

## **IRRIGATION TRAINING SUNRAYSLIA (THE JOURNEY SO FAR)**

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In 2003 Irrigation was approved through the Australian Qualifications Framework and offered as a nationally accredited certificate course. The new qualifications range from Certificate two through to Diploma level and are offered through the "Rural Training Package" – RTE03. The subjects within each certificate course are flexible enough to provide relevant training for retail, horticultural, and landscape sectors at the level required of the trainee.

For at least ten years prior to its formal offering government and industry had recognised the lack of formal irrigation training within the irrigation industry. The Irrigation Association of Australia hosted the Certified Irrigation Design (CID) program, and continues to, but it is under the auspice of the Irrigation Association (USA) who controls its contents.

Other members of the industry have also provided successful and effective short courses in the past, but they have been focused primarily on products they sell rather than on the principles of irrigation. Conversely rural research and support bodies such as Department of Primary Industries have provided general hands-on horticultural activities and training centred on producing crops which included irrigation principles, but generally not specific mechanical training in irrigation systems.

Since the implementation of the Irrigation certificates there have been small but encouraging success stories along with plenty of challenges in the Sunraysia district. The future of irrigation training is exciting and full of opportunities, and given the current hot topic concerning the water crisis training and qualifications need to be effectively promoted and delivered to those who are involved in water use.

This report is the journalistic reflections of a member of the irrigation industry that has had various levels of involvement in irrigation education and who began in the irrigation retail and design sector in 1991, became a hobby horticulturalist in 2003, and has been an irrigation educator since 2004.

### **INTRODUCTION:**

The following report contains reflections, personal thoughts and forecasts concerning irrigation education in and around the Sunraysia district of north western Victoria and south western New South Wales. Some statements may be debatable but are or were the way they are or were viewed.

I will give you a small look into my past as an irrigation technician / designer and educator during the last 17 years, and a bit of local educational history from the late 80's.

Transferring from the past to the present I will explain what the new AQF irrigation courses contain and what type of individual they suit. I will detail a little of how I go about training in different situations and some of the methods I use, and of course the people we deliver training to come from many different workplaces and so I'll look at a couple of those.

Irrigation Australia Limited has their own certification programs which I will address and link to the nationally recognised irrigation certificates.

I will reveal two good news responses to our training and detail a number of challenges I have faced in the Sunraysia district. The future of irrigation training is enormous and I will give you my thoughts on a few significant changes I am sure will happen.

Finally I will leave you with two recommendations that I believe are extremely important in guaranteeing the success of irrigation training in Sunraysia and nationally.

### **HISTORY:**

Irrigation training in Sunraysia was primarily an in-house event, and usually based on the experiential style of "live and learn". This style also limited the depth of skills and knowledge learnt to that of the work being conducted by the business you were employed in. Whilst that suited the business owner, it led to very narrow irrigation options for the trainee to work with, and as we would learn later, quite inefficient use of water as different properties needed to be treated differently.

In the retail arena training began through product recognition, why it was used and if it failed how to fix it. For more details concerning any products we often organised an informal presentation from the company representative that was one of our key suppliers. For extra excitement we would also have a different representative from a different company explain why their product was better than the other and so on.

Pump training and drip irrigation field days as well as the iconic Southern Cross training programs were well regarded as quality training, but in fact were not well attended by my colleagues in Sunraysia. As it turned out it was usually the boss that attended the SX course as it was a good opportunity to visit a capital city or sunny Queensland, when it should've been the trainee that actually needed to go. Sunraysia irrigation staff found that it was the timing of the training that was our biggest hurdle as we were in our busy period when the training occurred. The cost of flights, accommodation and the course itself were difficult to get past management also.

The higher qualification step to attempt the Irrigation Association of Australia's (IAA) "certification program", which was the best going around and the qualification most valued in the industry. However the price was high and understandably so. You had to be a member (cheaper option), and you had to shell out hundreds of dollars for each step of the process. And if you failed a step, you had to pay out again to sit the exam.

The most notable problem with the CID program was the difficulties in converting from US gallons to metric, and feet to metres. Whilst it doesn't sound hard the multiple choice questions quite often didn't offer you an answer that matched the one you spent minutes calculating. Another issue was that the last big exam contained questions about products and processes that were not used in Australia. But the biggest morale dilemma that still exists today is that to earn the CID status you do not have to actually submit a design as part of the proceedings.

However, if you ask anyone who has the CID qualification how hard it was to get it, the general consensus was tough but well worth it. The CID program is currently the best design qualification we have.

For those that wanted to obtain higher levels of irrigation related qualifications that were also nationally accredited, they could achieve it through mechanical engineering diplomas and degrees and agricultural science degrees which included irrigation design as a small part of their much bigger picture.

Irrigation training that involved horticultural scheduling and system use by the client was offered by the department of primary industries in our region and still is. As a designer I cannot recommend highly enough how useful their program was to me in helping me to understand my clients point of view and what they really wanted in an irrigation system, and how important it is to consider crop varieties and soil types in my design. Of course the IAA and IA (USA) have always preached this message, but the DPI's in our area demonstrated the message to me effectively.

## **PRESENT:**

The new irrigation certificates theoretically fill all the gaps that were previously missing between retail designs and DPI type organisations; which is to say between irrigation products / design sales, and the horticultural practices of water use.

- Certificate II in Irrigation addresses basic irrigation "assist" principles in the form of maintenance and system operation. The balance of the subjects revolves around health and safety and basic field skills.
- Certificate III in Irrigation is a "hands-on" level that extensively covers irrigation principles including fertigation, and caters perfectly for retail, horticulture and urban / landscape flavours of training.
- Certificate IV in Irrigation is aimed at irrigation management activities and whilst Cert III is not a prerequisite, it is difficult to pass Cert IV without the knowledge gained from Cert III. The content focuses on management strategies for large installation projects and significant scheduling procedures. Other subjects address the management of health and safety, the work environment and staff management. Again this course can be tailored to suit retail, horticultural and urban / landscape needs.
- Diploma in Irrigation is branded as the "design" level and includes irrigation design, maintenance design, irrigation & drainage management plans, and auditing irrigation and related systems. This level does not translate perfectly with the CID program, but should contribute to it some time in the

future. This level caters more to retail & design than any other sector and would be suitable for those desiring a deep understanding of irrigation design and applications.

In 2006 the IAA began promoting new certification programs targeting retail, horticultural and urban / landscape irrigation markets. I will discuss the following five industry qualifications as they require passes in irrigation AQF certificate subjects.

o Certified Irrigation Manager

Is a skill set or short course aimed at horticultural irrigation managers, and is available to anyone with passes in all the following Certificate IV subjects:

- RTE4605A Schedule Irrigation
- RTE4609A Implement, monitor and adjust irrigation schedules
- RTE4603A Implement an irrigation related environmental protection program
- RTE4511A Develop a soil use map for a property
- RTE4602A Determine hydraulic parameters for an irrigation system

o Certified Irrigation Operator

Is a skill set or short course aimed at irrigation hands, usually reporting to certified irrigation managers and is available to anyone with passes in all of the following Certificate III subjects:

- RTE3607A Measure irrigation system performance
- RTE3610A Operate gravity-fed irrigation systems  
or RTE3611A Operate pressurised irrigation systems
- RTE3612A Implement a maintenance program for an irrigation system
- RTE3714A Maintain and monitor environmental work practices
- RTE3503A Sample soils and analyse results

o Certified Irrigation Contractor

Is a skill set or short course aimed at irrigation contractors, and is available to anyone with passes in all the following subjects:

- RTE4602A Determine hydraulic parameters for an irrigation system
- RTE4601A Acquire resources for irrigation installation and construction
- RTE4606A Supervise onsite irrigation system installation and construction work
- RTE4607A Plan onsite irrigation system installation and construction work
- RTE3714A Maintain and monitor environmental work practices

o Certified Irrigation Installer

Is a skill set or short course aimed at irrigation hands, usually reporting to, and working for an irrigation contractor manager and is available to anyone with passes in any five of the following six subjects:

- RTE3601A Install irrigation systems
- RTE3605A Troubleshoot irrigation systems
- RTE3607A Measure irrigation system performance
- RTE3503A Sample soils and analyse results
- MEM9.3AA Prepare basic engineering drawings
- RTE3714A Maintain and monitor environmental work practices

o Certified Irrigation Agronomist

Is a skill set or short course aimed at agronomists with the purpose of recognising that the applicant is taking appropriate irrigation consideration in determining crop production plans. This certificate is available to anyone with passes in any six of the following nine subjects:

- RTE4602A Determine hydraulic parameters for an irrigation system
- RTE5601A Audit irrigation systems
- RTE4605A Schedule Irrigation
- RTE4604A Determine seasonal irrigation scheduling tasks
- RTE4609A Implement, monitor and adjust irrigation schedules
- RTE4511A Develop a soil use map for a property
- RTE5604A Develop an irrigation and drainage management plan
- RTE5605A Establish and maintain an irrigation related environmental protection program
- RTE5801A Provide specialist advice to clients

Note that the IAL also offers certification in such topics as auditing, (not to be confused with the Diploma subject), retail short course, efficiency short course and numerous others. More information is available at [www.irrigation.org.au](http://www.irrigation.org.au).

### **DELIVERY:**

Training methods vary according to the client but in the majority of cases require the IAA learning guides and for me the Sunraysia Institute of TAFE assessment plans. Delivery methods include:

- Workplace training is most common and is delivered at the work site where training or recognition of competency can be administered more accurately and more conveniently as staff are away from work for less time. Workplace training usually involves one to six participants at a time for a limited time, but allows for training in a work-relevant and work-focussed atmosphere.
- Class based training occurs monthly for a week on average as a part of horticultural courses where the groups are ideally 12 or more in number. Group classes allow the trainer to spend more time examining a single subject more widely.
- Recognition of Current Competency (RCC) and Recognition of Prior Learning (RPL) is where a student provides, or demonstrates evidence of their competence, but more often than not they usually have a few holes in their application that requires one or two subjects to be completed.
- Diploma classes are usually at night and require a considerable amount of homework. To date I have been very disappointed at both the quality of work handed in and the percentage of students that do actually hand in work. (I have adjusted training methods to help facilitate completion of the assignments without reducing quality and depth of understanding).

Our students come from a variety of backgrounds. We have customers from privately owned businesses, but they are far outweighed by corporate business both in retail and horticultural pursuits. When I first started training in irrigation I relied solely on meeting the AQF criteria but quickly found that it was too mechanical and therefore less engaging to the trainee. Over time I tried methods that I thought were more appropriate to the differing workplaces with mixed but mostly good results. We found that in some cases projects were suitable, and others working through the IAA learning guide was better, but given that most trainees have been doing their job for years without qualifications available, recognition of current competency with the appropriate interviewing strategy has been the most common subject completion process.

### **FEEDBACK:**

Our best indicator of success is by way of formal and informal feedback. Sunraysia Institute of TAFE sends out annual surveys that have proved positive in general. We certainly are aware that our resources can be much better given more development time, and of course there is room to improve our course delivery, and this is reflected in the surveys that end up with the Victorian Office of Tertiary training and Education (OTTE).

Verbal feedback is often good, with some clients not afraid to hold back their frustrations. I am proud to state that 90% of our students feel comfortable enough with us to talk freely, and that we have not betrayed anyone's confidence at any stage of our training.

One student revealed to a number of us at a graduation party that they began work as "irrigation manager" at a monster of a property where many of the trees were not progressing well in their development. He went on to explain that he was not given the authority to decide when to water but to apply irrigations as instructed by a corporate horticultural manager based 450 kilometres away whose only indicator was graphs from soil moisture indicators.

After progressing through Certificate IV in Irrigation which included a substantial section on scheduling, he was able to discuss application factors such as soil types and climatic conditions with the manager and was soon scheduling to suit the conditions better, whilst maintaining regular contact with the manager. The great news was his promotion to another farm as Farm Manager which only further confirmed our belief that irrigation management includes wider horticultural considerations.

In another case we had a landscape gardener who contacted us regarding some irrigation training in troubleshooting and simple design of garden systems. After he had successfully completed the course he went on to offer his "repair or replace" service to the market place. We know this because he continued to stay in touch partly because of an established professional relationship and partly to double-check his calculations until he became more and more confident in his calculations and troubleshooting methodology.

**CHALLENGES:**

Along the way I have encountered some frustrations. Management of the delivery of irrigation training should be a straight-forward process, aided by the incentive programs that encourage water users to take part. However due to communication constraints via the privacy laws and general educational bureaucracy, it can be difficult to find out that you have been nominated as the training RTO for a given apprentice.

Further constraints revolve around the multiple levels of management on both sides of the fence when trying to discover who gather workplace policies and training dates from. Harvest is a difficult period to be flexibly deliver training around because it can be two to three months before work slows down on the property, and when the supervisor prefers we visit the apprentice. Unfortunately this breaches the training agreement with the government which states that training must be delivered at least once every three weeks. At the end of the day we still meet (juggle) training obligations but it can take much more energy than it should.

Because the irrigation AQF certificates are new, appropriate training resources are scarce. And while the IAA material has been of most use to us, there is still a need for additional material such as text books, audio-visual resources; computer based learning programs etc... We do improve our resources year to year but it is clear that at the current rate we may need many years before training becomes less preparation time and more training delivery focused.

Finding training methods that worked was not an easy task. What worked at one property was not suited to another. Added to this was that we needed to keep the delivery fresh and engaging so using the same methods all the time was not successful either. Finding teachers that are engaging and knowledgeable in the first place was difficult but with many hours of effective professional development we have been able to widen our choices of methods.

**FUTURE:**

Skill sets such as those offered by Irrigation Australia are very attractive to businesses. The training very specifically addresses key employment positions and can therefore quickly indicate if and when the student is capable of their duties.

Future AQF training strategies will consist of core subjects critical to all irrigation pursuits, and a choice of subjects that best suits the student's irrigation specialty.

Plumbing, building, electrical, automotive, nursing, engineering, and teaching disciplines all require employee registration of some type. With the water crisis and the need for stringent water use guidelines I am sure the future will bring an announcement that legislation requiring irrigation operators to be licensed will be made mandatory for agricultural and other high water use businesses.

Resources that are lacking now will naturally be designed, developed, evaluated and adjusted as time goes on. Future knowledge-based training tools will most likely revolve around computer programs and simulations that will also be available on the web. Practical experience in the future will be conducted in technology centres or utilising custom built portable training tools.

The Certified Irrigation Designer program is on the future change list, that is to become Australianised. Currently it is based on US conditions and criteria. The ideal plan will be to develop a strategy where the education and subject credits can be earned from qualified RTO's but the final exams / testing is IAL controlled. The reason for this strict control is to maintain the qualification integrity and the subsequent value that brings, and to ensure a consistently high-quality examination process continues.

**RECOMMENDATIONS:**

In order to encourage a consistently high level of irrigation training the IAL should continue promoting the high benchmark that all educators can be measured by. Ideally Industry would also support the IAL by agreeing to enter into training contracts with those educators approved by the IAL. This occurrence may not stop sub-standard training providers from operating, but their potential clients will think twice about the value of their certificate if the RTO is not meeting the high-level training benchmark.

IAL could maintain their benchmark by collecting quality training material and developing their own material that meets best practice standards, and on-selling only that high quality material to education providers.

Regular communication between all stake holders is also the key for addressing our nations irrigation training needs. Communication can be in the form of conferences, professional development, news letters (backwash), and similar localised events.

Industry is who RTO's are here to meet the needs of. Their needs are usually employee skills and knowledge focused. When training is tailored to suit the needs of industry demand will naturally increase. Demand will have the added benefit of speeding up the development of better resources and the recruiting of more quality teaching staff.

An increase in demand does not have to mean an increased business cost as best practice training of a student will help reduce risk in the student's workplace. Communication with and investigation of the irrigation industry needs to be further applied for irrigation training to reach its potential.

### **CONCLUSION:**

Though there may be different values placed on irrigation training between different geographical regions, I have found that training in Sunraysia is similar in most respects to other parts of Australia. In reminiscing about the past in my district many out there would remember how pockets of training occurred in the past and hopefully now, how it compares to the nationally recognised courses available today.

The information above is quite simply my opinion derived from what I have seen and heard over the years, coupled with conversations on the matter of education with many of my colleagues in the past four years.

I trust that I have explained clearly the current types and levels of irrigation training available today and how they relate to the various levels of irrigation employment. (If not please contact me).

The future of irrigation training is an exciting subject given the good feedback we regularly receive about the current training relevance in industry, and where and how irrigation training could be facilitated as soon as in the next few years. The challenges I have faced are certainly not insurmountable, but with the quality benchmarks set by industry and maintained by the IAL, it will be less of a significant occurrence.

### **REFERENCES:**

Nil.