



Project Twin Streams:
Sustainable Living, Sustainable
Household Programme

Outcome Evaluation Report: Phase One

August 2009

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Acknowledgements

We would like to thank the following people for their contribution to and/or participation in the evaluation of the Project Twin Streams Sustainable Living, Sustainable Households Programme: Regan Solomon; Jenny Chilcott and Helen Haslam (Waitakere City Council); Yuki Kamiya and Richard Lee (Sustainable Ranui-Swanson); Tejopala Rawls, Susie Trihn, Angela Rooke and John Rawls (EcoMatters Environment Trust); Meredith Youngston (Celebrating Swanson); Mary Foy (Te Ukaipo) and Emma Frost (Ranui Action Project) and the PTS-SLSH project participants who kindly agreed to take part in the evaluation. We would also like to thank our colleagues Associate Professor Karen Witten, Dr Pauline Dickinson and Michael Blewden for their advice and review of draft versions of this report.

Executive Summary

Introduction

This report outlines the findings from the outcome evaluation of Phase One of the Project Twin Streams – Sustainable Living, Sustainable Households (PTS-SLSH) Programme from January 2008 to end of June 2008). The Centre for Social Health Outcomes Research and Evaluation was contracted by Waitakere City Council to undertake the evaluation.

Project Twin Streams (PTS) provides the overall framework for the Sustainable Living, Sustainable Households Programme (SLSH). PTS is an urban sustainability project in Waitakere City employing creative environmental approaches to restore six local streams. PTS is designed to encourage community involvement in the long term care of local streams based on the belief that this will lead to healthier streams and communities. PTS-SLSH builds on the successful community engagement by the PTS community contracted organisations and the recognition that sustainable development requires interventions at multiple levels. The SLSH programme has evolved from PTS as a way of working with people to make changes in their own homes and neighbourhoods in order to live more sustainably. The PTS community development model is based on the following assumptions:

- People are more likely to make changes in behaviour when they understand the problem and are involved in identifying the solutions in a meaningful way.
- Local communities know the most appropriate and effective methods to engage local people.
- Each community has its own diverse characteristics. Programmes need to be adapted to harness the diverse strengths of communities. A single broad approach is unlikely to be effective.
- Creative learning methods that engage with people's hearts and minds are more effective than simply distributing written information in creating meaningful and long-term behaviour change.
- Local organisations can be more effective than Council in engaging their own communities in the sustainability journey but need to be adequately resourced and supported to do so.
- A partnership approach between communities, local, regional and central government, non-government organisations and local people is a very

effective way of achieving long-term change towards sustainability (Chilcott, 2008).

Three communities, Ranui, Swanson and Glen Eden have been involved in the programme. In Phase One the project in Ranui was developed and delivered by Te Ukaipo and the Ranui Action Project (RAP). The coordinator was supported by a visioning group which includes representatives from Te Ukaipo, RAP, WCC and the Auckland Regional Council (ARC). In Swanson, the programme was developed in collaboration with Celebrating Swanson which is a voluntary group of residents. In Glen Eden, the programme was developed by the EcoMatters Environment Trust. EcoMatters have been developing the city-wide Sustainable Homes Programme since late 2006 utilising a community-based social marketing approach. EcoMatters delivers the Home Checks in all three sites.

In Ranui and Swanson the PTS community development model was operationalised through the use of facilitated conversations with cluster groups; the development of community leaders; development of project resources and tools in collaboration with local community members and the use of local networks to support recruitment. In Glen Eden the PTS community development model has not been utilised to the same extent.

Encouraging household behaviour change towards sustainability is a complex challenge. There are multiple external factors that impact on the ways in which individual households use the resources available to them and live their daily lives. There is limited evidence about effective approaches to encourage behaviour change in households to support sustainability in the New Zealand context. There is local evidence from the public health sector about factors that can support locality-based community development and action projects.

Evaluation approach

The broad aim of the evaluation, as outlined in the evaluation plan, was to describe and document the intended and unintended short-term changes that have occurred as a result of the implementation of the SLSH programme. The specific outcome evaluation objectives were:

- To assess the extent to which identified short-term to medium-term outcomes have been achieved

- To examine how well activities have been implemented and to identify any areas for improvement

Results

By the end of June 2008, 74 households in Ranui, 41 households in Swanson and 81 households in Glen Eden have been referred for a home check (total 195 Phase One households). One hundred and seventeen participants completed the baseline survey (overall response rate of 60%) and agreed that their water use data could be used for the evaluation. Ninety-two people completed the second interview in 2009 (follow up response rate of 79%). This included 51 people in Glen Eden; 23 in Ranui and 18 in Swanson. Analysis is based on data from households who completed both the baseline and follow-up surveys.

Has the Sustainable Living, Sustainable Households Programme achieved the short to medium-term outcomes in Glen Eden, Ranui and Swanson?

Water use

A large proportion of participants agreed that they were taking action to reduce water use in their households and there is evidence of a significant reduction in water use in the sample. Water saving actions included checking for water leaks and taking shorter showers. In Ranui and Glen Eden a proportion of participants had removed a water saving device after it had been installed.

The median no. of litres of water per person per day used by sample households in the 12 months before project was 146 litres. In the next 12 month period the median was 122 litres. This suggests more than half the households in the sample are now meeting the target levels of water use set by Waitakere City Council (125 litres per person per day).

Energy use

Many respondents agreed that their household was taking action to reduce energy use and methods to conserve energy included turning off appliances or leaving them on standby, switching off lights in rooms not being used, using a washing line instead of a drier and installing energy saving light bulbs. A few households reported that, as a result of participating in the programme insulation had been installed.

Waste management

Despite high levels of agreement that households were taking action to reduce rubbish and waste, there was no significant reduction in the average number of rubbish bags used per household per week. There was a significant increase in the frequency of participants using something other than a plastic bag for shopping. There was also an increase in the use of composting and worm farms to dispose of household waste but this was not significant.

Transport

There are indications of increased use of active transport in all areas but no change was detected in car or public transport use.

Building Community Connection

There is evidence of significant differences between Ranui/Swanson and Glen Eden participants regarding agreement with the following statements about the impact of the project:

- I know people better in the area where I live
- I feel more connected to my community
- I've connected with other people who are interested in living more sustainably

Agreement was higher in Ranui/Swanson than Glen Eden for all three of these statements. It is reasonable to assume that the use of the facilitated conversation and community development approaches in Ranui/Swanson are contributing to a greater sense of community connectedness for those participating in the programme.

Question Two: What are the unintended outcomes, both positive and negative, that have resulted from the SLSH programme? For example, what did participants identify as the benefits from their involvement with in the programme?

Many participants reported an increased awareness of the environment or increased knowledge and/or access to information. Other benefits included having a warmer healthier house, saving money, meeting other people and/or awareness of support available, installation of devices such as showerheads or light bulbs, lower power bills, less water use, reinforcement of pro-environment activities, composting and less waste. No serious negative experiences were reported by participants.

Question Three: To what extent are other households being influenced by the SLSH programme?

Evidence suggests that the projects in the three communities are influencing households indirectly however the extent to which this is contributing to other households changing behaviour is beyond the scope of the current evaluation.

Question Four: Is the SLSH programme worth continuing?

PTS-SLSH is worth continuing because there is evidence that PTS-SLSH has contributed to reduced water use in participating households during Phase One, even while the programme was still in development. In Phase Two the project teams have built on lessons learnt during Phase One and it is likely that there will be even more beneficial impacts for participating households. The process evaluation of Phase Two indicates that there is growing momentum around sustainability issues, particularly in Ranui and Swanson, and the programme is receiving positive feedback from participants. The project teams from EcoMatters and Sustainable Ranui-Swanson (rebranded in Phase Two) have established effective working relationships and have developed new engagement methods that they implement together. Also EcoMatters are incorporating elements of the approaches used in Ranui and Swanson into the way they deliver their Sustainable Homes Programme across Waitakere.

Question Five: What improvements could be made to the SLSH programme?

Participants suggested a number of ways that the SLSH programme could be improved which include: more follow-up visits or contact; better or more information for the people involved; better marketing or advertising; more financial support as some actions were too expensive; involving more community leaders; help with heating in winter; involving younger households and discounts for composting workshop. Further improvements are outlined in the recommendations below.

Project assessment

Based on outcome evaluation results the following ratings have been given for the projects. Ranui and Swanson have been combined.

Performance descriptors for outcome evaluation: Glen Eden	
Excellent	Evidence that almost all of the key short-term outcomes and some medium term outcomes have been achieved. Evidence of increased understanding of sustainability issues. Evidence of increased community capacity and connection. No seriously negative unintended outcomes.
Very Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues by participants. Evidence of increased community capacity and/or connection. No seriously negative unintended outcomes. Any concerns are managed effectively.
Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues. No seriously negative unintended outcomes. Any concerns are managed effectively.
Poor	Only one or two outcomes have been achieved and/or there are serious negative unintended outcomes.
Insufficient evidence	Evidence unavailable or of insufficient quality to determine performance.

Performance descriptors for outcome evaluation: Ranui/Swanson	
Excellent	Evidence that almost all of the key short-term outcomes and some medium term outcomes have been achieved. Evidence of increased understanding of sustainability issues. Evidence of increased community capacity and connection. No seriously negative unintended outcomes.
Very Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues by participants. Evidence of increased community capacity and/or connection. No seriously negative unintended outcomes. Any concerns are managed effectively.
Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues. No seriously negative unintended outcomes. Any concerns are managed effectively.
Poor	Only one or two outcomes have been achieved and/or there are serious negative unintended outcomes.
Insufficient evidence	Evidence unavailable or of insufficient quality to determine performance.

The rating is higher for Ranui and Swanson because of the evidence indicating that the community development approach is contributing towards increased community connection. It is important to acknowledge that the delivery of the home checks by EcoMatters has also contributed to the successful outcomes in Ranui and Swanson. There is a sound rationale that increasing community capacity and connection is likely to support behaviour change and contribute towards a range of other well-being outcomes sought by Council and community organisations.

Conclusion

There is evidence that involvement in PTS-SLSH is having a positive impact on households in Glen Eden, Ranui and Swanson. A significant reduction in water use is an encouraging sign and there are indications of positive trends in other areas such as composting and worm-farming; less plastic bag use; commitment to energy reduction and increased walking. The greater sense of connection reported by participants in Ranui and Swanson highlights the benefits of using community development approaches. It is not surprising that few statistically significant changes in environmental behaviours were identified. The number of residents involved in the programmes was relatively small so large behavioural shifts would have been needed to detect statistically significant changes in behaviour. However the self report indicators are promising and suggest that further behaviour change is feasible as the programmes develop and become more widespread in the study communities.

Recommendations

Based on the results from the formative process and outcome evaluation findings and evidence from the literature review and similar community projects in the public health sector the following actions are recommended:

- Continue to provide resources for paid co-ordinators at the local level to support local people and organisations to live more sustainably
- Provide resources and training to community organisations to support co-ordinators and effective collaboration
- Both project teams, with support of Council, identify infrastructural and/or systemic changes that could support local residents to live more sustainably
- Both project teams (either separately or together) undertake regular (at least annually) reviews of the theory of change and logic that underpins their projects and reflect on whether or not activities are consistent with these

- Both project teams refine data management systems to improve recording of interventions (for example, referrals to insulation schemes) and to support ongoing follow up
- Both project teams develop internal evaluation processes to gather information and analyse information to enable assessments of programme effectiveness
- If possible continue some form of external formative evaluation support
- For Ranui and Swanson :
 - continue to develop and experiment with creative ways of engaging and working with local residents
 - ensure that original conceptualisation of the facilitated conversation is still being implemented
- For EcoMatters:
 - build capacity with community development approaches
 - continue to build synergies with other services delivered by EcoMatters in order to support the Sustainable Homes Programme

1. Introduction

This report outlines the findings from the outcome evaluation of Phase One of the Project Twin Streams—Sustainable Living, Sustainable Households (PTS-SLSH) Programme (from January 2008 to end of June 2008).

1.1 Background

Project Twin Streams (PTS) provides the overall framework for the Sustainable Living, Sustainable Households Programme (SLSH). PTS is an urban sustainability project in Waitakere City employing creative environmental approaches to restore six local streams. PTS is designed to encourage community involvement in the long term care of local streams based on the belief that this will lead to healthier streams and communities (Trotman and Wood, 2006:3).

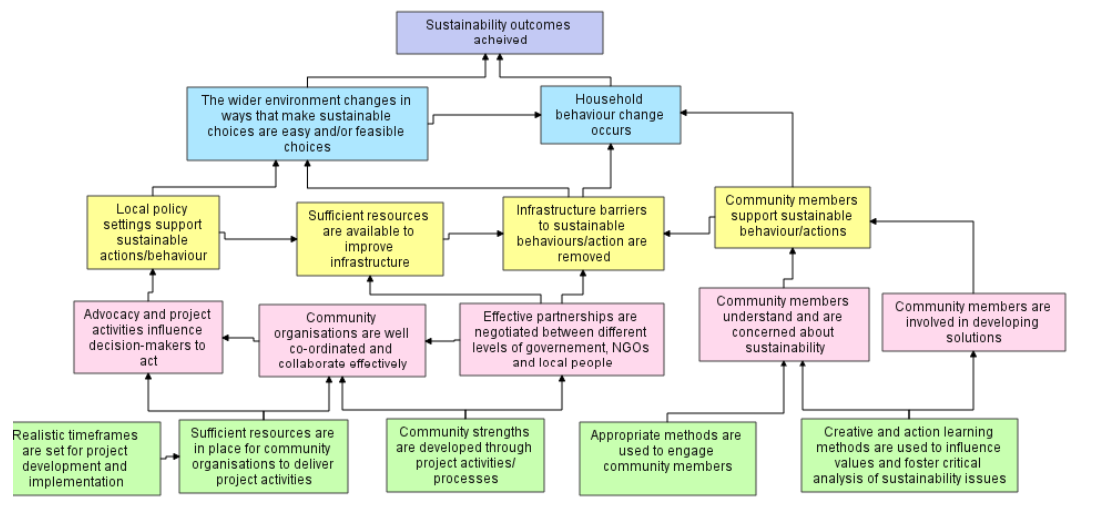
The SLSH programme has evolved from PTS as a way of working with people to make changes in their own homes and neighbourhoods in order to live more sustainably. Through local community organisations PTS has successfully engaged diverse individuals, families and groups in a range of activities, including planting days, and in creative processes (see <http://www.waitakere.govt.nz/AbtCit/ne/twinstreams.asp>). A community development model has been advanced jointly by community organisations and Council through their work together on PTS. Through the stream restoration work community members and in particular, the PTS community organisations, identified that replanting stream banks would not be enough to improve water quality. They needed to work with people in their own homes to change household behaviours and to increase awareness of wider sustainability issues. Council also has specific objectives focused on reducing domestic water consumption reducing the amount of green house gas emissions and decreasing the amount of was going to landfill. These factors provided an opportunity to develop the PTS-SLSH demonstration programme to test whether the community development model, that had successfully engaged communities in stream restoration work, could also be used to engage households to live more sustainably.

The community development approach is based on the following assumptions:

- People are more likely to make changes in behaviour when they understand the problem and are involved in identifying the solutions in a meaningful way.
- Local communities know the most appropriate and effective methods to engage local people.
- Each community has its own diverse characteristics. Programmes need to be adapted to harness the diverse strengths of communities. A single broad approach is unlikely to be effective.
- Creative learning methods that engage with people's hearts and minds are more effective than simply distributing written information in creating meaningful and long-term behaviour change.
- Local organisations can be more effective than Council in engaging their own communities in the sustainability journey but need to be adequately resourced and supported to do so.
- A partnership approach between communities, local, regional and central government, non-government organisations and local people is a very effective way of achieving long-term change towards sustainability (Chilcott, 2008).

The community development model represents a particular theory of how change towards more sustainable ways of living might happen and the processes that need to be in place to support such change. The PTS community development model is also based on the understanding that local programmes need to be adapted to harness the diverse strengths of their communities. Further collaborative work needs to be done to make this theory of change explicit but the diagram below does present a summary of the key elements.

Theory of Change for Community Development and Action Projects to Promote Sustainability



One of the underlying assumptions of the PTS community development model is that a “one-size fits all” approach is unlikely to be effective and that different communities have their own way of doing things. Three sites were selected for the demonstration phase of PTS-SLSH: Swanson, Ranui and Glen Eden. In Ranui, Te Ukaipo saw PTS-SLSH as a natural extension of the work they were already doing with PTS¹; a group of residents in Swanson (Celebrating Swanson) had started taking action as a result of screening the Al Gore movie “An Inconvenient Truth” and had approached Council for support; in Glen Eden EcoMatters Environment Trust had been developing a city-wide Sustainable Homes Programme and saw PTS-SLSH as an opportunity to pilot this in Glen Eden. These sites were selected because they had all expressed interest in the project; were believed to have strong community networks and had actively engaged diverse communities of interest in Project Twin Streams (Waitakere City Council, 2007b). Therefore, PTS-SLSH involves **trailing** three different ways of engaging and working with communities.

The programme vision is: *“Sustainable households driven by local communities who influence others to create a sustainable catchment”* (Waitakere City Council, 2007a).

Research Evidence and Programme Logic

Despite the many different ways of conceptualising “sustainability” there is general agreement that this term includes several key dimensions including social, environmental, economic and cultural development. It is apparent to researchers and

¹ Te Ukaipo is one of the contracted community organisations implementing stream restoration initiatives in Waitakere.

practitioners alike that sustainability is a **complex**² issue and that there is no quick fix or simple technological solution that can possibly achieve “sustainable development”. Indeed:

[s]ustainable decision-making involves complex and often ill-defined parameters with a high degree of uncertainty due to incomplete understanding of the underlying issues (Andriantiatsaholinaina et al., 2004).

In addition there is growing interest, locally and internationally, in identifying effective approaches to encourage people to reduce CO2 emissions, waste, water and energy use (Barr, 2003). Despite increasing activity in the environmental and sustainability movements there has been limited documentation and evaluation of projects that specifically address these issues in the New Zealand context (Witten et al., 2000). As a result there is little evidence of “what works, what does not work and why in various community settings” (Witten et al., 2000:381).

In the case of PTS-SLSH two literature reviews were completed in the early stages of project development. One was produced by the evaluation team (Wild and Greenaway, 2008) and the other by the project co-ordinator at EcoMatters (Trinh, 2008). Both reviews identified the factors that could support effective ways of encouraging behaviour change in the context of sustainable development.

The following strategies were identified as effective ways of engaging households to adopt more sustainable living practices:

- Use a combination of interventions and be prepared to experiment to find out what works
- Work with existing motivations such as a desire to save money or improve health
- Identify and acknowledge barriers to change
- Use participatory and experiential educational techniques within groups
- Demonstrate and model new behaviours
- Use feedback, reminders and commitments (Wild and Greenaway, 2008).

² Issues can be thought of as simple, complicated or complex. An issue is complex when there is uncertainty about outcomes and there is no agreed pathway to success. A complex issue is difficult to frame; has multiple causes or determinants; involves multiple stakeholders; requires long-term commitments and needs unique responses for different communities and places. Examples include poverty, family violence and climate change. Courtney, M. (2009) Putting Partnering in Practice: Collaboration on Complex Issues - Healthy Homes. Local Government and Community Branch, Department of Internal Affairs.

As McKenzie-Mohr (2000) and Darnton et al (2006) point out, if significant external barriers exist, for example, poor public transport infrastructure, it is likely that programmes will have limited success. Therefore, it is important for programme planners to work at a systems level with other organisations to identify ways of addressing external factors that may limit individual changes (Greenaway, 2008). Furthermore, connecting with social justice issues and the complexities of sustainable consumption/living may be more likely to engage people than efforts to create environmentally responsible citizens by providing information in contexts that make sustainable behaviours difficult (Hobson, 2003).

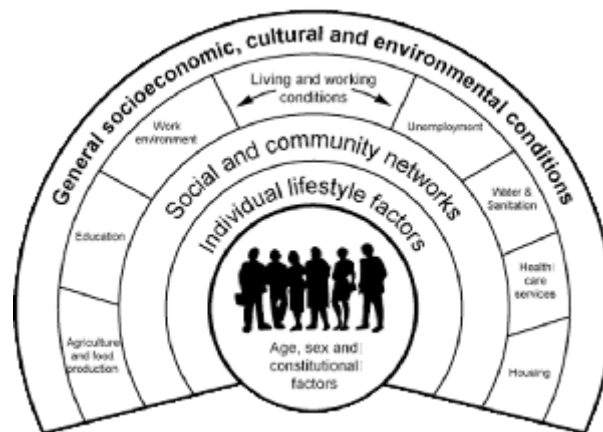
Other studies of behaviour change have highlighted the following aspects:

- Behaviour change is different for every person, and does not occur in one step. People move through stages of change in their own ways and in their own time.
- An enabling environment influences these stages of change.
- People adapt and improve the enabling environment through individual and collective capacity development.
- The crucial goal for any programme, then, is to enhance people's capacity to modify their environment so that it enables movement through stages of change (Allen et al., 2002:24).

Therefore, it is likely that efforts to encourage citizens to live more sustainability are more likely to succeed when factors in the wider environment support such behaviours.

The use of community action and community development approaches to promote community level change is relatively well-developed in New Zealand in the public health field. Those working in the delivery and evaluation of public health initiatives have been grappling with similar issues to those faced by PTS-SLSH for many years. Improving public health is also a complex problem. There are many factors that influence a persons' health and only some are of these can be controlled by an individual.

The figure below illustrates the multiple determinants of health.



From: http://www.hiaconnect.edu.au/images/Determinants_of_Health.gif

This model has relevance for the PTS-SLSH programme. Many people may desire to live more sustainably but there are broader social and economic conditions that will either hinder or help them achieve their desires.

Findings from the evaluation of projects in the public health and environment areas have identified elements which support community projects. Community development and action approaches that utilise local expertise, collective learning and reflective practice can develop community ownership and support for health and sustainability related actions (Department of Internal Affairs, 2002, Greenaway and Witten, 2006). Paid co-ordination and planning processes where evidence about what works to address a particular issue in the local context are also important (Giesbrecht and Haydon, 2006, Holder, 2004, Conway and Casswell, 2003, Greenaway and Witten, 2005).

Community development and action approaches can be useful ways of increasing the capacity of community members and organisations to address a range of health and environmental issues. Furthermore partnership and participatory approaches to engage New Zealand communities to adopt more sustainable living practices are widely advocated (Allen et al., 2002, Frame and Taylor, 2005, Wild and Greenaway, 2008, Department of Prime Minister and Cabinet, 2003, Chapman and Boston, 2007, Regional Growth Forum, 2007). This includes Maori values and practices such as

kaitiakitanga³ and mana whenua⁴ that draw upon knowledge of managed sustainability. Participatory planning may also increase local capacity for management and decision-making, enhance public support and compliance and extend boundaries of what is politically acceptable (Rutland and Aylett, 2008).

Community development can build understanding of the complexity of urban sustainability and engage both decision makers and community members in the development of innovative solutions. Whilst there is some evidence of the benefits of community development approaches internationally, local knowledge of effective policies and strategies for use in the local government context to support sustainable behaviour and value change is lacking. In situations of uncertainty it is important to take risks but at the same time to have processes in place to capture information about what worked well and challenges.

It is important to be realistic about what programmes focused on changes at the individual household level can realistically achieve given that there are multiple factors that are likely to impact on the ways in which households use the resources available to them. For example it is unrealistic to expect change in transport mode use where public transport infrastructure does not provide a viable alternative to car trips for residents living in particular places.

The next section includes background information about the three projects that were part of PTS-SLSH. The Sustainable Ranui and Sustainable Swanson projects are discussed together as they have a number of similarities. The Sustainable Homes Programme in Glen Eden is discussed separately because a different approach was used.

1.1.1 PTS Sustainable Ranui and Sustainable Swanson Projects

In Phase One on the programme (January to end June 2008) there were separate projects in Ranui and Swanson both of which were co-ordinated by a long-term Swanson resident and community development practitioner. The Sustainable-Ranui project was developed and delivered by Te Ukaipo, a community development initiative of Te Tairere Atawhai Mercy Ministries Ltd, and the Ranui Action Project (RAP). The co-ordinator was supported by a visioning group which included

³ The exercise of guardianship by the tangata whenua of an area in accordance with tikanga Maori in relation to natural and physical resources; and includes the ethic of stewardship.

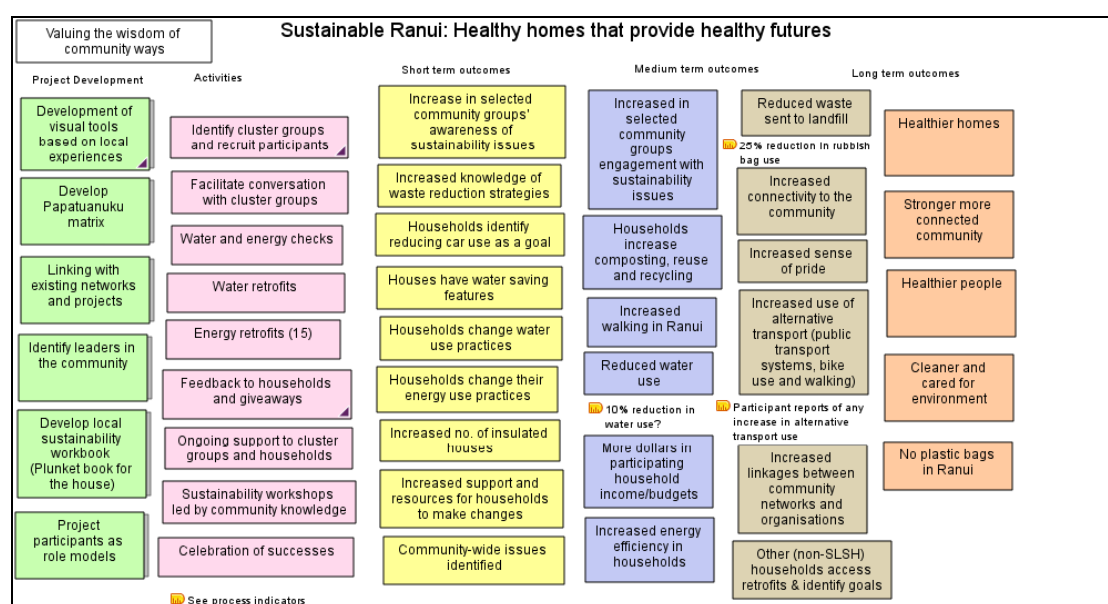
⁴ Customary authority exercised by an iwi or hapu in an identified area.

representatives from Te Ukaipo, RAP, WCC and the Auckland Regional Council (ARC). This group met fortnightly and provided feedback and support as the programme was developed and implemented. The Sustainable-Swanson project was developed in collaboration with Celebrating Swanson; a voluntary group of residents who are actively involved in the Swanson community.

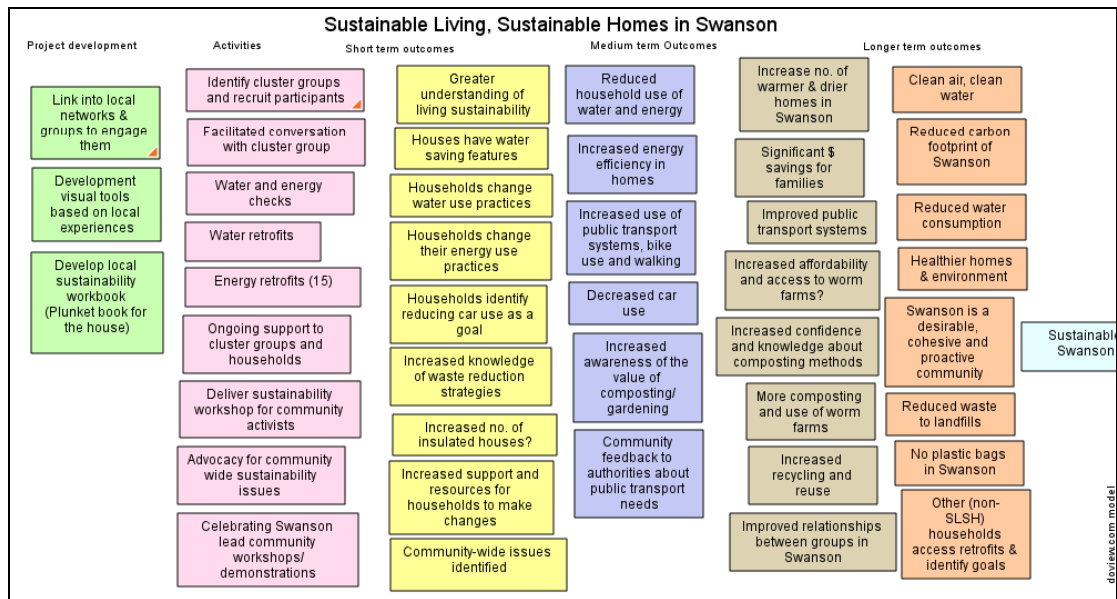
In both Ranui and Swanson households were referred to EcoMatters Environment Trust who:

- Delivered water and energy checks to homes
- Managed the installation of water saving devices (water retrofit)
- Installed or managed the installation of insulation in 30 homes⁵
- Provided access to the EcoLibrary at the Sustainable Living Centre

The logic models below were developed by the Sustainable Ranui and Sustainable Swanson teams in the early stages of project development and were later refined by the evaluator in consultation with the project co-ordinator. The models outline the planned project activities and the anticipated changes that could result from the projects if the activities were completed successfully. Each model contains a range of project activities and includes strategies to follow up with households in recognition of evidence showing that behaviour change is unlikely to result from one off interventions.



⁵ SNUG homes now doing insulation

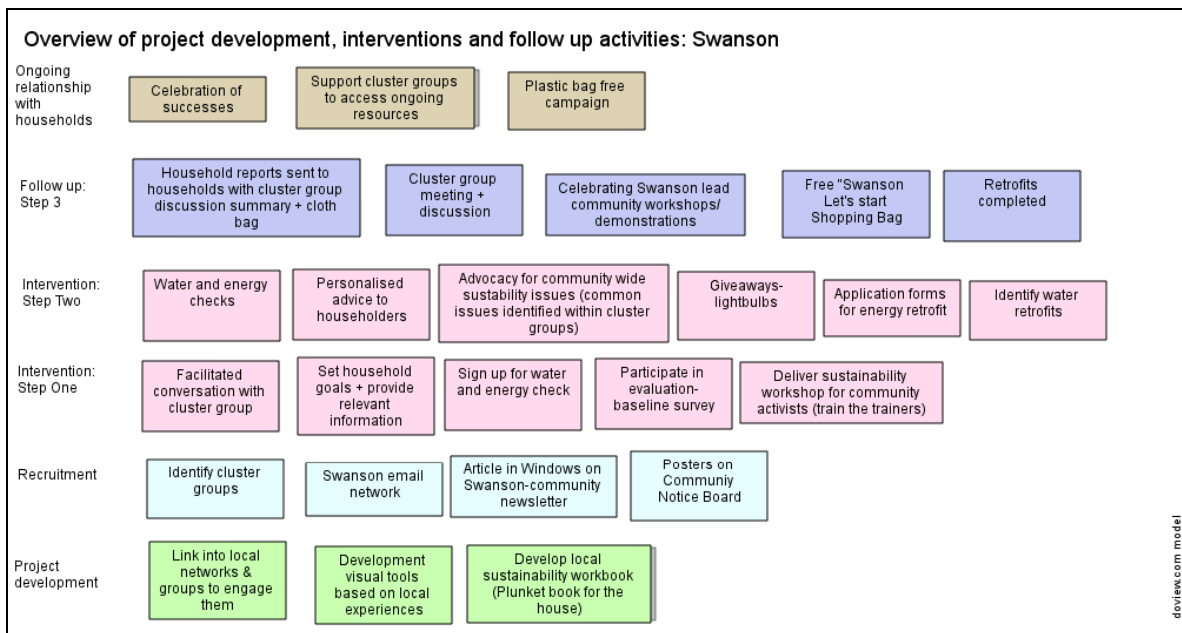
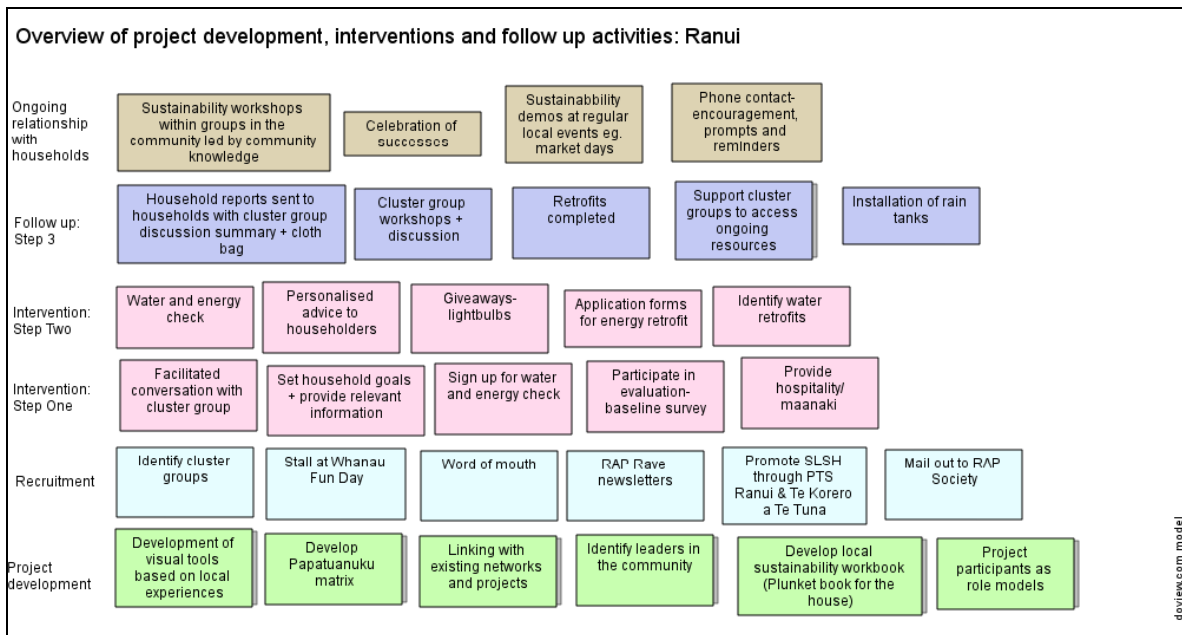


In both Ranui and Swanson one of the underlying principles was to value the wisdom of community ways indicating the importance given to drawing on local strengths and knowledge. The facilitated conversation was developed from the work of Joanna Macy and used an education model based on the work of Paulo Freire (1972) which emphasizes the value of a learner-centred curriculum, group learning, and discussion and debate between adult learners as important tools for promoting social change. The facilitated conversation draws on local knowledge and experience through the use of the Papatuanuku model⁶. The Papatuanuku template has a picture of Papatuanuku (earth) in the centre and the page is divided into four sections: energy, water, waste and transport. The template has been used as brainstorming tool to identify current actions in the four areas and new strategies that households could implement.

Local networks have been used to identify community leaders and to engage participants for the cluster groups. The expertise of the community organisations and cluster groups has been used to guide the development of programme tools to ensure that these are appropriate for the local context.

The diagrams below indicate the key project interventions in Phase One along with the planned follow up activities for Ranui and Swanson (Greenaway, 2008):

⁶ The Papatuanuku model was developed and refined with the Maori Women's Welfare League Ranui branch cluster group and Celebrating Swanson in Phase One. Key people involved in developing PTS-SLSH in Ranui also met to explore creative learning methods that could be used in the project.



In both Ranui and Swanson there have been a number of opportunities created to reconnect with Phase One households. Between October and December 2008 project staff attempted to phone all Phase One participants from Ranui and Swanson and to gather feedback on the project and to identify other activities or initiatives that were of interest to participants. Based on this feedback seven workshops were run on composting, vegetable growing and rain water harvesting in 2009. The workshops were delivered in partnership with other local organisations such as the community centre and community garden. In Phase Two local street parties and a mucking in workshop were also held. The project co-ordinator has also maintained a

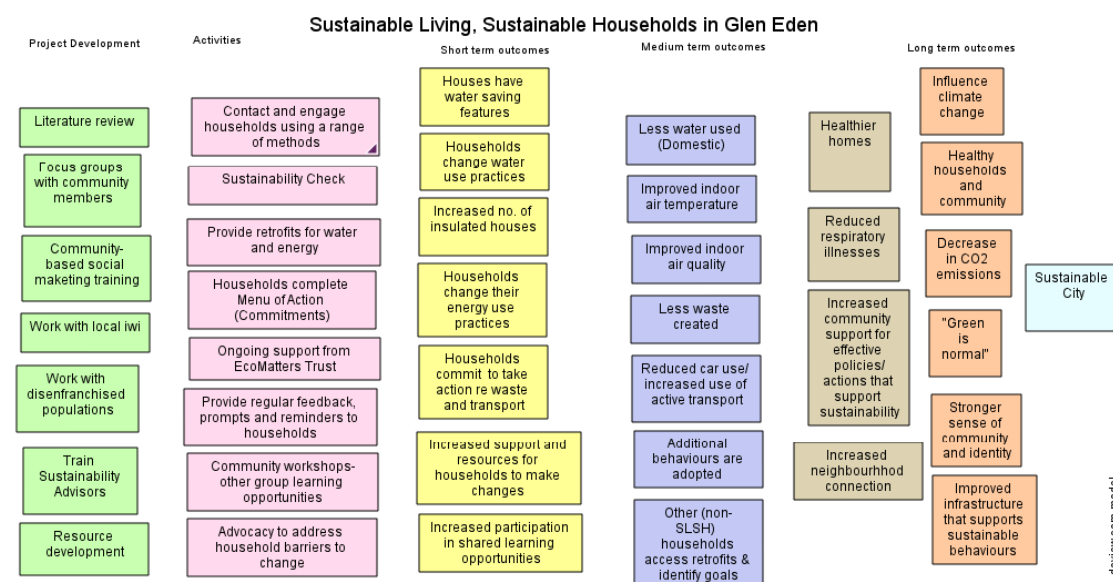
regular presence at local events including market days in Ranui and Swanson, giving the project a visible presence.⁷

1.1.2 The Sustainable Homes Programme in Glen Eden

The Sustainable Homes Programme in Glen Eden was developed by the EcoMatters Environment Trust. EcoMatters is a charitable trust established in 2002 and has considerable expertise regarding household sustainability. EcoMatters had been developing the city-wide Sustainable Homes Programme since late 2006 utilising a community-based social marketing approach. Key features of community-based social marketing include:

carefully selecting an activity to be promoted; identifying barriers to the activity; designing a strategy to overcome these barriers, when possible; piloting the strategy with a small segment of the community; and, finally, evaluating the impact of the strategy once it has been implemented across a community (McKenzie-Mohr, 2000:532).

In Phase One an EcoMatters staff member managed the SLSH programme in Glen Eden and the home water and energy checks in Ranui and Swanson, including the water retrofits. EcoMatters Sustainable Homes Advisors conducted sustainability checks in Glen Eden and the water and energy checks in Ranui and Swanson. The logic model below was developed by the EcoMatters at the beginning of the project and refined by the evaluator in consultation with the project co-ordinator.



⁷ Further detail on Phase Two follow up activities can be found in Greenaway and Gregory (2009).

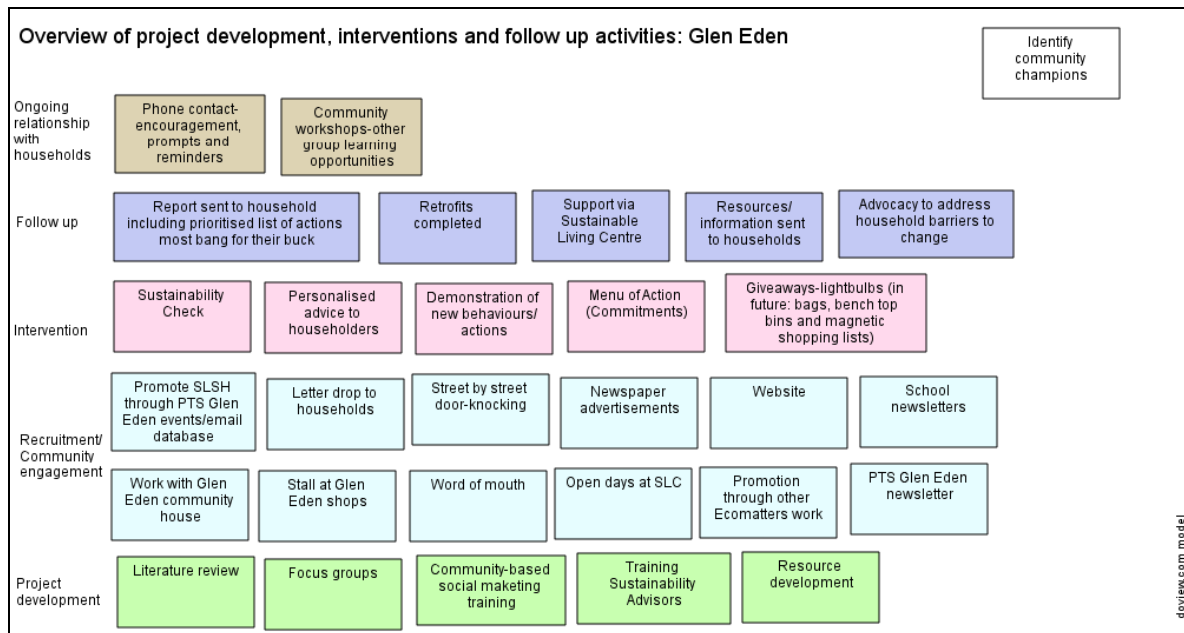
During the project development phase EcoMatters contracted a market research company to undertake focus groups with about 30 residents in Glen Eden. The objective of the research was to explore current participation in a range of target behaviours and to identify opportunities for increasing future participation (Mobius Research and Strategy, 2008). The focus groups explored levels of interest in target behaviours, barriers to household environmental change and ways these could be overcome, perceived benefits of behaviour change, information needs and ways of structuring messages and communications to maximise resident buy-in (Mobius Research and Strategy, 2008). Part of the rationale behind conducting the focus groups was to avoid spending resources on behaviour changes where there are significant barriers to households making those changes.

The Home Sustainability Check included the following components:

- An in-depth assessment of the home's energy efficiency, and on-the-spot advice relating to both the building fabric and occupant's energy habits
- An in-depth assessment of the household's use of water and on-the-spot advice relating to both the building and water consumption habits
- The offer of a number of giveaways
- Questions to do with recycling and composting habits, as well as advice
- Questions to do with transport habits, as well as advice
- A simple questionnaire asking the householder to identify
 - Which of the stated EcoMatters target behaviours (from the Commitment sheet) householders were already doing
 - Which of the stated EcoMatters target behaviours (from the Commitment sheet) householders would personally commit to doing differently

The Check took an hour and a half. The householder received a report making key recommendations. All information to do with habits, the building itself, and commitments made to change specific behaviours was stored on a database at EcoMatters.

The diagram below illustrates the key interventions and planned follow up activities for the Sustainable Homes Programme in Glen Eden in Phase One (Greenaway, 2008):



In Glen Eden EcoMatters engaged households through school newsletters; a letter drop to residents; advertisements in the Western Leader; promoting SLSH through the PTS newsletter, events (PTS Stream Planting Day and two PTS Private Property Open Days) and via the email database; door-knocking; an interactive stall at the Glen Eden shops; word of mouth; contacts made through the Sustainable Living Centre; the EcoMatters website; working with the Glen Eden Community House and developing a relationship with Hoani Waititi Marae.

Initially recruitment was slow and this was attributed to less community infrastructure in Glen Eden compared to other areas. However, there was a rapid uptake in June 2008 after the letter box drop, newspaper advertisements and other promotional activities. Door-knocking was another method used to contact households in Glen Eden which was seen as successful.

In Phase One community development processes were used to a lesser extent in Glen Eden and this is due to a number of factors: the use of a community-based social marketing approach and a lack of community development initiatives to connect with in Glen Eden (compared to Swanson and Ranui). The team in Glen Eden were responsible for both the community engagement and the home checks. The focus on completing a large number of home checks over a short space of time coupled with the need to develop new collaborative relationships and a new work team meant that less time has been spent on exploring community development approaches in Glen Eden (Greenaway, 2008). There was no follow up or contact

with Phase One households after the completion of the home check in 2008. EcoMatters have developed a process for re-engaging with these households and this is being implemented in August 2009.

1.1.3 Waitakere City Council

Waitakere City Council advisors were central players in the instigation of the PTS-SLSH programme. A small team within Council developed the initial programme components, sourced funding and met with community organisations to discuss how they could work together to deliver PTS-SLSH. A strategic advisor supported programme development and provided strategic brokerage services to the programme. This included identifying additional resources available to the programme, fostering links with other agencies who are actively engaged in related work in Waitakere and communicating the purpose and goals of the programme to internal and external partners. A communications advisor also provided advice and support to each site.

In Phase One the Council was actively involved in the evaluation. This involvement included data entry of baseline survey information and management of the survey database for households in Ranui, Swanson and Glen Eden.

The SLSH programme also has the potential to contribute towards the following Project Twin Streams outcomes:

Environmental

- Increase installation and use of sustainable technologies by households and businesses

Social

- Increase community understanding of how to live more lightly on the earth
- Increase sense of belonging with others in the local community
- Increase interaction between people and local places (Trotman and Wood, 2006:15).

1.1.4 Previous Evaluation Findings

Findings from the formative and process evaluation of Phase One (Greenaway, 2008, Greenaway and Gregory, 2009) indicated that in each site efforts had been made to ensure that the programmes drew on local knowledge and were appropriate for that area. In Ranui and Swanson, the PTS community development model was being actively employed through the use of facilitated conversations with cluster

groups in the community. Local community networks had been used to identify community leaders and to engage participants for the cluster groups. The Papatuanuku model⁸ in the facilitated conversation was a way of drawing on local knowledge and experience and the facilitated conversation provided a forum for sharing that information. The expertise of the community organisations and cluster groups has been used to guide the development of programme tools to ensure that these were appropriate for the local context. The Home Check, delivered by EcoMatters, was seen as building on and reinforcing the ideas discussed in the facilitated conversation. Sustainable Ranui is building on community strengths through the connections with local groups. In Phase One key informants thought that the learning methods were relatively creative and there would be opportunities to develop these further as the programme progresses (Greenaway, 2008).

In Swanson the Sustainable Living Workshop was viewed as an additional opportunity for some participants to develop their understanding of sustainability and to use this to build the capacity of local people. In particular the coordinators way of working, that is, the facilitated conversation in cluster groups, was seen as allowing people to develop their understanding of sustainability issues in a meaningful way. Again key informants believed that other creative learning methods would be used as the project developed.

In Ranui and Swanson the projects were not only focusing on encouraging reductions in water, energy, waste and car use but are doing this in a way that is building on the strengths and resources of the local community (Greenaway, 2008).

In Glen Eden a range of methods were being used to engage participants. Participants had the opportunity to build their understanding of sustainability through the home check and discussions with sustainability advisors. It was acknowledged that a pragmatic approach to engaging households has been taken due to time constraints. The home check itself was seen as a creative learning approach as it offered people a “real-life” learning experience and the opportunity for people to apply knowledge in their own homes. Households are provided with information, support and access to expertise and resources. Key informants believed that there would be opportunities to develop more creative methods as the project developed perhaps by drawing on the experiences of PTS in Glen Eden and the work that has been done in schools. Some community strengths were being built on such as the

connections with the Glen Eden community house, PTS Glen Eden and the local Marae.

The PTS-SLSH community organisations engaged with diverse households very successfully in each area. This is a considerable achievement given delays to the start of the project, the new coordinators in each area and the need to develop new working relationships between the community organisations. Furthermore, the projects have not targeted the “lowest hanging fruit” but have deliberately attempted to engage lower income and diverse groups, particularly in Ranui and Glen Eden, who may not usually engage in sustainability projects (Greenaway, 2008).

All the project partners felt that there was not enough time available for designing and planning project. Delay with getting programme up and running was a source of stress for coordinators as well as the management teams of the community organizations. All felt it reduced the quality of programme design, in that there was not enough time to clarify programme objectives, review best-practice literature and get processes in place to ensure adequate communication and cooperation between providers.

In Phase Two there have been further developments and innovations in the project and these are outlined in the process evaluation report (see Greenaway and Gregory, 2009).

2.0 Evaluation Approach

The main purpose of the evaluation is to assist with the development of the SLSH programme, to test the community development assumptions and to gauge the achievements of the programme in relation to the intended outcomes. The evaluation of the PTS-SLSH programme has a strong utilisation focus. In practice this means involving the people who are likely to use the evaluation findings in the development and implementation of the evaluation; in this case Council staff and community organisations. This approach is based on the assumption that active engagement of intended users is more likely to lead to the implementation of the evaluation findings and recommendations because they are relevant and useful (Patton, 1997). This has been challenging due to the demands on the project workers' time. Despite time constraints the co-ordinators have been involved in action and reflection sessions and have provided feedback on evaluation components where possible. Council officers have been closely involved in the revision of the original evaluation plan. In addition, the evaluation draws upon Trotman's (2005) analysis of best practice approaches to evaluating local sustainable development projects.

As evident from the programme descriptions in the previous section PTS-SLSH is a complex programme comprising three projects located in different sites with distinct change pathways and programme components. These factors have made this a challenging programme to evaluate. In addition, at the outset there was uncertainty over the funding and duration of the programme and its evaluation. The evaluation began as a formative evaluation and at that stage it was unclear whether funding would be available for the process and outcome evaluation components. Consequently a flexible approach to the evaluation has been required, one that has been responsive to changes in the funding environment and to changes in the programme as it has evolved.

2.1 Aims

The broad aim of the evaluation has been to ensure that the SLSH programme is well designed, documented and implemented. Additional aims include:

- Assessing the effectiveness of SLSH in fostering household behavioural change to support decision making regarding any expansion of the programme.
- Assessing the various methods of programme implementation and community engagement in each of the three localities

The objectives for the formative and process evaluation listed below have been included to provide context but only the findings from the outcome evaluation will be presented and discussed in this report.

Formative

- To work with community organisations and the Council to ensure the three SLSH programmes are well planned and implemented.
- To ensure that adequate baseline data is collected via programme implementation to support future process and outcome evaluation.
- To provide evaluation feedback and support on a regular basis
- To explore the use of the PTS community development model in each of the three sites

Process

- To support the effective documentation of project implementation
- To examine how well activities have been implemented and to identify any areas of improvement.

Outcome

- To assess the extent to which identified short-term to medium term outcomes have been achieved
- To examine the effectiveness of community development approaches in engaging local households to achieve short term changes in household behaviours that contribute towards sustainability goals

2.2 Evaluation Design

A case study design is being used for the evaluation of the SLSH programme. A case study design is a detailed, in-depth description and analysis of a subject, event

or project drawing on multiple sources of evidence (DePoy and Gitlin, 1994). A case study design is appropriate because:

- The programme is attempting to address a complex issue
- The evaluators do not have access to comparable communities which could be used as controls
- There are insufficient resources to monitor or measure what is happening in other geographical areas
- The main focus is on understanding how and why (or why not) the various projects worked to influence behaviour in the local context rather than developing conclusions that can be generalised
- Multiple factors can influence change and case studies provide the depth of focus needed to identify and understand the multiplicity of influences and workings of projects in their local context
- Promising or effective strategies can be disseminated to other areas

2.3 Outcome Evaluation Purpose and Questions

The purpose of the outcome evaluation is to describe and document the intended and unintended short-term changes that have occurred as a result of the implementation of the SLSH programme. It also allows an assessment to be made about the success of the programme. The programme logic models (see Sections 1.1.1 and 1.1.2) depict the short and medium term outcomes that have been identified for each of the programme sites. Common outcomes for the SLSH programme include:

- Improving the energy efficiency of homes
- Reducing water use
- Reducing car usage
- Increasing use of alternative transport modes, that is walking cycling or use of public transport
- Reducing household waste
- Increasing connections between organisations and between residents.

Given the level of resources available for the evaluation and the timeframe the outcome evaluation focuses on the short to medium term outcomes.

The key outcome evaluation questions are:

- Has the Sustainable Living, Sustainable Households Programme achieved the intended short to medium term outcomes in Glen Eden, Ranui and Swanson?
- What are the unintended outcomes, both positive and negative, that have resulted from the SLSH programme? For example, what did participants identify as the benefits from their involvement in the programme?
- To what extent are other households being influenced by the Sustainable Living, Sustainable Households Programme?
- Is it the Sustainable Living, Sustainable Household programme worth continuing?⁹
- What improvements could be made to the SLSH programme?

The rubric below was developed by the evaluator and will be used to make an overall assessment of the programme. The assessment will be based on the information and data available. The rubric is based on expected performance of a community-based project that has been underway for less than two years. Different rubrics for describing project performance will be required as the programme develops.

Performance descriptors for outcome evaluation	
Excellent	Evidence that almost all of the key short-term outcomes and some medium term outcomes have been achieved. Evidence of increased understanding of sustainability issues. Evidence of increased community capacity and connection. No seriously negative unintended outcomes.
Very Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues by participants. Evidence of increased community capacity and/or connection. No seriously negative unintended outcomes. Any concerns are managed effectively.
Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues. No seriously negative unintended outcomes. Any concerns are managed effectively.
Poor	Only one or two outcomes have been achieved and/or there are serious negative unintended outcomes.
Insufficient evidence	Evidence unavailable or of insufficient quality to determine performance.

⁹ This question will be addressed in the final evaluation report.

2.4 Evaluation Methods

A mixed method approach is being used for the evaluation including focus groups; a baseline and follow up survey; in depth interviews with participants and document review. The use of qualitative and quantitative methods allows the SLSH programme to be viewed through different lenses in order to develop detailed descriptions of the way in which the short-term outcomes have (or have not) been achieved (Greene et al., 2001). The use of qualitative methods such as the focus groups and participant interviews meant that the evaluators could gather detailed information on project engagement and implementation for the process evaluation as well as obtain feedback to inform the outcome evaluation.

Focus Group— PTS Sustainable Ranui-Swanson

An action/reflection session was conducted with members of the Sustainable Ranui-Swanson vision group in June 2009. The five participants discussed the extent to which the short and medium term outcomes as depicted in the logic models for PTS Sustainable Ranui and Swanson had been achieved.

Focus Group—Sustainable Homes Programme Glen Eden

Another action/reflection session was held with three members of the Sustainable Homes Team in July 2009. At this stage EcoMatters had only delivered part of their intended programme and there had been almost no follow up with households involved in Phase One or Phase Two of the programme. As a result the discussion focused mainly on the lessons EcoMatters have learnt through their efforts to implement the programme and the new directions they hope to take in the future.

Baseline and follow up survey

Phase One participants were asked if they would be willing to be contacted by an external evaluator. A written baseline survey was completed by 117 participants in 2008. Participants were re-interviewed approximately 12 months later by a Computer Assisted Telephone Interviewer (CATI). In the written baseline survey participants were asked questions about their waste disposal practices and their car and public transport use. They were also asked to provide general demographic details about their households including the number of people that usually stayed there. In the follow up telephone interview participants were asked the same questions about waste and transport use plus additional questions about the installation of water and energy-saving devices. Participants were also asked to report any changes in the

way their household used water and energy¹⁰. The follow up survey included questions about other possible impacts of the project such as increased connections with neighbours. Participants were asked open-ended questions about whether they had experienced any benefits from the project and/or had experienced any negative outcomes from their involvement.

Water Use Data

The households who agreed to take part in the evaluation also gave permission for their water use data to be analysed. This covered the twelve month period before they became involved in PTS-SLSH and the twelve months after they became involved. Water use data was compared before and after households became involved in the PTS-SLSH projects. For each house in the project (Glen Eden, Ranui and Swanson combined), four sets of water metre measurements were collected, each recording being approximately six months apart. The first two recordings were summed to estimate water consumption in the twelve months prior to the project. The latter two recordings were summed to estimate water consumption in the twelve months subsequent to the project. We divided water consumption subsequent to the project by the number of household respondents reported in the follow-up survey. Finally we converted the measurements into litres of water per day.

Document Analysis

The project reports from each provider have been reviewed along with the meeting minutes from the Sustainable Ranui-Swanson vision group. Other documentation including newsletters, flyers and meeting minutes have been reviewed to gather factual information about each project. Data taken from household commitment forms completed by Phase One participants was also analysed.

¹⁰ The households who agreed to take part in the evaluation also gave permission for their electricity data to be collected. The intention was to access past readings from power companies and to collect readings every few months. However accessing past readings from companies proved too difficult and the time required to collect this data was considerable (coupled with issues of meters access). It was decided to not pursue this.

3.0 Results

Previous evaluation findings indicated that at least some participants had begun to make changes in the ways they used water, energy and disposed of household waste (include short summary of other findings). There was also evidence of growing collaboration between the community organisations that had been contracted to deliver the project.

PTS-SLSH has led to the development of collaborative relationships between community organisations that had not previously worked together; one an environmental agency and the other focused on community development. This has led to the sharing of knowledge and expertise. Some key informants were hopeful that the information sharing and mutual capacity building will increase as the project continues (Greenaway, 2008).

Phase one participants reported an increased interest in gardening and composting and numerous other changes in households. Some said that they had met new neighbours and were feeling more connected to their community. In the following section the results from the baseline and follow up survey will be outlined as well as the analysis of water use data from participating households.

By the end of June 2008, 74 households in Ranui, 41 households in Swanson and 81 households in Glen Eden have been referred for a home check (total 195 Phase One households). One hundred and seventeen participants completed the baseline survey (overall response rate of 60%) and agreed that their water use data could be used for the evaluation. Ninety-two people completed the second interview in 2009 (follow up response rate of 79%). These included 51 in Glen Eden; 23 in Ranui and 18 in Swanson. Analysis is based on data from households who completed both the baseline and follow-up surveys.

Question One: Has the Sustainable Living, Sustainable Households Programme achieved the intended short to medium term outcomes in Glen Eden, Ranui and Swanson?

In the early stages of the project, community organisations, co-ordinators and Council officers were involved in the development of logic models that depicted the short, medium and long term outcomes that each project was hoping to achieve (see Sections 1.1.1. and 1.1.2). It was not feasible or practical for the evaluation to gather data on each outcome. Appendix Two provides an overview of which outcomes have been measured to date and the sources of data.

In this section evidence of the extent to which the short and/or medium term outcomes have or have not been achieved is documented. For Question One the results for water, energy, waste and transport are presented for each area followed by an analysis of the data for all areas combined. We tested for differences between Glen Eden and Ranui/Swanson but these were not significant except for outcomes relating to community connectedness. The results for community outcomes are presented separately. A summary of the data analysis is included below and relevant tables and graphs are included in Appendix One.

3.1 Sustainable Homes Programme in Glen Eden

3.1.1 Water use

At the beginning of the project the following short and medium term outcomes in relation to water use were identified by the project team in Glen Eden.

- Houses have water saving features (Short-term)
- Households change water use practices (Short-term)
- Less water used (domestic) (medium term)

There is evidence that households have had additional water saving features installed as a result of being involved in the project.¹¹ Eighty percent of participants either strongly agreed or somewhat agreed that their household was taking action to reduce water use as a result of being involved in the Sustainable Home Programme. Around 70% of Glen Eden respondents reported that they are checking for water leaks and/or taking shorter showers. However twenty-nine percent (12) of the Glen Eden participants reported that they had removed a water saving device; possible reasons for removing these are discussed in Section 3.4.1.

3.1.2 Energy Use

The short term outcomes for energy use in Glen Eden were:

- Households change their energy use practices
- Increased no. of insulated houses

Ninety-four percent of the sample in Glen Eden either strongly agreed or somewhat agreed that as a result of their involvement in the project their household is taking action to reduce energy use. Over eighty-five percent reported they turn off

¹¹ Participants were asked about each device that had been installed in their household and as a result we do not have a total of the number of households that had a device installed.

appliances instead of leaving them on stand-by and over ninety percent report that they use a washing line instead of a dryer and switch off lights in rooms they are not using.

There is no data available on the number of houses referred for an insulation retrofit in Phase One. However, survey respondents reported the installation of energy saving devices with energy saving light bulbs being the most common (26 reported these were installed as part of the project). Five people reported that ceiling insulation had been installed and four had under floor insulation.

3.1.3 Waste management

The Sustainable Homes programme team identified the following short term outcomes in relation to waste management at the beginning of the project.

- Households commit to take action re waste (and transport)
- Less waste is created

There is some evidence of a reduction in the amount of rubbish being sent to the landfill in Glen Eden. The mean number of rubbish bags filled was 0.92 in the baseline survey and 0.85 in the follow-up survey. The mean number of wheelie bins of recyclable material produced was 0.31 in the baseline survey and 0.36 in the follow-up survey.

There are also indications of an increase in recycling, composting and worm farming. In the baseline survey 94% of respondents reported recycling paper and cardboard compared to 100% in the follow-up survey. Forty eight percent of respondents reported disposing of food using a worm farm or composting compared to 61% in the follow-up survey.

Eighty percent of respondents either strongly agreed or somewhat agreed that as a result of being involved in the project my household is taking action to reduce the amount of rubbish or waste we produce.

In the baseline survey 57% of respondents reported growing some of their own vegetables or fruit compared to 69% in the follow-up survey.

3.1.4 Transport

- Households commit to taking action re waste and transport

- Reduced car use/increased use of active transport

There doesn't appear to be any change in the number of cars in each household or on the amount of money households are spending on petrol. The mean number of household cars was 1.51 in both the baseline and follow-up surveys. In the baseline survey households spent a mean of \$64 (standard deviation = \$47) per week on petrol. In the follow-up survey households spent a mean of \$49 (standard deviation = \$63) per week on petrol.

Descriptive analysis suggests that there is some increase in the frequency of walking, cycling and skateboarding in Glen Eden but no change in the frequency of car or bus use.

3.2 Sustainable Ranui

3.2.1 Water use

In Ranui the following outcomes were identified:

- Houses have water saving features
- Households change water use practices
- Reduced water use

In Ranui, participants reported that they were taking actions to reduce their water use with over 80% reporting that they check for water leaks and 90% taking shorter showers. The data shows that the number of water saving devices in sample households has increased as a result of the programme. Sixteen percent (3) of the participants in Ranui reported that they had removed a water saving device. Seventy-eight percent of Ranui participants agreed that their households were talking action to reduce water use as a result of Sustainable Ranui.

3.2.2 Energy use

- Households change their energy use practices
- Increased no. of insulated houses

Over 80% of survey respondents either strongly agreed or somewhat agreed that as a result of their participation in a PTS-SLSH project their household was taking action to reduce energy use. Seven participants reported that ceiling and under floor insulation had been installed as part of the project. Energy efficient light bulbs were

the most common energy saving device installed (13). All of the respondents reported that they use a washing line instead of a drier and over 80% turn off appliances and over 90% are switching off lights in rooms they are not using.

3.2.3 Waste management

- Households increase composting, reuse and recycling
- Reduced waste sent to landfill

The mean number of rubbish bags filled was 0.79 in the baseline survey and 1.13 in the follow-up survey indicating that more rubbish bags are being used. The mean number of wheelie bins of recyclable material produced was 0.39 in the baseline survey and 0.45 in the follow-up survey. In the baseline survey 86% of respondents reported recycling paper and cardboard compared to 91% in the follow-up survey. In the baseline survey 55% of respondents reported growing some of their own vegetables or fruit compared to 61% in the follow-up survey. In the baseline survey 43% of respondents reported disposing of food using a worm farm or composting compared to 57% in the follow-up survey.

3.2.4 Transport

Outcomes Ranui

- Increased walking in Ranui
- Increased use of alternative transport (public transport systems, bike use and walking)

In the baseline survey households spent a mean of \$50 (standard deviation = \$45) per week on petrol. In the follow-up survey households spent a mean of \$55 (standard deviation = \$32) per week on petrol. Descriptive analysis suggests that there was no change in the frequency of car use; carpooling or bus or train use. A few people may have increased the frequency of walking.

3.3 Sustainable Swanson

3.3.1 Water use in Swanson

In Swanson the following outcomes were identified:

- Houses have water saving features (Short-term)
- Households change water use practices (Short-term)

- Reduced household use of water and energy
- Reduced water consumption

Many of the Swanson participants reported that their households are taking action to reduce water use with almost 90% reporting that they check for water leaks and take short showers. Seventy-eight percent agreed that their households were taking action to reduce water use as a result of Sustainable Swanson. None of the Swanson participants reported that they had removed a water saving device.

3.3.2 Energy use

- Households change their energy use practices
- Increased no. of insulated houses

Seventy-two percent of participants either strongly agreed or agreed that as a result of their involvement in Sustainable Swanson their household was taking action to reduce energy use. All of the participants reported that they were turning lights off in rooms they were not using and over 70% were turning off appliances. Four people reported that they had ceiling insulation installed as part of the project.

3.3.3 Waste management

- Increased confidence and knowledge about composting methods
- More composting and use of worm farms
- Increased recycling and reuse

The mean number of rubbish bags filled was 0.93 in the baseline survey and 0.52 in the follow-up survey. The mean number of wheelie bins of recyclable material produced was 0.36 in the baseline survey and 0.19 in the follow-up survey.

In the baseline survey 100% of respondents reported recycling paper and cardboard compared to 94% in the follow-up survey. In the baseline survey 67% of respondents reported growing some of their own vegetables or fruit compared to 72% in the follow-up survey. Fifty percent of respondents reported disposing of food using a worm farm or composting in the baseline survey compared to 72% in the follow-up survey.

3.3.4 Transport

Outcomes Swanson

- Increased use of public transport systems, bike use and walking
- Decreased car use
- Community feedback to authorities about public transport needs

In the baseline survey households spent a mean of \$68 (standard deviation = \$57) per week on petrol. In the follow-up survey households spent a mean of \$43 (standard deviation = \$30) per week on petrol. The mean number of household cars was 2.17 in the baseline survey and 1.61 in the follow-up survey. There appears to be no change in the frequency of car use, bus or train use or walking in Swanson.

3.4 All areas combined

3.4.1 Water Use

This section includes the results for all participating households. To obtain estimates of water consumption per person we divided water consumption prior to the project by the number of household respondents reported in the baseline survey. We divided water consumption subsequent to the project by the number of household respondents reported in the follow-up survey. Finally we converted the measurements into litres of water per day.

Prior to the project for all areas combined the household mean water use was 203 litres per person per day (standard deviation = 195). Subsequent to the project the household mean water use was 159 litres per person per day (standard deviation = 144). Water use subsequent to the project was **significantly lower** than water use prior to the project ($p=0.03$).

The median no. of litres of water per person per day used by sample households in the 12 months before project was 146 litres. In the next 12 month period the median was 122 litres. This suggests more than half the households in the sample are now meeting the target levels of water use set by Waitakere City Council (125 litres per person per day).

We also investigated whether there was evidence of a relationship between the installation fitting of water saving devices and water use. Eighty-eight percent of

respondents had had one or more water saving devices fitted in their house since the beginning of 2008. Thirty-nine percent of the sample had had one or more water saving devices fitted as part of the project.

Using paired t-tests, we found no evidence ($p=0.66$) of a difference in water use subsequent to the project for households that installed one or more water saving devices. There was significant evidence ($p=0.01$) that households that did not install any water saving devices as part of the project reduced water use subsequent to the project.

We also looked at whether there was a relationship between strongly agreeing with the statement “My household is taking action to reduce our water use” on water use. Forty-six percent of respondents strongly agreed with the statement “My household is taking action to reduce our water use”.

Using paired t-tests, we found weak evidence of a reduction in water use subsequent to the project for respondents who had strongly agreed with the statement ($p=0.07$) but not for respondents who had not strongly agreed ($p=0.15$).

As part of the follow up survey participants were asked about other actions they were taking to reduce water use. These most commonly mentioned actions were:

- Reusing household grey water (from baths, showers, washing machines, hot water bottles and de-humidifiers) (20)
- Only washing a full load of clothes (9)
- Turning off taps while brushing teeth (6)
- Using rainwater for house or garden (6)
- Not washing the car at all or less often (6)
- Washing a big lot of dishes at a time (5)
- Using eco-cycles on appliances (3)
- Limiting toilet flushing (3)

Other actions included: not using the dishwasher or only using it for a full load; bathing babies together; washing up in a smaller basin; taking showers instead of baths; turning taps off properly; educating a home stay student; using mulch on the garden; not watering garden and washing blankets and sheets at the Laundromat.

In the qualitative interviews with Phase One participants in 2008 a few people mentioned that they had removed water-saving devices because they had experienced problems with them. In the follow up interview all of the participants were asked whether they had removed a water saving device and overall twenty-nine percent of respondents reported that they had done so. They were not asked which device they had removed.

Participants gave the following reasons for the removing water saving devices:

- Caused toilet to malfunction (6)
- Renovations or replacing faulty taps/showers (3)
- Toilet did not flush for long enough (2)
- Reduced water flow (1)
- Erratic temperature (1)
- Problems with pressure and plumber did not like device (1)
- It broke and came off and had to get a plumber in (1)

The project team at EcoMatters have calculated the potential water and cost savings for all the devices installed into Phase One households. These figures include information from all the participants, not just the ones that agreed to take part in the evaluation.

Table 2: Water Efficient Fixtures Installed*

Suburb	Number of Aerators Installed	Number of Low Flow Showerheads Installed	Number of Flow Restrictors Installed	Number of Gizmos Installed	Total
Glen Eden	44	24	12	33	113
Ranui	18	25	5	27	75
Swanson	30	9	11	13	63
Total	92	58	28	73	251

Table 3: Shower Savings from Flow Restrictors and Low Flow Showerheads

Suburb	Water Savings (litres/year)	Energy Savings (kWh/year)	Projected Electricity Cost Savings (\$/year)	Projected Water Cost Savings (\$/year)	CO ₂ Savings (kg/year)
Glen Eden	767000	28609.1	5721.82	1150.5	6580.093
Ranui	1160000	43268	8653.6	1740	9951.64
Swanson	293000	10928.9	2185.78	439.5	2513.647
Total	2220000	82806	\$16,561.20	\$3,330.00	19045.38

Assumptions:

- a. 42°C shower hot water delivery temperature.

- b. 10°C cold water temperature
- c. 4200 J/kg/°C specific heat capacity of water
- d. \$0.20/kWh electricity price per unit
- e. \$0.0015/litre water price per unit
- f. 0.0373kWh energy per litre
- g. 0.23kg/KWh CO2 emissions
- h. This should be considered a conservative estimate of heating cost. In practice only instant systems heat the water to shower temperature. Most hot water systems are storage systems, where water is heated to at least 60°C and then mixed with cold to achieve the desired shower temperature. This introduces losses in the system, mostly cylinder standing loss (potentially 30% of overall hot water energy), plus some loss in the pipes (high for an old pole house in winter with a long run of copper pipe, low for a modern townhouse in summer with a short run of plastic pipe).

Table 4: Savings from Gizmos (Flush Limiters) Installed*

Suburb	Water Savings (litres/year)	Projected Water Cost Savings (\$/year)
Glen Eden	316000	474
Ranui	475000	712.5
Swanson	90000	135
Total	881000	1321.5

Assumptions:

- a. \$0.0015/litre water price per unit
- 20% reduction in flush size from Gizmo installation

3.4.2 Energy use

Survey respondents were also asked if there was anything that made it difficult for them to reduce their energy use. If they answered yes they were asked to describe the barrier or difficulty and these included.

- Household composition (small children, family members with health problems, or elderly) (9)
- Costs of insulation or solar power (9)
- A cold, large or un-insulated house (6)
- Cold weather (4)

Other barriers included a lack of firewood and gas heating; bad habits; hard to reach switches; time and having a spa pool.

The EcoMatters team also calculated the potential energy and cost savings from the installation of energy saving lamps into all participating households in Ranui, Swanson and Glen Eden:

Table 1: Energy Saving Lamps Installed by 30 June 08

Suburb	# Checks	# CFLs Installed	Energy Savings (kWh/year)	CO ₂ Savings (kg/year)	Projected \$ Savings (annual)
Glen Eden	81	324	37746	8681.58	7549.2
Ranui	49	196	22834	5251.82	4566.8
Swanson	35	140	16310	3751.3	3262
Total	165	660	76890	17684.7	\$15,378.00

Assumptions:

- 0.23kg of CO₂ per kWh ([CarbonZero Carbon Calculator](#))
- 466kWh saved per year from replacing main lighting with 4 CFLs ([Genesis Energy Efficiency Brochure Calculations](#))
- \$.20/kWh electricity price per unit

3.4.3 Waste practices

To determine if the average number of rubbish bags filled per household per week had changed between baseline and follow-up we ran a paired t-test combining all areas. Respondents who stated their household did not use rubbish bags in the follow-up survey were excluded from the analysis (see Table 3.1). The response “Less than half” was coded as 0.25 (a quarter) and “Three or more” was coded as 3.5.

Table 3.1: Rubbish bags filled by household in a week

Rubbish bags	Baseline %	Follow-up %
Less than half	40	38
One	39	36
One and a half	12	8
Two	4	7
Three or more	3	2
Do not use rubbish bags**	N/A	10

* Percentages may not add up to 100% due to rounding

** The option “Do not use rubbish bags” was not used in the baseline survey

There was no evidence ($p=0.70$) of a difference in mean rubbish bags filled per household per week between the baseline (0.89) and follow-up (0.86) surveys.

To determine if the average amount of recyclable material, measured in wheelie bins per fortnight, had changed we ran a paired t-test. The response “Less than a quarter” was coded as 0.125 wheelie bins (an eighth) and “More than one” was coded as 1.25.

Table 3.2: Recyclable material produced by household in a week

Wheelie bins	Baseline %	Follow-up %
Less than a quarter	36	41
About a quarter	30	24
About a half	23	21
About three quarters	3	3
One	8	9
More than one	0	1

* Percentages may not add up to 100% due to rounding

There was no evidence ($p=0.67$) of a difference in mean wheelie bins of recyclable material produced in the baseline (0.34) and follow-up (0.35) surveys.

We tested for a change in the percentage of respondents reporting they recycled paper and cardboard using McNemar's test. There was no evidence ($p=0.45$) of a difference between the baseline (93%) and follow-up (97%) surveys.

We tested for a change in frequency of not using plastic shopping bags by running a Wilcoxon signed rank sum test (nonparametric paired samples t-test).

Table 3.3: Frequency use something other than plastic bags when going shopping

Frequency	Baseline %	Follow-up %
Almost always	40	53
Most of the time	18	22
About half the time	11	7
Sometimes	8	9
Hardly ever/never	22	10

* Percentages may not add up to 100% due to rounding

We found evidence ($p=0.01$) that respondents more frequently used something other than plastic bags in the follow-up survey than the baseline survey.

We tested for a change in the percentage of respondents reporting they grew some of their own vegetables or fruit using McNemar's test. There was no evidence ($p=0.14$) of a difference between the baseline (59%) and follow-up (67%) surveys.

We tested for a change in the percentage of respondents reporting they disposed of food waste using either or both a worm farm and composting using McNemar's test. Forty-seven percent of baseline respondents reported disposing of food waste using at least one of these two methods compared to 62% of follow-up respondents. The

difference between the baseline and follow-up surveys approached statistical significance ($p=0.07$).

Survey respondents were asked whether there is anything that makes it difficult for their household to reduce waste. The following factors were identified:

- Excess packaging and fliers (5)
- Lack of outdoor space or location (4)
- Lack of time and/or family demands (8)
- Costs (3)
- Lack of equipment (3)

Other barriers included a lack of knowledge about composting and worm farming; old age and no support; nappies; laziness and the weather.

3.4.5 Transport

To determine if the average number of household cars had changed we ran a paired t-test. The response “Six or more” was coded as 6. There was no evidence ($p=0.69$) of a difference in mean number of household cars in the baseline (1.62) and follow-up (1.57) surveys.

Table 3.4: Number of household cars

Household cars	Baseline %	Follow-up %
None	5	4
One	42	48
Two	41	39
Three	9	7
Four	1	1
Five	0	0
Six or more	1	1

* Percentages may not add up to 100% due to rounding

Coding “Yes” as 2, “Sometimes” as 1 and “no” as 0, we tested for a change in car pooling by running a Wilcoxon signed rank sum test (nonparametric paired samples t-test). There was no evidence ($p=0.50$) that respondents car pooling behaviour changed.

Table 3.5: Share a car (car pool) to get to work, school or regular activities

Car pool	Baseline %	Follow-up %
Yes	17	31
Sometimes	36	15
No	47	55

* Percentages may not add up to 100% due to rounding

In the baseline survey households spent a mean of \$61 (standard deviation = \$48) per week on petrol. In the follow-up survey households spent a mean of \$49 (standard deviation = \$51) per week on petrol. The difference between the two surveys was tested using a paired t-test and was not statistically significant ($p=0.19$).

Table 3.6: Frequency of car use

Frequency	Baseline %**	Follow-up %***
Almost all trips	59	43
Most trips	22	33
About half of the trips	7	13
Some trips	5	6
A few trips	6	6
Never	2	0

* Percentages may not add up to 100% due to rounding

** Question asked about frequency of car or motorcycle use

*** Question asked about frequency of car or van use

We tested for a change in frequency of car use by running a Wilcoxon signed rank sum test (nonparametric paired samples t-test). We found no evidence ($p=0.37$) of a difference in frequency of car use between the two surveys. A separate question asking about number of trips by motorcycle found only 7 of the 92 respondents in the follow-up survey made any trips by motorcycle.

Table 3.7: Frequency of bus or train use

Frequency	Baseline %	Follow-up %
Almost all trips	2	9
Most trips	2	4
About half of the trips	10	8
Some trips	14	13
A few trips	43	41
Never	29	25

* Percentages may not add up to 100% due to rounding

Change in frequency of car use was tested by running a Wilcoxon signed rank sum test (nonparametric paired samples t-test). We found no evidence ($p=0.27$) of a difference in frequency of bus or train use between the two surveys.

A change in the percentage of respondents reporting there was something making it difficult for their household to use public transport in their local area was tested using McNemar's test. There was no evidence ($p=0.41$) of a difference between the baseline (40%) and follow-up (47%) surveys.

Table 3.8: Frequency of walking, cycling or skateboarding

Frequency	Baseline %	Follow-up %
Almost all trips	6	11
Most trips	3	9
About half of the trips	8	9
Some trips	19	29
A few trips	55	28
Never	9	14

* Percentages may not add up to 100% due to rounding

We tested for a change in frequency of walking, cycling or skateboarding by running a Wilcoxon signed rank sum test (nonparametric paired samples t-test). We found evidence ($p=0.02$) of greater frequency of walking, cycling or skateboarding in the follow-up survey than the baseline survey.

Change in the percentage of respondents reporting there was something making it difficult for their household to use walk, cycle or skateboard in their local area was tested using McNemar's test. There was no evidence ($p=1$) of a difference between the baseline (38%) and follow-up (37%) surveys.

In the follow up survey respondents were asked what would make it easier for them to walk, cycle or skateboard in their local area. Most people reported barriers rather than things that would make active transport easier. These included:

- Distance needed to travel/semi-rural location (8)
- Small children (4)
- Poor weather (4)
- Old age or poor health (8)
- Poor footpaths/hills/gravel roads (5)

One person reported that they were too lazy.

Participants were also asked about what would make it easier for them to use public transport and again most people reported barriers.

- Frequency of the bus and train services (10)
- Cost (5)
- Damaged bus stops or no shelter (3)
- Unreliability of services (6)
- Distance to bus or train station (14)
- Old age or poor health (5)

- Time (1)
- No service to destination (7)
- Small children (3)

One person said they didn't know where to catch a bus from or where they go and another person saw a lack of footpaths as a barrier.

3.5 Building Community Capacity and Connection

A central premise of the community development model (that each community organisation was encouraged to utilise) was the need to foster and develop community capacity to engage with sustainability issues and to support new behaviours in households. The programme logic models for each area included specific outcomes relating to building community capacity and connection. In Glen Eden these included:

- Increased participation in shared learning opportunities
- Increased support and resources for households to make changes
- Increased neighbourhood connection
- Stronger sense of community and identity

In Ranui:

- Increase in selected community groups' awareness of sustainability issues
- Community-wide issues identified
- Increased in selected groups engagement with sustainability issues
- Increased connectivity to the community
- Increased linkages between community networks and organisations

In Swanson:

- Greater understanding of living sustainably
- Increased support and resources for households to make changes
- Community-wide issues identified
- Improved relationships between groups in Swanson

3.5.1 Community capacity and connection all households

Findings from the formative and process evaluation of Phase One indicated that in Ranui and Swanson the projects were not only focusing on encouraging reductions in

water, energy, waste and car use but were doing it in a way that was building on the strengths and resources of the local community (Greenaway, 2008).

We wanted to know whether respondents in Glen Eden were affected differently from respondents in Ranui or Swanson as a result of being involved in the project. To determine this we used Wilcoxon-Mann-Whitney tests (nonparametric independent samples t-tests) to analyse level of agreement with statements relating to the project involvement.

Table 3.9: My household knows more about how to live more sustainably

Frequency	Glen Eden %	Ranui and Swanson %
Strongly agree	55	56
Somewhat agree	27	29
Neither agree nor disagree	12	7
Somewhat disagree	4	7
Strongly disagree	2	0

* Percentages may not add up to 100% due to rounding

We found no evidence ($p=0.85$) of differing levels of agreement between Glen Eden and Ranui/Swanson.

Table 3.10: I know people better in the area where I live

Frequency	Glen Eden %	Ranui and Swanson %
Strongly agree	8	29
Somewhat agree	6	20
Neither agree nor disagree	27	7
Somewhat disagree	18	27
Strongly disagree	41	17

* Percentages may not add up to 100% due to rounding

We found significant evidence ($p=0.003$) of Ranui/Swanson respondents having greater levels of agreement with the statement “I know people better in the area where I live” than Glen Eden respondents.

Table 3.11: I feel more connected to my community

Frequency	Glen Eden %	Ranui and Swanson %
Strongly agree	16	35
Somewhat agree	10	28
Neither agree nor disagree	29	15
Somewhat disagree	16	13
Strongly disagree	29	10

* Percentages may not add up to 100% due to rounding

We found significant evidence ($p=0.002$) of Ranui/Swanson respondents having greater levels of agreement with the statement “I feel more connected to my community” than Glen Eden respondents.

Table 3.12: I know where to get support or resources about living more sustainably

Frequency	Glen Eden %	Ranui and Swanson %
Strongly agree	37	56
Somewhat agree	35	28
Neither agree nor disagree	10	3
Somewhat disagree	8	5
Strongly disagree	10	8

* Percentages may not add up to 100% due to rounding

A greater percentage of Ranui/Swanson respondents, than Glen Eden respondents, strongly agreed with the statement “I know where to get support or resources about living more sustainably” (56% vs. 37%). However overall statement agreement did not significantly differ between the areas ($p=0.07$).

Table 3.13: I've connected with other people who are interested in living more sustainably

Frequency	Glen Eden %	Ranui and Swanson %
Strongly agree	8	33
Somewhat agree	18	25
Neither agree nor disagree	16	13
Somewhat disagree	27	20
Strongly disagree	31	10

* Percentages may not add up to 100% due to rounding

We found significant evidence ($p=0.0008$) of Ranui/Swanson respondents having greater levels of agreement with the statement “I've connected with other people who are interested in living more sustainably” than Glen Eden respondents.

Table 3.14: I've got a greater interest in gardening

Frequency	Glen Eden %	Ranui and Swanson %
Strongly agree	18	26
Somewhat agree	22	31
Neither agree nor disagree	20	15
Somewhat disagree	8	13
Strongly disagree	33	15

* Percentages may not add up to 100% due to rounding

A greater percentage of Ranui/Swanson respondents, than Glen Eden respondents, agreed or strongly agreed with the statement “I've got a greater interest in gardening” (56% vs. 39%). However overall statement agreement did not significantly differ between the areas ($p=0.08$).

Question Two: What are the unintended outcomes, both positive and negative, that have resulted from the SLSH programme? For example, what did participants identify as the benefits from their involvement in the programme?

Seventy participants reported that they or their household had benefitted in some way from being involved in the project. Many reported an increased awareness of the environment or increased knowledge and/or access to information (35).

“Keeps you aware of the environment and involved with helping in community.”

“It has given you an insight into what you could do and there is a lot more that we could do, it just a case of putting it all into action, and breaking habits.”

“Husband has more assertiveness to action reduction of water, waste and energy. Whole household has more awareness about their environment.”

“Helped to identify areas where we were losing energy in house, advised the measures where we could improve savings on energy and water and being more environmentally aware of households impact on environment.”

Other benefits included having a warmer or healthier house (9); saving money (11); meeting other people and/or awareness of support available (8); installation of devices such as showerheads or light bulbs (9); lower power bills (5); less water use (4); reinforcement of pro-environment activities (3); composting (2) and less waste (2). One person also noted that it *“warms one’s heart that the council are involved”*.

Participants were also asked if they had had any negative experiences from the project. Seven people reported that they had and these experiences included: not qualifying for insulation; problems with a hot water cylinder; inconvenience after turning the TV off at the wall; an exploding shower hose after the water restrictor was installed incorrectly; empty promises about free items; problems with the toilet and light bulbs that took too long to brighten up. None of these experiences appear to have had serious consequences.

In both the baseline and follow up survey participants were asked whether they agreed or disagreed with statements about the environment.

Table 3.15: Agreement with statement “The environment is a high priority for our household”

Frequency	Baseline %	Follow-up %
Strongly agree	45	67
Somewhat agree	38	25
Neither agree nor disagree	7	4
Somewhat disagree	5	1
Strongly disagree	5	2

* Percentages may not add up to 100% due to rounding

We tested for a change in agreement with the statement “The environment is a high priority for our household” by running a Wilcoxon signed rank sum test (non-parametric t-test). We found significant evidence ($p=0.02$) of increased levels of agreement in the follow-up survey compared to the baseline survey.

Table 3.16: Agreement with statement “I feel that my household’s actions can make a positive difference to the environment”

Frequency	Baseline %	Follow-up %
Strongly agree	47	59
Somewhat agree	44	31
Neither agree nor disagree	2	5
Somewhat disagree	1	3
Strongly disagree	6	1

* Percentages may not add up to 100% due to rounding

No significant difference was found in levels of agreement with the statement “I feel that my household’s actions can make a positive difference to the environment” in the before and after surveys using a Wilcoxon signed rank sum test (non-parametric t-test) ($p=0.35$).

Question Three: To what extent are other households being influenced by the Sustainable Living, Sustainable Households Programme?

Almost all of the Phase One participants who were interviewed for the process evaluation reported that they had shared information and knowledge about programme with family and friends (Greenaway and Gregory, 2009). Some participants had also encouraged other households to apply for insulation grants.

As part of the follow up survey participants were asked if they had talked to others about what they had learnt as a result of being involved in the project. Fifty-three

percent of Glen Eden and fifty-eight percent of Ranui and Swanson participants either somewhat agreed or strongly agreed with that statement.

Table 3.17: I've talked to lots of other people about what I have learnt

Frequency	Glen Eden %	Ranui and Swanson %
Strongly agree	18	30
Somewhat agree	35	28
Neither agree nor disagree	16	10
Somewhat disagree	14	13
Strongly disagree	18	20

* Percentages may not add up to 100% due to rounding

There was no evidence ($p=0.51$) of differing levels of agreement between Glen Eden and Ranui/Swanson about talking to others about the project.

These findings do suggest that the projects in Glen Eden, Ranui and Swanson are influencing other households indirectly. There is evidence to suggest that programme activities are making a contribution to the overall vision of “*Sustainable households driven by local communities who influence others to create a sustainable catchment*” (Waitakere City Council, 2007a). An assessment of the degree to which other households are changing behaviour is beyond the capacity of the current evaluation.

Question Four: Is it the Sustainable Living, Sustainable Household programme worth continuing?

PTS-SLSH is worth continuing because there is evidence that the project has contributed to reduced water use in participating households even though Phase One of the programme was still in development. Phase Two of PTS-SLSH is building on the lessons learnt through Phase One and is even more likely to have positive impacts for those households who are participating. The Phase Two process evaluation indicates that there is growing momentum around sustainability issues, especially in Ranui and Swanson, as a result of the investment in local co-ordinators (see Greenaway and Gregory, 2009) and the programme is receiving positive feedback from those participating.

The project teams from EcoMatters and from Sustainable Ranui-Swanson (rebranded in Phase Two) have built effective working relationships and have developed new engagement methods that they have implemented together. The

investment in the community development model to engage and interact with households combined with a personalised home check has been well received by participants in Ranui and Swanson. EcoMatters are incorporating elements of the approaches used in Ranui and Swanson into the way they deliver their Sustainable Home Programme across Waitakere.

Question Five: What improvements could be made to the SLSH programme?

This is the outcome evaluation for Phase One participants involved in the programme in the first half of 2008. Since this time there have been two evaluation reports and ongoing opportunities for the project teams in each area to refine and develop their programmes. As a result a number of improvements have been made to the projects in each area. Further detail on the changes incorporated into Phase Two can be found in (Greenaway and Gregory, 2009).

In the follow up survey Phase One participants suggested ways the projects could be improved. Four people were concerned that the projects had not delivered all that was promised with one person commenting that:

"The letter got out said that they would come out and they did and assess everything, which is great, it said that we would get a compost bin for the bench however it was eventually delivered, it also said that we would get some recyclable bags for shopping and we never got them. I think that if they say they are going to do something they should do it and deliver...(Phase One Participant).

Five people recommended involving the wider community or broadening the project to other areas. Other improvements included: more follow up visits or contact (3); better or more information for the people involved (3); better marketing or advertising (3); more financial support as some actions are too expensive (4); involving more community leaders; help with heating in winter; involve younger households and discounts for composting workshops. One person thought the project was all talk and hot air. Another believed that the Council should be taking an alternative approach:

"would like to see council improve support and supply lower rates more than dictating other methods (Phase One Participant)."

3.6 Discussion

3.6.1 Limitations

The evaluation of community based projects, especially those in the early stages of development, is typically a challenging task so it is important to acknowledge that

there are some limitations with the evaluation approach used for PTS-SLSH. Firstly, a proportion of Phase One participants chose not to take part in the evaluation. Therefore we do not necessarily have a representative sample of project participants. For instance we may have surveyed those who are particularly committed to being involved in the programme. Secondly, the number of survey respondents in the baseline and follow up survey is small (n=92) which means it may be difficult to detect shifts in behaviour change. Thirdly, the baseline survey was developed rapidly and it was believed that data collected through the home check could be used for evaluation purposes but this, in fact, was not possible. The baseline and follow up surveys were also delivered in different ways (written vs. telephone) and this may have influenced participants' responses in some way.

No data about water and energy saving *practices* was collected in the baseline survey with Phase One participants. It was also too expensive and time consuming to collect objective data households' energy use. Data on each households water use was available as it is collected by a business unit within Council. Although baseline measures of water and energy saving *practices* were not available participants were asked to self report whether water saving devices had been installed as part of the project and whether or not they were engaging in water or energy saving practices as a result of their participation. Self-reported data may be biased by participants' who wish to give socially desirable responses. The use of experienced CATI interviewers, who were not involved in project or evaluation delivery, probably reduced this bias. The water data collected by Council is not subject to self-reporting bias.

3.6.2 Project assessment

A large proportion of participants agreed that they are taking action to reduce water use in their households and there is evidence of a significant reduction in water use in the sample.

We did not find significant relationships between the installation of water saving devices or between strong agreement with the statement that "my household is taking action to reduce water use" and subsequent water use. There was significant evidence that households that did not install any water saving devices as part of the project reduced water use subsequent to the project. These findings could be explained in a number of ways. Households who had already installed water saving

devices prior to project participation are perhaps more motivated to reduce water use and the project may have given them an additional prompt to change household behaviour. It is also possible that installing water saving devices *on their own* is not sufficient to lead to less water use. Some households did remove water saving devices after they were installed which may have also affected levels of water use. It is also possible the participants were unsure of which water saving devices had been fitted as part of the project which may have led to an under estimate of the impact of these devices.

Many respondents agreed that their household is taking action to reduce energy use and there is evidence that as a result of participating in the programme more houses have insulation.

Despite high levels of agreement that households were taking action to reduce rubbish and waste there was no significant reduction in the average number of rubbish bags used per household per week. There was also no change in the amount of recycling material produced or in the recycling of paper and cardboard. It may be that rubbish production is already quite low amongst survey participants and a significant change may be hard to detect. For example in the baseline survey 79% of participants reported that they used 1 or less rubbish bags per week. The level of recycling was also high at baseline with 93% of respondents reporting that they recycled paper and cardboard. There was a significant increase in the frequency of participants using something other than a plastic bag for shopping and while not statistically significant the data suggests the use of composting and worm farms to dispose of household waste is increasing.

There are indications of increased use of active transport in all areas but no change was detected in car or public transport use. Survey participants identified a wide range of factors that made it difficult for them to reduce their car dependence.

Significant differences were found between Ranui/Swanson and Glen Eden in levels of agreement with the following statements about the impact of the project:

- I know people better in the area where I live
- I feel more connected to my community
- I've connected with other people who are interested in living more sustainably

Agreement was higher in Ranui/Swanson than Glen Eden for all three of these statements. It is reasonable to assume that the use of the facilitated conversation and community development approaches in Ranui/Swanson are contributing to a greater sense of community connectedness for those participating in the programme.

As the diagrams in the introduction indicate (see p.9 and p.12) there are many factors, both internal and external, that can influence the ability and willingness of households to undertake actions that may contribute towards sustainability. In particular, it may be more difficult for households under stress due to poverty, overcrowding, recent migration or poor health to implement changes no matter how much they wish to. Both projects aimed to engage hard to reach households (in order to respond to social justice issues). It may be more challenging to effect and detect reductions in resource use in such households compared higher income households which may have more capacity to make changes and willingness to engage in research and evaluation processes. Lack of change in some areas may be a result of these external barriers rather than a reflection of an ineffective programme.

Based on outcome evaluation results the following ratings have been given for the projects. Ranui and Swanson have been combined.

Performance descriptors for outcome evaluation: Glen Eden	
Excellent	Evidence that almost all of the key short-term outcomes and some medium term outcomes have been achieved. Evidence of increased understanding of sustainability issues. Evidence of increased community capacity and connection. No seriously negative unintended outcomes.
Very Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues by participants. Evidence of increased community capacity and/or connection. No seriously negative unintended outcomes. Any concerns are managed effectively.
Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues. No seriously negative unintended outcomes. Any concerns are managed effectively.
Poor	Only one or two outcomes have been achieved and/or there are serious negative unintended outcomes.
Insufficient evidence	Evidence unavailable or of insufficient quality to determine performance.

Performance descriptors for outcome evaluation: Ranui/Swanson	
Excellent	Evidence that almost all of the key short-term outcomes and some medium term outcomes have been achieved. Evidence of increased understanding of sustainability issues. Evidence of increased community capacity and connection. No seriously negative unintended outcomes.
Very Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues by participants. Evidence of increased community capacity and/or connection. No seriously negative unintended outcomes. Any concerns are managed effectively.
Good	Evidence that some short or medium term outcomes regarding water or energy or transport of waste have been achieved. Evidence of increased understanding of sustainability issues. No seriously negative unintended outcomes. Any concerns are managed effectively.
Poor	Only one or two outcomes have been achieved and/or there are serious negative unintended outcomes.
Insufficient evidence	Evidence unavailable or of insufficient quality to determine performance.

The rating is higher for Ranui and Swanson because of the evidence indicating that the community development approach is contributing towards increased community connection. It is important to acknowledge that the delivery of the home checks by EcoMatters has also contributed to the successful outcomes in Ranui and Swanson. There is a sound rationale that increasing community capacity and connection is likely to support behaviour change and contribute towards a range of other well-being outcomes sought by Council and community organisations.

3.7 Conclusion

There is evidence that involvement in PTS-SLSH is having a positive impact on households in Glen Eden, Ranui and Swanson. A significant reduction in water use is an encouraging sign and there are indications of positive trends in other areas such as composting and worm-farming; less plastic bag use; commitment to energy reduction and increased walking. The greater sense of connection in Ranui and Swanson highlights the benefits of using community development approaches. It is not surprising that few statistically significant changes in environmental behaviours were identified. The number of residents involved in the programmes was relatively small so large behavioural shifts would have been needed to detect statistically significant changes in behaviour. However the self report indicators are promising and suggest that further behaviour change is feasible as the programmes develop and become more widespread in the study communities.

3.8 Recommendations

Based on the results from the outcome evaluation and drawing on the formative and process evaluation reports the following actions are recommended:

- Continue to provide resources for paid co-ordinators at the local level to support local people and organisations to live more sustainably
- Provide resources and training to community organisations to support paid co-ordinators and to collaborate effectively
- Both project teams, with support of Council, identify infrastructural and/or systemic changes that could support local residents to live more sustainably and develop strategies for addressing these (as resources and time allow)
- Both project teams (either separately or together) undertake regular (at least annual) reviews of the theory of change and logic that underpins their projects and reflect on whether or not activities are consistent with these
- Both project teams refine data management systems to improve recording of interventions (for example, referrals to insulation schemes) and to support ongoing follow up with participants
- If possible continue some form of external formative evaluation support
- For Ranui and Swanson :
 - continue to develop and experiment with creative ways of engaging and working with local residents
 - ensure that original conceptualisation of the facilitated conversation is still being implemented
- For EcoMatters:
 - build capacity with community development approaches
 - continue to build synergies with other services delivered by EcoMatters in order to support the Sustainable Homes Programme

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Appendix One: Commitment Form

I commit to...

I already...

ENERGY

- Installing ceiling insulation
- Installing wall insulation
- Installing underfloor insulation
- Installing hot water cylinder wrap
- Installing curtains with a good thermal seal
- Blocking air draughts
- Installing energy efficient lighting
- Not overfilling the kettle
- Use a clothesline instead of dryer
- Setting hot water temperature to no more than 60°C

WASTE

- Composting food scraps and garden waste
- Saying no to plastic bags when shopping and/or bringing a reusable shopping bag with me
- Recycling as much as I can

ENERGY

- Have ceiling insulation
- Have wall insulation
- Have under floor insulation
- Have a hot water cylinder wrap
- Use curtains with a good thermal seal
- Block air draughts
- Use energy efficient lighting
- Avoid overfilling my kettle
- Use my clothesline instead of a dryer
- Hot water temperature set at no more than 60°C

WASTE

- Compost food scraps and garden waste
- Say no to plastic bags when shopping and/or bring a reusable shopping bag with me
- Recycle as much as I can

WATER

- Checking for leaks monthly
- Checking my water meter monthly
- Taking shorter showers
- Installing a low flow shower head or flow restrictor
- Installing tap aerators on my taps
- Installing a flush limiter in my toilet

TRANSPORT

- Using alternative transport such as walking, cycling, train or bus _____ trips fortnightly
- Carpooling _____ trips fortnightly
- Checking my tyres are properly inflated monthly

WATER

- Check for leaks
- Check my water meter monthly
- Take shorter showers
- Use a low flow shower head or flow restrictor
- Have tap aerators on my taps
- Have a flush limiter in my toilet

TRANSPORT

- Use alternative transport such as walking, cycling, train or bus _____ trips per fortnight
- Carpool ___ trips per fortnight
- Check my tyres are properly inflated monthly

Name:

Signature: Date:

Address:

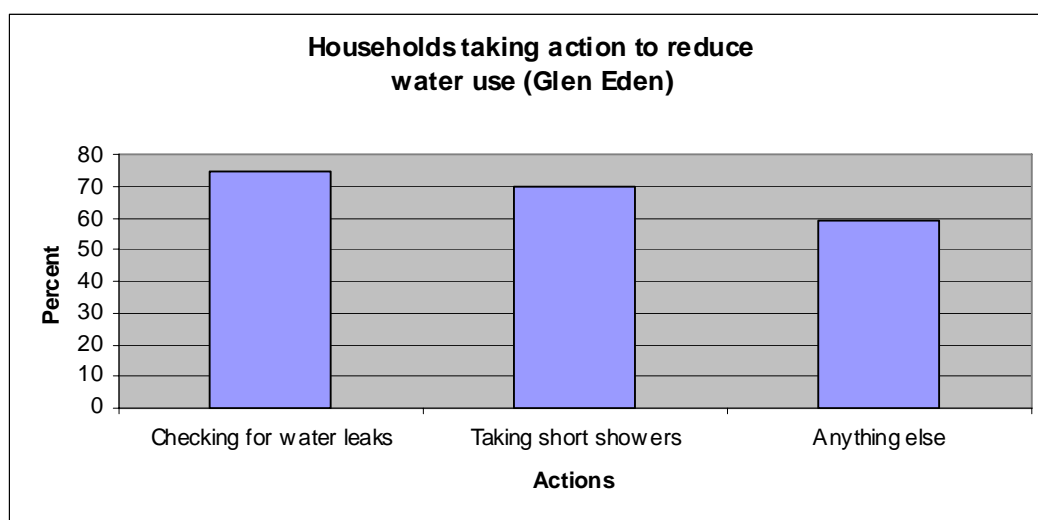


Appendix Two: Short and Medium-term Outcome Data

Sustainable Homes Programme Glen Eden

Water use in Glen Eden

Figure 1: Households taking action to reduce water use



Glen Eden participants reported that the following water saving devices have been installed in their households and whether or not they had been installed as part of the Sustainable Homes Programme. A few participants reported that water saving devices were installed before the programme.

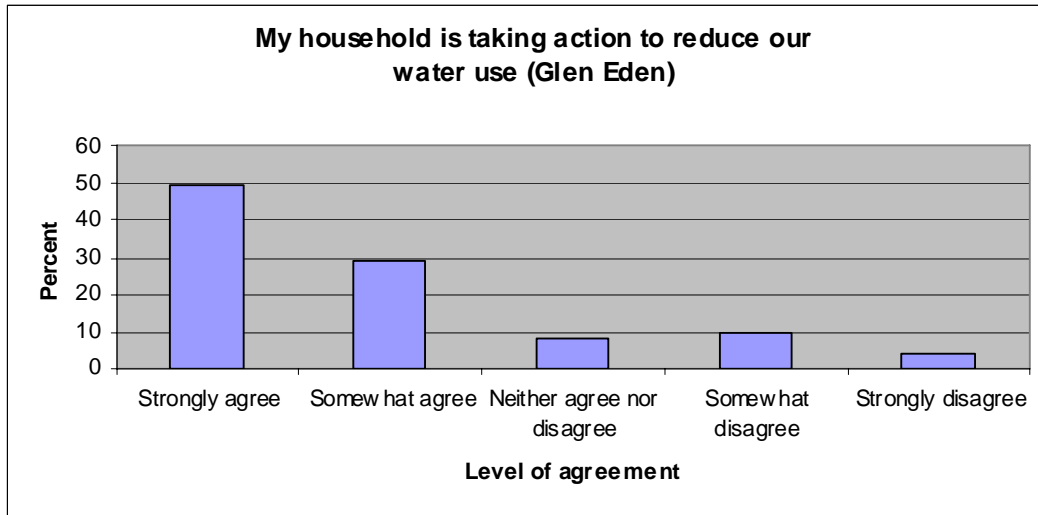
Table 1: Water saving devices installed in Glen Eden households

	Yes, devices installed	Installed through project
Water efficient showerhead	24	18
Flow restrictor for the shower	13	11
Tap aerators	24	23
Rain tank	1	0
Rain barrel	1	0
Flush limiter (toilet gizmo) in my toilet	33	25

This data indicates that some households in Glen Eden do have water saving features.

Glen Eden participants were also asked whether they agreed with the following statement about the influence of the Sustainable Homes Programme on the behaviour of their household.

Figure 2: As a result of being involved in the Sustainable Homes Programme my household is taking action to reduce our water use.



Eighty percent of participants either strongly agreed or somewhat agreed that their household was taking action to reduce water use. This indicates that the Sustainable Homes Programme is one factor influencing households to change their water use practices in Glen Eden.

Energy use in Glen Eden

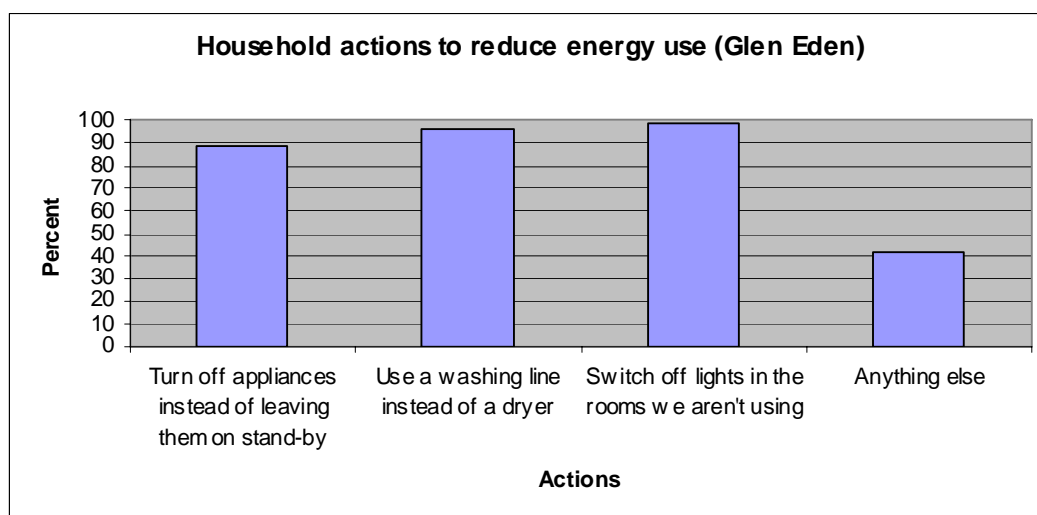
As part of the Sustainable Homes Programme in Glen Eden household members were invited to complete a form where they committed to specific actions. The following table outlines the energy related commitments made by Phase One participants in Glen Eden. Sixty-six programme participants completed a commitment form.

Table 2: Energy-related commitments in Glen Eden

Commitment	No. of households
Installing ceiling insulation	22
Installing wall insulation	6
Installing under floor insulation	21
Installing hot water cylinder wrap	36
Installing curtains with a good thermal seal	26
Blocking air draughts	30
Installing energy efficient lighting	33
Not overfilling the kettle	19
Use clothesline instead of a dryer	10
Setting hot water temperature to no more than 60 degrees	23

In the follow up survey in 2009 participants were asked whether or not they were currently doing the following actions to reduce their energy use.

Figure 3: Actions households are taking to reduce energy use

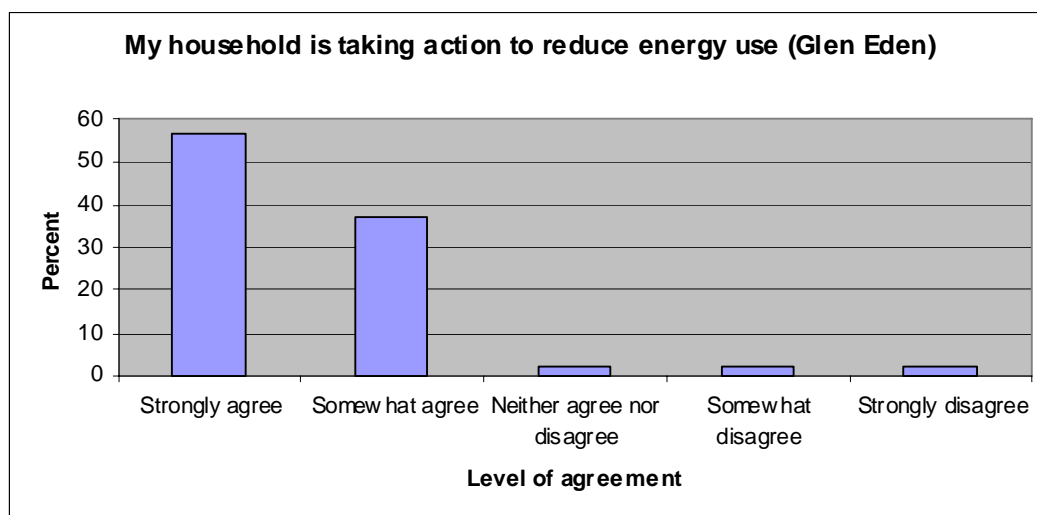


Participants in the follow up survey were also asked if any on the following changes had been made to their homes in the last 12 months.

Table 3: Energy-saving changes to homes in Glen Eden in the last 12 months

Changes	Yes, installed	Installed through project
Ceiling insulation	14	5
Under floor insulation	14	4
Polythene on ground under house	8	5
Wrap around hot water cylinder	12	6
Hot water cylinder set at 60 degrees	29	15
Air draughts blocked	22	15
Thermal lined curtains	23	6
Energy efficient light bulbs	39	26
Fitted curtains to window space	22	8
Solar hot water system	2	0

Figure 4: Level of agreement participation in PTS-SLSH project has on action to reduce energy use



Ninety-four percent of the sample in Glen Eden either strongly agreed or somewhat agreed that as a result of their involvement in the project their household is taking action to reduce energy use.

Waste practices in Glen Eden

Table 4: Rubbish bags filled by Glen Eden households in a week

Rubbish bags	Baseline %	Follow-up %
Less than half	42	37
One	35	41
One and a half	13	6
Two	6	2
Three or more	4	4
Do not use rubbish bags**	N/A	10

* Percentages may not add up to 100% due to rounding

** The option “Do not use rubbish bags” was not used in the baseline survey

The mean number of rubbish bags filled was 0.92 in the baseline survey and 0.85 in the follow-up survey.

Table 5: Recyclable material produced by Glen Eden households in a week

Wheelie bins	Baseline %	Follow-up %
Less than a quarter	43	37
About a quarter	29	29
About a half	18	18
About three quarters	4	4
One	6	12
More than one	0	0

* Percentages may not add up to 100% due to rounding

The mean number of wheelie bins of recyclable material produced was 0.31 in the baseline survey and 0.36 in the follow-up survey.

In the baseline survey 94% of respondents reported recycling paper and cardboard compared to 100% in the follow-up survey.

Table 6: Frequency something other than plastic bags used when going shopping for Glen Eden households

Frequency	Baseline %	Follow-up %
Almost always	51	47
Most of the time	16	18
About half the time	10	10
Sometimes	12	10
Hardly ever/never	10	16

* Percentages may not add up to 100% due to rounding

In the baseline survey 57% of respondents reported growing some of their own vegetables or fruit compared to 69% in the follow-up survey.

In the baseline survey 48% of respondents reported disposing of food using a worm farm or composting compared to 61% in the follow-up survey.

Transport use in Glen Eden

Table 7: Number of cars per Glen Eden household

Household cars	Baseline %	Follow-up %
None	6	6
One	47	47
Two	39	43
Three	6	2
Four	2	0
Five	0	0
Six or more	0	2

* Percentages may not add up to 100% due to rounding

The mean number of household cars was 1.51 in both the baseline and follow-up surveys.

Table 8: Glen Eden households that share a car (car pool) to get to work, school or regular activities

Car pool	Baseline %	Follow-up %
Yes	14	33
Sometimes	33	4
No	53	63

* Percentages may not add up to 100% due to rounding

In the baseline survey households spent a mean of \$64 (standard deviation = \$47) per week on petrol. In the follow-up survey households spent a mean of \$49 (standard deviation = \$63) per week on petrol.

Table 9: Frequency of car use by Glen Eden households

Frequency	Baseline %**	Follow-up %***
Almost all trips	63	38
Most trips	18	36
About half of the trips	2	17
Some trips	8	6
A few trips	8	2
Never	0	0

* Percentages may not add up to 100% due to rounding

** Question asked about frequency of car or motorcycle use

*** Question asked about frequency of car or van use

Table 10: Frequency of bus or train use by Glen Eden households

Frequency	Baseline %	Follow-up %
Almost all trips	2	10
Most trips	4	6
About half of the trips	6	6
Some trips	21	10
A few trips	40	47
Never	26	22

* Percentages may not add up to 100% due to rounding

In the baseline survey 61% of respondents reported there was something making it difficult for their household to use public transport in their local area compared to 47% in the follow-up survey.

Table 11: Frequency of walking, cycling or skateboarding by Glen Eden households

Frequency	Baseline %	Follow-up %
Almost all trips	11	12
Most trips	4	12
About half of the trips	11	10
Some trips	13	29
A few trips	47	33
Never	15	4

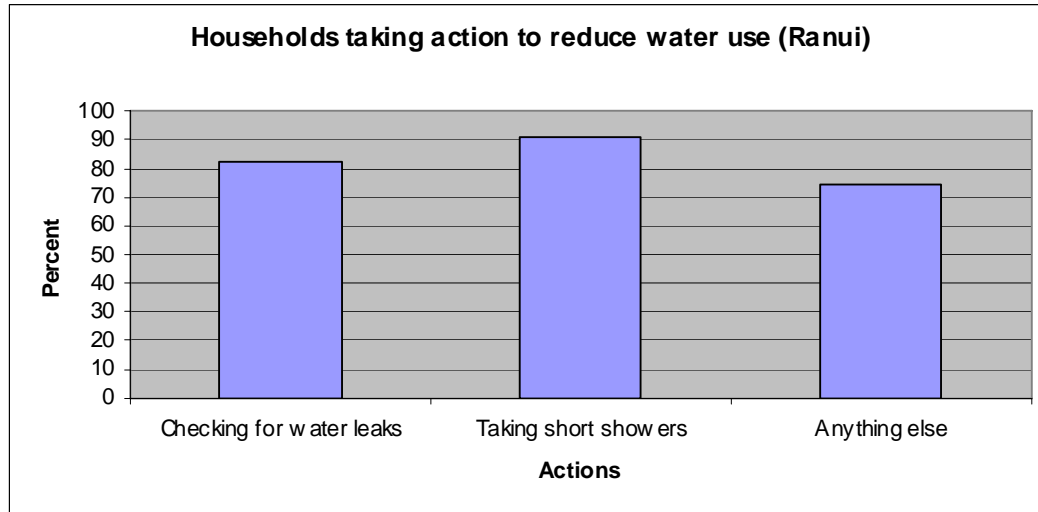
* Percentages may not add up to 100% due to rounding

In the baseline survey 45% of respondents reported there was something making it difficult for their household to walk, cycle or skateboard in their local area compared to 41% in the follow-up survey.

Sustainable Homes Programme Ranui

Water use in Ranui

Figure 5: Households taking action to reduce water use

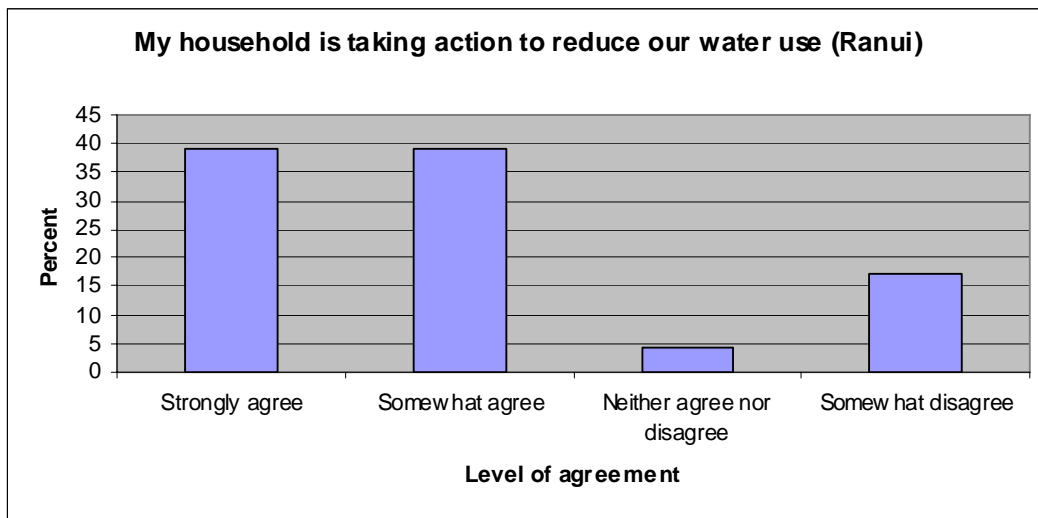


Ranui participants reported that water saving devices had been installed in their households

Table 12: Water saving devices installed in Ranui households

	Yes	Installed through project
Water efficient showerhead	12	12
Flow restrictor for the shower	8	8
Tap aerators	5	4
Rain tank	3	3
Rain barrel	2	1
Flush limiter (toilet gizmo) in my toilet	17	14

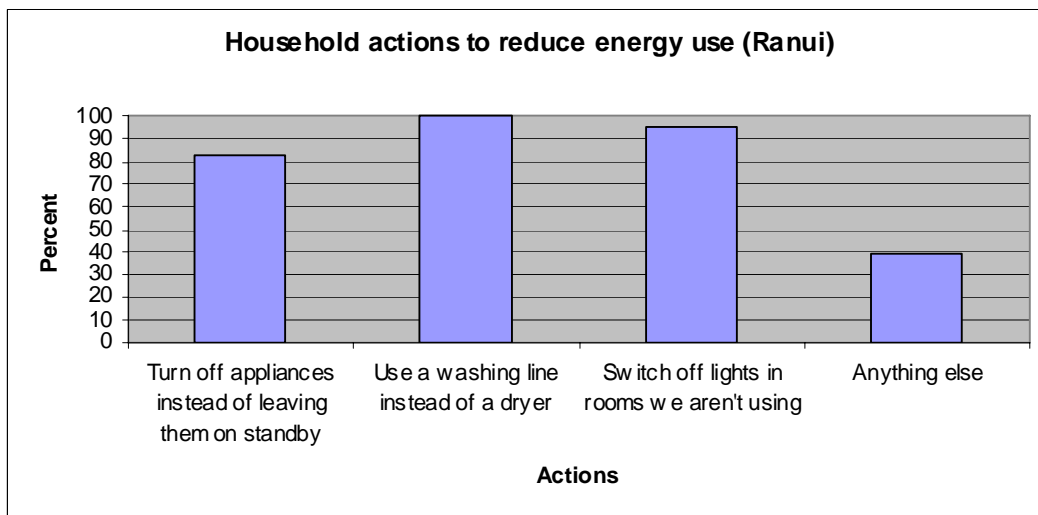
Figure 6: As a result of being involved in the Sustainable Ranui project my household is taking action to reduce our water use.



Energy use in Ranui

In Ranui, a large proportion of respondents in the follow up survey reported that they were doing the following actions to reduce household energy use.

Figure 7: Actions households are taking to reduce energy use



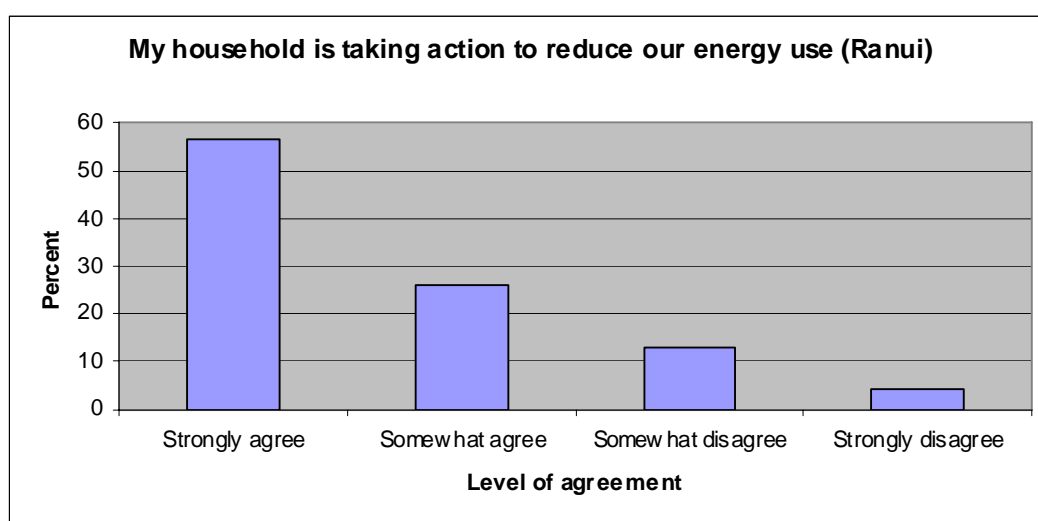
Participants in the follow up survey were also asked if any on the following changes had been made to their homes in the last 12 months.

Table 13: Energy-saving changes to homes in Ranui in the last 12 months

Changes	Yes, installed	Installed through project
Ceiling insulation	8	7
Under floor insulation	7	7
Polythene on ground under house	5	5
Wrap around hot water cylinder	6	5
Hot water cylinder set at 60 degrees	13	8
Air draughts blocked	13	8
Thermal lined curtains	5	1
Energy efficient light bulbs	19	13
Fitted curtains to window space	7	2
Solar hot water system	1	0

Over 80% of survey respondents either strongly agreed or somewhat agreed that as a result of their participation in a PTS-SLSH project their household was taking action to reduce energy use.

Figure 8: Level of agreement participation in PTS-SLSH project has on household action to reduce energy use



Waste practices in Ranui

Table 14: Rubbish bags filled by Ranui households in a week

Rubbish bags	Baseline %	Follow-up %
Less than half	39	22
One	43	35
One and a half	17	13
Two	0	22
Three or more	0	0
Do not use rubbish bags**	N/A	9

* Percentages may not add up to 100% due to rounding

** The option “Do not use rubbish bags” was not used in the baseline survey

The mean number of rubbish bags filled was 0.79 in the baseline survey and 1.13 in the follow-up survey.

Table 15: Recyclable material produced by Ranui households in a week

Wheelie bins	Baseline %	Follow-up %
Less than a quarter	22	27
About a quarter	35	14
About a half	30	41
About three quarters	4	5
One	8	9
More than one	0	5

* Percentages may not add up to 100% due to rounding

The mean number of wheelie bins of recyclable material produced was 0.39 in the baseline survey and 0.45 in the follow-up survey.

In the baseline survey 86% of respondents reported recycling paper and cardboard compared to 91% in the follow-up survey.

Table 16: Frequency something other than plastic bags used when going shopping for Ranui households

Frequency	Baseline %	Follow-up %
Almost always	23	57
Most of the time	14	30
About half the time	14	4
Sometimes	5	9
Hardly ever/never	45	0

* Percentages may not add up to 100% due to rounding

In the baseline survey 55% of respondents reported growing some of their own vegetables or fruit compared to 61% in the follow-up survey.

In the baseline survey 43% of respondents reported disposing of food using a worm farm or composting compared to 57% in the follow-up survey.

Transport use in Ranui

Table 17: Ranui households that share a car (car pool) to get to work, school or regular activities

Car pool	Baseline %	Follow-up %
Yes	29	32
Sometimes	33	32
No	38	36

* Percentages may not add up to 100% due to rounding

In the baseline survey households spent a mean of \$50 (standard deviation = \$45) per week on petrol. In the follow-up survey households spent a mean of \$55 (standard deviation = \$32) per week on petrol.

Table 18: Frequency of car use by Ranui households

Frequency	Baseline %**	Follow-up %***
Almost all trips	50	45
Most trips	18	32
About half of the trips	18	5
Some trips	0	5
A few trips	5	14
Never	9	0

* Percentages may not add up to 100% due to rounding

** Question asked about frequency of car or motorcycle use

*** Question asked about frequency of car or van use

Table 19: Frequency of bus or train use by Ranui households

Frequency	Baseline %	Follow-up %
Almost all trips	4	13
Most trips	0	4
About half of the trips	26	9
Some trips	0	22
A few trips	35	22
Never	35	31

* Percentages may not add up to 100% due to rounding

In the baseline survey 39% of respondents reported there was something making it difficult for their household to use public transport in their local area compared to 43% in the follow-up survey.

Table 20: Frequency of walking, cycling or skateboarding by Ranui households

Frequency	Baseline %	Follow-up %
Almost all trips	0	13
Most trips	4	4
About half of the trips	9	4
Some trips	22	30
A few trips	61	22
Never	4	26

* Percentages may not add up to 100% due to rounding

Anything making it difficult to walk, cycle or skateboard in local area

In the baseline survey 29% of respondents reported there was something making it difficult for their household to walk, cycle or skateboard in their local area compared to 22% in the follow-up survey.

Sustainable Homes Programme Swanson

Water use in Swanson

Figure 9: Swanson households taking action to reduce water use

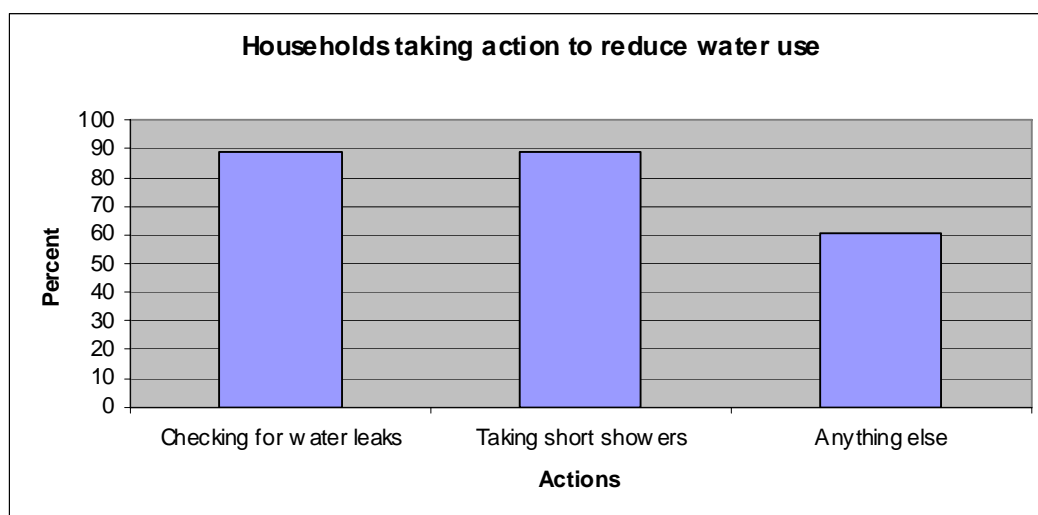
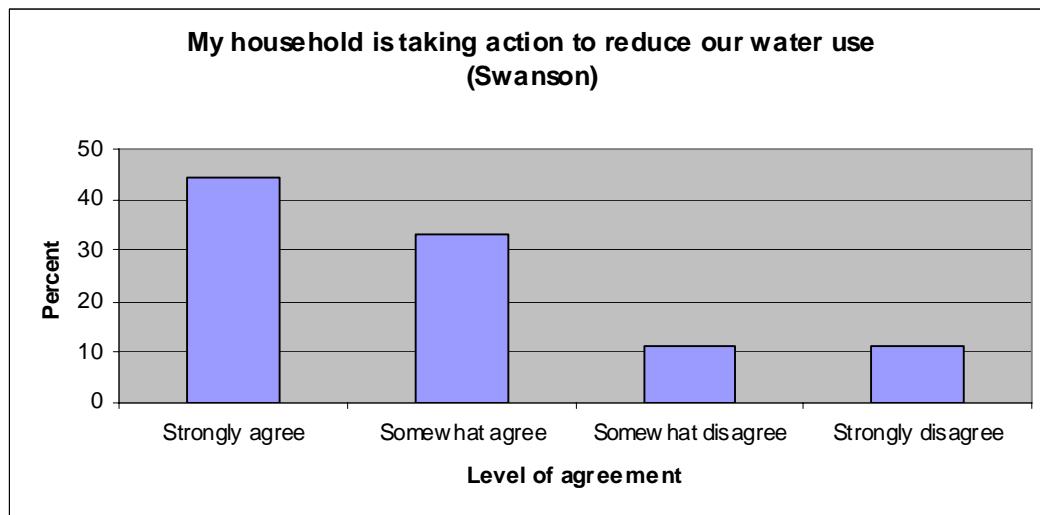


Table 21: Water saving devices installed in Swanson households

	Yes	Installed through project
Water efficient showerhead	13	6
Flow restrictor for the shower	5	3
Tap aerators	8	7
Rain tank	3	2
Rain barrel	0	0
Flush limiter (toilet gizmo) in my toilet	11	2

Figure 10: As a result of being involved in the Sustainable Swanson project my household is taking action to reduce our water use.



Energy use in Swanson

Figure 11: Actions households are taking to reduce energy use

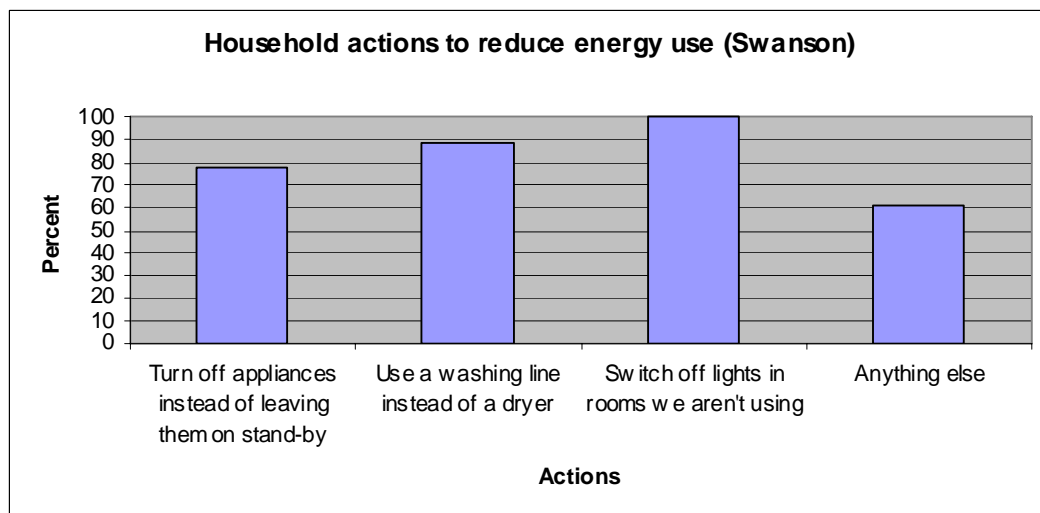
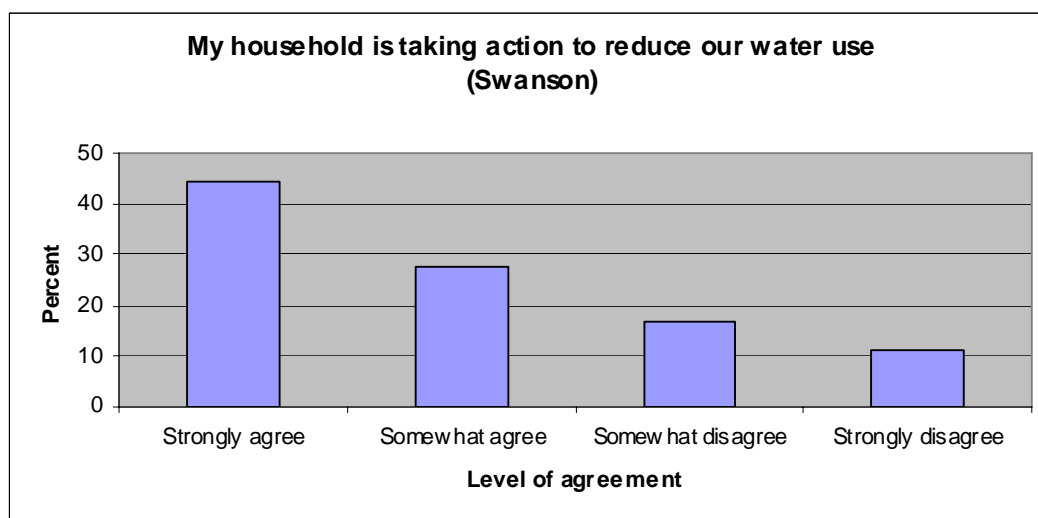


Table 22: Energy-saving changes to homes in Swanson in the last 12 months

Changes	Yes, installed	Installed through project
Ceiling insulation	6	4
Under floor insulation	4	3
Polythene on ground under house	2	2
Wrap around hot water cylinder	6	2
Hot water cylinder set at 60 degrees	10	3
Air draughts blocked	11	4
Thermal lined curtains	9	2
Energy efficient light bulbs	14	8
Fitted curtains to window space	9	2
Solar hot water system	1	0

Figure 12: Level of agreement participation in PTS-SLSH project has on household action to reduce energy use



Waste practices in Swanson

Table 23: Rubbish bags filled by Swanson households in a week

Rubbish bags	Baseline %	Follow-up %
Less than half	39	61
One	44	22
One and a half	6	6
Two	6	0
Three or more	6	0
Do not use rubbish bags**	N/A	11

* Percentages may not add up to 100% due to rounding

** The option "Do not use rubbish bags" was not used in the baseline survey

The mean number of rubbish bags filled was 0.93 in the baseline survey and 0.52 in the follow-up survey.

Table 24: Recyclable material produced by Swanson households in a week

Wheelie bins	Baseline %	Follow-up %
Less than a quarter	33	67
About a quarter	28	22
About a half	28	11
About three quarters	0	0
One	11	0
More than one	0	0

* Percentages may not add up to 100% due to rounding

The mean number of wheelie bins of recyclable material produced was 0.36 in the baseline survey and 0.19 in the follow-up survey.

In the baseline survey 100% of respondents reported recycling paper and cardboard compared to 94% in the follow-up survey.

Table 25: Frequency something other than plastic bags used when going shopping for Swanson households

Frequency	Baseline %	Follow-up %
Almost always	33	67
Most of the time	28	22
About half the time	11	0
Sometimes	0	6
Hardly ever/never	11	6

* Percentages may not add up to 100% due to rounding

In the baseline survey 67% of respondents reported growing some of their own vegetables or fruit compared to 72% in the follow-up survey.

In the baseline survey 50% of respondents reported disposing of food using a worm farm or composting compared to 72% in the follow-up survey.

Transport use in Swanson

Table 26: Number of household cars per Swanson household

Household cars	Baseline %	Follow-up %
None	0	0
One	33	50
Two	33	39
Three	28	11
Four	0	0
Five	0	0
Six or more	6	0

* Percentages may not add up to 100% due to rounding

The mean number of household cars was 2.17 in the baseline survey and 1.61 in the follow-up survey.

Table 27: Swanson households that share a car (car pool) to get to work, school or regular activities

Car pool	Baseline %	Follow-up %
Yes	13	22
Sometimes	50	22
No	38	56

* Percentages may not add up to 100% due to rounding

In the baseline survey households spent a mean of \$68 (standard deviation = \$57) per week on petrol. In the follow-up survey households spent a mean of \$43 (standard deviation = \$30) per week on petrol.

Table 28: Frequency of car use by Swanson households

Frequency	Baseline %**	Follow-up %***
Almost all trips	59	50
Most trips	35	28
About half of the trips	6	11
Some trips	0	6
A few trips	0	6
Never	0	0

* Percentages may not add up to 100% due to rounding

** Question asked about frequency of car or motorcycle use

*** Question asked about frequency of car or van use

Table 29: Frequency of bus or train use by Swanson households

Frequency	Baseline %	Follow-up %
Almost all trips	0	0
Most trips	0	0
About half of the trips	0	11
Some trips	12	11
A few trips	59	50
Never	29	28

* Percentages may not add up to 100% due to rounding

In the baseline survey 43% of respondents reported there was something making it difficult for their household to use public transport in their local area compared to 33% in the follow-up survey.

Table 30: Frequency of walking, cycling or skateboarding by Swanson households

Frequency	Baseline %	Follow-up %
Almost all trips	0	6
Most trips	0	6
About half of the trips	0	11
Some trips	31	28
A few trips	69	22
Never	0	28

* Percentages may not add up to 100% due to rounding

In the baseline survey 33% of respondents reported there was something making it difficult for their household to walk, cycle or skateboard in their local area compared to 44% in the follow-up survey.

Sustainable Homes Programme All Areas

Water use in all areas

Table 31: Mean Litres (Standard deviation) of water per person per day by fitting of water devices as part of the project

	At least one water device fitted as part of project		p-value
	Yes	No	
Prior to project	182 (165)	216 (211)	0.4552
Subsequent to project	165 (160)	155 (135)	0.7483
Reduction subsequent to project*	14 (162)	56 (151)	0.2538

* Reduction could only be calculated on respondents with non-missing data for both prior and subsequent data therefore values do not equal the difference between the prior and subsequent values

Table 32: Mean Litres (Standard deviation) of water per person per day by agreement with statement “My household is taking action to reduce our water use”

	Strongly agree with statement		p-value
	Yes	No	
Prior to project	209 (225)	198 (167)	0.8056
Subsequent to project	163 (151)	156 (139)	0.8223
Reduction subsequent to project*	42 (130)	39 (175)	0.9545

* Reduction could only be calculated on respondents with non-missing data for both prior and subsequent data therefore values do not equal the difference between the prior and subsequent values

Appendix Three: Programme Outcomes

Programme outcomes*

*These are from the logic models developed by each site with assistance and feedback from the formative evaluator and Council staff. A “Yes” means it is feasible to measure this outcome, a “??” means there are difficulties or issues that need to be addressed in order to measure this outcome and a “no” means that it is not feasible to measure this outcome given the evaluation timeframe and the resources available for the evaluation.

Glen Eden

Programme Outcomes (short, medium and long term)	Measure Y/N	Data Sources
Houses have water saving features	yes	EcoMatters records
Households change water use practices	yes	SLSH Survey data
Increased no. of insulated houses	yes	Ecomatters records + SLSH survey
Households change their energy use practices	yes	SLSH Survey
Households commit to take action re waste and transport	yes	EcoMatters records of commitment forms
Increased support and resources for households to make changes	??	Action/reflection? SLSH survey
Increased participation in shared learning opportunities	yes	SLSH survey
Less water used (domestic)	yes	Water data from EcoWater
Improved indoor air temperature	no	No baseline Too expensive to measure
Improved indoor air quality	no	No baseline Too expensive to measure
Less waste created	yes	SLSH survey

Reduced car use/increase use of active transport	yes	SLSH survey
Additional behaviours are adopted	??	Don't know how we can do this efficiently
Other non-SLSH households access retrofits & identify goals	??	This is difficult as a number of factors may prompt people to contact EcoMatters-will be difficult to document
Healthier homes	no	We don't have access to data
Reduced respiratory illnesses	no	We don't have access to data
Increased community support for effective policies/actions that support sustainability	??	SLSH survey & participant interviews How to measure?
Increased neighbourhood connection	yes	SLSH survey & participant interviews
Influence climate change	no	Outside time frame and too difficult to measure
Healthy households and community	no	Outside time frame and too difficult to measure
Decrease in CO2 emissions	no	Too difficult to measure
Green is normal	no	Outside timeframe
Stronger sense of community and identity	??	Need to clarify what this means may be possible to measure in SLSH survey & participant interviews
Improved infrastructure the supports sustainable behaviours	??	Likely to be outside timeframe but can record any local changes (document review and action/reflection)

Swanson

Outcome	Measure Y/N	Data
Greater understanding of living sustainably	??	Need to clarify what this means SLSH survey
Houses have water saving features	Yes	EcoMatters records
Households change water use practices	Yes	SLSH survey
Households change their energy use practices	Yes	SLSH Survey
Households identify reducing car use as a goal	?	Would need system for recording information about household goals
Increased knowledge of waste reduction strategies	?	Don't think this is the right outcome
Increased no. of insulated houses	Yes	Ecomatters records + SLSH survey
Increased support and resources for households to make changes	?	Action/reflection? SLSH survey
Community-wide issues identified	Yes	Action reflection sessions Project documentation SLSH survey
Reduced household use of water and energy	Yes	Water data from EcoWater May have to use self report for energy use
Increased energy efficiency in homes	no	Too difficult to measure
Increased use of public transport systems, bike use and walking	yes	SLSH survey
Decreased car use	yes	SLSH survey
Increased awareness of the value of composting /gardening	??	Not sure that we need to measure this
Community feedback to authorities about public transport needs	yes	Action reflection

Increase no. of warmer and drier homes in Swanson	no	We don't have access to data
Significant \$ savings for families	yes	SLSH survey
Improved public transport systems	??	Likely to be outside timeframe but can record any local changes (document review and action/reflection)
Increased affordability and access to worm farms	??	Not sure we need to measure this
Increased confidence and knowledge about composting methods	yes	SLSH survey
More composting and use of worm farms	yes	SLSH survey
Increased recycling and reuse	yes	SLSH survey
Improved relationships between groups in Swanson	yes	Action reflection Participant interviews
Clean air, clean water	no	Outside time frame and too difficult to measure
Reduced carbon footprint of Swanson	no	Could do an estimate
Reduced water consumption	yes	Water data from EcoWater
Healthier homes & environment	no	We don't have access to data
Swanson is a desirable, cohesive and proactive community	??	Need to clarify SLSH survey & participant interviews
Reduced waste landfills	??	Better to measure reduced waste from households
No plastic bags in Swanson	no	Too difficult to measure
Other (non-SLSH) households access retrofits & identify goals)	??	This is difficult as a number of factors may prompt people to contact EcoMatters-will be difficult to document

Ranui

Outcome	Measure Yes/No	Data
Increase in selected community groups' awareness of sustainability issues	Yes	Action/reflection
Increased knowledge of waste reduction strategies	??	Don't think this is the right outcome
Households identify reducing car use as a goal	??	Would need system for recording information about household goals
Houses have water saving features	Yes	EcoMatters records
Households change water use practices	Yes	SLSH survey
Households change their energy use practices	Yes	SLSH survey
Increased no. of insulated houses	Yes	Ecomatters records + SLSH survey
Increased support and resources for households to make changes	?	Action/reflection? SLSH survey
Community-wide issues identified	Yes	Action reflection sessions Project documentation SLSH survey
Increased in selected groups engagement with sustainability issues	Yes	Action/reflection
Households increase composting, reuse and recycling	Yes	SLSH survey
Increased walking in Ranui	yes	SLSH survey
Reduced water use	Yes	Water data from EcoWater
More dollars in participating household income/budgets	yes	SLSH survey
Increased energy efficiency in households	no	We don't have access to data & too difficult to measure
Reduced waste sent to landfill	yes	SLSH survey

Increased connectivity to the community	yes	SLSH survey
Increased sense of pride	??	May be tricky to measure
Increased use of alternative transport (public transport systems, bike use and walking)	Yes	SLSH survey
Increased linkages between community networks and organisations	Yes	Action reflection
Other (non-SLSH) households access retrofits & identify goals)	??	This is difficult as a number of factors may prompt people to contact EcoMatters-will be difficult to document
Healthier homes	no	We don't have access to data
Stronger more connected community	??	Need to clarify SLSH survey & participant interviews
Healthier people	no	We don't have access to data
Cleaner and cared for environment	??	Probably too resource intensive to measure
No plastic bags in Ranui	no	Too difficult to measure

