

IMPLEMENTING INTEGRATED WATER CYCLE MANAGEMENT: FACILITATING CONNECTIONS TO BUILD ORGANISATIONAL CAPACITY IN COUNCILS

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ABSTRACT

Clearwater, a leading capacity building organisation, is moving towards developing capacity building tools and techniques that go beyond targeting individual knowledge and capability; and toward a broader step-change into improving skills and networks to build organisational capacity. This includes the delivery of in-house training initiatives for local councils in the area of maintenance of Water Sensitive Urban Design (WSUD) assets. The sessions bring many different disciplines together and involve participants in the development of an action plan. Findings show that the training has a significant impact in building the knowledge base of the staff, developing their professional skills and strengthening organisational capacity overall.

INTRODUCTION

The challenges of Integrated Water Cycle Management

Integrated Water Cycle Management (IWCM) is still a relatively new approach for many institutions across Australia and much of the developed world. For the urban water sector, it represents a major shift from the traditional, linear approach, whereby different parts of the water cycle were managed separately by different organisations or by different 'silos' within organisations. In Australia, this approach has been in place for over 100 years. In the last two decades, the potential benefits of IWCM and the related process of WSUD have begun to emerge and many governments have responded by mandating the adoption of these approaches in water and urban development planning, such as last year's release of the draft Melbourne's Water Future by the Victorian Government (Office of Living Victoria 2013). As a result, government agencies, councils, water authorities are being increasingly required to take a different approach to how they manage water and urban development.

The importance of institutional capacity building

From the work of Brown and Farrelly (2009), Van der Meene et al. (2009) and other researchers, it has become clear that a focus on the capacity of institutions with the urban water sector, not just

individuals, is needed to facilitate the shift to IWCM. This is supported by earlier work in the realm of international development which defined capacity as 'the ability of individuals and organisations or organisational units to perform functions effectively, efficiently and sustainably' (UNDP 1998) or as consisting of three elements; human resources development, institutional development and creation of an enabling environment with appropriate policy and legal frameworks (Alaerts et al 1991).

For an Australian context, Brown, Mouritz and Taylor (2006) developed a model to illustrate the different aspects of institutional capacity and the different capacity building interventions that could be used to address certain deficits within each aspect. The elements of institutional capacity can be summarised as (from Brown, Mouritz and Taylor 2006):

- *Human resources*: the technical and people knowledge, skills and expertise available within a region to promote WSUD.
- *Intra-organisational capacity*: the key processes, systems, cultures and resources within organisations to promote WSUD.
- *Inter-organisational capacity*: the agreements, relationships and consultative networks that exist between organisations to allow them to cooperatively promote WSUD.
- *External institutional rules and incentives*: the regulations, policies and incentive schemes that work to encourage WSUD in a given region.

For each element, Brown, Mouritz and Taylor (2006) outline associated capacity building interventions and these include building the knowledge base (relevant to all spheres of institutional capacity building), professional skill development (relevant to individual/human resource capacity building), organisational strengthening (relevant to intra- and inter-organisational capacity building), directive and facilitative reforms (relevant to external institutional rules and incentives).

Since then, it has become well accepted that organisational administration, not simply the knowledge and skills of individuals, is the most significant barrier to successful implementation of IWCM (Bos and Brown In press; Brown and Farrelly 2009). Most capacity building programs have traditionally focussed on addressing individual capacity, therefore a greater focus on organisational strengthening activities (targeting intra- and inter-organisational capacity) is needed, along with directive and facilitative reforms to the operating environment of the urban water sector (Brown et al. 2008; Rijke et al. 2012).

Gaps in institutional capacity within Greater Melbourne

Institutional capacity is a major issue for successful IWCM planning and implementation in Greater Melbourne, the capital city of Victoria, Australia (Melbourne Water 2013; Brown, Mouritz & Taylor 2006; Morrison et al 2010). To address this, the Victorian state government has recently undertaken directive and facilitative reforms through the release of its Living Victoria Policy in 2011 and draft Melbourne's Water Future strategy in 2013, which sets out a policy mandate and long-term vision for the adoption of IWCM by the urban water sector in Greater Melbourne and the state's key regional cities. This is complemented by the Living Victoria Fund, a program of investment in IWCM planning, construction of on-ground assets and community-wide capacity building (Office of Living Victoria 2013). These reforms build upon existing legislation in the form of the Victorian Planning Provisions that require most new developments in greenfield areas to incorporate IWCM and WSUD. With Melbourne's rapidly growing population, particularly in the west and north of the city, and highly variable climate, there is a strong push to fast-track the adoption of IWCM, to enhance liveability in all parts of the city.

While IWCM has occurred in Greater Melbourne over the last decade, it has usually occurred in the form of pilot projects rather than a region-wide systematic approach to water management, co-ordinated across agencies and sectors (Brookes et al. 2012; Farrelly and Brown 2011). While the Victorian Government's directive and facilitative reforms are crucial, without further interventions, institutional capacity gaps remain in the human resources, intra-organisational and inter-organisational spheres.

These capacity gaps apply to all facets of IWCM projects, including the design, construction and ongoing maintenance phases. Within local government, IWCM/WSUD champions within council often experience difficulty in getting buy-in or cooperation across council to make key decisions supporting the implementation of WSUD

and IWCM (Eggleton et al. 2012). This is particularly the case for inner metro parts of Melbourne as well as the rural/regional locations of Victoria (Eggleton et al. 2012; Morrison et al. 2010). In recent years, Melbourne Water has undertaken regular analyses (every 3-4 years) of local government capacity to implement WSUD, providing a snapshot of internal commitment and resourcing, identifying capacity building needs and quantifying the change in capacity as a result of interventions. A comparative analysis of results from the first (2006/07) and second (2010/11) phases showed that out of nine key capacity themes, municipal capacity needed to improve greatest in the areas of 'commitment', 'interdepartmental involvement', 'knowledge and resources', 'planning and policy' and 'maintenance and enforcement' (Eggleton et al. 2012).

Through this, it has become clear that maintenance of WSUD assets, such as raingardens, constructed wetlands and stormwater harvesting systems, is an implementation issue of significant concern for many councils. It highlighted a need for both professional development and organisational strengthening activities targeted at WSUD maintenance issues currently being faced by councils.

Clearwater's increasing focus on institutional capacity building

Clearwater is an award winning program that aims to build the capacity of the Victorian water industry in sustainable urban water management. In light of the latest research described above, particularly Melbourne Water's need analyses, Clearwater has been increasingly broadening its suite of capacity building activities to encompass a wide range of interventions focussed at all spheres of institutional capacity (Table 1).

To demonstrate how the Clearwater program is succeeding in building institutional capacity, this paper focusses on the approach and findings of Clearwater's recent initiatives in the area of intra-organisational capacity building. Over the last 12 months, Clearwater has been trialling the delivery of a new style of in-house training to councils across the Greater Melbourne region in WSUD maintenance. For this paper, Clearwater undertook a two stage evaluation process to assess the effectiveness of this training in knowledge building, professional skills development and organisational strengthening of the host councils to deliver improved WSUD maintenance. The lessons from this are likely to have applicability for others seeking to build institutional capacity in any area of water management.

Table 1: Elements of the Clearwater program across the spheres of institutional capacity

Sphere	Type of capacity building activity	Who for
Individual	Public training and site tours, case studies, interactive online tools, website	Range of organisations across the urban water sector, such as local government, water authorities, consultants, developers
Intra-organisational	<u>In-house training workshops to individual councils</u>	Local government in Greater Melbourne region
Inter-organisational	Knowledge sharing and network building seminars and workshops, site tours, tailored training workshops to local group networks	Range of organisations across the urban water sector, such as local government, water authorities, consultants, developers
Administrative/regulatory	Disseminating information and developing tools to improve understanding of administrative and regulatory frameworks and facilitate greater participation in reforms.	Range of organisations across the urban water sector, such as local government, water authorities, consultants, developers

PROCESS

Delivery of training sessions

In 2012, Clearwater designed and developed three training courses for local government on WSUD maintenance: Maintenance of Street-scale WSUD Assets, Maintenance of Constructed Wetlands and Maintenance of Stormwater Harvesting Assets. These courses were designed to consist of all three critical aspects of effective intra-organisational capacity building – building the knowledge base, professional skills developments and organisational strengthening – as suggested

by Brown, Mouritz and Taylor (2006). The courses were also designed to address the needs identified within Melbourne Water's need analyses for local government (as outlined in Eggleton et al. 2012) and were developed in close partnership with Melbourne Water's Stormwater Team.

Under the priority capacity building themes and in the context of WSUD asset maintenance, the aims of the courses were to:

- *Build the knowledge base* of council staff in the underlying concepts of WSUD and IWCM – what it is and why we are doing it.
- *Build the knowledge base* of council staff in how WSUD assets work – including key component and functions of each WSUD asset type - to enable participants to better understand maintenance needs and implications.
- *Provide professional skill development* in the conduct of WSUD maintenance activities on the ground - by providing participants with a sound understanding of the key maintenance tasks involved in managing these technologies and knowledge of the tools and experts available that can assist.

- *Strengthen the organisation's capacity* to develop and implement WSUD maintenance processes – by providing an opportunity for council staff to discuss and conduct action planning around current maintenance issues and needs, and to document agreed next steps.

The intended long term outcome of the training would contribute to improved relationships and collaboration across the divisions of council, enable better clarity around roles and responsibilities and improved staff culture towards WSUD. It was envisaged that this would assist with the design and implementation of improved processes for WSUD asset maintenance and/or improved broader WSUD policies within councils. The content of the courses was based on the latest best practice guidelines, such as Melbourne Water's WSUD Maintenance Guidelines and Constructed Wetland Guidelines, all of which are foundational guidance documents identified as a need in Melbourne Water's need analyses for local government capacity in sustainable stormwater management (Eggleton et al 2012). The street-scale WSUD assets course covered raingardens, swales, tree pits and permeable pavements.

The courses were designed to bring together all council staff responsible for hands-on maintenance, or influencing the maintenance, of WSUD and stormwater harvesting assets. This includes staff from planning (1% of attendees at sessions delivered so far), engineering (28%), environment (4%), parks and drainage maintenance (43%) and other relevant sections of council, such as construction and urban design (19%), at officer and middle management levels. Due to the importance of good asset design for successful ongoing maintenance, it was critical for urban designers and engineers to be involved in the workshop. Staff responsible for leading and championing the implementation of WSUD across

council are often located in the engineering, strategy or environmental/sustainability sections of council, so their involvement was also critical. Construction and asset engineers were important attendees as they are responsible for ensuring that WSUD designs are correctly implemented and problems do not arise that will lead to maintenance and rectification issues down the track.

The course was designed for staff from officer level, which included professionals, workers/labourers and contractors (approximately 65% of attendees from sessions so far) and from middle management levels, which included foreman, supervisors and team leaders (approximately 35%).

During the last 12 months, Clearwater delivered these courses to five councils across the Greater Melbourne region. This included councils across different parts of the region, including inner metropolitan (Manningham, Moreland and Yarra) and outer metropolitan (Brimbank and Casey). A course was also delivered to City of Greater Geelong, a major regional centre to the west of Melbourne. Based on the needs that councils indicated, each council received one or more of the courses or a session that incorporated elements of more than one course.

Despite the differences in modules incorporated into each, all sessions consisted of a common format, incorporating both indoor and outdoor

components. The length of the session depended on the number of modules included but was typically either a half or full day. The format of the session and the content and activities included is covered in Figure 1.

All training sessions were held at local venues chosen by the council hosts, which often included the council depot and local field sites with WSUD assets within municipal responsibility. This enabled participants to feel comfortable in familiar surroundings, feel more confident to ask questions and feel respected – all crucial elements of successful adult learning (Knowles 2011).

Evaluation of training sessions

Evaluation of the training sessions was conducted via a two stage process:

1. Participant feedback survey at end of session – to assess impact on knowledge and skills
2. In-depth interviews with council hosts a few months after session – to assess impact on knowledge, skills and organisational strengthening aspects

At the end of the session, participants were asked to fill out a paper-based questionnaire to provide feedback on the session. One of the purposes of this was to seek participants' views on how successful the session had been in improving their knowledge and skills in relation to WSUD and maintenance requirements.

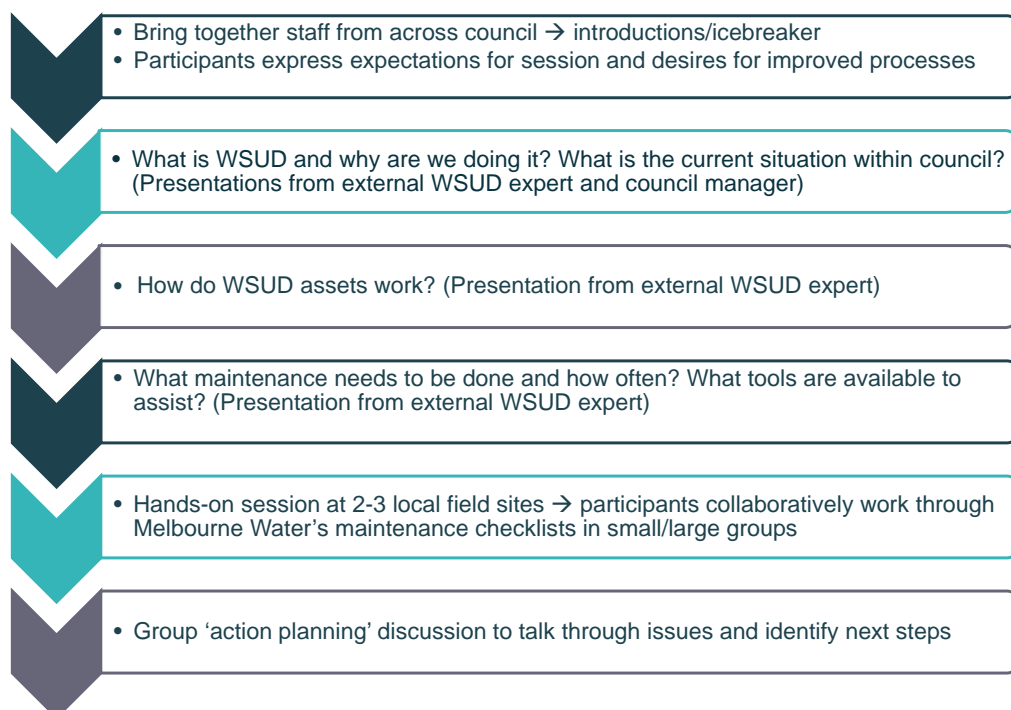


Figure 1: Format of Clearwater's council training courses on WSUD maintenance

On a scale of 1 to 5, with 5 being most favourable, participants were asked the following questions:

- How would you rate your knowledge on this topic before attending this session?
- How would you rate your knowledge on this topic after attending this session?
- I learnt useable processes, tools and skills
- I will apply the knowledge from this training session in the workplace
- Overall, what is the one thing you wish was different? [open question]

The form included a number of other questions (not covered in this paper) relating to participants' views on the session and suggestions for improvement. Questions were not asked in relation to the impact of the session on organisational strengthening aspects of capacity building as it was felt that these required a period of reflection following the session before answers could be given.

The second stage of the evaluation was conducted approximately 2 to 12 months after the session and consisted of in-depth phone interviews with the personnel from councils who hosted the training session. These were normally officer level or middle management staff located within the engineering or environment sections of council charged with the responsibility for leading or 'championing' the adoption of WSUD within their organisations. The questions asked were designed to explore the hosts' views on how successful the training session had been in achieving the objectives around building the knowledge base, professional skill development and organisational strengthening in relation to WSUD maintenance. The interview was also designed to explore whether the council had made progress in implementing the action plan developed at the end of the session and whether new or improved procedures or policies for WSUD and asset maintenance had since been developed. Suggestions for improvements to the training session were also invited.

The questions were emailed to the interviewees prior to the interview to provide time for reflection and were as follows:

- How well did the training assist to build the *knowledge base* of your council in the topic of your training? For example, knowledge of WSUD policies/ technologies/ requirements and available tools/people to assist.
- How well did the training assist to build the *skills* of staff across your organisation? For example, ability to manage WSUD assets on-ground, using tools available.

- How well did the training contribute to *strengthening your organisation's* capacity to implement WSUD? For example, increased/improved relationships and collaboration between staff across different divisions, better clarity around roles and responsibilities, improved staff culture towards WSUD, improved processes for managing WSUD assets.
- How well did the training contribute to *improving the policies and standards* for WSUD set by your council?
- Which issues/actions discussed at the end of the workshop has your council been able to address, which not and why?
- Any suggestions for how we could improve our workshops or other complimentary activities we could do to be more effective in building organisational overall capacity in WSUD? For example, follow up one-on-one coaching sessions with key people? More hands-on learning components?

In the intervening period between the training session and the evaluation interviews, Clearwater did not provide any further training sessions or advice to participants on WSUD maintenance. However, participants may have accessed further information from Clearwater's website or from other sources, such as Melbourne Water and consultants. Melbourne Water does play a strong capacity building role for councils in IWCM, particularly sustainable urban stormwater management, through the delivery of funding for on-ground projects, technical and strategic advice and technical guidelines (Eggleton et al. 2012). Therefore, even though participants were asked to focus their responses on the impact of Clearwater's training, other potentially confounding variables to the results remain.

RESULTS AND DISCUSSION

This section outlines the findings from both the participant feedback survey and the interviews with council hosts, and discusses the possible factors for these outcomes.

Significant increase in knowledge base

Most participants reported that the training had led to a substantial increase in their knowledge of the topic area. As shown in Figure 2, in the survey most participants rated their knowledge on the topic prior to the training session as either a 2 or a 3. Following the training session, nearly all participants rated their knowledge as either a 4 or a 5. These results are supported by the results in Figure 3 that nearly all participants felt they had gained knowledge they could apply in their workplace.

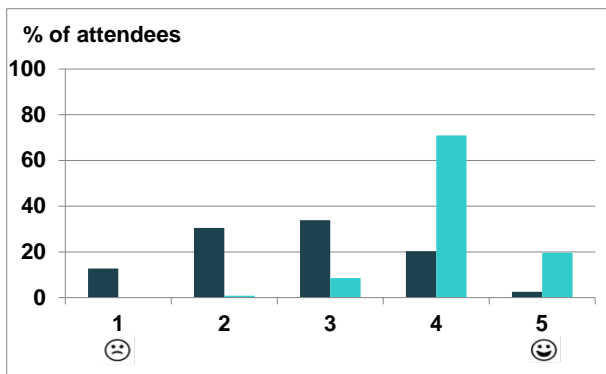


Figure 2: Participant ratings for Clearwater's in-house WSUD maintenance trainings in response to the question: How would you rate your knowledge on this topic BEFORE/AFTER attending this session? (n=118)

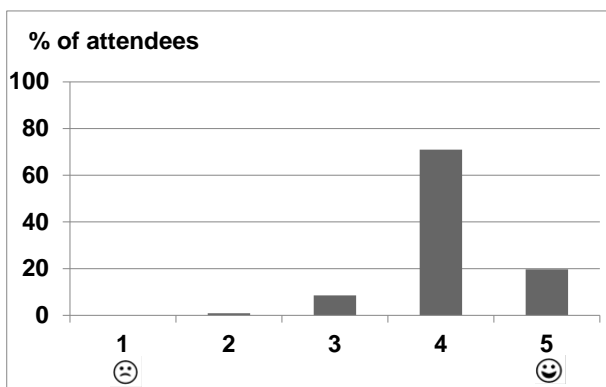


Figure 3: Participant ratings for Clearwater's in-house WSUD maintenance trainings in response to the statement: I will apply the knowledge from this training session in the workplace (n=116)

The interview responses concurred with the results of the participant survey in the area of knowledge building. Upon reflection a few months after the training session, all council hosts agreed that the training course led to a significant increase in the knowledge base of staff across their organisation in WSUD and maintenance requirements. The course had the most significant impact on the knowledge base of the construction, parks and drainage maintenance staff who attended. As one person stated – ‘You could see their Aha! moment about what these raingardens were actually trying to achieve.’ Another interviewee reported that before the training, ‘I’m not quite sure that [the site inspectors] really knew what they were looking at [WSUD]. The training has given them the confidence to ask questions.’

As explained by the council hosts, many of their maintenance staff had seen WSUD assets being installed in the ground over the last few years but had never been properly engaged on why and how the systems functioned. One interviewee reported that the ‘courses were really excellent in exposing the maintenance staff to WSUD concepts. It was fantastic. The feedback was really positive, even now several months on, particularly since they now

understand how these WSUD assets work and why we are doing it.’ Another respondent expressed that ‘a lot of people hadn’t given any thoughts to how the [WSUD] assets actually work, the fact that they are different to any normal asset they are used to dealing with.’

Respondents explained that Clearwater’s training allowed everyone to come together for the first time and receive the same basic knowledge so that everyone was ‘on the same page’. This allowed council staff to then move forward and start to work together on developing internal processes and procedures for WSUD maintenance. As example of this, one interviewee stated that the course was ‘relevant to where we were here at the organisation [i.e. early stages of setting up WSUD assets data base and maintenance inspection regime]. The knowledge from the course fitted our purpose perfectly. Because we threw the net pretty wide [in terms of working areas], it gave everyone the basic knowledge and basic understanding of what’s trying to be achieved.’

These results are likely to be attributable to a number of factors. The type of content delivered was a key factor as the course started with the basics, rather than presuming a level of knowledge. This lowered the risk of anyone being left behind and not feeling confident to ask the ‘dumb’ questions. Highly related to this was the quality of the trainers used. As one respondent stated, the trainers were ‘extremely knowledgeable and good presenters’, who were able to successfully engage with the wide range of people in the room. The trainers provided additional depth to the introductory content where needed to satisfy the more experienced participants and encouraged them to share their knowledge with the rest of the group.

The fact that the trainers were external to the organisation was perhaps another important success factor. This is indicated by the following sentiment from one interviewee - ‘It’s better to pay a good consultant to come in and talk the same messages, because it’s seen as independent and therefore they must know more – sometimes if we say something internally, it doesn’t mean anything.’

The knowledge sharing aspect of the training was particularly fostered in the field session where participants worked through the maintenance checklists in small groups and then discussed as a group. This enabled knowledge sharing between staff, particularly between the WSUD designers and maintenance staff. The design staff were able to explain why particular assets had been designed a certain way and why they might not function correctly and the maintenance staff were able to offer suggestions on how the assets designs could be improved in future to provide easier maintenance. As suggested by numerous

researchers in the field of best practice adult learning, peer to peer or social learning is a best practice technique which is often more effective than traditional one-way delivery styles (Ison et al 2007, Collins et al. 2009). Research suggests that adults learn best when they are able to build upon what they already know and a two-way learning process facilitates this (Knowles 2011).

The location of the training was likely to be another success factor which cannot be underestimated. Since all training sessions were held at a location chosen by the council host, which was often the council depot training room, one interviewee reported that *'in house sessions are really good because they are located where council staff feel comfortable'*. As a result of this, it is likely that participants were better able to absorb new information, actively participate and feel confident to ask questions. These factors are supported by best practice adult learning theory (Knowles 2011).

Less impact on staff skills – ‘use it or lose it’

The results relating to the impact of the training on staff skills did differ somewhat between the participant survey and the interview. In the survey immediately following the session, over 80% of participants gave a rating of 4 or 5 when asked whether the training had provided them with useable processes, tools and skills (Figure 4).

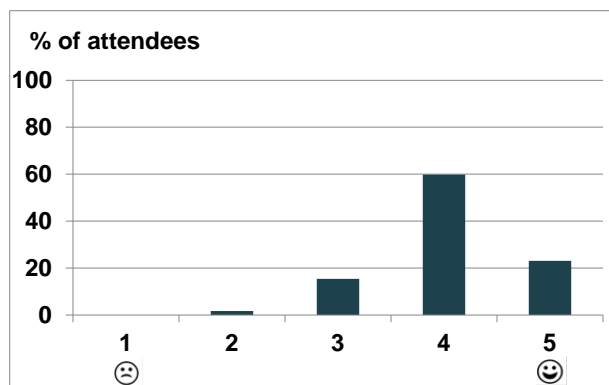


Figure 4: Participant ratings for Clearwater's in-house WSUD maintenance trainings in response to the statement: *I learnt useable processes, tools and skills* (n=117)

However, upon reflection a few months after the session, all interviewees felt that the course had more limited impact on staff skills (compared to staff knowledge) due to the fact that in most cases, maintenance staff had not been able to immediately practice their skills in the field. Most of the councils did not yet have a maintenance inspection regime underway and were still in the process of developing it when the interviews were taken. Maintenance was either being undertaken by external contractors or almost not at all. Interview respondents felt that staff skills would improve with practice over time as staff started undertaking maintenance activities on a regular

basis and took an active role in asking questions if they were unsure. Clearwater's training had given them the confidence to start asking questions and take ownership over their new areas of responsibility in WSUD maintenance. Due to the use of contractors, one respondent felt there was *'hidden knowledge'* in her area that would come out in time.

Interviewees felt that the Clearwater course did not need to be amended to address this issue. Very positive feedback was received on the training approach towards building hands-on skills, particularly working through the Melbourne Water maintenance checklists at local field sites. The interviewees felt that the course had provided an important foundation for ongoing skill development and was *'particularly useful for the field staff – they are more in tune now with what it is they are looking at and why they are looking at certain aspects of things.'* This finding aligns with the results of the feedback survey where nearly all participants felt the course had provided them with useable tools, skills and processes (as shown in Figure 4).

Some respondents suggested that Clearwater could provide skill refresher training once councils were ready to commence their own internal maintenance inspection regimes.

The importance of hands-on learning approaches is strongly supported by adult learning literature. Clearwater's training followed the well-known Chinese proverb of 'Tell me, I'll forget. Show me, I'll remember. Involve me, I'll understand.' Educational theories, such as Blooms Taxonomy (Anderson and Krathwohl 2001) also support Clearwater's approach of allowing for multiple levels of learning and comprehension:

1. presenting the theory, 2. allowing participants to apply the theory through a worked case study (via the field exercise), 3. allowing participants to reflect on what this new knowledge or skill means to their own situation (via the action planning discussion at the end of the workshop). These best practice adult learning techniques mean that knowledge and skills are more likely to be retained post training.

Overwhelming improvement in relationships and collaboration

The greatest impact of Clearwater's training course appeared to be in providing a catalyst for improved relationships and collaboration across the organisation. The course enabled all sections from council to come together often for the first time, raise any long-held concerns or grievances and then begin to move forward in a more collaborative manner.

Since WSUD is a relatively new approach to water management and urban design and the resulting

assets have particular maintenance requirements, the process is an ongoing learning experience for all. Inevitably, many assets have found to be not functioning properly due to a range of issues such as poor design, poor construction or lack of maintenance. This has led to some scepticism among many staff, particularly field staff, about the benefits of WSUD and the level of effort required to maintain WSUD assets. Many staff were unaware that well designed WSUD assets which are maintained regularly need little effort overall.

Respondents stated that the session enabled staff to realise that they all had an important role to play in WSUD maintenance and strong collaboration was the key to improving the performance of WSUD assets on the ground with one interviewee commenting *'It showed that we were serious about involving them [the maintenance staff]. They had been feeling that they were abandoned - burdened with an ever increasing number of assets to maintain.'* And another commenting, *'[The session was] good to identify that everyone has a place or a part to play – we just need to ensure that we link it all together. It helped us to think outside the box and get away from the tunnel vision – this is my job – where we don't interact very well.'* These findings are likely to be due to the networking opportunities provided throughout the course, but particularly the field session and the final action planning discussion.

Better clarity around roles and responsibilities

Respondents from the interviews felt that Clearwater's training assisted them to better clarify the roles and responsibilities around maintenance of WSUD assets. Discussions at the field sites often centred on roles and responsibilities and these were further expanded on during the final action planning discussion as described by an interviewee, *'The training was really successful [in the organisational strengthening aspect]. Both the parks maintenance and drainage maintenance were there. They generally don't interact. They were able to discuss the issues and talk through roles and responsibilities. They were also able to interact with the engineers and urban design sections.'*

More supportive culture towards WSUD

Due to the knowledge building and organisational strengthening success of the training course, most council hosts reported a more supportive culture towards WSUD amongst many sections of council, particularly the maintenance staff.

'The course brought everybody together who is involved with all aspects of WSUD - from design to construction and maintenance. It has opened up the communication between the people. This was appreciated especially from our environmental people, who sort of push these assets.'

One particular council host reported having recently been approached by a maintenance officer wanting to find the maintenance checklists. This provided a great example of other sections of council starting to take ownership of ensuring best practice implementation of WSUD, rather than it being solely driven by one section of council.

Increased support for improving processes, policies and standards

Clearwater's training has helped foster greater commitment among staff for improving processes for maintenance and other aspects of WSUD implementation, such as improved designs to reduce maintenance burdens and asset rectification issues. Many councils are now actively collaborating on the actions identified at the end of the workshop, such as the development of asset registers, prioritising sites, and deciding on improved inspection regimes. Maintenance checklists from Melbourne Water's WSUD Maintenance Guidelines are being adapted for local use. One council is in the process of establishing a formal internal WSUD working group to progress the required actions.

In some cases, these activities were already underway prior to the training course; however WSUD champions reported they had had difficulties in obtaining support and interest from the other council sections. As many councils are moving towards undertaking their maintenance in-house rather than by contractors there is significant need to refine internal processes in collaboration with all relevant sections of council. An interviewee commented, *'We had commenced our own asset inspection regime (using our asset base), inspecting what we thought was relevant. After the course, we were able to tweak that a bit.'*

Most councils are now also working on quantifying the maintenance costs required and developing business cases to attract the required funding. Clearwater's training has assisted with fostering collaboration on these activities as commented, *'I am currently drafting a business case for maintenance funding for WSUD. I have been meeting with our maintenance and operations managers and they have been very responsive. They understand the importance of resourcing it properly.'*

Suggestions for improvement

Most of the suggestions for improvement provided by participants at the end of the session related to the length of the session and the specific content covered, rather than the course format and activities. Many people felt there was a lot of content covered in a short time, and suggested perhaps the session should be a little longer. Others suggested refresher days to overcome this issue. Suggestions were received for additional content such as costs and benefits, plant selection,

design principles, real-life examples (good and bad) and a greater emphasis on the background context of what has already been done to improve water quality. These requests for additional context would need to be weighed against other participants' views that the course program was already quite full and whether this content is better addressed through existing training courses provided by Clearwater or others.

Respondents during the interviews did not have any major suggestions for course improvement as most reported a very high level of satisfaction with the outcomes. When prompted, interviewees agreed that a follow up check in from Clearwater or Melbourne Water a few months after the course would be valuable, to allow them to discuss any issues they have encountered in implementing their action plan and seek advice where needed. One respondent suggested that this follow up meeting would give him a deadline to work towards in addressing council's action plan items, rather than letting it fall by the wayside. Many respondents felt that it was up to council to progress now and take ownership in improving their WSUD processes.

CONCLUSIONS

The results of this exercise clearly demonstrate that Clearwater's approach to building the organisation capacity of councils in maintenance of WSUD assets is leading to highly valuable outcomes. The training has had a significant impact in all three aspects of effective intra-organisational capacity – building the knowledge base, professional skill development and organisational strengthening. Participants have reported a substantial increase in their technical knowledge and skills in WSUD and associated maintenance requirements. However, more significantly, the training is proving to be a catalyst for improved relationships and collaboration, better clarity around roles and responsibilities and a more supportive culture towards WSUD across sections of council, particularly field staff.

The findings of this work concur with other findings such as poor organisational commitment, poor internal communication and unclear roles and responsibilities, are the key barriers to successful implementation of IWCM and WSUD (Brown, Mouritz and Taylor 2006; Brown and Farrelly 2009; Van der Meene, Brown and Farrelly 2009). By addressing these barriers and developing strong internal connections, it is clear that organisations can start to make headway in improving their processes and implementation of IWCM and WSUD.

Clearwater's in-house training provides a model that could be used by others seeking to build the capacity of organisations in any aspect of water

management. The key elements of success for the program can be summarised as:

- Bringing together staff from a wide cross-section of the organisation and allow enough time for networking
- Building the knowledge base ensuring basics are covered so that everyone is starting from the same foundation
- Using best practice adult learning techniques of 'tell me, show me, let me do it', allowing people to apply what they have learnt using an interactive approach
- Facilitating interactive session/s that encourage knowledge sharing and social learning for collaboration post session
- Facilitating an action planning discussion so that staff can reflect on what they have learnt, discuss the next steps and embed new ways of thinking
- Engaging high quality trainers who have both credible technical expertise and are highly engaging presenters
- Choosing a venue familiar to participants so they feel comfortable to absorb new information, confident to ask questions and be actively involved in the session.

Clearwater has received very strong interest from numerous other councils in receiving in-house training. In delivering these, Clearwater will seek to build upon our success and continuously improve our approaches. A key focus is improving our evaluation and follow-up processes, formally incorporating the interview approach combined with a follow-up coaching session. This will allow us to better assess the long-term impact of our activities on the organisational capacity of our customers.

Another area of focus will be to partner with other organisations who are working in different spheres of institutional capacity building as the impact of Clearwater's in-house training cannot be considered in isolation to other capacity building interventions. These include reforms led by the Victorian Government, knowledge building and facilitative reforms provided by Melbourne Water's Living Rivers Program and Clearwater's other capacity building activities (Table 1). Together these form an extensive program of capacity building the capacity for individuals, within and between organisations in IWCM and WSUD.

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