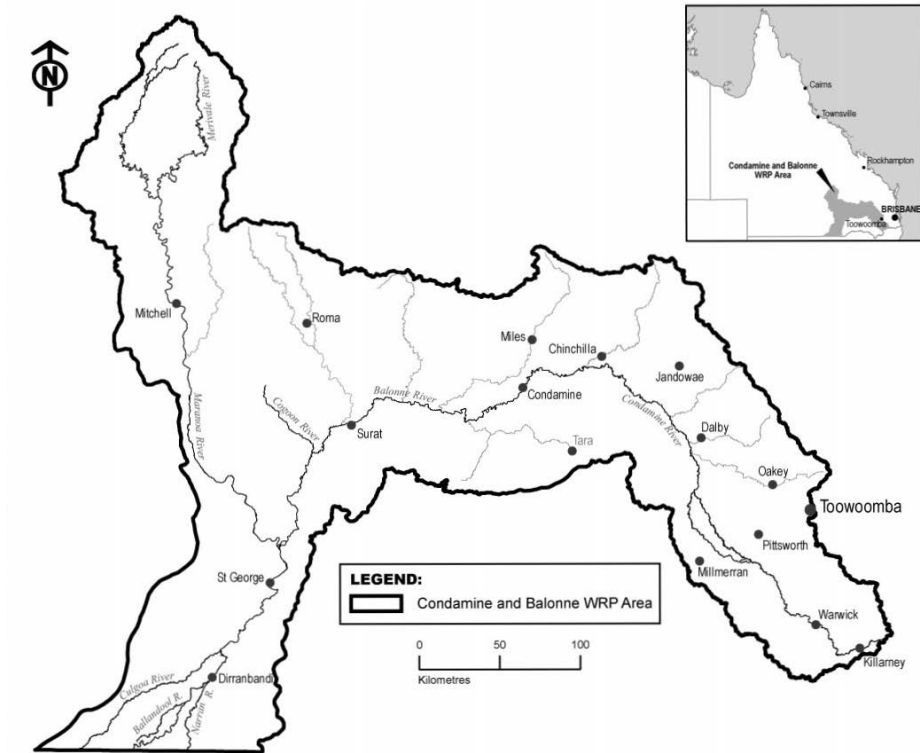
St George is used as a gauging station for measuring river flows. Un-supplemented Allocations and OLF licences are managed using these river flows. Each allocation and licence is authorised to commence pumping when they are notified by the DNRM that the river has reached a flow event size that is consistent with their conditions and rules of operation. Therefore at a low flow event only a few allocations and licences are able to access water for harvesting, as the river height and flow increases more allocations and pumps are permitted to commence pumping as their threshold is reached. The river is managed to meet environmental objectives and certain triggers have to be met to also permit pumping.

Commented [LE7]: therefore

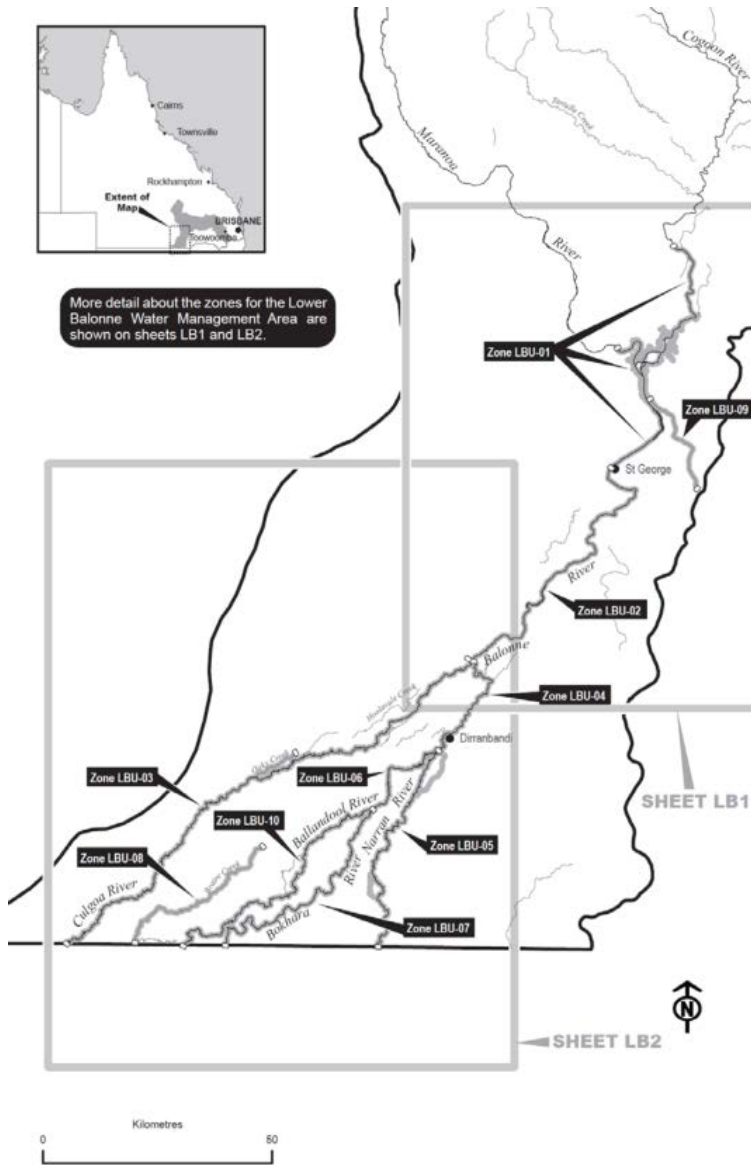
As such, each un-supplemented allocation and OLF licence is quantified by a nominal volume and a volume metric limit. The Nominal Volume (NV) is a reflection of the Long Term Average Annual Yield (LTAAY). With this now defined using the Integrated Quantity and Quality Model (IQQM), certainty and transparency was delivered to the owners and operators of the water rights. The irrigation area has evolved over the last decade since these new rights were established. There were some undeveloped licences (Sleepers) and partly developed licences (Dozers), but in the main the region was fully developed.

Restoring the Balance purchasing program has been part of the management process to return water to the environment since water trading commenced. These initially comprised transactions of un-supplemented allocations, however over the last two years it has been expanded to include OLF licences once their level of transparency improved. The acquisition of these OLF licence has to be carefully considered. Depending on the location of a licence within the catchment the acquisition of these rights to restrict the taking of water with the intent of providing more water for environmental purposes may only increase the opportunity for a water harvester downstream to increase their take.

Condamine Balonne Catchment Area



Map Lower Balonne Water Management Area Zones





## Overland Flow Licences – General Rules of Operation

The Condamine Balonne Resource Operations Plan governs the arrangements for Overland Flow access:

- Granting a licence for previously unregulated taking of overland flow;
- Management rules for the operation of infrastructure;
- Management to allow changes to certified works;
- Management of the Instantaneous Volumetric and Multi Year Volumetric Accounting water sharing rules.

For a Licence (with a term expiring 30 June 2111), the major factors providing transparency to these new rights are:

- the nominal volume, stated on the title for the water allocation, quantifies and expresses the unit share within the available resource. It is generally understood that the nominal volume is a reflection of the long term average annual diversion capacity of the resource.
- rules of operation, regarding river height, to determine when pumping can commence and when it must cease. Also the daily diversion volumes (megalitres per day).
- The tenure, exceeding 95 years, provides a high degree of certainty.

As these licenses require significant on farm infrastructure in the way of river pumps, diversion channels, on farm storages, lift pumps and developed irrigation fields, significant capital investment is associated with existing developments. The size of an allocation or an aggregation of allocations will influence the level and scale of development required in order to utilise the resource at the optimal level.

## Market Overview

The market for water in the Lower Balonne is directly tied to the market for irrigated properties in the region. It is a very complex market with water underpinning the value of significant private infrastructure projects. Without water and access to water the infrastructure has no utility and no value.

The market for OLF water licences is presently limited to land owners selling/trading to the CEWH. The CEWH has bought water on the temporary market from irrigators who had water in storage and were willing to sell. The water was used to achieve objectives that promoted environmental values such as extending the breeding season within the Narran Lake water bird habitat.

It would be a reasonable assumption to say that the present sales of un-supplemented water are comprised of:

- Sleeper and Dozer allocations;
- Distressed vendors affected by drought and needing to reduce their debt to sustainable levels;
- Water sold as part of various Health Headwaters Water Use Efficiency (HHWUE) projects.

Not all irrigators who have undertaken water use efficiency projects within their irrigation schemes have elected to participate in the HHWUE scheme. The HHWUE scheme provides funding to irrigators via the buying back of water that represents part of the water savings achieved from undertaking a particular water use efficiency scheme. Our experience within the region has revealed that every property is different and efficiency gains can be achieved through many ways. The value of water can therefore vary from one property to another.

The Lower Balonne region is an area where we consider the irrigators to be among of the most knowledgeable of their resource.

In recent times, corporate agriculture has entered the region to take advantage of the scale and the quality of the development that has been established. The majority of the enterprises are large family owned operations. With the entry of corporate agriculture, the focus has been on production and earnings. Their perception of a resource is based on what it can contribute to this outcome of productivity (eg bales of cotton) and profit (return on investment). One of the reasons corporate agriculture has entered the market in recent years has been to secure supply of particular commodities as part of a larger supply chain strategy. These factors all impact on motivation of market participants.

As a region, the Lower Balonne can be characterised as having tradable water values that are representative of their productivity and contribution to profit. Some other irrigated cotton regions, such as the Gwydir have tradeable water values that are not necessarily reflective of this productivity. On their own the value of an effective megalitre of water (LTAAY) available from a unit share of entitlement can exceed \$5,000 per megalitre. In valuing irrigation properties, a major basis of comparison is the Average Cotton Hectare Area (ACHA) value. An ACHA value is a unit of productivity that represents one hectare of land with adequate water to irrigate a cotton crop. This allows for factors such as climate, water type, reliability and method of irrigation. The value of an irrigated hectare of an ACHA can vary within irrigation regions and between irrigation regions. The range is such that the resultant return on investment can also vary significantly. Based on anecdotal evidence we consider that this range may comprise a return on total capital from 3 to 10 percent. The high valued, more established regions reflect the lower end of the range, whilst the lower valued, less established region with a high degree of perceived risk reflect the higher end of the range.

A benefit that a region such as the Lower Balonne and the Border Rivers have over more established irrigation areas, such as the Gwydir, is that they still have potential for production gains that would exceed a comparable property in the Gwydir. These gains will come through improved efficiency of on-farm infrastructure that will ultimately permit a larger area to be irrigated from their existing water resource over the longer term. This is as a consequence of how their development evolved. The Gwydir Valley region has the Copeton Dam which is a large public infrastructure project that underpins the general security allocations issued. Water harvesting is a relatively small part of the water resource. In QLD, the level of public infrastructure is relatively low, with a high dependence on water harvesting that requires more on farm infrastructure. This feature provides farmers the opportunity to control their own efficiencies and productivity gains.

The range in values that exists between the Lower Balonne region and the Border Rivers and Gwydir Valley regions is considered to be between \$12,000 and \$25,000 per ACHA. The Gwydir Valley is consistently at the higher end of this range. We consider that there is a two tier market evolving within the current market conditions.

- The first tier, comprising larger enterprises, are receiving a high degree of interest as institutional investors seek out a limited pool of quality assets that provide scale, such as is suitable for inclusion within a large portfolio.
- The second tier, comprising smaller enterprises not meeting the criteria of the institutional investors are needing to attract interest from the local market of existing operators or new investors who are not requiring scale. This segment of buyers are generally more constrained in their ability to raise adequate capital.

We are aware of a number of properties currently being marketed. They are at varying stages of their respective transactions, however it is considered that they will represent an improvement in market sentiment from where it was only 12 to 18 months ago. We also have clients seeking to acquire assets with value ranges from \$50,000,000 plus.

**Sales Evidence**

The following sales have been sourced from the Queensland Department of Environment and Resource Management’s (DERM) QVAS (Queensland Valuation and Sales) data base and the NSW Office of Water database. Where possible/practical, the data has been confirmed or checked against our knowledge of the transaction and with discussion with one or more parties. Data bases in NSW however do not provide details of vendor or purchaser and as such, this reduced the ability to investigate the sales and the circumstances under which they occurred.

Queensland sale data bases do not provide the details of the unit shares included in the transactions and as such we have to conduct further investigations into other data bases. This does increase the probability for inaccurate information and errors in our analysis of various sales.

The terminology between states also varies, as does the reliability factor associated with water access rights on a unit share basis. We have endeavoured to bring that back to a common denominator for comparison purposes.

The OLF water licence allocations in the Lower Balonne have been based on the long term average annual yield. That is, one unit of Nominal Volume is estimated to be equivalent to one megalitre yield over the long term. This will vary on a seasonal basis as the allocations are event based and subject to the volume and duration of a flood event.

Commented [LE8]: yield. Not ,

New South Wales entitlements can vary between systems. The Barwon Darling Unregulated Systems supplementary water access licences are more comparable to Queensland’s un-supplemented allocations, however for other regions such as the Border Rivers (NSW) and Gwydir water resource areas the nominal volume is more akin to Queensland’s Volumetric Limit.

**Summary of Queensland Sales**

Commented [LE9]: For information can you please include the volume of water transferred in these land sales

ROP Area / Property	Sale Date	Volume Transferred in Sale ML NV	\$ /ML  Separate from land	Location
<b>Moonie River ROP</b>				
WAN 8, 9, 18 Hollymount Aggregation	12/2014	3,980	\$1,100 to \$1,200	Moonie River at St George
<b>Condamine Balonne ROP</b>				
WAN 1504 Lower Balonne LB2	10/2015	2,375	\$1,600	St George
Undisclosed Lower Balonne LB1	7/2015	292	\$1,500	St George

The sale of water outlined in the preceding table in the Moonie River ROP and the Condamine Balonne ROP are all associated with un-supplemented allocations. There is no comprehensive or transparent data base of OLF licences that have traded already with the CEWH. A basic summary of transactions exists, however, in reality the value of these OLF rights may vary significantly from one enterprise to another. The value of the resource is very site specific both from a potential seller's perspective and any potential (theoretical buyer) perspective.

The value of a megalitre of OLF water licence must include the value of the infrastructure associated with the licence or the loss of any utility of the infrastructure if it is used in conjunction with un-supplemented allocations. The definition of value is a willing buyer and willing seller, both being desirous to transact but not without consideration of prudent business principles that would require a vendor to seek the recognition of one or both of the following:

- The value of any stranded infrastructure;
- What it might cost to replace / reinstate the asset or productive capacity of the sold resource / asset.

In reality this is a "shadow" market, as the trading of these licences is not likely to occur due to the value of the infrastructure tied to the water licence. Most purchasers seeking additional water could not feasibly justify the value that may be required to be paid to attain a licence entitlement and then expend the capital required to utilise a licence. There are exceptions to this. The development on some holdings is the most extensive and a marginal increase in water access would not impact on their long term utilisation of water licences and allocations that they current hold. It could however improve the utilisation of infrastructure during those years between large flow events. These properties could technically pay as much for such water as they would for un-supplemented allocation.

### Valuation Methodology

The most appropriate/ accepted method of valuation is by direct comparison, however there are markets where there is an absence of sales. This then requires consideration of other evidence and extrapolation of the data to determine a reasonable assessment of value. In this instance the prevalence of sales is more limited as the sale of these rights (independent of land) can only occur between a land owner and the CEWH. Consideration has been had to the sales of other 'similar' water rights such as un-supplemented allocations. As a check, residual analysis was also undertaken based on various scenarios.

The Lower Balonne region is considered to be a mature and highly developed region. The value of the water rights is aligned strongly to the land and the infrastructure developed on the land, which may include large water storages, pump sites, channels, and fields. Therefore for a prudent and willing vendor to sell, the diminishment in value of any infrastructure also has to be recouped from the sale of the associated water resource.

Commented [LE10]: considered

Values for developed irrigation farms in the Lower Balonne region are considered to have a value range of \$12,000 to \$20,000 per average cotton hectare area (ACHA). The recent sales may not reflect this as they do not necessarily reflect the better quality assets not available for purchase. These properties and sales evidence will comprise a mix of water rights including supplemented and un-supplemented allocation, as well as OLF access. We have provided a number of sales over the last few years from within the region and from adjoining comparable areas.

The main transactions of note include:

- “Cubbie Station Aggregation”
- “Mooramanna”, St George
- “Undabri Aggregation”, Goondiwindi
- “McIntyre Downs”, Toobeah
- “Gubbergunya”, Toobeah
- “Tundunna”, Mungindi
- “Rugby”, Billa Billa
- “Yarrowee”, Mungindi
- “Boongargil”, Toobeah
- “Yattlewondi”, Mungindi

The circumstances behind the above sales vary, with some vendors being more motivated than others. To get a reasonable sample size, consideration of sales outside of the Lower Balonne was also necessary. We have noted and adjusted the analysis of these sales to reflect the value of an effective megalitre (\$/ML) of water separate to land.

Using residual analysis methods for sales of irrigation farms sold with water included, we can assess the added value of water under difference circumstances. The value per megalitre is dependant in the efficiencies of the system and as such for individual transactions a more detailed analysis should be considered.

- **Value of Water and Added value of Irrigation Infrastructure =**

*Value of Property In-Use (as an Irrigation Farm) – Value of Property Alternate Use*

- **Value of Water Rights (In Use / In Situ) =**

*Value of Property In-Use (as an Irrigation Farm) – Value of Land In Use with Added Value of Infrastructure*

The above formulas assess a total value for each enterprise. To assess a value on a per megalitre basis a sound knowledge of the LTAAY is required. The value per megalitre is will be driven by the efficiencies of a particular system and as such, for individual transactions a more detailed analysis should be considered. Given the LTAAY of a water resource is assumed to be quantifiable (average annual yield in megalitres), it is the efficiency of the water utilisation which determines the current value of the water – i.e. the more efficient the use, the more valuable it is. Efficient water users will irrigate more land with a given quantity of water than an inefficient user.

An analysis of the following sales reflects the following analysis of \$/ML using the above approach. We have previously valued most of these sales and are familiar with the types and sources of water. The ACHA area is the basis of assessing the LTAAY of all sources of water. The sales also have a relatively high component of water harvesting (Un-supplemented (QLD) and Supplemented (NSW) water rights) as well as OLF access. The analysis does have a degree of subjectivity underpinning some of the assumptions such as crop water factors and efficiency of the irrigation system (where no hydrology data was available).

**Commented [LE11]:** Shaun, as per our discussions I was a little confused on the methodology. After you explained and I re-read this para I understand. If able, can you perhaps provide an extra small piece of commentary here for the reader so it is crystal clear the steps. Even if it's a recap. Happy to discuss

Table – Analysed Sales

Property	Sale Date	ACHA (ha)	Water \$/ML LTAAY	Analysed \$/ACHA	Total Value of Irrigation	Total Value of Water	Apportioned Value of Land (Alt Use)	Land Value (Alt Use \$/ha)
"Boongargil"	May-16	1,120	\$2,300	\$17,000	\$20,697,180	\$19,038,990	\$1,658,390	\$3,500
<b>"Yattlewondi"</b>	<b>Nov-15</b>							
"Yarrowee"	Nov-15	486	\$1,148	\$15,750	\$7,654,500	\$6,026,400	\$1,628,100	\$3,350
"Mooramanna"	Dec-14	421	\$1,050	\$10,500	\$4,420,500	\$4,014,150	\$406,350	\$965
"Gubbagunya"	Aug-14	344	\$1,350	\$20,000	\$6,880,000	\$6,027,750	\$852,250	\$2,477
"Undabri"	Jun-14	750	\$1,546	\$17,300	\$12,975,000	\$10,687,500	\$2,287,500	\$3,050
"Norlin Irrigation"	Jul-13	347	\$1,687	\$22,400	\$7,772,800	\$6,037,800	\$1,735,000	\$5,000
"Macintyre Downs"	Feb-13	1,325	\$1,300	\$19,365	\$25,401,600	\$21,743,800	\$3,657,800	\$2,822
Cubbie Group	Oct-12	13,696	\$1,150	\$14,200	\$194,483,200	\$183,526,400	\$10,956,800	\$800
"Rugby"	Oct-12	225	\$1,050	\$10,500	\$2,362,500	\$1,575,000	\$787,500	\$3,500

Alt Use = Alternate Use assuming the highest and best use has changed.

The range in value is \$1,050 to \$2,300 per megalitre. The variation can be attributed to the time of sale, location, efficiency of the irrigation scheme and the mix and balance of the water resources. OLF has traditionally been considered some of the lower valued water rights as the quality of the property right was inferior. With the extension of the licence period to the year 2111 the security of tenure has improved reducing perceived risks from potential buyers.

The recent sale of "Boongargil" is reflective of the value of OLF as part of a good quality irrigation holding. Over 50 percent of water used is sourced from OLF. Analysing for the value of water, assuming an alternate use, we are deriving a value of approximately \$2,300 per megalitre. As previously discussed, this assumes no added value for the existing irrigation infrastructure. In our analysis, we had access to a professionally prepared hydrology report. It would represent the minimum value, in this instance, of what would be required to entice an owner of OLF water access to sell their right to this access.

While a hydrology report is not presently available for "Yattlewondi", we would reasonably expect it to reflect a value, on a \$/ML basis, that is higher than "Boongargil".

The market sentiment is considered to be improving and, for many of the above properties, if offered on the market today an improvement in value could be anticipated. By our estimate this may range from only 10 percent to as high as 30 percent.

We have provided a value and a value range. The majority of OLF licences would be considered to be in the lower end of this range. The exception to this would be individual properties of a high standard that have achieved above average levels of water use efficiency, in which case the value would be in the higher end of the value range.

## Conclusions

The valuation of OLF water access is very complex. The main driver will be the impact on value to the whole operation (individual enterprises) that the sale of any water may have. That is – “what is the difference in the **after sale value** as compared to the **before sale value**?”.

Acquiring OLF licenses will, in most cases, result in the redundancy of existing infrastructure which the property owner will reasonably seek to recoup from the sale of any water.

Water use efficiencies can vary significantly from property to property.

Previous transactions comprising the acquisition of un-supplemented water can be categorised as initially comprising the following:

- Dozers and Sleepers;
- Distressed vendors affected by the drought and needing to reduce their debt to sustainable levels;
- Efficient enterprises that had surplus water and considered that they could sell some allocations without impacting on long term productivity and in doing so achieve a superior return on their total capital invested.

As sales of water allocations and OLF licences to the CEWH occur, the total available water within the market will diminish and increase demand for the remaining water rights. Markets can vary significantly over time, however the fundamentals of value will be determined by the contribution to profit that a particular resource makes. Land is not a limiting resource in the Lower Balonne, however, water is.

Recent transactions support the belief that values for irrigation properties have marginally increased in recent times. This is partly due to increased productivity from better crop yields and improved water use efficiency. Improved crop yields provide a higher gross income per hectare; while improved water use efficiency drives improved productivity across the whole crop area, with an increase in the potential area of crop grown (in the long term).

**Valuation**

Having regard to the sales evidence outlined in this report and our experience with water markets and irrigation properties, we consider that the value range for Overland Flow Licence (nominal volume) within the Lower Balonne can be assessed as follows:

Water Type	Valuation \$/ML of Nominal Volume	Valuation Range
Overland Flow Licence	\$1,500/ML	\$1,100 to \$2,300 per ML

This valuation advice is confidential to the Department of Agriculture and Water Resources and is provided for **financial reporting and acquisition purposes** only.

We accept no responsibility to any party not identified as a reliant party. This valuation (including any part of or reference to this valuation) shall not be used for any purpose other than:

- financial reporting and acquisition purposes by the Department of Agriculture and Water Resources; and
- advice to the respective Minister and Government for information and approval purposes

and shall not be published in any document, statement or circular or referred to in any communication outside of the Department of Agriculture and Water Resources without our permission.

**Commented [LE12]:** As discussed, may need to provide information to superiors/Minister etc

CIVAS (QLD) Pty Limited accepts no responsibility for this valuation other than for the stated purpose. This valuation is issued on the basis that no liability attaches to companies in the Colliers International Group other than CIVAS (QLD) Pty Limited.

**CIVAS (QLD) Pty Limited**

**DRAFT REPORT**

**Shaun Hendy, FAPI MRICS**  
**Certified Practising Valuer**  
 QLD Reg. 2131  
**Director | Rural & Agribusiness**

21 September 2016 (Date of Signing Report)

**Commented [LE13]:** 8February 2016

This report has been verified by **Jason Osborn, Associate Director | Rural & Agribusiness Valuations**

**Appendices:**

- CIVAS Standard Terms of Business
- Analysis of Irrigation Property Sales





CIVAS (QLD) Pty Ltd  
Leve 30, 111 Eagle Street  
Brisbane, QLD 4000

**Toowoomba Office**  
126 Margaret Street  
Toowoomba, QLD 4350

[www.colliers.com.au](http://www.colliers.com.au)

21 September 2016

s 22

Water Markets Policy Section  
Department of Agriculture and Water Resources  
GPO Box 858  
Canberra, ACT 4350

Email – s 22 [agriculture.gov.au](mailto:agriculture.gov.au)

Dear s 22

Re **Valuation of Unsupplemented Allocation  
Warrego Water Resource Plan**

I refer to your **Commonwealth Contract – Services, Reference No 2016-12** for Colliers International (CIVAS (QLD) Pty Limited) to provide valuation advisory services to the Department of Agriculture and Water Resources (The Department) for the valuation of Overland Flow Water Licences within the Lower Balonne region of the Condamine Balonne Water Resource Plan.

---

**Reliant Party**

Department of Agriculture and Water Resources

---

**Specific Instructions**

The Department requires the Service Provider to:

- (1) Provide an assessment of the market value of Lower Balonne Overland Flow (OLF) water entitlements.
  - (2) The value provided must be single point as well as a value range.
  - (3) Indicate the timing and period of validity for the report, and comment on any known factors that may be reasonably expected to change in the near future.
  - (4) Document the method (e.g. volume-weighted average prices, mean, media, expert knowledge and experience, etc.) and logic used to arrive at a value/ range. If using expert knowledge and experience as the method, it must be justified with evidence/ logical arguments.
  - (5) Use graphs, tables, as appropriate to present analysis and results, as appropriate.
  - (6) Include reference sources, data used (in spreadsheet format), as relevant.
- 

**Definition of Market Value**

Market Value is the estimated amount for which an asset or liability should exchange on the date of valuation between a willing buyer and willing seller in an arm's length transaction, after property marketing, wherein the parties each had each acted knowledgeably, prudently and without compulsion.

---

## Key Assumptions and Important Comments

---

In the preparation of this valuation report we have made a variety of key assumptions and important comments. In this regard we advise that this entire report, including appendices, must be read and understood by the nominated parties to whom reliance is extended in order that the various assumptions and comments are understood in the context of the adopted valuation. Should the parties to this report have any concerns or queries regarding the contents or key assumptions made in the preparation of this valuation, those issues should be promptly directed to the nominated Valuer for comment and review. A selection of Key Assumptions and Important Comments are as follows:

### General

- (i) This valuation is provided for **market valuation** purposes and is provided subject to terms and conditions, limitations, exclusions, assumptions and important comments set out in **CIVAS Standard Terms of Business** in **Appendix A** attached to this report.
- (ii) We assume that the instructions and subsequent information supplied contain a full and frank disclosure and that all information provided to us for the purposes of preparing this valuation is correct and current.
- (iii) This valuation can only be assigned, confirmed, reissued or dealt with in some other way which has the effect of assuming or extending responsibility to any person other than the reliant party (other act) if the (a) initial valuation is dated within three months of the assignment, confirmation, reissue or other act and (b) the assignment, confirmation, reissue or other act is provided on the basis that the property has not been reinspected nor has any further investigation or analysis as to any changes since the initial valuation been undertaken. We accept no responsibility for reliance on the initial valuation other than as a valuation of the property as at the date of the initial valuation.

### Asset Specific

- (iv) The valuations are of unspecified, unsupplemented water allocations associated with the Warrego River Resource Operation Plan (ROP). The source documents referring to the conditions of use, transferring and sale of assets comprise the Water Act 2000 (QLD) and the Warrego River Resource Operation Plan which forms sub-ordinate legislation to the Water Act.
- (v) As the valuations are of unspecified, unsupplemented allocations there can be a variation in value due to various factors and as such our opinion of value is general in nature only. For more detailed opinion of the value of specific water allocations a more individual report may be required.
- (vi) We reserve the right to review and in appropriate circumstances revise our valuation report should any of the above key assumptions and important comments result in matters that will have a material impact on valuation.

### Australian Property Institute Valuers Limited (APIV) Standards

- (vii) This valuation is current at the date of valuation only. The value assessed herein may change significantly and unexpectedly over a relatively short period of time (including as a result of general market movements or factors specific to the particular property). Liability for losses arising from such subsequent changes in value is excluded as is liability where the valuation is relied upon after the date of the valuation. (See Appendix B - Australian Property Institute Valuers Limited (APIV) Insurance Standards (for the APIV Professional Standards Scheme) Standard 7).

Without limiting the generality of the above, we do not assume any responsibility or accept any liability at all in circumstances where this valuation is relied upon in any way after the expiration of 90 days from the date of valuation, or such earlier date that the client or reliant party become aware of any factors that may affect the valuation. The value of the property may change within 90 days from the date of the valuation. The valuation is a valuation at the date of valuation only.

## Introduction

This report will provide a description of the Warrego Region in which the unsupplemented water resource is located. To attribute a value to a resource it is important to understand the local market dynamics which include:

- the size of the resource;
- distribution of the resource;
- rules of operation (Resource Operation Plan ROP);
- the extent of the existing market and history of transactions;
- drivers of value/ change.

Water rights and water markets within Australia have evolved over the last 40 years, with the last two decades seeing the greatest level of change. Water as a property right has also evolved and with the establishment of a stronger and more transparent property right, investors and land owners have become more comfortable with the risk profile as an investment. There are large variations between water markets in regards to:

- size of resource (volume of megalitres);
- type of water rights;
- reliability of water rights;
- transparency of water rights;
- type of industries supplied;
- level of technology used; and
- size of market and the volume of transactions.

What is important to understand is that the value of water is derived from the products/commodities that it contributes to the production of. Water rights are an asset, while water used is an input within a production system. Therefore, when buying water rights, a buyer is placing a value on the ability to access future physical water to grow particular crops (assuming agricultural use) with an estimated level of reliability underpinning the acquisition.

Water as a resource can improve the production capability and reliability of a cropping enterprise. However, in most instances it is not water in isolation that makes this possible, but also the investment in infrastructure such as water storages and irrigation systems. These combine to underpin the value of water as part of a larger investment that has the productive capacity to create positive cash flow and sustainable Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA).

Most business enterprises are seeking to expand and their decision making process will be based on a number of factors including, but not limited to the following:

- availability of capital (debt and equity);
- existing utilisation of current and potential productive resources; and
- cost of developing further capacity (if available) verse cost of buying similar or equivalent.

Following the evolution in water markets, the value of water helps to understand how the market is likely to react under certain circumstances. Initially when licences/entitlement were issued they had little value, as there was more water available than the demand that existed at that time. There was also greater risk as the industry was in the development phase and the risk reward profile was much higher as the knowledge and experience that is now established did not exist.

The irrigation industry, as it developed, moved to a situation where water supply was determined as being less reliable, however returns from the activities of irrigation (eg cotton growing) limited what could be paid for water. Water users became more focused on where they could improve. This included crop agronomy and water use efficiency. With water reform and the establishment of more secure property rights in water, water users had more confidence to invest. There were a number of types of users, with some having infrastructure that was not as well utilised as other users. Reviewing the various markets it can be seen that these users help set the initial market value for water.

They essentially had an asset that had no value, as it could not be utilised without access to the required water resource. They had a high propensity to justify paying more for water rights than other users who had to expend additional capital to utilise any additionally acquired water resources.

Focus then shifted to reviewing irrigation methods and agronomy systems that assisted in increasing production with a restricted quantity of water. We have seen the cotton industry evolve from a production target of 7.5 bales per hectare in the late 1980s to 15 bales per hectare in 2015. This gain has been achieved with the use of the same or less amount of irrigation water as that which was required in the 1980s. We have seen the renewal and development of irrigation in major irrigation regions in the southern Murray Darling Basin as the adoption of new cotton varieties extended into these new cotton producing areas.

The focus on agriculture and the demand for soft commodities globally has increased as economic regions such as China and India grow their middle class and experience a growth in average personal income. Agriculture has also increased its profile with corporate and institutional investors and we have seen the evolution of companies that specialise in the investment of water assets. With large enterprises, water rights can represent a very significant proportion of a transaction and for various reasons many are opting not to own all their assets. As long as they have control over the water resource, (such as a lease), they can often improve their return on capital invested.

Water is a versatile asset and the rapid rise in commodity prices and global demand for meat is seeing an evolution in production systems. Water as a resource is underpinning the change in some significant enterprises and how they operate in a new market environment. With the rapid increase in profitability of cattle production during the early and mid 2000s the market saw good quality cropping land being diverted to beef production based on economics. The value of water and the options to which it may be applied as an input is such that on a gross margin per hectare basis is certainly profitable to grow forage for beef production in preference to other crops on a standalone basis. However, as part of a bigger picture value chain proposition the case is even more compelling.

Recently we have become aware of a vertically integrated enterprise buying land in established cropping and irrigation regions to complement their value and supply chains.

The Warrego River as a water market does not have an established trading market, however that does not mean that the water rights have no value. The perspective that needs to be adopted is “What price would I need to offer to entice someone to sell water?” This answer may vary widely within a market such as the Warrego River.

Future trends that we see to the development of the resource in the Warrego region is within the intensive and semi intensive livestock feeding of cattle and sheep. This has already commenced and as the systems mature and the resource is developed, the value and demand of the water rights can logically be expected to increase.

The factors that we consider contribute to and /or affect the value of permanent water include, but are not limited to the following:

- Supply and demand conditions in the area of the particular water resource;
- Water use efficiency;
- Cost of water use efficiency options;
- Value of cropping options;
- Resource reliability;
- Transferability;
- Type of water right; and
- Location – resource management area.

## Overview of the Warrego River Catchment

The Warrego region is located in south west Queensland and north western New South Wales. It is named for the Warrego River which flows through the region. The region is a rural based economy with a population of approximately 8,000. The main population centres include Charleville and Cunnamulla.

As a river catchment it comprises approximately 7% of the Murray Darling basin (MDB) area, however its contribution to runoff is significantly less, with the Warrego only contributing to 5% of the inflows into the Barwon Darling River.

The catchment has only a small volume of tradeable allocations comprising a mix of Supplemented Allocations and Unsupplemented Allocations.

Supplemented Allocations are all located at Cunnamulla and supplied via the Allan Tannock Weir. The weir is an in stream storage facility that supplies the township of Cunnamulla and the small irrigation area located adjacent to the township. The water is managed by Sunwater who also regulate the taking of water for irrigation use. Water can be pumped directly from the weir/river and reticulated to irrigation areas without the need to store water on farm. There is approximately only 2,612 megalitres of supplemented allocations.

The Unsupplemented Allocations are distributed between the Upper and Lower Warrego River. There is approximately 40,003 ML of nominal volume allocations that are issued with 90,870 ML of volumetric limit.

The size of individual nominal volume allocations at the time of the completion of the Resource Operations Plan (ROP) varied from 10 ML to 10,700 ML. As such there is a high concentration of the resource between a limited number of authorised water allocation holders. Principally there are two users that control over 80% of the water allocations. These comprise the holdings of “Mirage Plains” aggregation and the Dunsdon Family holdings at “Hortonvale” and “Melrose”. This is important to understand in terms of wanting to gain access to water resources in this market.

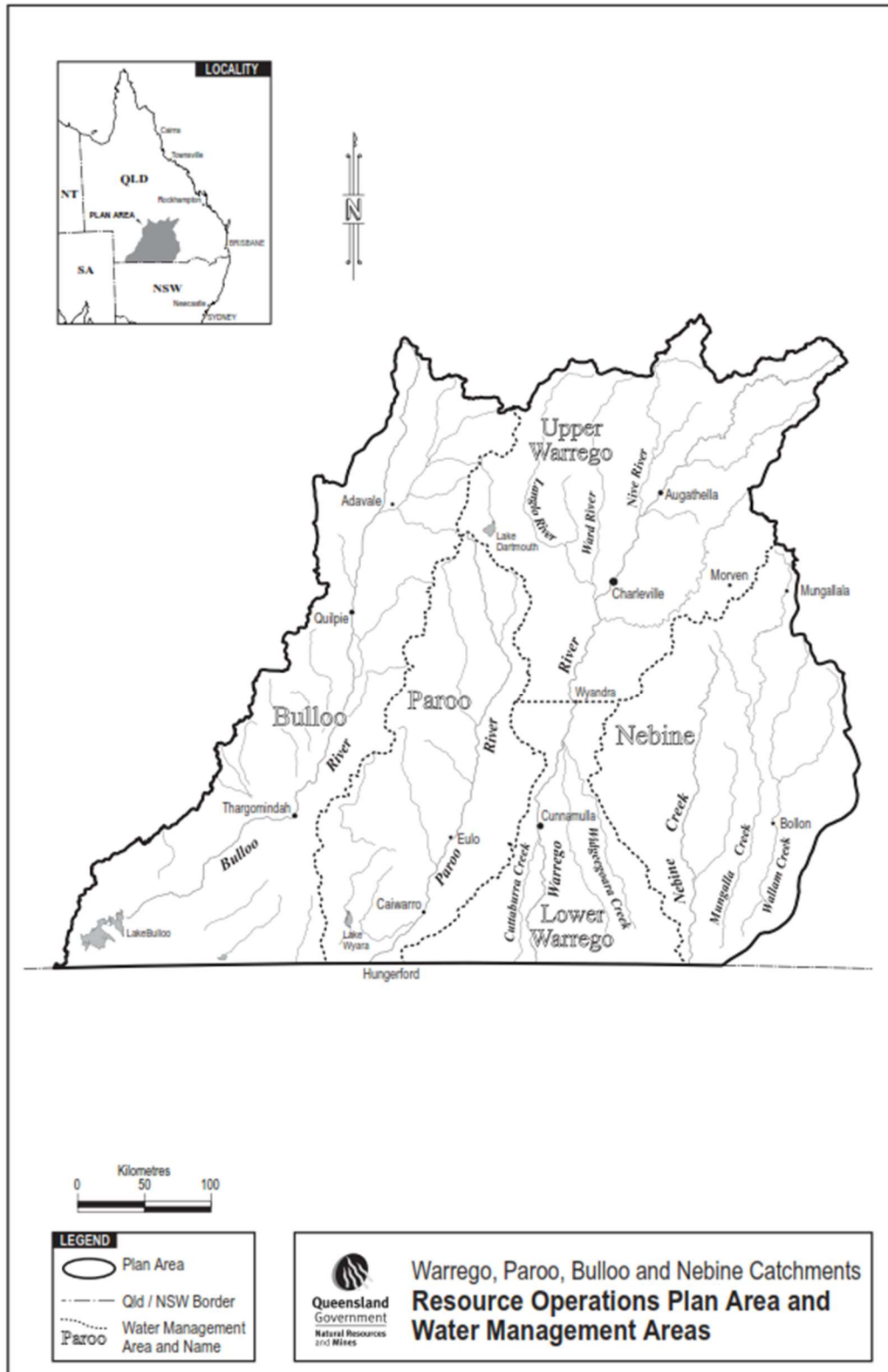
Given the nature of the water allocations, their relative size and their distribution within the river system, there is a need to consider the implications of value in the context of varying market profile of the market participants.

The volume of water allocations is low and represents less than 10% of the average annual end of system flows. The study completed in September 2007 entitled “Water Availability in the Warrego – A report to the Australian Government from the CSIRO Murray-Darling Basin Sustainable Yields Project” considers that there is presently little impact on the environment as a consequence of diversions or potential diversions should they all be developed. The current development within the region comprises approximately 2,500 hectares of irrigation land and approximately 20,000 to 25,000 megalitres of on farm storage facilities used to store water diverted from the river under authorised access as per the rules of operation for individual unsupplemented allocations.

The volume of allocations issued are not considered sufficient to establish a viable irrigation industry based on cotton which is a principal crop for most irrigation areas in southern Queensland and northern New South Wales. Cotton has been, and still is, grown in the region, however cartage costs for ginning do reduce the profitability of the crop somewhat. The Dunsdon family, the main established irrigator, run a flexible enterprise that has grown horticultural crops (table grapes), cotton, forage, and some organic grain production. Just in the last 12 months the table grapes have been removed and are no longer grown. Generally speaking the level of development and standard of development is considered to be comparable to other irrigation regions. Irrigation methods used are among the most modern and efficient available, both on the basis of water use efficiency and labour efficiency. Methods include lateral and centre pivot irrigators, traditional flood furrow and modern bankless channel flood irrigation.

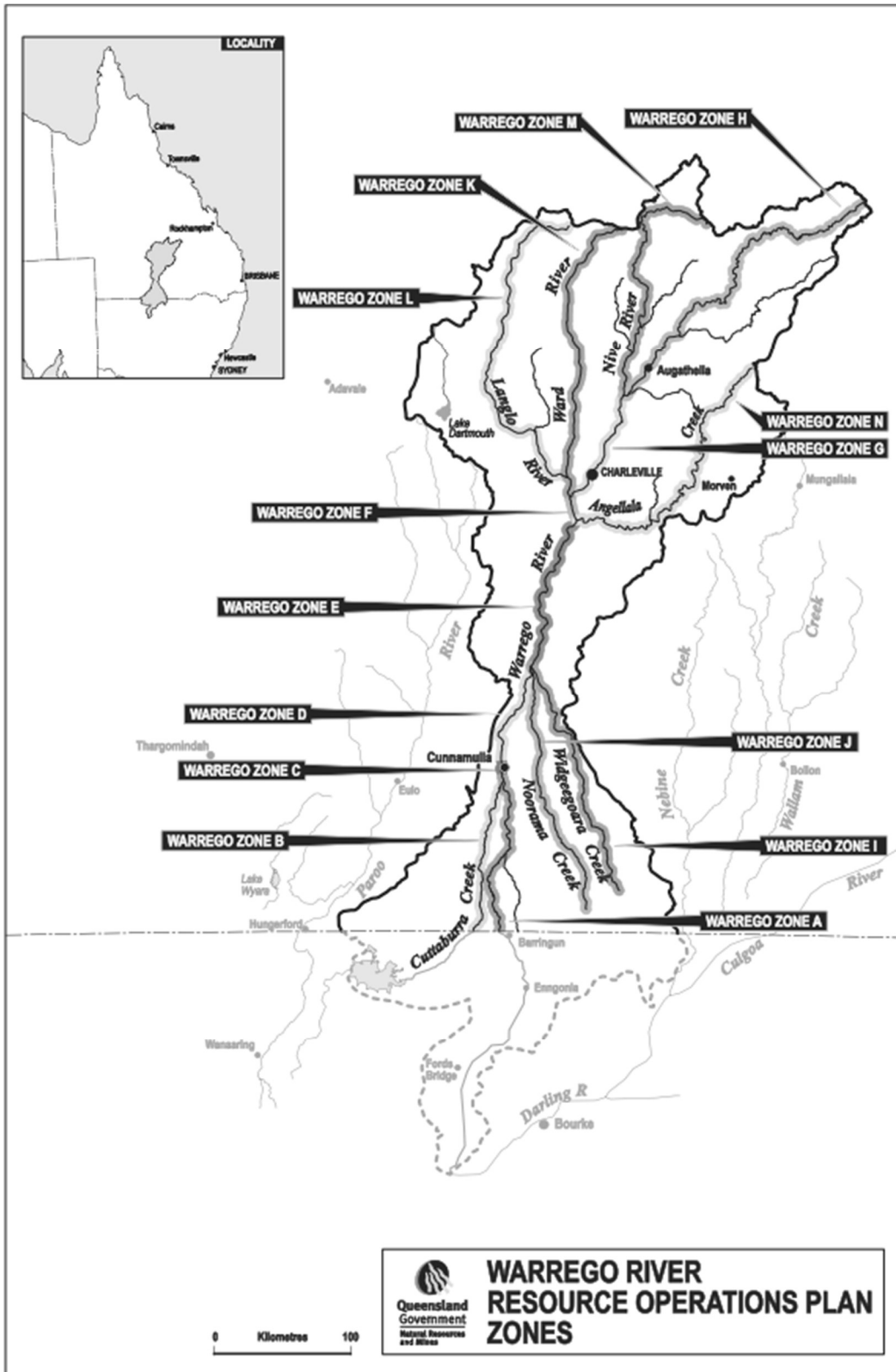
We have added maps of the region to assist with placing the above discussion into context.

Map Warrego, Paroo, Bulloo and Nebine Catchment Areas





Map of Warrego ROP Area Zones





## Unsupplemented Allocations – General Rules of Operation

The Warrego, Paroo, Bulloo, and Nebine Resource Operations Plan (January 2006) governs the arrangements for:

- converting original water authorisations into tradeable water allocations;
- operation of infrastructure and management of supplemented water in the Cunnamulla Water Supply Scheme;
- management of unsupplemented water within the various catchments;
- trading of water allocations;
- rules to allow changes to allocations;
- water quality and ecosystem monitoring; and
- amendments to the plan.

With the finalisation and the gazetting of the ROP, as sub-ordinate legislation to the Water Act 2000 (QLD), the water authorisations were converted to tradeable water allocations. As a property right, the major factors providing transparency to these new rights are:

- the nominal volume, stated on the title for the water allocation, quantifies and expresses the unit share within the available resource. It is generally understood that the nominal volume is a reflection of the long term average annual diversion capacity of the resource.
- rules of operation, regarding river height, to determine when pumping can commence and when it must cease. Also the daily diversion volumes (megalitres per day).

As these licenses require significant on farm infrastructure in the way of river pumps, diversion channels, on farm storages, lift pumps and developed irrigation fields, significant capital investment is associated with existing developments or would be required for future developments. The size of an allocation or an aggregation of allocations will influence the level and scale of development required in order to utilise the resource at the optimal level.

It would be reasonable to suggest that small allocations (10 to 400 ML) would be difficult to justify development unless in conjunction with in-stream weir storage structures which, though not efficient, provide a reasonable storage facility for the opportunity use of a water allocation.

The larger allocations would require more sophisticated development with engineer designed pump stations, water reticulation, on farm storage and irrigation fields. The viability of such development will be influenced by the proposed location and site specific features, efficiency of water storages and method of irrigation system. This could impact on potential market participant's willingness to pay or willingness to sell. Efficient water users have a higher propensity to pay than less efficient users. They also find new and additional developments more feasible.

## Market Overview

The market for water allocations in the Warrego ROP area is limited. Due to a relatively small volume of allocation available and concentrated within a very small group of existing users/holders. Even within these two major users/holders there is further irrigation development required before they fully utilise the resource that they respectively control.

Considering the value of water as an entity separate to land, strengthens the argument for its value to the prospective buyer to be the main determinant. This could vary significantly depending on factors including the extent of a buyers existing holdings and associated infrastructure and the buyer's required rates of return on capital. In this instance where there is little irrigation development and there is very little established public or private infrastructure, its value will be more correlated with the value of water in-situ.

The sale of allocations have been limited and can be generally associated with the "Mirage Plains Aggregation" (initially comprising only "Mirage Plains", "Gerah Plains" and "Mowellan") that was bought by the Fanning family in the 2000s who then commenced the acquisition of adjoining holdings, "Coonberry Plains" and "Killara". These additional holdings also had water allocations (or licenses depending on time of acquisition pre and post ROP). The Fanning family then sold the property as an aggregation to the RM Williams company, Primary Holdings Pty Ltd. Their plan was to develop the property's water rights to their full potential with a significant irrigation scheme comprising over 30,000 megalitres of on farm storage and an irrigation area commensurate to the available water. The business plan revolved around the production of forage and organic grains within a larger beef cattle enterprise. Primary Holdings Pty Ltd went into receivership and was sold during one of the driest periods on record for the state and the region. The property only comprises a small irrigation development, relative to its potential, which at the time of sale had a number of operational and maintenance issues. The property was acquired at a significant discount to the price paid by Primary Holdings Pty Ltd. This is considered to be relevant as the sale is not consider a "normal sale" by definition of market value.

The topography of the property and its location within the catchment made it ideal to locate a gravity diversion scheme to harvest water under the authority of the unsupplemented allocations. Reducing costs of operation such as fuel for pumping during harvesting events is significant and in the order of \$20 to \$40 per megalitre.

There is minimal activity of other transactions other than small volumes transferring with land when selling.

To attain an appreciation of other similar water rights we have had to have regard to other catchments. Particularly the Border Rivers (QLD), Lower Balonne (QLD), Moonie (QLD) and the Barwon – Darling River (NSW).

These catchments have significantly more water and water users, and subsequently a higher level of development and more frequent transactions within their markets. They do provide an insight into buyer and seller motivations.

## Sales Evidence

The following sales have been sourced from the Queensland Department of Environment and Resource Management's (DERM) QVAS data base and the NSW Office of Water database. Where possible/practical, the data has been confirmed or checked against our knowledge of the transaction and with discussion with one or more parties. Data bases in NSW however do not provide details of vendor or purchaser and as such this reduced the ability to investigate the sale and the circumstances under which they occurred.

Queensland sale data bases do not provide the details of the unit shares included in the transactions and as such we have to conduct further investigations into other data bases. This does increase the probability for inaccurate information and errors in our analysis of various sales.

The terminology between states also varies as does the reliability factor associated with water access rights on a unit share basis. We have endeavoured to bring that back to a common denominator for comparison purposes.

Unsupplemented allocations in Queensland have been based on the long term average annual yield, That is, one unit share is estimated to be equivalent to 1 megalitre yield over the long term. This will vary on a seasonal basis as the allocations are event based and subject to the volume and duration of a flood event.

New South Wales entitlements can vary between systems, the Barwon Darling Unregulated systems supplementary water access licences are more comparable to Queensland's unsupplemented allocations, however for other regions such as the Border Rivers (NSW) and Gwydir water resource areas the nominal volume is more akin to Queensland's Volumetric Limit.

**Summary of Queensland Sales**

ROP Area / Property	Sale Date	Volume Transferred in Sale (ML NV)	\$/ Average Cotton Hectare	Analysed Value of Unsupplemented Allocations		Location
				In-situ	Separate	
<b>Warrego ROP</b>						
WAN 37, 38, 39, 40, 41, 43 Primary Holdings (in receivership)	2014	14,730		\$500	\$500	Cunnamulla
WAN 37, 38, 39, 40 Fanning to Primary Holdings	2010	9,760		\$1,100	\$1,100	
WAN 41 Banning to Fanning	2008/ 09	2,475	N.A.		\$300	Cunnamulla
WAN 43 Gardiner/ Fanning	2008/ 09	1,325	N.A.	\$452	\$452	Cunnamulla
WAN 37, 38 Killara (Fanning)	2005	2,700 800	N.A.	\$443	\$443	Cunnamulla
WAN 43 Coonberry Plains (Fanning)	2004/ 05	1,325	N.A.	\$250	\$250	Cunnamulla
<b>Moonie River ROP</b>						
WAN 8, 9, 18 Hollymount Aggregation	Dec 2014	3,980	N.A.	\$1,100 to \$1,200	\$1,100 to \$1,200	Moonie River at St George
<b>Condamine Balonne ROP</b>						
WAN 1504 Lower Balonne LB2	Oct 2015	2,375	N.A.		\$1,600	St George
Undisclosed Lower Balonne LB1	Jul 2015	292			\$1,500	St George

**Summary of NSW Sales**

ROP Area / Property	Sale Date	Volume Transferred in Sale (ML NV)	\$/ Average Cotton Hectare	Analysed Value of Unsupplemented Allocations		
				In-situ	Separate	
<b>Barwon-Darling Unregulated River Water Source</b>						
WAL36559 > WAL 33719	Dec 2015	250	N.A.	N.A.	\$1,100	Class B
WAL 33765 > WAL 33719	Mar 2016	650	N.A.	N.A.	\$1,100	Class B
WAL 33663 > WAL 37461	May 2016	323			\$1,084	Class B
WAL 33757 > WAL 37045	May 2016	71			\$1,300	Class A

The sale of water outlined in the preceding table in the Warrego ROP area are all associated with the Mirage Plains aggregation and its amalgamation with adjoining properties and its most recent sale under forced sale circumstances.

Sales of water from NSW have also been considered, these are consistent with values in Queensland. We have included them as an attachment to the rear of this report.

## Valuation Methodology

The most appropriate/ accepted method of valuation is by direct comparison, however there are markets such as the Warrego ROP area where there is an absence of sales. In order to establish an opinion of value we can consider transactions in other ROP areas of similar water rights. Similar rights are considered to be a permanent water allocation or entitlement that can be transferred from one user to another. The rights in question have different names in different water management areas, however the following are considered generally comparable:

- Supplementary water (NSW)
- Unregulated Class B (Barwon-Darling NSW)
- Unregulated Class C (Barwon-Darling NSW)

In some water management regions, the value of water may vary depending on if it is sold with land (In-situ) or if sold separate to land. A previously discussed this variation in value will depend on the extent of development and the maturity of the irrigation industry in that region.

The value of water in the Warrego ROP is considered to be more aligned with the in-situ value. The value of water separate to land in more developed areas does show a premium over the value in-situ. The sales evidence does reflect this generally, however in our experience the value of unsupplemented allocations (or similar) is closer to their value in-situ than water rights such as Supplemented Allocations (QLD) or General Security Water (NSW) entitlements.

The Condamine Balonne ROP area is considered to be superior and have a more mature irrigation industry. Values for developed irrigation farms are considered to have a value range of \$13,000 to \$20,000 per average cotton hectare area (ACHA). In the absence of any reasonable market information, we would consider that the Warrego values for a comparable ACHA would range from \$8,000 to \$15,000 per ACHA. This would reflect both the standard of development and the location of the two regions relative to services and commodity markets etc.

The Moonie ROP area is the most comparable of all the regions. It is not very mature and values are generally considered to be directly comparable with the Warrego with a low percentage of utilisation and only a few users.

The Barwon – Darling Un-regulated system is considered to be quite comparable, though again having a more mature irrigation industry. The disadvantage to this region is that the majority of land is Western Lands Lease and not freehold.

We consider that there may a different value for smaller licences as compared to larger licences. As this may be affected by site specific features and the feasibility to develop this may be better assessed by individual valuation using more complex methods. The reasoning being that smaller allocations would be considered more expensive and less feasible to development as compared to larger allocations.

Using an approach based on the residual analysis of sales of actual irrigation farms sold with water included, we can assess the added value of water. This requires taking the analysed value of the ACHA and developed irrigation land. Understanding that this value includes land, added value of infrastructure and the water rights we can deduct the value of the land and infrastructure and be left with the value of water in-situ. The value per megalitre is dependant in the efficiencies of the system.

The value of a megalitre can vary obviously. For example, if the added value of water in the assessed \$/ACHA is \$8,000 per hectare, the added value of an individual megalitre can vary if water use efficiency varies. Assuming a variation of water use requirements, due to inherent differences associated with efficiency, of 8 ML per hectare to 10 ML per hectare, the underlying value of the water on a per megalitre basis would be reasonable assumed to range from \$1,000 to \$800 per megalitre respectively.

This range should reflect the current value of most of the undeveloped water resources, should a water holder be enticed to sell part of their developed allocation, the value/price offered may need to reflect the added value of the infrastructure that upon the sale of the water will have limited added value. On a case by case, property by property basis this can become complex.

## Valuation

Having regard to the sales evidence outlined in this report and our experience with water markets and irrigation properties, we consider that the value range for Unsupplemented Allocations (nominal volume) within the Warrego River ROP can be assessed as follows:

Allocations	Valuation	Valuation Range
Less than 400 ML NV	\$700 per ML NV	\$650 to \$750 per ML NV
Greater than 400 ML NV (not developed)	\$900 per ML NV	\$800 to \$1,100 per ML NV
Greater than 400 ML NV (developed)	\$1,600 per ML NV	\$1,500 to \$1,650 per ML NV

This valuation advice is confidential to the Department of Agriculture and Water Resources and is provided for **financial reporting and acquisition purposes** only.

We accept no responsibility to any party not identified as a reliant party. This valuation (including any part of or reference to this valuation) shall not be used for any purpose other than:

- financial reporting and acquisition purposes by the Department of Agriculture and Water Resources; and
- advice to the respective Minister and Government for information and approval purposes

and shall not be published in any document, statement or circular or referred to in any communication outside of the Department of Agriculture and Water Resources without our permission.

CIVAS (QLD) Pty Limited accepts no responsibility for this valuation other than for the stated purpose. This valuation is issued on the basis that no liability attaches to companies in the Colliers International Group other than CIVAS (QLD) Pty Limited.

### CIVAS (QLD) Pty Limited

#### DRAFT REPORT

**Shaun Hendy, FAPI MRICS**  
**Certified Practising Valuer**  
**QLD Reg. 2131**

**Director | Rural & Agribusiness**

21 January 2016 (date of signing)

This report has been verified by **Jason Osborn, Associate Director | Rural & Agribusiness Valuations**

#### Appendices:

- CIVAS Standard Terms of Business
- Schedule of Sales of NSW Water Access Licences