

Smart Water Fund

Final Report

Taking control of water use in our built environment through on-going social, educational and empirical awareness.

Prepared by: eme group

With the support of the Smart Water Fund

16 June 2010

Executive Summary

This SWF project provides AWARENESS within INDUSTRY, COUNCIL and PUBLIC about water saving measures and habits, through EDUCATION, DEMONSTRATION and MONITORING.

Background

This project forms an extension of eme group's Smart Water Fund round 1 project (SWF 1) which successfully developed and promoted PROMINENT residential demonstration buildings with a fully integrated water conservation and water recycling program. This has REDUCED OVERALL WATER CONSUMPTION IN our demonstration HOUSEHOLDS BY OVER 60%.

Introduction

The three components to this SWF project are interrelated:

CONTINUED EDUCATION

The updated and expanded URBAN WATER SOLUTIONS booklet formed part of the education strategy. Eme conducted seminars with councils and building industry bodies throughout the Melbourne Metropolitan Area.

DEMONSTRATION & PROMOTION

The marketing of the SWF, eme designed architectural projects through media releases, promotions, radio, tv and magazines. Emphasis will be placed on two projects that appeal to different DEMOGRAPHICS and offer RETROFIT tank options.

MONITORING & FEEDBACK

Four homes were fitted with loggers to understand the pattern of water use. The logger monitors both tank and mains water use.

Objectives/Goals

These three parts of our project will occur concurrently, having a cumulative effect that will affect HABITUAL and SOCIAL CHANGE. The demonstration projects become tangible examples of how water saving measures can easily be incorporated into different sites, situations, and budgets. They will also serve as information resources and benchmarks for further water saving analysis.

Other keys goals that have been addressed through this project are;

- RAISE THE AWARENESS of energy and water conservation to the general public.
- Establish new standards/benchmarks in the fields of residential design, building, and real estate.
- Draw on, and further create, an ASPIRATIONAL client demographic.
- CONTINUED EDUCATION to councils via seminars and open days.

The working examples of water harvesting systems communicate the possibilities available. A targeted press campaign maximised the EXPOSURE to the wider community.

We also TARGETTED INDUSTRIES directly involved in the BUILT ENVIRONMENT via seminars.

DEMONSTRATION

Our demonstration projects, education and PR campaign seek to compliment and reinforce legislation.

The main issues that we will target:

GETTING THE RIGHT SIZED WATER TANK

1. Independent research and our hands-on experience clearly show that most households will greatly benefit by considering larger capacity water harvesting systems and larger roof collection areas.

All our SWF demonstration projects have well sized tanks and large roof catchment areas to ensure greater water savings.

TANK RETROFITTING IS REALISTIC

2. On-going architectural projects and the Mitcham demonstration project have tank installations that could easily be retrofitted into existing homes.

This SWF project intends to EDUCATE BY WAY OF DEMONSTRATION. We believe that raised awareness and constructive education are the most effective means of achieving a substantial reduction in water consumption.

Key Steps

Milestone 1

A Project Plan was developed in conjunction with the SWF.

Milestone 2

The Urban Water Solutions booklet was totally redesigned. A more up to date graphic look was developed. The new booklet included further information on water saving including a tank size calculator and information on Melbourne's rainfall patterns.

Milestone 3 & 4

Activities

As part of the education program for this SWF project Luke Middleton has provided 8 seminars to councils throughout Melbourne. Some of these seminars included the following councils -

- Shire of Nillumbik 27 March 2008
- City of Port Phillip 2 October 2008
- City of Glen Eira 27 October 2008
- City of Maribyrnong 8 April 2009

Presentations

In response to feedback from councils and the changing landscape of water saving within the community, eme updated the content of the presentations.

Updates included additional working examples of water-saving residential homes such as the eme South Melbourne project. This project demonstrated a very compact block that had the ability to incorporate rain water collection and other measures within the framework of many other constraints. This example also introduced the concepts of planning ahead for possible retro-fitting of grey-water recycling.

Tailored presentations

As part of an improved service for the councils eme also tailor made parts of the presentation to directly address other items of interest for participants.

The seminars attracted a good cross section of council officers, including strategic planners, statutory planners, building surveyors, engineering and maintenance and sustainability officers.

Work on the relief of storm water peak loads during rain events and additional eme projects were presented. One of these projects featured a 20,000 liter underground rainwater tank and the second a multi-apartment development with a 36,000 liter storage area in the basement car park.

Feedback

As eme had provided some tailoring of the presentations it found that the feedback was positive, and most participants were impressed with the variety of projects/applications. The seminars were successful in the re-alignment of stakeholders' appreciation for the integration of water saving measures.

Exposure

The educational campaign provided direct exposure with key council personnel including -

- Sustainability officers
- Strategic and statutory planners
- Building surveyors
- Maintenance and infrastructure officers
- Urban planners
- Council officers

To bring awareness to the local community the council education seminars were reported in the local paper. After every seminar an interview with a local paper journalist was conducted. Most stories were accompanied with a relevant photo highlighting water issues that related to the council.

Milestone 5

Loggers were installed at 125 St Andrews Street Brighton in October 2008. A total of 5 loggers were installed - one for each of the four town houses and one for the shared water use. The loggers were intended to provide both water tank usage and mains water usage data. We have been able to download one set of results from the loggers. The summary of this data has been included in the appendix. The raw data has been provided on a CD attached to this report. (Please note: due to the equipment provider going into receivership during the project, we have been limited to retrieving the single set of results).

Milestone 6 & 7

eme SWF homes - open days and other events

Wrights Terrace

October 2006

On this day the house was open to the general public for tours. The event was very popular with more than 120 visitors. Each tour highlighted the water saving design features and how they were integrated into the home design. The satisfaction rating of participants was in excess of 85%. The event was advertised in the local paper, on radio and on the Melbourne Museum web site.

125 St Andrews, Eco Town Houses - 4 Town Houses, City of Bayside

This project has been selected by Bayside Council to be a featured Case Study on Good Urban Design for medium density including important aspects of Water Sensitive Design. In addition, this project is featured on the Bayside Architectural Trail Guidebook.

Lap Top Pro – Heritage extension, South Melbourne

BDAV Best Renovation Award 2008

This project showcased the water saving possibilities despite the challenges of a very small site with a Heritage overlay.

Media exposure (please refer to the appendices for examples of media releases)

Councils

With the assistance of the YVW communications team, eme implemented a strategy of combining seminars with local media coverage. All council seminars were followed up with a story in the local newspaper. In most cases Luke Middleton was interviewed and photographed for each story.

Lap Top Pro – Heritage extension, South Melbourne

As a result of the BDAV Best Residential Design Alterations and Additions 2008 Award, this project was featured at a week-long exhibition at Federation Square. This led to a five page feature article in the BDAV special award issue magazine and a further full page story in The Age newspaper on the renovation and integration of water and energy saving features.

Milestone 8

Monitoring and Evaluation (please refer to the appendices for water logger results)

Monitoring and evaluation of the four homes showed that there was a fluctuation in water usage due to various factors, such as:

- The number of residents
- The number of visitors
- Length of holiday periods away from the home
- Seasonal impacts on water usage, e.g. summer water consumption increased in one of the homes

Milestone Summary

Milestone 1	Project Plan (including Communications Plan).
Milestone 2	Revise and update Urban Water Solutions booklet and print 8,000 copies.
Milestone 3	Seminars delivered to a min of 3 councils.
Milestone 4	Seminars delivered to a min of 3 councils.
Milestone 5	Installation of loggers" at 4 properties.
Milestone 6	Public relations – 50% of media campaign.
Milestone 7	Public relations – media campaign delivered.
Milestone 8	Implementation and monitoring of water logging at 4 homes.

Key Performance Indicators

We can measure our success on multiple levels:

- Council seminar feedback.
- Awareness within council and industry bodies.
- A positive and embracing attitude from councils and industry.
- General PR exposure.
- Water Savings.

Findings/Results/Outcomes

This SWF project has successfully achieved the main component aims and objectives.

The tailoring of council seminars provided an extended understanding that the principles engaged within eme's demonstration project could be transferred to all aspects of the councils' operations. Key learnings include:

- A creative and lateral response to the challenge of design within the built environment can produce better outcomes in terms of water and energy savings.
- Focusing industry professionals (within councils) on design outcomes on water saving, collection within infrastructure, maintenance and urban planning projects.

Conclusion

This SWF project has contributed to the positive reinforcement that we can all make a significant impact on reducing our reliance on town water. Councils, industry and consumers alike have a better appreciation of the value of water and the importance to save water.

On a macro level there still needs to be a fundamental shift in the way we all look at water. The cycle of water is dramatically impacted upon by our cities and towns (the built environment) and the people who live within them. A deeper understanding of this cycle will prompt further positive change in the way we design for, use and save water.

Recommendations

On-going education for industry, councils and the general public is essential. This will require regular updating to include new technologies, materials and products available. Awareness in the area of water has obviously increased massively over the past 5 years, and that is positive. However, to ensure that this is transferred to contribute towards continuous positive change we will require investment in demonstration projects that push benchmarks coupled with renewed education programs on all levels.

Acknowledgements

eme would like to thank all the councils that participated in the educational seminars:

Shire of Nillumbik, City of Port Phillip, City of Glen Eira, City of Maribyrnong, Yarra Ranges Shire Council, City of Whitehorse, City of Manningham, City of Boroondara, Shire of Nillumbik.

Also the owners of the demonstration homes.

Appendices

PRESS RELEASES

Building water conservation into everyday living

Luke Middleton, founder of the award-winning EME group (ECOLOGICALLY MOTIVATED ENVIRONMENTS), a design firm based in Melbourne, has taken the group's expertise to councils across Melbourne with support from a Smart Water Fund grant in order to encourage greater adoption of water sensitive urban design.

The free water seminars being offered to councils follow on from EME group's Round 1 Smart Water Fund grant, which helped develop residential demonstration buildings with fully integrated water conservation and water harvesting programs.

Drawing on the success of the demonstration buildings - which helped reduce water consumption in the demonstration households by over 60 per cent - EME group then updated its urban water solutions booklet, which was used as the basis for the free water seminars.

"As council plays such a crucial role in promoting the water saving message to the wider community, I wanted the seminars to provide Council with the tools to raise awareness of energy and water conservation in the general public; as well as to establish new standards and innovation in the fields of residential design, building and real estate," says Luke Middleton.

The seminars used the demonstration buildings as case studies, exploring the way homes can be designed or retrofitted with water saving features.

"What we found was that most of the staff we talked to at Council had a good knowledge of water sensitive urban design, but didn't feel empowered to encourage the public to reconsider implementing water saving features into the building's design once it was already at planning stage," says Luke.

"What we plan to do now is provide Council with a check-list on how local residents, builders and developers can build sustainability into the planning phase, so that when these groups first approach Council, incorporating water conservation and recycling into the design is one of the first priorities and not an afterthought."

As part of the Smart Water Fund project, EME group has also conducted information seminars with peak building industry bodies in Melbourne.

EME group's design experience ranges from large scale urban design projects, undertaken both locally and internationally, to exceptional residential architecture and innovative water saving systems.

Port Phillip Council 'sensitive' about saving water

Yarra Valley Water will run a free water seminar for Port Phillip Council on Thursday 2 October, to explore innovations in water sensitive urban design for residential homes and council operated buildings and open spaces.

The seminar is part of the Victorian Government's Smart Water Fund initiative, designed to encourage innovation in water conservation and recycling across community, business and industry.

Luke Middleton, founder of Middle Park's award-winning EME group (Ecologically Motivated Environments), will present the seminar, after receiving funding from a Round 3 Smart Water Fund grant.

EME group's design experience ranges from large scale urban design projects, undertaken both locally and internationally, to exceptional residential architecture and innovative water saving systems.

Mr Middleton said with Melbourne's water storages hovering around 34 per cent – more than five per cent lower than this time last year - the need for water saving in the home and community is more important than ever.

"Council plays a crucial role in promoting the water saving message to the wider community and the seminar will provide them with the tools to do so. It will also assist in helping council to establish new standards and innovation in the fields of residential design, building and real estate," Mr Middleton said.

Yarra Valley Water Managing Director, Tony Kelly, said he is pleased Port Phillip Council has shown great interest in the seminar and encouraged the adoption of sustainable design features in existing and new homes, and council buildings and open spaces.

"The seminar will showcase the latest in water conservation technology as well as some other great water saving ideas for households, council buildings and more," said Mr Kelly.

Mayor Janet Cribbes said that the City of Port Phillip's position regarding water was typical of the predicament of Australia.

"We're edged by water but don't have nearly enough of it which is why good management practices and smart design are crucial. We've both cut consumption and made use of recycled water," she said.

"Last financial year Port Phillip Council managed to reduce its water use by 18 per cent compared to the previous year. Water recycled from utility pits is used to clean council rubbish trucks and irrigate some ovals. Water from the showers along the brand-new St Kilda promenade is recycled to water the palms and moonahs.

"Similarly, rainwater falling on the nearly-finished Elwood Park car park is redirected to adjoining gardens. Water conservation has rapidly become a fundamental part of planning for new council works and we've established an internal water taskforce to make sure that it happens as a matter of course."

Yarra Valley Water is working with the EME Group on the Smart Water Fund project to develop an educational program focusing on water sensitive urban design for residential homes. Four demonstration projects in Mitcham, Prahran, Black Rock and Brighton showcase practical actions that can be taken to save or reduce potable water consumption in the domestic environment.

Mr Kelly says EME group's Smart Water Fund project provides an ideal opportunity to facilitate greater adoption of water efficiency within the home and in the local community.

"Over 10 years of drought has shown us that we all need to be smarter about the way we use water in the home and in the community. It's amazing how easy it is to save huge amounts of water just by doing the simple things like installing flow restrictors and water efficient fixtures such as dual flush toilets.

"I encourage everyone to visit www.smartwater.com.au or www.emegroup.com.au for more information on the demonstration projects, and be inspired by sustainable living."

The Smart Water Fund was developed to support the State Government's *Our Water Our Future* plan to secure Victoria's water future for the next 50 years. Targets include reducing water use by 30 per cent by 2020 and saving approximately 6,200 million litres through recycling initiatives by 2015.

Maribyrnong Council 'sensitive' about saving water

Luke Middleton, one of Australia's leading environmental designers and Director of award winning design firm, EME Design Pty Ltd, has received a grant from the Smart Water Fund to take his expertise in water sensitive design on the road to councils across Melbourne.

The seminar will be presented to staff at Maribyrnong Council on Wednesday 8 April, and will focus on innovative, working examples of water harvesting systems than can easily be incorporated into different sites, situations, and budgets.

The Smart Water Fund is a Victorian Government initiative supported by Yarra Valley Water, City West Water, South East Water and Melbourne Water, and is designed to encourage innovation in water conservation and recycling across community, business and industry.

Mr Middleton said direct education to council staff has an incredible impact on the potential for water saving systems to be incorporated into developments, as well as into existing homes.

'As council plays such a crucial role in promoting the water saving message to the wider community, these seminars will provide council with the tools to raise awareness of energy and water conservation in the general public; as well as to establish new standards and innovation in the fields of residential design, building and real estate,' said Luke Middleton.

Speaking on behalf of the Smart Water Fund, Yarra Valley Water Managing Director, Tony Kelly, said he was pleased Maribyrnong Council had shown great interest in the seminar and encouraged the adoption of sustainable design features in new and existing homes, and council buildings and open space.

'The seminar will showcase the latest in water conservation technology as well as some other great water saving ideas for households, council buildings and more,' said Mr Kelly.

The free water seminars being offered to councils follow on from an earlier Smart Water Fund grant awarded to EME Design, which helped develop residential demonstration buildings in Mitcham, Prahran, and Brighton with fully integrated water conservation and water harvesting programs. Overall water consumption in the demonstration households has reduced by over 60 per cent.

Said Mr Kelly: 'Over 10 years of drought has shown us that we all need to be smarter about the way we use water in the home and in the community. It's amazing how easy it is to save huge amounts of water just by doing the simple things like installing flow restrictors and water efficient fixtures such as dual flush toilets.

'I encourage everyone to visit www.smartwater.com.au or www.emedesign.com.au for more information on the demonstration projects, and be inspired by sustainable living.'

Appendix 2 - Water Logger Results

HOME 1 SUMMARY

	number of days	home 1 tank	home 1 mains
october	15	930	3,637
november	30	1,685	7,288
december	30	2,902	13,493
january	31	2,453	11,951
february	28	510	2,115
march	31	2,023	9,394
april	31	1,882	6,908
may	31	2,376	9,418
june	30	1,986	10,117
july	31	2,087	10,511
august	21	1,646	5,844

DAILY

	number of days	home 1 tank	home 1 mains
october	15	62	242
november	30	56	243
december	30	97	450
january	31	79	386
february	28	18	76
march	31	65	303
april	31	61	223
may	31	77	304
june	30	66	337
july	31	67	339
august	21	78	278

PERCENTAGE

	number of days	home 1 tank	home 1 mains
october	15	20%	80%
november	30	19%	81%
december	30	18%	82%
january	31	17%	83%
february	28	19%	81%
march	31	18%	82%
april	31	21%	79%
may	31	20%	80%
june	30	16%	84%
july	31	17%	83%
august	21	22%	78%

HOME 2

SUMMARY

	number of days	home 2 tank	home 2 mains
october	15	1,170	4,365
november	30	1,368	7,043
december	30	57	1,239
january	31	1,439	8,108
february	28	2,123	10,323
march	31	2,437	11,463
april	31	2,549	11,671

PERCENTAGE

	number of days	home 2 tank	home 2 mains
october	15	21%	79%
november	30	16%	84%
december	30	4%	96%
january	31	15%	85%
february	28	17%	83%
march	31	18%	82%
april	31	18%	82%

DAILY

	number of days	home 2 tank	home 2 mains
october	15	78	291
november	30	46	235
december	30	2	41
january	31	46	262
february	28	76	369
march	31	79	370
april	31	82	376

HOME 3

SUMMARY

	number of days	home 3 tank	home 3 mains
october	14	1,054	3,806
november	30	2,069	9,320
december	31	1,136	6,043
january	31	818	3,352
february	28	2,202	9,835
march	31	1,884	7,760
april	30	2,557	8,374
may	31	2,234	12,009
june	30	2,420	15,006
july	31	2,430	12,755
august	21	216	1,085

DAILY

	number of days	home 3 tank	home 3 mains
october	14	75	272
november	30	69	311
december	31	37	195
january	31	26	108
february	28	79	351
march	31	61	250
april	30	85	279
may	31	72	387
june	30	81	500
july	31	78	411
august	21	10	52

PERCENTAGE

	number of days	home 3 tank	home 3 mains
october	14	22%	78%
november	30	18%	82%
december	31	16%	84%
january	31	20%	80%
february	28	18%	82%
march	31	20%	80%
april	30	23%	77%
may	31	16%	84%
june	30	14%	86%
july	31	16%	84%
august	21	17%	83%

HOME 4**SUMMARY**

	number of days	home 4 tank	home 4 mains
october	14	45	301
november	30	1,720	11,067
december	31	1,835	13,006
january	31	1,696	13,028
february	28	1,502	11,148
march	31	1,409	11,784
april	30	1,655	11,191
may	31	1,639	12,925
june	30	1,325	10,764
july	31	2,569	18,054
august	21	283	2,668

DAILY

	number of days	home 4 tank	home 4 mains
october	14	3	21
november	30	57	369
december	31	59	420
january	31	55	420
february	28	54	398
march	31	45	380
april	30	55	373
may	31	53	417
june	30	44	359
july	31	83	582
august	21	13	127

PERCENTAGE

	number of days	home 4 tank	home 4 mains
october	14	13%	87%
november	30	13%	87%
december	31	12%	88%
january	31	12%	88%
february	28	12%	88%
march	31	11%	89%
april	30	13%	87%
may	31	11%	89%
june	30	11%	89%
july	31	12%	88%
august	21	10%	90%

Document Status

Version No.	Author	Date
1.0	Luke Middleton	27 June 2010