



GREENHOUSES Project



Evaluation Results

May 2004 – June 2005

Southern Metropolitan Regional Council

Written by Esther Duffy and Stephanie Jennings



SOUTHERN METROPOLITAN REGIONAL COUNCIL



EXECUTIVE SUMMARY

GREENHOUSES is an education program focusing on behaviour change developed by Southern Metropolitan Regional Council (SMRC) and Murdoch University. **GREENHOUSES** constitutes part of the Regional Greenhouse Abatement Program which is funded by 6 member councils of SMRC (Cities of Canning, Cockburn, Fremantle and Rockingham and the Towns of East Fremantle and Kwinana) and the City of South Perth.

There were 422 households participating in **GREENHOUSES** energy reduction, 292 in **GREENHOUSES** water reduction and 376 in waste over May 2004 to June 2005.

Like the **GREENHOUSES** Pilot Project 2003-4, this round received part-funding from the Sustainable Energy Development Office in June 2004.

Following valuable meter readings made in the pilot project to quantify energy use reduction through the **GREENHOUSES** model, water reduction was measured and found to produce similar results – a 10% reduction averaged over four months. This gives further confidence in the use of this education model to tackle the different activities that generate greenhouse emissions.

The combined greenhouse gas reductions from the **GREENHOUSES** program for both energy and water use is an estimated 254 tonnes per year (16.7 for water and 237 for energy). The total water savings for 292 households participating in **GREENHOUSES** is an estimated 15,350kL per year. Waste reduction through **GREENHOUSES** is yet to be quantified.

Eco Aims remain an extremely important component of **GREENHOUSES** but only 57% of participants set an Eco Aim, whereas 91% of seminar attendees set an Eco Aim at the seminar.

Participant feedback showed a high satisfaction level with their participation in **GREENHOUSES**. Seminars remain the most effective way of creating behaviour change but relatively few people attended a seminar.

It is recommended that:

- Different avenues are explored for seminars eg libraries, community learning centres and pre-existing community groups.
- A focus group be used to determine why only 57% of people are setting Eco Aims and how to improve the Eco Aim component of the booklet.
- The website used to provide extra support to online participants and to reach a wider audience of people. This includes setting up an online group such as Smart Groups.
- A new stream of **GREENHOUSES** be created to reach more residents in the SMRC. This stream should focus on action steps using community based social marketing practices.
- Assess the viability of any follow up support for previous participants to increase the likelihood of sustained behaviour change.

“ Great to see the council taking this part. We’d like to encourage the community to become environmentally conscious and you have taken great strides towards doing that. Well done.”

GREENHOUSES participant

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1 INTRODUCTION

1.1 BACKGROUND

GREENHOUSES is an education program focusing on behaviour change developed by Southern Metropolitan Regional Council (SMRC) and Murdoch University. **GREENHOUSES** constitutes part of the Regional Greenhouse Abatement Program which is supported by 6 member councils of SMRC and the City of South Perth.

GREENHOUSES aims to lower residential greenhouse gas emissions by reducing their energy use, water use and waste. This is done by providing information combined with the setting of goals through the innovative tool, Eco Aim.

A successful pilot project was completed in March 2004 with 300 participating households from East Fremantle and Kwinana, two member councils of the SMRC. Part funding for the pilot project was provided by Sustainable Energy Development Office (SEDO). The project focused only on energy use within the home. The **GREENHOUSES** Pilot Project identified these key findings:

- information alone has only short-term benefit in behaviour change
- levels of environmental knowledge and attitude increased slightly after the program, while at the same time significant reduction was achieved indicating the value of tools for behaviour change, not simply information for improving knowledge and attitudes
- training in goal setting enabled householders to adopt energy behaviours that led to greater reduction (by 5% in the pilot project) and sustained behaviour change beyond information only
- evening seminars are the most effective communication method for motivating behaviour change (average of 17% over 5 months)
- the 3 pronged communication approach drew in residents with different demographics and all groups achieved energy reduction and hence varied communication approach is of value
- motivating energy use behaviour change within families via their children in Year 6/7 classrooms is ineffective
- an ongoing dialogue is needed to achieve sustained behavioural change. Newsletters were valued but in addition, ongoing encouragement is needed to set energy goals.

Recommendations were made in the pilot project which included adding two extra topics, water and waste, with the intention of reinforcing goal setting and sustaining greenhouse emissions reductions.

For further information, the **GREENHOUSES** Pilot Project Report can be downloaded from the website home page at www.greenhouses.org.au.

1.2 PROJECT OBJECTIVES

The objective of the continuation of **GREENHOUSES** is to reach households across the southern metropolitan region to reduce their contribution to greenhouse gas emissions by an estimated 10%, based on the Pilot Project. Another objective is to evaluate the effectiveness of the revised **GREENHOUSES** model (extended to water and waste topics) on the consumption of water and hence water-related greenhouse emissions.

In May 2004, using the key findings in the **GREENHOUSES** Pilot Project Report, the topic of energy was broadly implemented in other member councils of the SMRC – the Cities of Canning, Cockburn, Melville and Rockingham. Residents could participate in one of three ways:

- attend a **GREENHOUSES** Energy seminar,
- receive a **GREENHOUSES** Energy booklet in the mail or,
- online at www.smrc.com.au/greenhouses.

In September 2004 materials for the two new **GREENHOUSES** topics of water and waste were developed and in 2005 the website was extended and relocated to www.greenhouses.org.au.

The City of South Perth joined the Regional Greenhouse Abatement Program in September 2004, while City of Melville withdrew.

In January 2005 participating households in member Councils and residents of Salter Point and Waterford, in City of South Perth were invited to participate in **GREENHOUSES** - Water. Negotiations with Water Corporation reached agreement to read water meters of a pool of participating households and a control group with the objective of quantifying the levels of reductions through **GREENHOUSES**. The residents of Salter Point and Waterford were targeted as they were a large group located close to each other and are high water users compared to the Perth average.

1.3 OPERATING BUDGET

The project was run under a modest budget, where the largest costs were the employment of a project officer, development of the new website and printing of the booklets. Table 1 presents the project costs for May 2004 to June 2005. Participating Councils also contributed in kind CCP officer time, mailout stationary and postage, and refreshments and room hire for the seminars which are not listed in the table.

The **GREENHOUSES** project received a grant of \$12,000 from the Sustainable Energy Development Office (SEDO) for the extension of project in June 2004. The remaining costs were met by the Regional Greenhouse Gas Abatement Project Budget.

Table 1: Summary of Green Houses Project Expenditure May 2004-June 2005

		\$ (ex-GST)
Salaries	Regional Greenhouse Coordinator	\$16,400
	Project Officer	\$25,850
Website	Create & Update	\$5,350
Mailout	Project Stationary (letter & env)	\$705
Booklet, Letters & Newsletters	Graphic Design	\$580
Booklets & Goal Cards	Printing	\$5,155
Seminars	Equipment & Guest Presenters	\$800
Prizes	Seminar & Final Evaluation Prizes	\$220
Total		\$55,060.00

*This report summarises who participated, what water reductions were measured, the calculated greenhouse gas reductions as a result of the program and participant satisfaction and feedback on **GREENHOUSES**.*

2 PROJECT IMPLEMENTATION

2.1 PARTICIPATING HOUSEHOLDS

2.1.1 MAY 2004 - Energy

4200 residents from Canning, Cockburn, Melville and Rockingham were invited to be a part of **GREENHOUSES** Energy in May 2004 via a council mail out to selected suburbs. In addition City of Canning ran an article in their council newsletter, The Canning Concern, and City of Cockburn issued a media release to the local paper which published an article.

Approximately 7% of people joined the program from this initial invitation. The breakdown of participants, where they were from and how they participated is seen in Table 2. The majority of people in all councils participated by receiving a booklet in the mail.

Table 2: Numbers of households participating in the **energy** component of **GREENHOUSES** in May 2004 and how they participated.

Council	Seminar	Booklet	Online	Total
Canning	13	58	28	99
Cockburn	8	35	14	57
Rockingham	11	36	17	64
Melville	6	41	19	66
Total	38	170	78	286

2.1.2 SEPTEMBER 2004

In September 2004, Melville withdrew from the Regional Greenhouse Abatement Program, having only received the energy component of **GREENHOUSES**.

At the same time the City of South Perth joined the Regional Greenhouse Gas Abatement Project to receive **GREENHOUSES**. 1200 residents in Salter Point and Waterford were invited to participate in **GREENHOUSES**. These suburbs were chosen because they are significantly high water users (1.62kL per day) compared to the Perth average of 1.26kL per day.

2.1.3 JANUARY 2005 - Water

In January 2005, invitations were sent through a personal letter on council or project letterhead to the 1200 nominated residents of South Perth. Another invitation on project letterhead was sent to the existing participants of Canning, Cockburn and Rockingham, inviting their participation in the new water topic. The pilot project participants in the Towns of East Fremantle and Kwinana also received an invitation to be a part of water and waste.

In addition **GREENHOUSES** was advertised through the local community papers and Parents Paper. Seminars were advertised in various places, including local papers, websites and council newsletters. One thousand flyers were inserted into a local paper in Rockingham prior to the Water Seminar.

The most effective method to engage participants across all councils was the council mailout. In Salter Point and Waterford the response rate was a high 11%. The majority of people who heard through the council mailout wished to receive a booklet. Nearly all of the people who responded to the mailout responded by using the reply paid envelope provided.

The breakdown of participants for water can be seen in Table 3.

Table 3: Number of households participating in the **water** component of **GREENHOUSES** in January 2005 and how they participated.

Council	Seminar	Booklet	Online	TOTAL
Canning	18	11	3	32
Cockburn	20	39	3	62
East Fremantle	0	19	3	22
Kwinana	15	10	0	25
Rockingham	7	8	0	15
South Perth	11	119	6	136
TOTAL	71	206	15	292

The people who attended the seminars heard about the seminars through a variety of methods, so it is worthwhile to promote **GREENHOUSES** in a variety of ways to encourage seminar enrolments. The breakdown of how people heard about the seminars for water can be seen in Table 4.

Table 4. How people heard about the seminars for Water in January 2005.

	Mailout	Newsletter	Local Paper	Other
Response Rate	61%	15%	13%	11% ¹

¹People heard through friends, Parents Paper and email.

The seminars included two guest presenters for the topics of native gardens and grey water use. The guest speakers attended different sessions depending on dates of availability. Sue Dempster from Everlasting Concepts attended the seminars in South Perth and Cockburn (see Figure 1). Murray Thomas from Tradelink attended the seminars in Kwinana and Canning.



Figure 1. Residents in Cockburn attend the **GREENHOUSES** Water seminar with guest presenter Sue Dempster

2.1.4 APRIL 2005 - Waste

Residents who were invited to be a part of the water component of **GREENHOUSES** were automatically included in the topic of waste. New strategies were employed to invite people to seminars. The City of Canning included an invitation to staff and friends of staff through email. The new **GREENHOUSES** website went live and presented information about the seminars with the option of people enrolling online (Figure 2). The seminar in East Fremantle was held at the Glyde-In Community Learning Centre and advertised in their course newsletter. This encouraged a large response from residents in the Town of East Fremantle with very little staff time needed to promote the seminar.

The breakdown of who participated in the waste topic of **GREENHOUSES** and how they participated can be seen in Table 5.

Table 5: Number of households participating in the **waste** component of **GREENHOUSES** in April 2005 and how they participated.

Council	Seminar	Booklet	Online	TOTAL
Canning	21	19	3	43
Cockburn	8	80	3	91
East Fremantle	17	20	3	40
Kwinana	11	23	0	34
Rockingham	2	30	0	32
South Perth	3	127	6	136
TOTAL	62	299	15	376

At the completion of **GREENHOUSES**, residents were asked how they initially heard about the program. From the people who responded, the breakdown can be seen in Table 6.

Table 6. How people heard about the waste component of **GREENHOUSES**.

How people heard:	People
Council mailout	22
Council newsletter	18
Local paper	16
Email	2
Other	5

2.1.5 JUNE 2005 – Energy in South Perth

136 participating households for South Perth received the energy component in June 2005, 130 of these were via a booklet mailout.

Figure 2: The revamped version of the **GREENHOUSES** website.



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 > [My Eco Aims](#) *
 > [Tracking my Progress](#) *
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 * members only

GREENHOUSES is ...

an award winning program that recognises the importance of individuals to bring about positive change. Green Houses provides people with ideas and skills to achieve positive changes in their home to safeguard our precious resources and secure our climate future.

The **GREENHOUSES** vision is communities across the region, empowered with the skills and knowledge, taking action in their homes and neighbourhood to curb climate change.

Through this online resource and seminars you can participate in **GREENHOUSES**. We invite you to

- read up on **global warming** and why it is of particular concern for us in WVA
- find out **how we contribute** to global warming through the three program areas - waste, energy and water use in the home,
- check out **what lifestyle actions** you could take to address **waste, water and energy use**, and most importantly, **set an Eco-Aim**. Take the challenge and set yourself an environmental goal- Eco Aim- to bring positive change to your home and this planet. What's more if you login as a participant, we'll retain your Eco-Aim and help you achieve it.

GREENHOUSES is an award-winning program established by the Southern Metropolitan Regional Council in partnership with Murdoch University in 2003. It is funded in-part by the

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Seminar enrolments

3 REDUCTIONS QUANTIFIED

This section looks at reductions achieved by participants in a case study in Salter Point and Waterford focused on water use. Then greenhouse emissions are estimated using the results from the initial pilot project as well as emissions calculated from water reductions using the measured results from the South Perth case study.

3.1 CASE STUDY: MONITORING WATER IN SALTER POINT & WATERFORD

3.1.1 INTRODUCTION

To determine the effectiveness of **GREENHOUSES** on reducing householders water consumption, SMRC approached Water Corporation to assist with monitoring of the householders water use before, during and after the program. Measurements were taken of the participating households and also non-participating households to establish a control. Meter readings were undertaken by Water Corporation staff and hence the householders were not aware that their water use was being monitored. This eliminated the possibility that the reductions were made because households were aware their use was being monitored. A similar method was used in the pilot program to measure energy reduction through on-foot meter readings and historic data supplied Western Power and Alinta Gas.

Water Corporation agreed to take four water meter readings from February to June 2005 in selected streets in Waterford and Salter Point (as well as Bertram, Kwinana for future baseline reference). In these South Perth streets, some households were non-participants and hence made up the control group to compare against.

3.1.2 BASELINE

Two pre-program measurements in February allow comparison of the average water daily use of the participants to the control group. The average daily water use was determined by taking two measurements approximately one week apart (to minimise the effect of daily variability) and dividing the total water use by the number of days. Table 7 shows the average daily water use before **GREENHOUSES** information and Eco Aim material reached the participants. Water use is very similar between the control group and participant group and hence a comparison is appropriate.

Table 7. Daily average water use prior to **GREENHOUSES** (early February 2005).

	Daily average measured in kL per day
GREENHOUSES	1.61
Control	1.63

3.1.3 WATER USE TRENDS

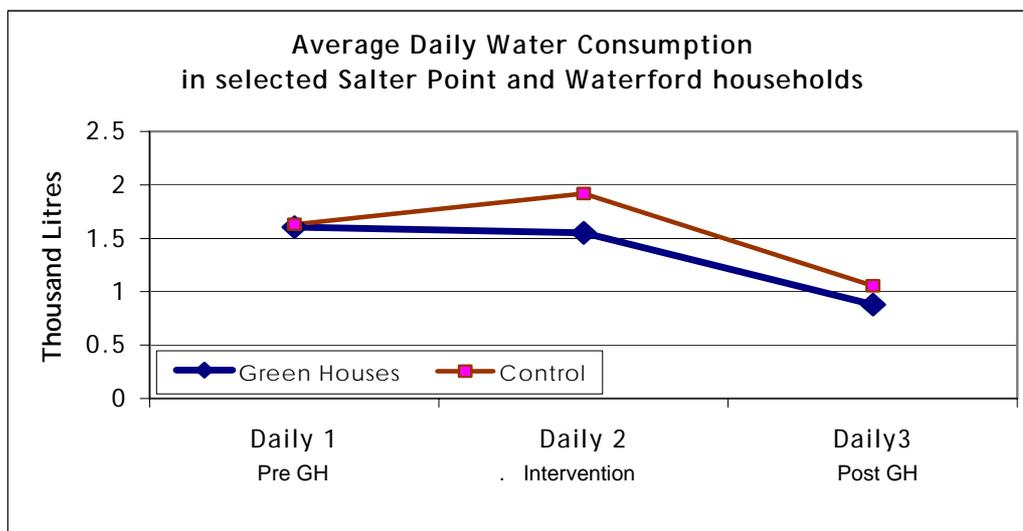
Reductions in water use were quantified through further meter readings compared to the pre-program baseline data. All readings were done over a period of time and averaged out to a daily use.

A statistical analysis was carried out of water use trends between participants and control households using the data gathered from the meter readings shown in Table 8. These figures can be seen in Graph 1.

Table 8. Average daily water use pre, during, and post **GREENHOUSES** measured in kL/day. Average daily use was calculated by taking two readings over a period of time.

	<u>Pre-GREENHOUSES</u> Meter readings on 10 Feb & 19 Feb or 15 Feb & 21 Feb	<u>Intervention</u> Meter readings on 19 Feb & 26 Feb or 21 Feb & 26 Feb	<u>Post-GREENHOUSES</u> Meter readings on 26 Feb & 15 Jun
GREENHOUSES	1.61	1.55	0.88
Control	1.63	1.92	1.05

Graph 1. Average daily water use pre, during, and post **GREENHOUSES** measured in kL/day.



Residents in the control group reduced their water consumption over this time period by 35.5%, largely as a result of the seasons changing from summer to winter. Meanwhile **GREENHOUSES** participants decreased their water consumption by 45.3% after participating in the program. Statistical analysis identified this to be a significant and large effect of time, again in part due to seasonal change. The difference in trends indicate that the **GREENHOUSES** participants **reduced their water consumption by a further 10% than the control group**, although this difference was not found to be statistically significant.

This figure is similar to the impact of **GREENHOUSES** energy booklets on energy consumption, measured to be an 8% reduction in the pilot program. This figure is used in the next chapter to estimate the reductions of the entire **GREENHOUSES** program. Because of the small sample sizes in seminar and online participants it is not possible to factor in the effect of the various ways of participating (e.g. booklet compared to seminar).

3.2 ESTIMATED GREENHOUSE EMISSIONS & WATER REDUCTION

An overall estimate for greenhouse gas reductions can be made from the measured results in the pilot project for energy use and the water reductions quantified in South Perth households.

3.2.1 REDUCTIONS IN WATER USE

Table 9 shows the total amount of water use reductions as a result of households participating in **GREENHOUSES**. The calculations have been based from the South Perth results combined with the pilot program measurements for energy. The pilot program saw 16.6% reduction for the seminar groups, 8.4% reduction for the booklet group and 6.6% reduction for the online group. The 10% reduction measured for water use (from mostly booklet-based participation) matches

the average reduction in pilot program results and is similar to the figure for booklet participants reducing energy. Hence this gives confidence that the 16.6% reduction for seminar participants and the 6.6% reduction for online participants can be applied to new participants and on the water topic as well as energy.

The average daily water use for Perth is 1.26kL per household (Domestic Water Use Study, Water Corporation, March 2003). This figure is used to calculate the total reductions as a result of the program. The results have been calculated based on the Perth average for water use and hence the participating households in South Perth have been calculated from the average rather than the witnessed use of 1.62kL per day.

The total water savings for 292 households participating in **GREENHOUSES** is 15,350kL per year.

Table 9. Estimates for **WATER usage** reductions for a year for 292 households who participated in **GREENHOUSES**

Council	Seminar Participants	Water Reduction: Seminarⁱ (kL/year)	Booklet Participants	Water Reduction: Bookletⁱⁱ (kL/year)	Online Participants	Water Reduction: Onlineⁱⁱⁱ (kL/year)	Total Reductions: (kL/year)
Canning	18	1,374	11	505.9	3	91.1	1,970
Cockburn	20	1,527	39	1,794	3	91.1	3,410
East Fremantle	0	0.00	19	873.8	3	91.1	965
Kwinana	15	1,145	10	459.9	0	0.00	1,610
Rockingham	7	534.4	8	367.9	0	0.00	902
South Perth	11	839.8	119	5473	6	182.1	6,500
TOTAL	71	5,420	206	9,474	15	455.3	15,350

i: Calculated by using 1.26kL x 365 x number of participants x 16.6%

ii: Calculated by using 1.26kL x 365 x number of participants x 10%

iii: Calculated by using 1.26kL x 365 x number of participants x 6.6%

The greenhouse gas reductions resulting from water use reductions can be seen in Table 10. This has been calculated using the average greenhouse emissions of 0.5 tonnes per year generated to bring treated, scheme water to a Perth household. This figure was calculated using figures found in the Water Corporation's 2004 annual report (New Solutions for a Changing World Annual Report 2004, Water Corporation 2004).

The total reduction for greenhouse gases as a result of 292 households participating in the water component of **GREENHOUSES** is 16.7tonnes.

Table 10: Estimates for the **greenhouse gas reductions** based on the **water** reductions as a result of households participating in **GREENHOUSES**.

Council	Seminar Participants	Energy Reduction: Seminarⁱ (Tonnes/yr)	Booklet Participants	Energy Reduction: Bookletⁱⁱ (Tonnes/yr)	Online Participants	Energy Reduction: Onlineⁱⁱⁱ (Tonnes/yr)	Total Reduction: (Tonnes/yr)
Canning	18	1.49	11	0.55	3	0.10	2.14
Cockburn	20	1.66	39	1.95	3	0.10	3.71
East Fremantle	0	0.00	19	0.95	3	0.10	1.05
Kwinana	15	1.25	10	0.50	0	0.00	1.75
Rockingham	7	0.58	8	0.40	0	0.00	0.98
South Perth	11	0.91	119	5.95	6	0.20	7.06
TOTAL	71	5.89	206	10.3	15	0.50	16.7

i: Calculated by using 0.5tonnes x number of participants x 16.6%

ii: Calculated by using 0.5tonnes x number of participants x 10%

iii: Calculated by using 0.5tonnes x number of participants x 6.6%

3.2.2 REDUCTIONS IN ENERGY USE

Residents in the Cities of Canning, Cockburn, Rockingham, South Perth and Melville received the energy topic post-pilot project and have been used to calculate the total energy use reductions in this report. East Fremantle and Kwinana were the two councils who received the energy topic via the pilot program of **GREENHOUSES**, and hence residents were not invited to participate in the energy component of **GREENHOUSES**.

Calculations for reductions in greenhouse emissions as a result of decreased household electricity and gas use were calculated for participating households in the five councils. The reductions for East Fremantle and Kwinana residents have not been included in these calculated emissions because the results have previously been calculated in the pilot project report.

Table 11 shows the total reductions of 422 households participating in the energy component. The calculations have used the 16.6%, 8.4% and 6.6% savings that were seen in the pilot program. Based on pilot project figures for average household electricity and gas use and 2004 greenhouse conversion figures (Australian Greenhouse Office Emissions Spreadsheet website 2005 http://www.greenhouse.gov.au/challenge/tools/spreadsheet/emission_sheet.xls), the average household emits 6.4 tonnes of greenhouse gases each year. The total reductions of greenhouse gases as a result 422 households participating in the energy component of **GREENHOUSES** is 237tonnes per year.

Table 11. Estimates for *greenhouse gas reductions* for participating households for the **ENERGY** component of **GREENHOUSES**

Council	Seminar Participants	Reduction Estimate: Seminarⁱ (Tonnes/yr)	Booklet Participants	Reduction Estimate: Bookletⁱⁱ (Tonnes/yr)	Online Participants	Reduction Estimate: Onlineⁱⁱⁱ (Tonnes/yr)	Total Reductions (Tonnes/yr)
Canning	13	13.8	58	31.2	28	11.8	56.8
Cockburn	8	8.50	35	18.8	14	5.91	33.2
Rockingham	11	11.7	36	19.4	17	7.18	38.2
South Perth	0	0.00	130	69.9	6	2.53	72.4
Melville	6	6.37	41	22.0	19	8.03	36.4
TOTAL	38	40.4	300	161	84	35.5	237

i: Calculated by using 6.4 tonnes x number of participants x 16.6%

ii: Calculated by using 6.4 tonnes x number of participants x 8.4%

iii: Calculated by using 6.4 tonnes x number of participants x 6.6%

3.2.3 REDUCTIONS IN WASTE

Currently there have been no measurements made for the total amounts of waste generated by households which have participated in **GREENHOUSES**. Since no measurements have been made, no estimates of total greenhouse gas reductions can be made either.

3.2.4 OVERALL PROJECT GREENHOUSE REDUCTIONS

The combined greenhouse gas reductions from the **GREENHOUSES** program for both energy and water use is 254 tonnes per year (16.7 for water and 237 for energy).

4 PARTICIPANT FEEDBACK

At the completion of **GREENHOUSES** participants were asked to fill out an evaluation form rating different aspects of the program and how their knowledge or attitudes had changed. This feedback from the participants includes the efficacy of Eco Aims, participants' perceived level of change, their actions as a result of participating, and their satisfaction with various components of **GREENHOUSES**.

In addition, for those participants attending seminars, evaluation forms were completed at the end of the seminars to gain feedback on satisfaction and impact of the different parts of the seminar and what attracted residents to the evening event.

The following information is a summary of the participants' feedback we received.

4.1 SETTING OF ECO AIMS

The setting of Eco Aims is a critical part of **GREENHOUSES** for achieving greater, and more sustained reductions.

Seminars are a particularly effective means to encourage residents to set Eco Aims. During the water seminar, 91% of attendees set an Eco Aim at the seminar. At the waste seminar, 79% of people set an Eco Aim while at the seminar. This is in contrast to the overall number of people setting Eco Aims, which includes the majority booklet participants. From the feedback received, 57% of people set an Eco Aim and 52% of people used the Eco Aim cards provided.

4.2 SELF ASSESSED CHANGE

The participants were asked to assess their level of change in regards to energy, water and waste. This occurred in three ways:

- The first was the evaluation of the energy of the participating councils in 2004.
- The second was the evaluation of the waste component at the final stage of the **GREENHOUSES** program in May 2005.
- Residents of South Perth had **GREENHOUSES** delivered over a shorter time frame so evaluation of energy, water and waste occurred in feedback form in May 2005.

4.2.1 ENERGY USE FOR CANNING, COCKBURN, MELVILLE AND ROCKINGHAM IN 2004

The participants were provided with the opportunity to self assess their behaviour change in relation to energy with the question, "How would you rate your efforts to be energy conscious, now and before the program started?" The responses are seen in Table 12.

Table 12: Response to the question "How would you rate your efforts to be energy conscious now and before the program started?" on a scale of 1 to 7 for Canning, Cockburn, Melville and Rockingham participants in 2004.

	Before	Now	% Improvement
Workshop	3.8	5.1	34%
Booklet	4.2	5.3	26%
Online	3.9	4.6	18%

4.2.2 WASTE REDUCTION FOR ALL PARTICIPATING COUNCILS IN 2005

The participants were asked the question how they rated their efforts to be conscious of waste. The combined response of the residents of Canning, Cockburn, East Fremantle, Kwinana, Rockingham and South Perth can be seen in Table 13.

Table 13: Average response of residents on a scale of 1 to 7 (1 being poor effort, 7 being strong effort) to the question: How would you rate your efforts to be conscious of waste now and before the program started?

Topic	Before	Now	%Improvement
Waste	4.97	5.72	15%

4.2.3 ENERGY, WATER AND WASTE FOR SOUTH PERTH PARTICIPANTS IN 2005

At the end of the program, South Perth participants were provided with the opportunity to self assess their behaviour change with the question, "How would you rate your efforts to be conscious of energy, water and waste, now and before the program started?" The responses are seen in Table 14. Energy reduction was the area considered by participants to be of greatest change for them.

Table 14: Average response of South Perth residents on a scale of 1 to 7 (1 being poor effort, 7 being strong effort) to the question: How would you rate your efforts to be conscious of energy, water and waste, now and before the program started?

Topic	Before	Now	%Improvement
Energy	4.75	5.25	10.5%
Water	5.25	5.75	9.5%
Waste	5.37	6	11.7%

4.3 REPORTED ACTIONS

Below are some examples of the actions taken by GREENHOUSES participants as reported through feedback forms received:

- Ensure full loads of washing machine
- Turn off auto reticulation
- Reduce use of plastic bags – use reusable bags instead
- Recycle all recyclable items
- Buy less packaged goods
- Cook in bulk in oven
- Short showers
- No junk mail left in letterbox
- Installing blinds to prevent heat loss
- Donate reusable waste to a local kindergarten
- Installed seals on doors and windows
- Turn off lights and standby equipment
- Installed rainwater tank
- Collect cold shower water
- Insulated hot water pipes.

4.4 PARTICIPANT SATISFACTION

The participants were asked to rate various components of the program. Below is the response given.

4.4.1 PROGRAM SATISFACTION:

When asked whether they were satisfied with the program, **85%** of participants said they were satisfied or very satisfied. This figure combines the information from the participating councils of Canning, Cockburn, Kwinana, East Fremantle, Rockingham and South Perth.

Satisfaction levels were also obtained following the initial Energy component of **GREENHOUSES** in May 2004 for the participating Cities of Canning, Cockburn, Melville and Rockingham. This includes a breakdown of how people participated and included the City of Melville. When asked whether they were satisfied with the program the following information was given:

- Workshop: 90% of people said they were either satisfied or very satisfied while the remaining 10% stated they were unsure.
- Booklet: 100% of people said they were satisfied or very satisfied.
- Online: 60% of people said they were satisfied, while the remaining 40% were unsure.

"We are pleased that there is a program like this and feel it is of great importance - we would like the whole community to be part of it"

Workshop attendee, Energy, May 2004

4.4.2 SATISFACTION LEVELS WITH GREENHOUSES BOOKLETS

All participating residents rated the booklets above average. The feedback included a breakdown of each section of the booklets. The "Waste Information" was the most valued section scoring on average 6 out of 7. This was closely followed by "Steps to Reduce" (which included numerous low cost actions) at 5.9. The lowest scoring section was Eco Aims with a moderately high satisfaction level of 5.1 out of 7.

"The booklet provided good, useful information"

Energy participant, May 2004

4.4.3 SATISFACTION LEVELS WITH GREENHOUSES SEMINARS

The seminars on water use delivered to the councils of Canning, Cockburn, Kwinana, Rockingham and South Perth in January 2005 received very positive feedback. 97% of people said they were satisfied or very satisfied with the water seminar. The components for the seminar were also rated highly. The facilitator received the highest rating of 6.6 out of 7, closely followed by booklet and information content which both received a rating of 6.5 out of 7.

Here is what one resident said about the water seminar:

"Last night we thoroughly enjoyed the session on the CONSERVATION OF WATER. Both the speakers were dynamic, passionate for what they truly believed in, and very informative. A very big thanks to you, and your staff, for including this important issue, and funding for it."

Cockburn Resident January 2005

The seminars on waste delivered to the councils of Canning, Cockburn, East Fremantle, Kwinana, Rockingham and South Perth in May 2005 also received very positive feedback. 97% of people said they were either satisfied or very satisfied with the waste seminar. The presenters and the presentation rated the highest at 6.3 out of 7, followed by the booklet at 6.2.

"Information was presented in a positive, humourous way - but still presented intelligently and informatively"

Kwinana Resident April 2005

As mentioned above, 90% of residents who attended the seminars on energy use were either satisfied or very satisfied.

"The presentation that I attended were of high quality and great interest with comfortable ambience. I have shared my material to raise awareness at work"
Cockburn resident, Energy, May 2004



Residents in East Fremantle attend the **GREENHOUSES** seminar with guest presenter Chuck Ellis from the SMRC.

4.5 FOLLOW UP SUPPORT

As part of the feedback the participants were asked if they would like any follow up support or materials. This has yet to be assessed but suggestions included an energy audit kit for the library, an arranged visit to the Regional Resource Recovery Centre (RRRC) and follow up information seminars on specific topics. This feedback will be evaluated and the viability of offering the suggested support will be assessed.

5 CONCLUSION

Participant feedback showed a high satisfaction level with their participation in **GREENHOUSES**.

- 85% of participants were satisfied or very satisfied with the entire program.
- 90% of people said they were satisfied or very satisfied with the energy seminar.
- 97% of people said they were satisfied or very satisfied with the water seminar.
- 97% of people said they were either satisfied or very satisfied with the waste seminar.

Seminars received good feedback but attendances were variable with some seminars cancelled due to lack of interest and other seminars having up to 40 people enroll and up to 20 attend. Advertising occurred through many channels but did not always relate to the numbers attending. Each council had different successes with methods used to attract people to the seminar for example the Canning Concern attracted a large percentage.

The combined greenhouse gas reductions from the **GREENHOUSES** program for both energy and water use is an estimated 254 tonnes per year (16.7 for water and 237 for energy).

Meter readings of water use confirmed that the **GREENHOUSES** model of information and goal setting also applies effectively to water consumption. Results for Waterford and Salter Point residents show a 10% reduction in water use compared to the control group.

The total water savings for 292 households participating in **GREENHOUSES** is an estimated 15,350kL per year.

Waste reduction through **GREENHOUSES** is yet to be quantified.

Eco Aims remain an extremely important component of **GREENHOUSES**, but it is difficult to emphasise the importance of setting Eco Aims to participants who do not attend the seminars. Only 57% of people set an Eco Aim in the program, whereas 91% of seminar attendees set an Eco Aim at the seminar.

6 LOOKING AHEAD

The seminars are still the most effective way to reduce residents energy and water use and waste production. To draw a large attendance to **GREENHOUSES** seminars, new avenues will be explored to reach residents outside of the mailout. These avenues include scheduling seminars at existing community learning centres, or a series of library seminars as well as offering the chance to present to community groups at one of their regular meetings.

Considering the majority of seminar participants (91%) are setting Eco Aims, while only 57% of overall participants set Eco Aims, it is important to determine how to highlight the importance of Eco Aims in the booklet. It is recommended that a focus group be held to determine:

- why participants aren't setting Eco Aims
- how to make the importance of Eco Aims more prominent in the booklet and
- how to make the Eco Aims more appealing to booklet readers.

The website has been established so that more support can be offered to online participants through email, monthly challenges, news items and online support. For the next group of participants, the website will be promoted as an extra way to participate in **GREENHOUSES**. Extra support will be provided with monthly emails which include regular news updates, monthly challenges for busy people and a Smart Groups set up for online participants to communicate with each other.

It is recommended to assess the viability of any follow up support for previous participants to increase the likelihood of sustained behaviour change.

The current stream of **GREENHOUSES** is reaching 8-12% of residents approached. To extend this to the wider community a new stream is being developed that focuses on single action steps using community-based social marketing principles.