

Renewable Energy
for
Rural Economic Development (RERED) Project

SRI LANKA SOLAR INDUSTRY MARKET SURVEY

FINAL REPORT

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for
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Abbreviations

Access	Access Solar (Pvt) Ltd
Alpha Thermal	Alpha Thermal Systems (Pvt) Ltd
AU	Administrative Unit (RERED) project based at DFCC Bank
CBSL	Central Bank of Sri Lanka
CEA	Central Environmental Authority of Sri Lanka
CEB	Ceylon Electricity Board
CIE	Chief Income Earner
CWE	Chief Wage Earner
DCS	Department of Census and Statistics
DFCC	DFCC Bank
DSD	Divisional Secretariat Divisions
ESD	Energy Services Delivery Project
GEF	Global Environment Facility
GND	Grama Niladari Division
GoSL	Government of Sri Lanka
HH	Household
HoH	Head of Household
IDA	International Development Association
MFI	Micro finance institutions
NGO	Non-Governmental Organization
RERED	Renewable Energy for Rural Economic Development
RET	Renewable Energy Technologies
SEEDS	Sarvodaya Economic Enterprise Development Services
SELCO	Selco Solar Systems (Pvt) Ltd
Shell	Shell Solar Lanka (Pvt) Ltd
SHS	Solar Home Systems
TOR	Terms of Reference

1.0 BACKGROUND

1.1 Overview of Energy Consumption in Sri Lanka

Efficient supply and availability of energy sources are essential requirements to ensure economic progress as well as improvement in quality of life.

Sri Lanka has made rapid progress in the field of electrification. The total consumer network increased by 6% to 3,597,000 from 2003 to 2004 due to a total of 3,182,000 domestic and religious premise electric connections been given, much of which can be attributed to the expansion of rural electrification.

The following table explores the progress achieved during last five decades and the present coverage of the national grid.

Availability of Electricity- Progress Achieved

Year	% of Households
1953	4.1
1963	7.0
1973	8.0
1978	13.1
1981	15.8
1986	26.5
1996	56.8
2003	74.9

Source: *Consumer Finances and Socio Economic Survey 2003, CBSL*

Availability of Electricity- Province wise statistics

Province	% of Households
Western	92.4
Central	72.7
Southern	78.4
Northern (a)	63.6
Eastern	65.6
North Western	68.5
North Central	62.0
Uva	56.7
Sabaragamuwa	64.7
All Island	74.9

Source: *Consumer Finances and Socio Economic Survey 2003, CBSL*

(a) *Excluding Killinochchi, Mulativu and Mannar districts*

However, the status of rural electrification leaves much to be desired. Compared to a very healthy (around 95%) household electrification in the urban regions, the corresponding statistics for the rural regions stands around 35%. At district level too, the disparities in household electrification are pronounced with Colombo enjoying the highest percentage of electrified houses. Based on the Ceylon Electricity Board (CEB) data the following table provides a summary of household electrification for selected districts for 2001.

District	Percentage of Electrified households
Colombo	87
Gampaha	86
Kalutara	66
Kandy	61
Matale	41
Nuwara Eliya	73
Galle	78
Matara	75
Hambantota	54
Kurunegala	55
Puttlam	66
Anuradhapura	54
Polonnaruwa	48
Badulla	62
Monaragala	24
Ratnapura	50
Kegalle	60
All Island	65

Source: CEB planning division- Unpublished 2002

Due to low availability of a better form of energy, the rural population continues to depend on inferior alternatives. Firewood and agricultural wastes provide the energy requirements for cooking. Kerosene provides energy for domestic lighting. Use of such inferior forms of energy has a direct bearing on the quality of life. The pattern of expenditure on fuel and lighting between rural consumers and urban consumers show marked variations. In the case of the urban consumer, the proportion of expenditure on electricity and gas is significant while in the case of the rural consumer, similar highs in expenditure are seen for firewood and kerosene which provide relatively inferior forms of energy.

1.2 Opportunities for Renewable Energy Technologies (RETs)

In order to improve the quality of life among the lesser-privileged segments of people who have no access to electricity to meet their energy requirements, it has become necessary to explore sustainable energy alternatives. Based on Sri Lanka's geographical positioning in terms of its tropical climate and natural terrain, Sri Lanka has a very high potential to draw on forms of renewable energy sources to meet this need. Endowed with a tropical climate, the potential for solar energy is very high. The terrain is highly conducive to tap hydropower, which has accounted for over 70 percent of total installed capacity of state utility. The opportunities for producing localised hydropower through micro (village) and mini hydropower technologies are also considerably high. In addition, the long coastal lines surrounding the island of Sri Lanka with several windy locations also provide tremendous scope for tapping wind power. In this context, the applications of RETs have a distinct advantage of being able to be used in localised settings and provide effective delivery without a centralised supply mechanism.

2.0 INTRODUCTION TO THE ASSIGNMENT

The Government of Sri Lanka requested the World Bank and GEF to support the country in mainstreaming renewable energy options for rural electrification and augmentation of generation capacity to the national grid.

The request resulted in the Energy Services Delivery (ESD) Project which performed highly satisfactorily and was completed on December 31, 2002. Its successor the Renewable Energy for Rural Economic Development (RERED) Project was approved by the World Bank Board on June 20, 2002, and is presently under implementation. Both projects supported the development of the solar photovoltaic (PV) industry.

The RERED Project provides support for solar PV investments to expand the market and gain commercial viability. In particular, the Project's refinance, grant, and technical assistance (TA) support seek to solidify the existing middle-range solar home system market and expand service to other applications such as smaller systems accessible to poor households and community applications for health clinics, schools and street lighting. These initiatives should build economies of scale and increase awareness for poor families. Further, capacity building in respect of micro-finance institutions and other household financing organisations serving limited communities is also necessary to expand credit access. These measures should enable Sri Lanka to achieve the RERED target of 85,000 solar home systems.

Providing electricity to such rural communities will bring a quite a number of changes in lives of such communities by improving the productive economic activities in rural communities. Further, the participation of the private sector in providing energy is expected to be enhanced by participating directly in the production of energy and other related support services. While the energy is generated using such renewable and clean sources, emission of Carbon Dioxide and other green house gases are prevented. RERED project is financed by US\$ 75 million line of credit from International Development Association (IDA) and a US\$ 8 million grant by Global Environment Facility (GEF).

RERED consists of six components, the three main components being:

- 1) Grid connected power generation (hydro / wind / biomass)
- 2) Off grid community based power generation (hydro / wind / biomass)
- 3) Off grid household based power generation (solar PV)

By June 2004, Sri Lanka accounted for more than 1% of its total households being electrified by solar power, under both ESD and RERED projects. Total number of household electrified by SHSs exceeded 50,000 households by June 2004.

SHSs are financed under RERED project through three mechanisms. It consists of a grant from Global Environment Facility (GEF), amount depending on the Watt peak power (Wp) of the system purchased. The grant is provided to the company who sells SHS to the public. Further, there is a loan facility available for the purchaser, through micro finance organizations. This enables such purchasers to pay for the SHS over a certain agreed period. Micro finance organizations such as "SEEDS" (Sarvodaya), was one of the pioneers in participating the scheme, but today more players have

entered the market such as LOLC, Ceylinco Leasing, Alliance Finance, LOFC, Commercial Bank etc.

2.1 Grant Mechanism

The grant mechanism for the solar industry reflects the objectives of the five main stakeholders:

- (i) Building a market around proven systems and ease of administration (Administrative Unit, DFCC);
- (ii) Reducing grants over time with a clear exit strategy (GEF);
- (iii) Providing incentives to deepen the market and enabling access for rural poor (IDA);
- (iv) Assuring sustainability of successful product lines and increasing scale (Solar Industry);
- (v) Affording quality and choice at reasonable prices (Consumers).

The grant mechanism developed by adopting the above objectives precludes subsidies for already viable solar products; limiting grants only to systems smaller than 60Wp during the first year, then only to those smaller than 40Wp during years 2 and 3, and finally only to systems smaller than 20Wp during the last two years of Project implementation.

The follow-on RERED Project tries to accommodate the interests of the five key stakeholders in structuring the GEF co-financing grant. The maximum co-financing grant under the RERED Project was set at a value lower than what was available under the ESD Project.

Size of panel	ESD Project (1997-2002)	RERED Project		
		First Year (2003) Effective from Oct 2002	Second and Third Year (2004/5) Effect from 31st July 2004	Fourth and Fifth year (2006/7)
10 <20 Wp	100 US\$	40 US\$	40 US\$	40 US\$
20 <40 Wp	100 US\$	70 US\$	70 US\$	No grant
40-60 Wp	100 US\$	70 US\$	No grant	No grant
Above 60	100 US\$	No grant	No grant	No grant

The GEF grant program is structured with a clear exit strategy in place. The grant of US\$70, given for systems above 60Wp was removed in October 2002 with the changeover from ESD to RERED. The grant of US\$70, given for the systems above 40W was then removed on 01 June 2004.

In addition, the Government of Sri Lanka (GOSL) provides a consumer subsidy of Rs. 7,500 (initially Rs10,000) per system per householder in the, Sabaragamuwa, Uva and Northern Eastern provinces.

RERED started off (effective October 2002) with the phasing out the GEF co-financing grant for systems larger than 60 Wp. As the next step, with effect from July

2004 the GEF co-financing grant on solar home systems larger than 40 Wp was also removed.

It has been agreed that with the Solar Industry the impact of the co-financing grant exit strategy would be closely monitored, although the period following the second step (removal of grant for systems over 40 Wp) is relatively short.

Since the grant removal is properly planned, all the relevant parties are well informed and all the stakeholders are aware of such, the consumer reaction to this may be complex and may vary, depending on the various contexts.

Administrative Unit is willing to understand the consumer profile of those who purchased the systems just before the grant removal (January to April of 2004) and just after removing the grant (July and August of 2004) under the prevailing circumstances:

- Using 35 to <40 Wp systems sold before grant removal (January to April of 2004)
- Using 35 to <40 Wp systems sold after grant removal (July to August of 2004 for Ratnapura and Ampara and July.-December 2004 for Kurunegala).
- using 50 to 60 Wp systems sold before grant removal (January to April of 2004)

The following table presents the number of customers who purchased systems in each category in different districts.

	Sabaragamuwa Province- Rathnapura District	Northern and Eastern Province- Ampara District	North Western Province- Kurunegala District *	Total
using 35 to <40 Wp systems sold before grant removal	372	394	261	1,027
using 35 to <40 Wp systems sold after grant removal	382	265	196	843
using 50 to 60 Wp systems sold before grant removal	739	317	511	1,567
Total	1,493	976	968	3,437

** Since government subsidiary is not applicable in this province, the period of institution after grant removal may extend beyond August 2004.*

Need for the Study

The progress of the solar component over the first two years of implementation of the RERED project is satisfactory and has reached a stage where the co-financing is phased out for the best selling product line. To ensure continued sustainable growth of the industry a Market Survey is proposed to complement another parallel analysis of the solar industry by an external consultant.

2.2 Objective of the Study

The objective of the Market Survey was

- To determine whether there has been a significant change in consumer behavior (purchasing decision) as a result of the phasing out of the GEF co-financing grant.

The Market Survey focused to establish a customer profile (income level, size of home etc), requirement of energy and customer satisfaction level among the identified three customer categories who are:

- using 35 to <40 Wp systems sold before grant removal,
- using 35 to <40 Wp systems sold after grant removal, and
- using 50 to 60 Wp systems sold before grant removal

The Market Survey results will be used by the consultant working on the solar industry growth analysis, which will focus on:

- (a) State of the industry;
- (b) Impact of the phase out of GEF co-financing grant on the industry; and
- (c) Suggestions for the sustained growth of the industry.

2.3 Methodology

Survey familiarization exercise was conducted on March 29th for all the field investigators and as a second phase, a proper pilot survey briefing was conducted on April 1st. Pilot survey continued in the field until April 5th and 25 respondents have been interviewed for the pilot survey. The inception report has been submitted on April 12th by an initial data analysis of 25 questionnaires. The report included all the information on the above aspects and comments from the World Bank and Administrative Unit of the RERED has been included for the final questionnaire.

The survey has been conducted by using the structured questionnaire after including all the findings from the pilot survey. All the interviews were conducted in local languages. On an average it took around 40 minutes to complete one schedule. Field work was conducted during April 20th to May 3rd 2004.

2.4 The Sampling Process

2.4.1 Defining the Population

The population for this study define as the SHS customers who

- Using 35 to <40 Wp systems sold before grant removal (Jan to April of 2004)
- Using 35 to <40 Wp systems sold after grant removal (July to August of 2004 for Ratnapura and Ampara and Jul.-Dec. 2004 for Kurunegala).
- using 50 to 60 Wp systems sold before grant removal(Jan to April of 2004)

2.4.2 Sampling Frame, Method and the Units

Administrative Unit of (RERED) project had all the SHS customers contact details by following fields.

- District
- Divisional Sctrartiate Division
- Grama Niladari Division
- Users Address
- Size of the Panel
- Date of Purchased/Invoiced/customer signed
- Vendor

The above mentioned database was used as the sample framework for this survey. By using the SPSS software, a random sample was selected for each segment. Random selection was done keeping in mind the representation of the SHS vendors, micro finance institutions and other key aspects for the proper representation. Households were considered as sampling units and the persons interviewed were either the heads of households or/the decision makers or the person who are knowledgeable on the SHS the most.

2.4.3 Sample Size

As specified in the TOR samples for each of the three categories were drawn from three districts, namely Ratnapura, Ampara and Kurunegala.

As clearly mentioned in the TOR, since income and lifestyles could vary by location, comparisons amongst these three groups are district-specific. Since consumer profiling was to be done at each cell level and the universe figure were available, ACNielsen proposed the following sample sizes, after considering all the technical aspects needed to structure a statistically valid sample for nine cells. The details of the proposed sample size the percentage of universe and the Universe size are as follows:

	Sabaragamuwa Province- Rathnapura District	Northern and Eastern Province- Ampara District	North Western Province- Kurunegala District *	Total Sample size
using 35 to <40 Wp systems sold before grant removal	13% 50 (372)	13% 50 (394)	19% 50 (261)	150 (1,027)
using 35 to <40 Wp systems sold after grant removal	13% 50 (382)	19% 50 (265)	26% 50 (196)	150 (843)
using 50 to 60 Wp systems sold before grant removal	7% 50 (739)	16% 50 (317)	10% 50 (511)	150 (1,567)
Total Sample Size	150 (1,493)	150 (976)	150 (968)	450 (3,437)

Note: Universe size in parenthesis and the percentages has been calculated for the 50 sample size.

2.4.4 Sample Plan

The above mentioned three districts have been selected for this study (namely Rathnapura, Ampara and Kurunegale) based on different key reasons. Even though we used Rathnapura district, the SHS usage is limited to some areas of the district, reasons being various geographical positioning in terms of its tropical climate and natural terrain.

Hence we selected the respondents' randomly using SPSS package within each of these districts. That is, the following mentioned categories will have 50 respondents (with sufficient buffer) each per category per district, selected randomly.

- using 35 to <40 Wp systems sold before grant removal,
- using 35 to <40 Wp systems sold after grant removal, and
- using 50 to 60 Wp systems sold before grant removal

2.5 Analysis and Interpretation Framework

TOR clearly mentioned the needed analysis framework to be as follows.

“Analyse the data gathered and establish if the customers who purchased the 35 to <40Wp systems after grant removal are similar in profile to (a) the 35 to <40 Wp system customers before grant removal and (b) the 50 to 60 Wp system customers before grant removal.”

Hence the following framework has been used to analyze the results to achieve the objectives of the assignment.

The framework for the analysis of this study has been designed in the following manner. Refer diagram 1.1 for the graphical presentations given. First chapter allocated to background and introduction while the analysis will be presented from the second chapter onwards.

The next chapter (second chapter) presents the customer profile first using the universe data which comprise 3,437 customers in three districts for three segments (total nine categories). The universe has been extensively analyzed on the selected four key aspects given below.

1. Vendor/SHS company
2. Normal and purchase price of SHS
3. Month of SHS purchase
4. Distribution of the SHS in the district by DSDs/AGA's

After analyzing the Universe (data) in chapter two the next stage is to analyze the survey sample data on the same parameters. The challenge faced during analysis was with reference to the non maintaining of proper records by some of the customers/vendors this made it difficult to compare the data collected with the Administrative Unit records. However most of the sample survey data has been verified from different sources and by using different techniques identified in the pilot survey stage. The following table identifies the key aspects analyzed by using the Universe figures and data collected by the sample survey.

U.1	Vendor/SHS company	S.1	Vendor/SHS company
U.2	Normal and Purchase Prices of SHS	S.2	Purchase Prices of SHS
U.3	Month of SHS purchase		
U.4	Distribution of the SHS in the district by DSDs/AGA's		

The forth chapter focuses on the demographic profile of the SHS users. The nine category users were profiled and differentiated by the head of the household (HH) and by the other members on the key demographic characteristics including average no. of family members/family size, gender, age, education etc for the HoH and other members.

These findings will be compared with the Department of Census and Statistics secondary data to get an understanding of the differences identified within the three districts proposed. 5% sample survey on 2001 Census of Population and Housing will be used for this purpose. The information used is attached in annexure 3 and 4.

The fifth chapter focuses on the activities engaged by family members nature of economic activity (employee, employer, own economic activity and other activities (housekeeping, expecting a job, schooling etc) will be analyzed first and further/extra analysis will be done from the areas where the bases are sufficient

E.g. No of employees are high amongst HoH as well as other family members hence this data can be extensively analyzed including place of work, temporary or permanent, sector (private or public) etc. Own economic activities are also high amongst HoH and place of work, the nature of the activities (agriculture, industrial or service) will be analyzed. Since the industrial and service sector employed members are low in numbers the agriculture activity will be analyzed extensively on the above key areas.

The sixth chapter will focus on income, expenditure and wealth indicators. HoH and other members' income will total to the contribution that will be used for household expenses. In calculating this contribution from the employees the last month salary has been used whilst amongst the self employed the calculation was the amount they contributed from such activities to the monthly expenses. Profit/earnings from a businessman or employer were treated as in the above the contribution calculation to the household expenses. For foreign employment receipts the extract amount for month has been used as the contribution. At the data collection stage monthly contribution was difficult to estimate for the respondents in many cases but with the help of the respondents, the interviewers made the calculation and verified. Expenditure items have been analyzed for food & beverages, accommodation (very low base), fuel and electricity, cloths, health & medicine, transport & telecommunication, durable goods and education. The expenses were collected before purchasing the SHS and the present situation.

For wealth indicators the housing characteristics like constructed/purchased year, floor area, number of rooms, toilet facility, value of the house and level of the house has been used and household assets availability (irrespective of functioning or not) has been analyzed.

The seventh chapter presents all energy related aspects. It includes the energy they used for different purpose before the SHS and the purchased SHS specifications including the no of bulbs in different types, TV's radio cassette etc. Customer satisfaction on the purchased SHS is presented in the same chapter in terms of technical aspects as well as perceptions about the contribution to their standard of living from the SHS system.

The eighth chapter presents the consumer behavior on SHS purchase decision making and assessment of whether customers are sufficiently knowledgeable to make an informed decision on purchasing SHS product/service without specifications and approvals set by an outside authority similar to other developed industries e.g.: motorcycles, tractors, bicycles etc). This section was addressed by using customer

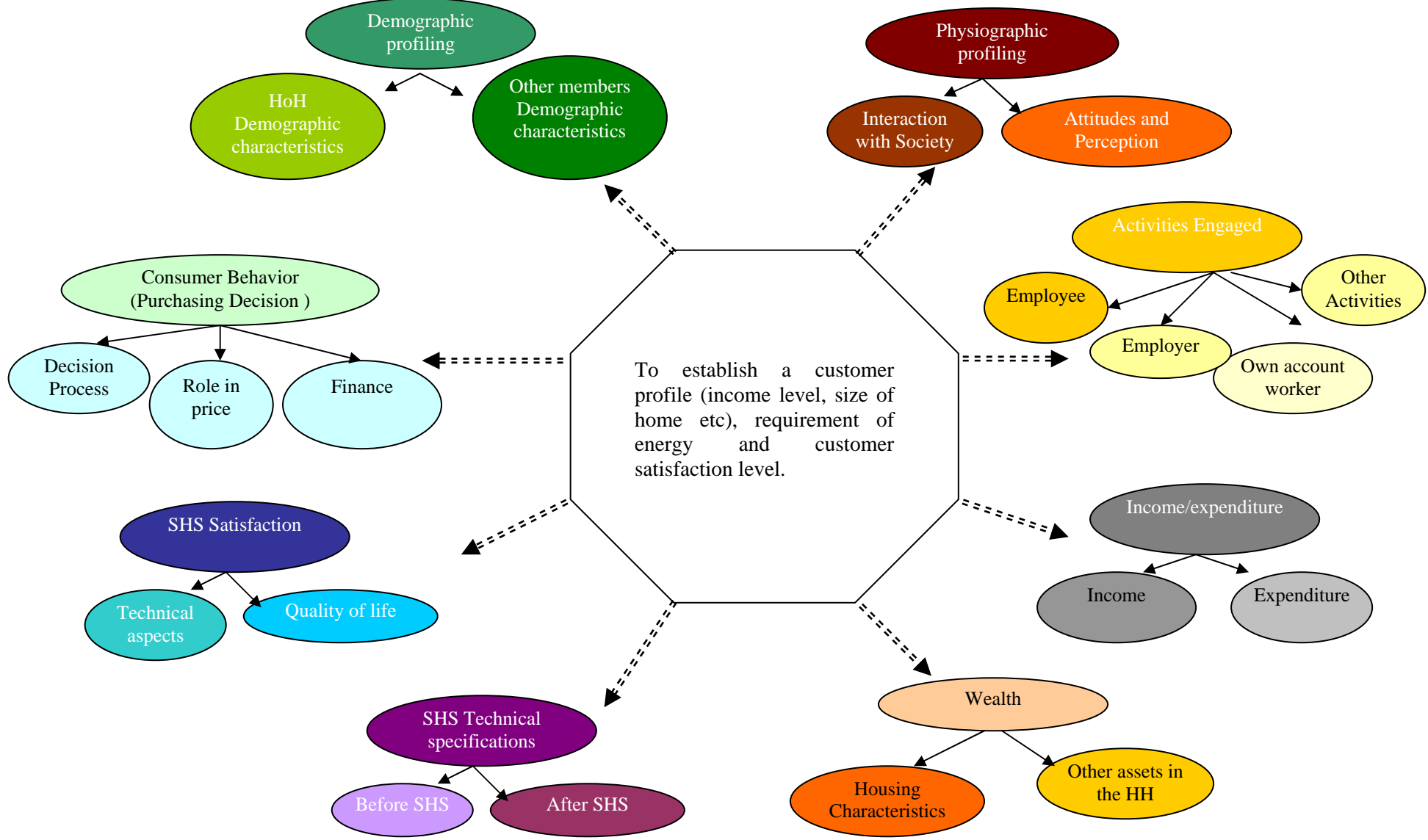
behavior analysis method. Source of awareness, source of knowledge, decision maker, decision influencer, main reason to purchase and perception on national grid and its expansion has been analyzed.

The financial plan for the purchase decision has been analyzed on whether they obtained a loan or paid at once, if obtained a loan the details analyzed on the Finance institute, payment period, initial payment, monthly installment, loan period, interest rate, missed installments (if any), source of awareness on availability of a loan and Factors considered when selecting the MFI

To address whether the customers are sensitive to the prices, upgrading the unit has been used as a method to convince the customers to see the realistic scenario to discuss their perception on different price options available and the result has been analyzed on Likelihood of upgrading the SHS, The additional number of equipment required, The extra amount willing to spend, upgrading options, upgrading the system for an addition to monthly installment and the situation once the national grid arrives in the area has been analyzed.

The last chapter presents the summary and conclusion for the study. Significant testing has been done in each of the chapters where it is important to make the final conclusion and the critical decision making areas used for the final conclusion.

Diagram 1.1 Analysis Framework



3.0 UNDERSTANDING THE SHS USERS

SHS Users Universe Analysis

This section contains an analysis of the universe handed over to ACNielsen by the administrative Unit for RERED. This analysis is performed along 4 main criteria.

- Vendor/SHS company
- Normal and Purchased Prices of SHS
- Month of SHS purchase
- Breakdown of the SHS Users by DSDs/AGA's

3.1.1 The SHS Vendors- Universe

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
ACCESS	45%	5%	6%	27%	27%	11%	54%	36%	25%
ASES	6%	3%	2%	8%	4%	5%	1%		0%
EBC	5%	13%	10%	10%	19%	4%	9%	12%	7%
SELCO	11%	9%	9%	33%	20%	10%	12%	6%	12%
SellSolar	2%	7%	30%	5%	7%	45%	3%	5%	19%
SellSolar1			0%	1%		2%	1%		3%
SellSolar2		1%	4%	3%		6%	0%		6%
SellSolar3			9%			8%	0%		5%
SellSolar4						0%			1%
SellSolar5	0%		4%	1%		3%	0%		6%
SellSolar6			6%			2%			2%
SUNSolar			0%	8%	7%	2%	7%	23%	3%
SVL	30%	63%	18%	2%	15%	0%	12%	18%	11%
UNISOLAR		1%	0%						
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	261	196	511	372	382	739	394	265	317

The above table presents an extensive amount of data, for the purpose of analysis few tables will be drawn from this main table in the next few pages. We will first focus on understanding sales strategy of different vendors.

ShellSolar Sales Strategy

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
SellSolar	3%	7%	53%	10%	7%	67%	5%	5%	42%
All Other providers	97%	93%	47%	90%	93%	33%	95%	95%	58%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	261	196	511	372	382	739	394	265	317

It is very clear that the sales strategy of ShellSolar provider is targeting the high Wp system users in all three district. ShellSolar controls more than half (53%) of the 50-60 Wp market in Kurunegala, more than two third (67%) of the Ratnapura and more than one third (40%) of the Ampara market respectively. Since the base is also high (511, 739 and 317) the real numbers make a good market for them.

This may be a very attractive to sub segments in this market and naturally in a competitive environment this marketing strategy is understandable, aggressive and accepted. However RERED is a “project” not in a “normal” marketing environment. The above strategy indirectly implies that the grant or loan mechanism will not facilitate the desired the objectives, if ShellSolar continues its current strategy. The past sales and future directions have to be monitored by the solar industry growth and analyzed closely. As discussed during the initial presentation of findings to the World Bank ACNielsen is willing to do “extra” analysis on this if required.

Access Sales Strategy

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
ACCESS	45%	5%	6%	27%	27%	11%	54%	36%	25%
Other providers	55%	95%	94%	73%	73%	89%	45%	64%	75%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	261	196	511	372	382	739	394	265	317

It is also very clear that Access target focus is in the Ampara market and as a result enjoys relatively high share. Ratnapura was there second target market area. Surprisingly Access had a 45% market share in Kurunegala before the grant removal and after the grant removal it reduced to 5%. SVL has taken that share.

Other service providers

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
ASES	6%	3%	2%	8%	4%	5%	1%		0%
EBC	5%	13%	10%	10%	19%	4%	9%	12%	7%
SELCO	11%	9%	9%	33%	20%	10%	12%	6%	12%
Others	78%	75%	79%	49%	57%	81%	78%	82%	81%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	261	196	511	372	382	739	394	265	317

SELCO, EBC and the ASES are the other service providers who are the “also” players in the market. SELCO has a relatively higher share in all the segments prior to the grant removal however after the grant removal it shows a reduction while EBC shows a growth. However further analyzing these findings and getting the reasons will give us the required insights.

3.1.2 Normal and Purchased Prices

Normal Prices

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Rs. 30,001 - 35,000	0%			1%	0%		1%		
Rs. 35,001 - 40,000	16%	7%		44%	9%		22%	15%	0%
Rs. 40,001 - 45,000	71%	42%	0%	49%	75%	2%	70%	76%	5%
Rs. 45,001 - 50,000	5%	49%	16%	7%	14%	15%	2%	9%	17%
Rs. 50,001 - 55,000			47%			35%			40%
Rs. 55,001 - 60,000	7%	2%	14%		1%	12%	4%		25%
Rs. 60,001 - 65,000			22%			35%			12%
Above Rs. 65,001			0%			1%			
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	261	196	511	372	382	739	394	265	317

The above price range analysis table indicates that the price has varied mostly within the Rs 35,001- 50,000 range for the 35-40 Wp system while Rs 40,001 to 65,000 for 50-60 Wp systems.

Normal price- Descriptive Statistics

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	42,559	45,418	54,605	40,403	43,340	55,843	41,706	42,945	53,247
Std Deviation	4,183	2,889	5,107	2,879	3,026	5,925	3,627	2,374	4,799
Valid N	N=261	N=196	N=511	N=372	N=382	N=739	N=394	N=265	N=317

According to the normal price analysis with the assumption that the only effect is based on grant removal for during respective time periods (this assumption is not realistic though in demand theory we assume it. However we believe we can assume the same for this analysis purpose) The price increase given is as follows.

Price Increase

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	42,559	45,418	54,605	40,403	43,340	55,843	41,706	42,945	53,247
Price increment		2,859			2,937			1,239	
Percentage of increment		4%			5%			2%	

The price increased by 5%, 4% and 2% in Rathnapura, Ampara and Kurunegala respectively, does not indicate a change in the mean due a standard deviation in Kurunegala of 4,183 and Ampara of 3,627, after the grant removal the standard deviation comes down to 2,889 and 2,374 respectively. If we are to assume that there are no other changes in the market we may conclude saying it has become more competitive post the removal of the grant.

Price difference by areas

	35-40 Wp Before Removal	Price difference (District price- Average price)	Percentage difference	35-40 Wp After Removal	Price difference (District price- Average price)	Percentage difference	50 - 60 Wp Before Removal	Price difference (District price- Average price)	Percentage difference
Kurunegala	42,559	1,003	2.41%	45,418	1,517	3.46%	54,605	40	0.07%
Rathnapura	40,403	-1,153	-2.77%	43,340	-561	-1.28%	55,843	1,278	2.34%
Ampara	41,706	150	0.36%	42,945	-956	-2.18%	53,247	-1,318	-2.42%
Average Price	41,556			43,901			54,565		

- Ratnapura customers pay lower prices for similar product specifications (assuming the service quality is also the same) than Ampara and Kurunegala for 35-40 Wp prior grant Removal.
- Post grant removal Ampara customers pay lower prices than Kurunegala and Ratnapura customers for 35-40 Wp systems.
- Ampara customers paid lower prices than Kurunegala and Ratnapura customers for 50-60 Wp systems prior to the grant removal.

Purchased Price

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	42,559	45,429	54,562	30,430	33,309	45,733	31,728	32,942	43,240
Std Deviation	4,183	2,904	5,092	2,968	3,045	5,931	3,632	2,391	4,809
Valid N	N=261	N=196	N=511	N=372	N=382	N=739	N=394	N=265	N=317

The difference between the normal price and purchase price is based on both RERED grant and the provincial council grant. The RERED grant is 70 US\$ (SLRs 4000) whilst SLRs. 7500 is the amount received from the provincial council grant. This difference is explainable after considering the non existence of provincial council grant in Kurunegala .

3.1.4 Breakdown of the DSDs

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Kolonna	22%	12%	9%						
Godakawela	17%	4%	12%						
Embilipitiya	16%	31%	14%						
Weligepola	9%	8%	7%						
Ratnapura	6%	5%	3%						
Balangoda	5%	18%	6%						
Nivithigala	5%	2%	4%						
Imbulpe	4%	6%	10%						
Kalawana	4%	2%	9%						
Ayagama	3%	2%	5%						
Opanayake	3%	4%	6%						
Palmadulla	3%	4%	5%						
Kahawatte	1%	1%	2%						
Kuruwita	1%		3%						
Ahaliyagoda	0%		3%						
Others	1%	1%	2%						

Kolonna, Godakawela and Embilipitiya are the high sales areas in Ratnapura

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Dehiatte Kandiya							26%	32%	40%
Uhana							22%	20%	21%
Damana							18%	23%	10%
Mahaoya							13%	10%	9%
Padiyathalawa							10%	8%	8%
Ampara							6%	6%	6%
Pottuvil							2%	1%	1%
Lahugala							2%	0%	4%
Others									1%

Dehiatte Kandiya, Uhana and Damana are the high sales areas in Ampara

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Polpithigama	44%	19%	23%						
Ibbagamuwa	10%	4%	8%						
Ganewatta	6%	7%	3%						
Ambanpola	5%	6%	4%						
Kotawehera	5%	2%	6%						
Galgamuwa	5%	13%	7%						
Giribawa	4%	19%	4%						
Rasnayaka Pura	3%	2%	4%						
Mahawa	2%	6%	11%						
Rideegama	2%	5%	1%						
Kobeigane	1%	1%	4%						
Nikawaratiya	1%	5%	3%						
Wariyapola	0%	1%	4%						
Others	12%	11%	15%						
Base	261	196	511	372	382	739	394	265	317

Polpithigama, Ibbagamuwa and Mahawa are the high sales areas in Kurunegala district.

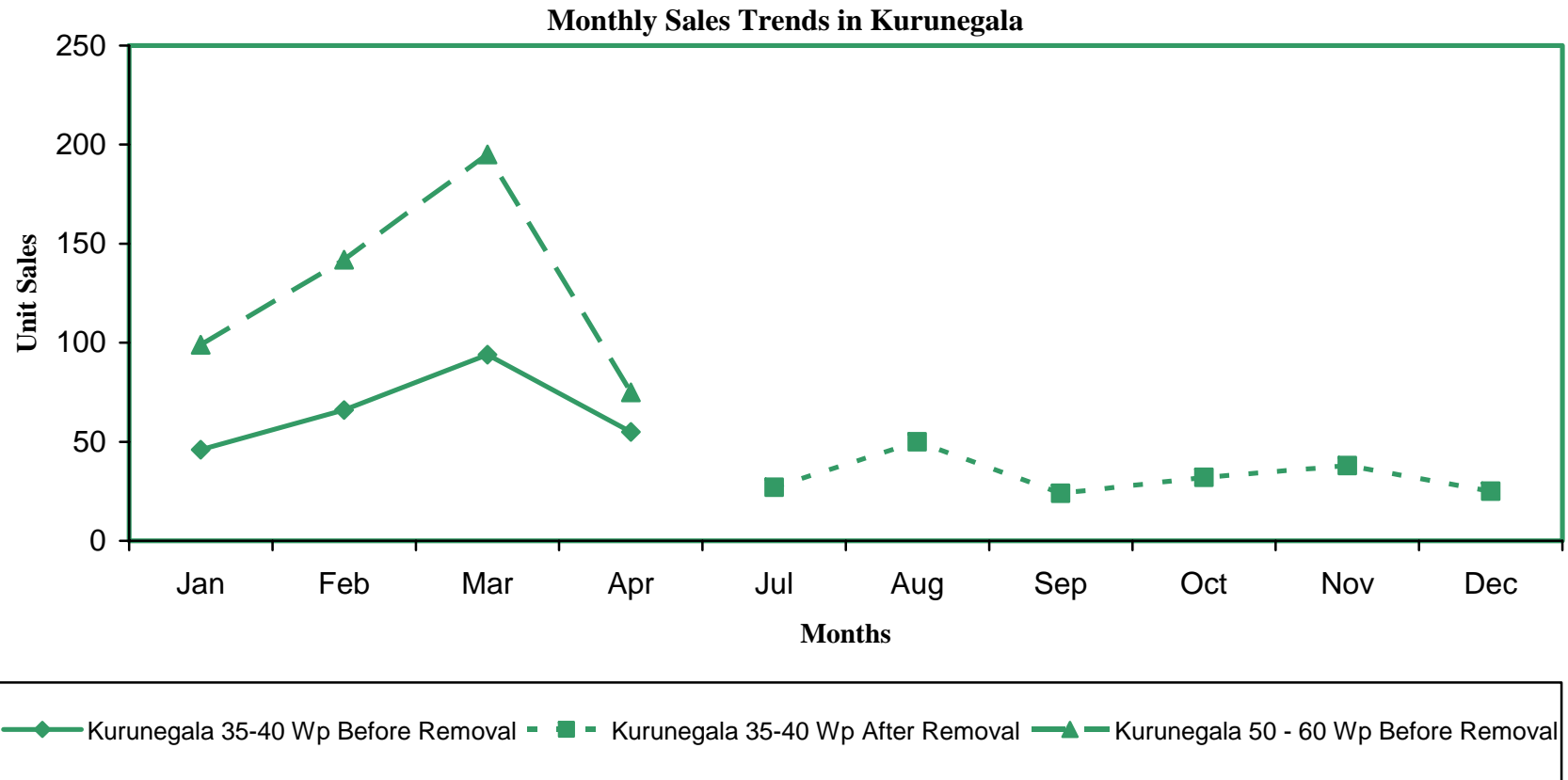
3.1.5 Time of Purchased –Monthly trends

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Jan	18%		19%	26%		14%	18%		15%
Feb	25%		28%	17%		25%	13%		30%
Mar	36%		38%	38%		40%	39%		37%
Apr	21%		15%	19%		21%	30%		18%
Jul		14%			39%			37%	
Aug		26%			61%			63%	
Sep		12%							
Oct		16%							
Nov		19%							
Dec		13%							
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	261	196	511	372	382	739	394	265	317

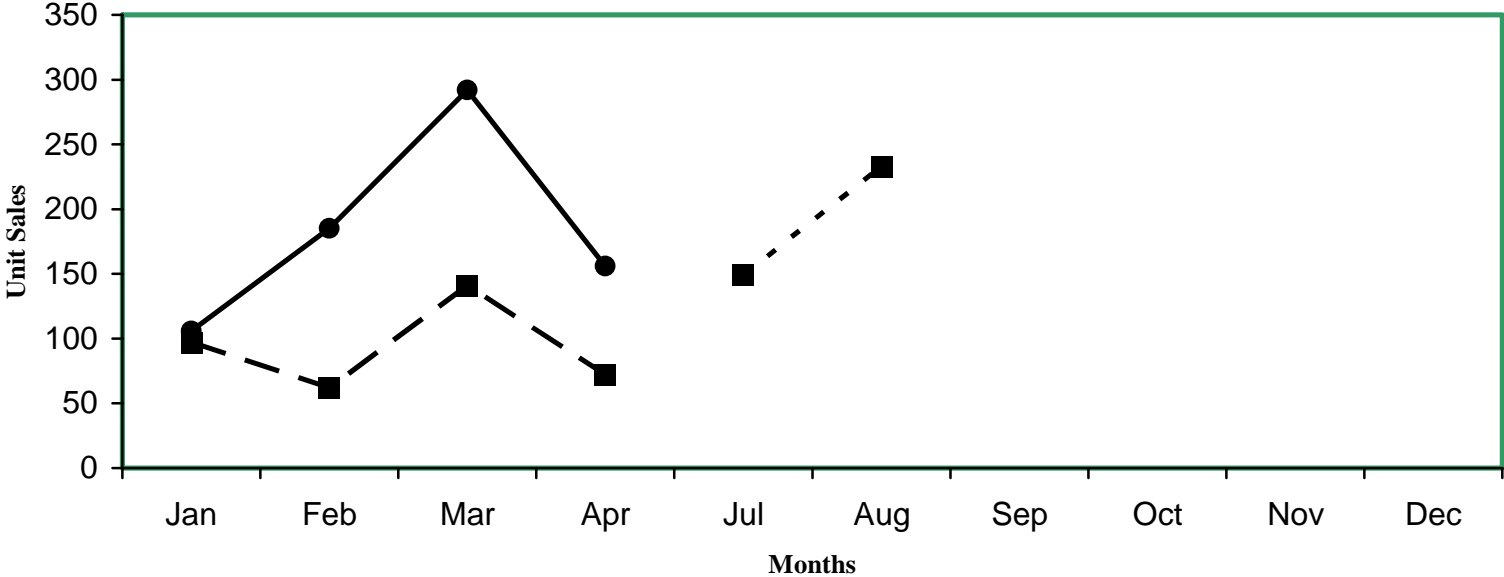
It is very clear that the sales in March for 35-40 Wp systems, before grant removal is one third for the three districts. In April due to the Sinhala and Hindu New year festival season there was a drop in sales compared to other months. The fact that March being the harvest seasons has also got to kept in mind .

Since the universe data is not available, it is not possible to do the analysis for May and June. However July and August sales statistics clearly indicate that the sales have reduced in July to one third of the total while in August it is two third.

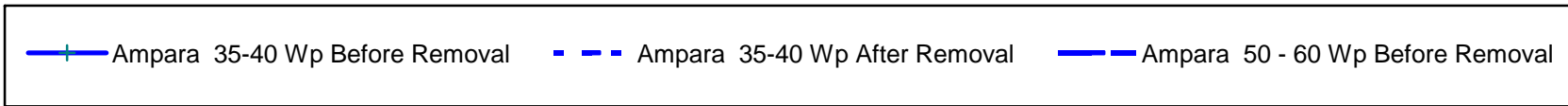
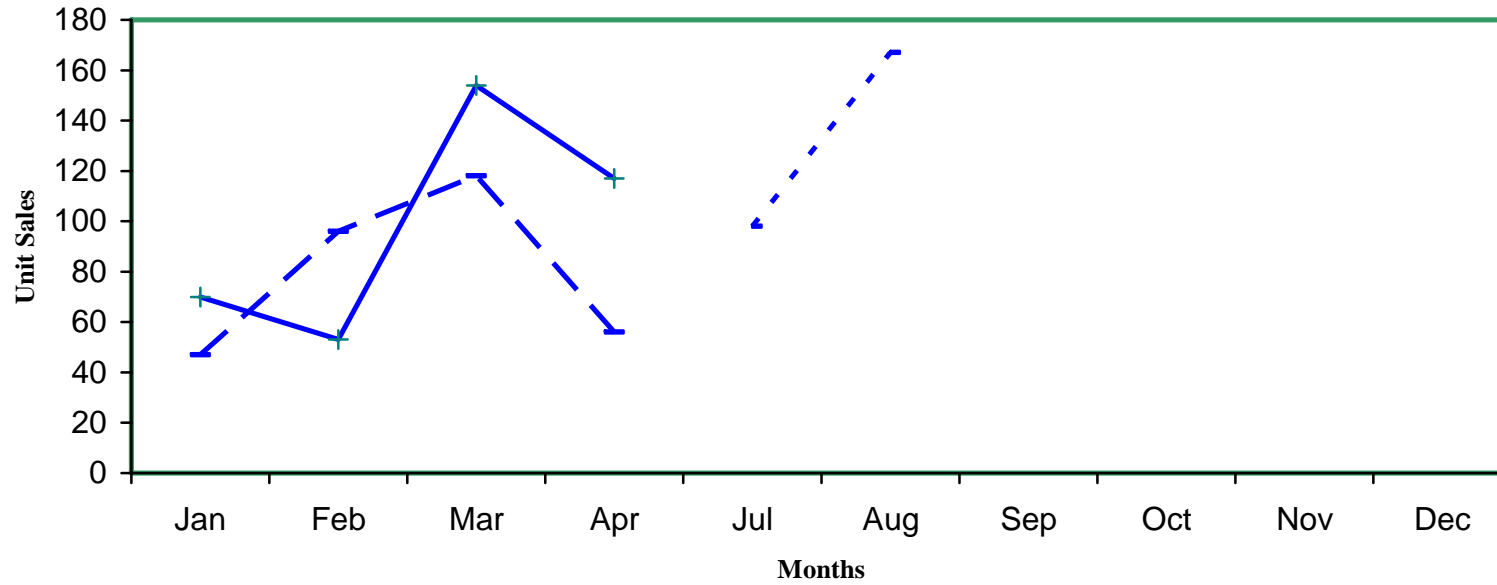
Monthly Sales trends



Monthly Sales Trends in Rathnapura



Monthly Sales Trends in Ampara



3.2 Survey Sample Analysis

This section is an analysis on the sample characteristics used for the universe analysis. This analyses will give us an indication of how representative the sample is.

3.2.1 Vendor/SHS company

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Shell Solar	8%	2%	55%	27%	12%	65%	5%	4%	51%
Suryavahini	48%	64%	18%		13%		13%	22%	9%
Access Solar	35%	4%	2%	22%	23%	9%	54%	35%	19%
Eco Solar	8%	15%	18%	7%	21%		16%	5%	2%
Selco		13%	8%	31%	27%	15%	7%		17%
Sunsolar				9%	4%	2%	5%	35%	2%
E.B.Crisy		2%							
Solar Marx						2%			
Solar Thermal	2%			4%		7%			
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	261	196	511	372	382	739	394	265	317

3.2.2 Purchased Prices of SHS

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	45,325	46,309	54,431 ^{ab}	34,035	34,767	50,344 ^{de}	34,429	34,062	44,068 ^{gh}
Std Deviation	6,300	4,320	5,348	7,951	6,317	8,867	6,471	4,019	5,649
Valid N	51	52	51	53	52	55	61	55	53

Significant testing using the Duncan test (please refer annexure 5 for the technical details) at 0.05 confidence interval has adopted throughout the report, for each district and the three categories at all given and required situations. The notification has been done using the following procedures.

1. The three districts and three categories have been labeled from a to i.
2. The first three cells (in Kurunegala) have been tested by using the Duncan test (please refer annex 5 for the details).
3. If a given mean score is significantly higher than any other this has been flaged by using “superscript” font along the respective mean score.

Interpretation of results.

In Kurunegala the price of 50-60 Wp is significantly higher than that of 35-40 Wp systems prior to the grant removal and even post the grant removal.

35-40 systems purchased price in Kurunegala before and after removing the grant are higher than Ratnapura and Ampara.

Vendor/SHS Company, Purchased Prices of SHS and Month of SHS purchase sample analysis clearly shows that the universe and the sample characteristics are similar on all the above attributes and therefore the representative ness is at a desired level

4.0 Demographic Profiling

This chapter focuses on analyzing the demographic profile of SHS users. The nine user categories were profiled to differentiate the head of the household (HH) and the other family members on key demographic characteristics including the average no of family members/family size, gender, age, education etc of the HoH.

These findings can be compared with the Department of Census and Statistics secondary data to arrive at an overall understanding of and within the three districts proposed. A 5% sample survey on the 2001 Census of Population and Housing will be used for this purpose

4.1 Family Composition

4.1.1 Average family members

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Average no of family members	4.08	4.57	4.08	4.35	4.48	4.20	4.67	4.27	4.79
Base	52	53	51	55	52	55	61	55	53

	Kurunegala			Ratnapura			Ampara		
General population average (2001 Census)	3.90	3.90	3.90	4.3	4.3	4.3	na	na	na

According to the Universe (5% sample analysis from the Census of Housing and Population conducted by the DCS) the average family size of a household was 3.9 and 4.3 members in Kurunegala and Ratnapura respectively.

The average family size of a SHS user is 4.08 and 4.57 in Kurunegala, 4.08 and 4.35 in Rathnapura using 35-40 Wp pre and post the grant removal. Though numerically a difference does exist it is not statistically significant.

Other members relationship to the HoH

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Spouse of CWE	28%	25%	30%	28%	29%	27%	26%	29%	24%
Son / daughter	56%	53%	52%	67%	69%	69%	67%	64%	72%
Spouse of son/daughter	1%	4%	4%	1%	1%	1%	2%	2%	1%
Grandchild	1%	4%	4%	1%			2%	2%	2%
Parent	7%	6%	5%	1%	1%		3%	1%	1%
Brother/Sister	4%	2%	1%	1%		1%			
Mother/father in law	1%	3%	1%	2%	1%	1%		1%	
Cousin	1%					1%		1%	
Border		2%	1%						
Other	2%	3%	3%						
Total	100%	100%	100%	100%	100%	100%	100%	100%	
Base	52	53	51	55	52	55	61	55	53

No major difference when considering the relationship to the HoH in any of the areas.

4.1.3 Gender of the HoH

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Male	87%	94%	90%	91%	100%	87%	100%	98%	91%
Female	13%	6%	10%	9%		13%		2%	9%
Total	100%	100%	100%	100%	100%	100%	100%	100%	
Base	52	53	51	55	52	55	61	55	53

According to the Universe (5% sample analysis from the Census of Housing and Population conducted by the DCS) the male female ratio is 78: 22 in the Kurunegala district. The HoH amongst the SHS users in Kurunegala has a 10% male dominance for 35-40 Wp systems while in all other areas, the percentage is higher.

4.1.4 Gender of the Other Members

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Male	38%	40%	39%	40%	42%	42%	40%	35%	42%
Female	63%	60%	61%	60%	58%	58%	60%	65%	58%
Total	100%	100%	100%	100%	100%	100%	100%	100%	
Base	52	53	51	55	52	55	61	55	53

4.2 Profile of the HoH

4.2.1 Age of the HoH

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
20 - 29	17%	6%	8%	13%	6%	11%	11%	13%	9%
30 - 39	27%	26%	25%	20%	29%	11%	41%	35%	30%
40 - 49	29%	30%	22%	31%	33%	35%	26%	27%	36%
50 - 59	25%	25%	25%	29%	17%	27%	7%	18%	17%
60 - 69		9%	16%	5%	12%	13%	11%	7%	6%
70 & above	2%	4%	4%	2%	4%	4%	3%		2%
Total	100%	100%	100%	100%	100%	100%	100%	100%	
Base	52	53	51	55	52	55	61	55	53

4.2.1.B. Profile of the HoH : Descriptive statistics

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	41	46 ^a	47 ^a	44	45	47	42	41	44
Std Deviation	11	12	13	12	11	12	12	11	12
Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53

Interestingly, when it comes to the age of the HoH users in Kurunegala, there is a slight difference. The percentage of 35-40 Wp system users before the removal of grant is significantly higher than the after grant removal and 50-60 Wp system users. W.r.t other districts, there is no significant difference.

4.2.2 Level of education of the HoH

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
No schooling	2%	4%	2%	2%	2%	11%	10%	4%	6%
Passed Grade 1-5	29%	32%	37%	38%	40%	42%	48%	45%	45%
Passed Grade 6-10	29%	28%	33%	36%	42%	33%	31%	35%	32%
Passed GCE / (O/L) / NCGE / SSC	21%	13%	14%	18%	12%	7%	8%	15%	17%
Passed GCE / (A/L) / HNCE / HSC	17%	21%	12%	5%	4%	7%	3%	2%	
Degree and above	2%	2%	2%						
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

Of the three districts, Kurunegala has the highest percentage of educated HoH while Ampara has the lowest numbers .

4.3 Profile of the Other members

4.3.1 Age of the Other members

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
0-9	17%	13%	15%	13%	12%	13%	25%	23%	18%
10-19	28%	25%	21%	34%	30%	24%	30%	27%	31%
20 - 29	26%	30%	26%	29%	29%	35%	22%	24%	30%
30 - 39	9%	10%	16%	7%	12%	12%	13%	13%	8%
40 - 49	11%	10%	8%	11%	10%	10%	4%	6%	8%
50 - 59	6%	7%	7%	4%	3%	5%	4%	5%	3%
60 - 69	3%	2%	4%	1%	2%	2%	2%	1%	0%
70 & above	1%	5%	3%	2%	2%	1%	1%	1%	1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Average age (Yrs)	24	27	27	24	25	25	21	21	21

Multiple responses possible

In all the nine categories, the average age of the members is between 21 – 27 years. In the context of loan repayment, this figure is attractive. However since most of the members are students, a majority of the expenses can be attributed to education.. (Refer Section 6.1.1 and 6.1.2 for further information).

4.3.2 Level of the education of the Other Members

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
No schooling	3%	5%	1%	1%	2%	7%	10%	8%	7%
Passed Grade 1-5	23%	21%	22%	21%	21%	18%	22%	22%	17%
Passed Grade 6-10	33%	36%	30%	39%	38%	40%	36%	38%	41%
Passed GCE / (O/L) / NCGE / SSC	26%	22%	25%	24%	29%	24%	20%	18%	22%
Passed GCE / (A/L) / HNCE / HSC	9%	12%	14%	9%	7%	6%	5%	8%	7%
Degree and above	1%	0%	2%	0%	2%	1%	0%	0%	0%
Others	7%	4%	6%	6%	3%	5%	6%	6%	5%
Total	100%	100%	100%	100%	100%	100%	100%	100%	

Multiple responses possible

The educational profile for the other members is similar to the HoH. Kurunegala is the highest educated area amongst the three districts while Ampara continues to be the lowest .

5.0 Activities Engaged by the HH Members

5.1 Nature of the Economic activity of the HoH

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Wage/salary earner	50%	36%	33%	36%	37%	24%	25%	25%	36%
Own economic activity	50%	70%	53%	65%	63%	73%	77%	73%	57%
Employer	2%	4%	2%	2%	2%	2%			9%
Unpaid economic activities	2%					2%	5%		2%
Domestic work	6%	2%	6%	2%		5%			4%
Retired		2%	4%						
Mature and non workable	2%	2%	4%	2%	6%	2%	3%	2%	2%
Total	112%	115%	102%	107%	108%	107%	110%	100%	109%
Base	52	53	51	55	52	55	61	55	53

Multiple responses possible

Most of the HoH are Wage/salary earners or have their own economic activities. Henceforth the report will focus on this segment. Though the employer category is important, the bases are not sufficient to further analyse their profile. Domestic workers, Retired and Mature and non workable categories have also not been further analysed. However the income received at an individual/household related source has been included in the relevant sections when calculating the income indicators.

5.1.1 HoH - Profile of the Job

	Kuruneg ala 35-40 Wp Before Removal	Kuruneg ala 35-40 Wp After Removal	Kuruneg ala 50 - 60 Wp Before Removal	Ratnapur a 35-40 Wp Before Removal	Ratnapur a 35-40 Wp After Removal	Ratnapur a 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
The same GN division	38%	26%	29%	60%	68%	77%	20%	57%	53%
The same DS division another GN division	15%	11%	24%	20%	11%	15%	47%	29%	16%
The same district but different DS division	15%	26%						7%	
This province but the same district				5%					11%
Different province	23%	37%	29%	15%	21%	8%	27%	7%	21%
Other country	4%								
Don't know / cannot say	4%		18%				7%		
Permanent	35%	53%	47%	10%	26%	38%	53%	43%	63%
Temporary	65%	47%	53%	90%	74%	62%	47%	57%	37%
Private	71%	68%	71%	90%	79%	85%	53%	64%	42%
Public	29%	32%	29%	10%	21%	15%	47%	36%	58%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base*	26	19	17	20	19	13	15	14	19

Most of the HoH work in an area that is closer to their GN's. Also, a majority of them are involved in temporary jobs and belong to the private sector.

5.1.3 HoH - Nature of Own Economic Activity

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
The same GN division	85%	76%	96%	86%	94%	95%	87%	100%	93%
The same DS division another GN division	8%	14%		8%		3%	13%		3%
The same district but different DS division	4%	11%			3%				
This province but the same district				3%					
Different province	4%		4%	3%	3%	3%			3%
Agricultural	65%	73%	70%	86%	100%	98%	94%	98%	100%
Technical	8%	8%	15%	3%			4%		
Service	27%	19%	15%	11%		3%	2%	3%	
Base	26	37	27	36	33	40	47	40	30

A majority of the HoH engaged in agricultural activities and the economic activity is situated within the same GN. Henceforth, further analysis will focus on the nature of the agricultural activities

5.1.4 HoH own Economic Activity- Agriculture

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
The same GN division	82%	81%	100%	87%	94%	95%	89%	100%	93%
The same DS division another GN division	12%	11%		10%		3%	11%		3%
The same district but different DS division	6%	7%			3%				
This province but the same district				3%					
Different province					3%	3%			3%
New land reform policy		15%	11%	10%	15%	10%	14%		23%
Redistribution of land			11%	6%	3%		2%	3%	
Heritage	47%	59%	53%	58%	61%	59%	57%	49%	33%
Voluntary redistribution of land									3%
Purchase	24%	4%	5%	16%	6%	5%	5%	10%	17%
Other reasons other than redistribution					6%	3%			
Illegally	24%	15%	16%	6%	6%	23%	11%	8%	20%
Other	6%	7%	5%	3%	3%		11%	31%	3%

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Land Extent (Perches)									
Mean	210	253	231	247	227	212	310	303	306
Std Deviation	215	172	168	142	119	91	122	136	159
Valid N	N=17	N=27	N=19	N=31	N=33	N=39	N=44	N=39	N=30

Most HoH own one hectare (225 perches) of land in their own GN that has been received as a heritage and they engage in agricultural activity

There is no significant difference between the three categories in Kurunegala, Ratnapura and Ampara districts.

5.2 Nature of the Activities Engaged by the Other Members

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Wage/salary earner	62%	66%	63%	51%	31%	38%	36%	24%	38%
Own economic activity	13%	28%	20%	16%	25%	45%	11%	13%	8%
Employer		2%	2%	2%				2%	2%
Unpaid economic activities		4%	2%	4%	6%	5%	16%	13%	36%
Trying to find employment	23%	26%	25%	25%	54%	36%	16%	13%	26%
Student	108%	98%	71%	124%	108%	84%	130%	128%	142%
Domestic work	62%	89%	80%	89%	92%	82%	103%	94%	94%
Retired		2%	4%						
Mature and non workable	12%	19%	16%	2%	10%	11%	5%	6%	6%
Too young to attend to school	31%	23%	27%	22%	23%	18%	49%	39%	30%
Other non economic activity					2%		2%	2%	
Total	310%	357%	310%	335%	350%	320%	369%	333%	381%
Base	52	53	51	55	52	55	61	55	53

Multiple responses possible

Wages and salaries are the main source of income for a majority of other members. Since the bases are small, the profile of the members who are involved in their own economic activities cannot be further analyzed.

5.2.1 Other Members- Profile of the Job

	Kuruneg ala 35-40 Wp Before Removal	Kuruneg ala 35-40 Wp After Removal	Kuruneg ala 50 - 60 Wp Before Removal	Ratnapur a 35-40 Wp Before Removal	Ratnapur a 35-40 Wp After Removal	Ratnapur a 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
The same GN division	25%	11%	13%	29%	38%	5%		8%	35%
The same DS division another GN division	13%		13%	7%	13%	19%	14%	31%	25%
The same district but different DS division	6%	23%	9%	7%	6%	5%	9%		20%
This province but the same district		6%	3%	4%			5%	8%	5%
Different province	31%	40%	44%	50%	44%	67%	64%	38%	10%
Other country	25%	20%	19%	4%		5%	9%	15%	5%
Don't know / cannot say									
Permanent	22%	34%	59%	4%	13%	24%	23%	31%	40%
Temporary	78%	66%	41%	96%	88%	76%	77%	69%	60%
Private	96%	81%	70%	77%	75%	89%	76%	45%	67%
Public	4%	19%	30%	23%	25%	11%	24%	55%	33%
Total									
Base	32	35	32	28	16	21	22	13	20

Multiple responses possible

Most of the other members work in areas that are close to their homes and are involved in temporary jobs with the private sector.

5.3 Social Interactions

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Funeral Donation	81%	92%	98%	56%	63%	60%	84%	64%	91%
Religious societies	37%	70%	71%	4%	10%	9%	61%	51%	75%
Samurdhi	42%	49%	41%	45%	56%	27%	41%	44%	40%
Educational related	27%	30%	22%	11%	12%	13%	49%	47%	60%
Agricultural societies	17%	26%	27%	7%	12%	24%	33%	18%	38%
Sarvodaya society	2%	4%	6%	15%	13%	9%	25%	24%	19%
Women's Organisations	17%	23%	4%	5%	8%	4%	23%	11%	17%
Village development societies	4%		8%	15%	6%	7%	5%	5%	15%
Youth organizations		8%	2%		10%	2%	20%	5%	11%
Corporative societies	8%	6%	18%	4%	10%	5%	5%	2%	
Political societies				9%	10%	9%	2%		
Savings & finance societies	4%					2%	5%	5%	2%
Others	32%	25%	26%	19%	5%			5%	10%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

Multiple responses possible

Majority of the respondents are members of the Funeral Donation Society. This is indicative of the financial behavior to some extent in Sri Lanka as when a funeral occurs, the members expect to get some money form the society. This behavior is more common in rural than urban areas.

6.0 INCOME EXPENDITURE AND WEALTH INDICATORS

6.1 HOH Earnings/contributions

HoH Earning from the Job- Salary and Wages

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	9,344	8,316	7,941	8,125	9,289 ^a	11,462 ^{ab}	9,633	8,679	10,000
Std Deviation	4,865	5,091	3,144	3,876	4,504	4,502	3,706	2,643	3,240
Valid N	N=25	N=19	N=17	N=20	N=19	N=13	N=15	N=14	N=19

HoH Earning from the Own Economic Activity

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	5,681	7,622	6,889	8,164	8,718	8,068	7,567	7,748	6,492
Std Deviation	2,720	4,756	3,509	4,782	5,278	4,192	6,007	3,210	2,721
Valid N	N=26	N=37	N=27	N=36	N=33	N=40	N=47	N=40	N=30

HoH Earnings from all the sources (Salary & wages, Own Economic activity, Employer etc)

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	8,240	8,980	7,750	8,800	9,678	9,634	8,775	7,989	8,725
Std Deviation	4,214	5,248	4,391	5,093	4,969	4,385	5,807	3,077	3,511
Valid N	N=47	N=50	N=44	N=53	N=49	N=50	N=57	N=54	N=50

6.2 Other Members Earnings/contributions

Other Members- Earning from Salary and Wages

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	6,554	6,532	6,462	5,574	4,594	6,350	7,386	8,273	7,379
Std Deviation	2,768	3,277	3,594	3,359	2,361	3,237	2,556	3,503	3,536
Valid N	N=24	N=28	N=26	N=27	N=16	N=20	N=21	N=11	N=19

Other Members Earning from the Own Economic Activity

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	3,429	7,567 ^{ac}	3,600	4,439	5,154	7,160	5,571	3,543	3,500
Std Deviation	3,207	5,308	2,221	3,403	2,569	4,332	1,484	2,373	1,958
Valid N	N=7	N=15	N=10	N=9	N=13	N=25	N=7	N=7	N=4

Other Members Earnings from all the sources (Salary & wages, Own Economic activity, Employer)

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	7,883	10,047	7,885	7,798	7,395	11,667 ^{de}	10,783	8,387	8,956
Std Deviation	5,088	6,985	5,703	6,957	4,823	7,175	5,948	6,949	3,710
Valid N	N=23	N=30	N=26	N=25	N=19	N=27	N=18	N=15	N=18

6.3 All Members Earnings/contributions

All Members- Earning from Salary and Wages

	Kurunegala a 35-40 Wp Before Removal	Kurunegala a 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	11,497	10,997	10,100	10,433	9,615	10,962	9,987	10,119	10,006
Std Deviation	6,246	6,089	5,263	6,170	4,883	4,819	4,576	6,865	4,105
Valid N	N=34	N=31	N=30	N=30	N=26	N=26	N=30	N=21	N=33

No significant difference between the three categories in three districts

All Members Earning from the Own Economic Activity

	Kurunegala a 35-40 Wp Before Removal	Kurunegala a 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	5,921	8,989 ^a	7,655	8,560	9,334	10,674	8,054	7,607	6,523
Std Deviation	3,079	6,790	3,596	4,783	5,437	7,277	6,047	3,466	3,052
Valid N	N=29	N=44	N=29	N=39	N=38	N=47	N=49	N=44	N=32

In Kurunegala, the 35-40 Wp system before grant users earn a significantly higher amount than the after grant users. Apart from this, there are no other differences between the categories in the other districts.

All Members Earnings from all the sources (Salary & wages, Own Economic activity, Employer)

	Kurunegala a 35-40 Wp Before Removal	Kurunegala a 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	11,149	14,158 ^a	11,375	12,025	12,053	14,485	11,381	10,131	11,273
Std Deviation	5,557	6,317	6,470	5,849	5,298	7,431	8,307	5,371	4,379
Valid N	N=51	N=53	N=48	N=55	N=51	N=55	N=61	N=55	N=53

In Kurunegala, the 35-40 Wp system before grant users earn a significantly higher amount than the after grant users. Apart from this, there are no other differences between the categories in the other districts.

6.4 Other Receivable to Household

The following table presents the other receivables to a household or individual members.

Benefit	No of beneficiaries	Percentage
Pension and benefits	8	2%
Samurdhi	220	45%
Govt. Social security payments	2	0%
Govt. Other payments		
Family members / friends / relatives	4	1%
Non gov. organisations		0%
Other income (Interest on deposits /Company shares)	3	1%
Machinery related	2	0%
Borrowing of cattle for agricultural purposes	2	0%
Others	4	1%
Total	487	100%

Nearly half of the households receive Samurdhi and further analysis will be focused on this.

6.4.1 Samurdhi Benefit

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Yes	42%	45%	41%	55%	52%	35%	54%	45%	36%
No	58%	55%	59%	45%	48%	65%	46%	55%	64%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

More than one third of the households get Samurdhi and in some areas more than half the households receive Samurdhi.

	Kurunegal a 35-40 Wp Before Removal	Kurunegal a 35-40 Wp After Removal	Kurunegal a 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	415	379	309	330	287	272	333	415	328
Std Deviation	182	189	169	161	162	151	160	163	153
Valid N	N=22	N=24	N=21	N=30	N=27	N=19	N=33	N=25	N=19

Though more than one third get Samurdhi, the average money they receive is relatively low. There is no significant difference between the three categories in the three district when it comes to Samurdhi benefits.

6.4.2 Receivable (Samurdhi, pension etc)

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	1,115	579	1,363	330	493	273	333	406	328
Std Deviation	2,449	993	3,062	159	1,096	147	153	167	153
Valid N	N=25	N=27	N=29	N=31	N=29	N=20	N=33	N=26	N=19

There is no significant difference between the three categories in the three district on Samurdhi and other benefits received.

6.5 Total Income for the Household Expenses (individual income, receivable and foreign income etc)

The Total income has been arrived at by including the individual level income and receivables both at an individual and HoH level. The Total income is thus representative of the Financial Capacity for a household for making their monthly expenses.

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	14,220	16,152	13,265	12,393	12,096	14,876 ^{de}	12,807	11,941	11,749
Std Deviation	9,603	9,925	7,721	5,800	5,839	7,409	11,290	11,093	4,511
Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53

There is a significant difference on the financial amount for household expenses in Ratnapura. In this district, the total income of the 50-60 Wp system users before grant removal is significantly higher than the before and after grant removal of 35-40 Wp system users. Apart from this, there is no other significant differences.

6.6 Expenditure Pattern

6.6.1 Expenditure Pattern at the time of the purchase of SHS

		Kuruneg ala 35-40 Wp Before Removal	Kuruneg ala 35-40 Wp After Removal	Kuruneg ala 50 - 60 Wp Before Removal	Ratnapu ra 35-40 Wp Before Removal	Ratnapu ra 35-40 Wp After Removal	Ratnapu ra 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Food & beverages	Mean	3,288	3,517	3,601	3,264	3,727	3,888	2,125	2,367	2,587
Fuel and electricity	Mean	460	847	550	458	546	517	362	239	310
Cloths	Mean	617	710	578	585	523	687	689	561	542
Health & medicine	Mean	507	607	663	489	601	628	496	515	497
Transport & telecommunication	Mean	580	969	513	324	449	369	390	370	401
Durable goods	Mean	638	531	1,129	767	1,045	2,737	1,023	551	540
Education	Mean	906	1,069	898	741	1,033	895	754	775	682
Total	Mean	5,935	7,337 ^a	6,754	5,773	6,856	7,487 ^d	5,414	4,967	5,265
	Std Deviation	2,378	3,186	2,954	2,448	2,787	3,815	2,759	2,217	1,498
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53

There is a significant difference on the total expenses before SHS for household expenses in Kurunegala. The number of a 35-40 Wp users after removing the grant is significantly higher than the before removing the grant segment in Kurunegala.

6.6.2 Last Months Expenditure

		Kuruneg ala 35-40 Wp Before Removal	Kuruneg ala 35-40 Wp After Removal	Kuruneg ala 50 - 60 Wp Before Removal	Ratnapu ra 35-40 Wp Before Removal	Ratnapu ra 35-40 Wp After Removal	Ratnapu ra 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Food & beverages	Mean	4,125	4,232	4,408	4,222	4,748	5,065	2,828	3,204	3,466
Fuel and electricity	Mean	1,438	1,524	1,643	1,061	1,300	1,380	1,281	1,152	1,545
Cloths	Mean	1,492	2,663	1,852	1,391	1,284	1,328	1,750	1,742	1,877
Health & medicine	Mean	738	683	774	771	818	988	495	555	424
Transport & telecommunication	Mean	853	1,066	634	402	513	518	498	489	499
Durable goods	Mean	540	988	475	2,050	1,205	1,232	1,816	602	472
Education	Mean	1,083	1,193	1,217	895	1,076	1,185	797	810	538
Total	Mean	8,862	10,813 ^a	9,880	8,798	9,591	10,002	8,569	7,947	8,432
	Std Deviation	3,635	5,999	3,952	3,659	4,137	3,636	7,013	3,137	2,684
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53

There is a significant difference in the total expenses before SHS for household expenses in Kurunegala. The number of 35-40 Wp users after removing the grant in Kurunegala is significantly higher than the before removing the grant segment. In the other two districts there is no significant difference in the three categories.

6.6.3 Expenses differences after the SHS purchased

The following table presents the difference between the expenses occurred after the SHS purchased and before purchasing the SHS. For eg. The 35-40 Wp Before Removal in Kurunegala main expenses on Food & Beverages before purchasing the SHS was Rs 3,288. However after purchasing the SHS, it increased by Rs. 837 . However the increase could be due to the price increases or the difference in quantities purchased and not solely due to the purchase of the SHS. Hence, it must be reiterated that these tables are only indicative and not absolute in nature.

		Kuruneg ala 35-40 Wp Before Removal	Kuruneg ala 35-40 Wp After Removal	Kuruneg ala 50 - 60 Wp Before Removal	Ratnapu ra 35-40 Wp Before Removal	Ratnapu ra 35-40 Wp After Removal	Ratnapu ra 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Food & beverages	Mean	1,146	1,024	1,029	1,033	1,084	1,221	739	958	971
Fuel and electricity	Mean	960	763	1,137	578	655	727	878	908	1,206
Cloths	Mean	1,085	2,063	1,463	1,012	1,226	873	1,244	1,326	1,475
Health & medicine	Mean	292	96	177	477	425	440	-1	56	-156
Transport & telecommunication	Mean	312	157	156	134	122	199	161	218	173
Durable goods	Mean	-400	781	-1,038	1,925	218	-2,673	562	-242	-327
Education	Mean	198	75	215	200	96	270	85	75	-319
Total	Mean	2,985	3,543	3,126	3,025	2,735	2,515	3,155	2,979	3,167
	Std Deviation	2,870	3,745	2,836	2,777	2,062	3,594	6,090	2,099	2,217
	Valid N	N=51	N=52	N=51	N=55	N=52	N=55	N=61	N=55	N=53

6.7 Wealth Indicators

6.7.1 Housing Characteristics

6.7.1.1 Constructed/purchased year

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Year 2001 or after	29%	25%	24%	15%	13%	18%	34%	24%	42%
Year 2000	10%	13%	14%	11%	25%	5%	10%	5%	8%
Year 1999	2%	8%	4%	5%	6%	13%	5%	5%	9%
Year 1998	8%	4%	6%	9%	12%	13%	13%	13%	4%
Year 1997	4%	2%	2%			5%	2%	5%	2%
Year 1996	8%		4%	2%	4%	2%	5%	5%	
Year 1995	8%	8%	12%	11%	8%	11%	7%	4%	2%
Year 1990 - 1994	13%	25%	14%	11%	10%	11%	20%	13%	15%
Year 1985 - 1989	8%	6%	10%	13%	8%			16%	6%
Year 1980 - 1984	4%	8%	8%	11%	10%	15%	5%	5%	11%
Year 1970 - 1979	6%	2%		9%	2%	7%		4%	2%
Year 1969 or before	2%	2%	4%	4%	4%				
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

Of the recently constructed houses in Ampara and Kurunegala, more than half of the houses were built before 1995.

6.7.1.2 Floor area

The length and width (claimed) used to calculate the square feet of the floor area.

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
0-500	42%	30%	22%	51%	50%	36%	77%	64%	42%
501-1000	42%	45%	49%	45%	44%	47%	21%	33%	49%
More than 1000	15%	25%	29%	4%	6%	16%	2%	4%	9%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Average	633	808 ^a	815 ^a	516	542	664 ^{de}	411	474	639 ^{gh}
Base	52	53	51	55	52	55	61	55	53

In Ampara the square feet is relatively lesser than other areas.

There is a significant difference when it comes to the floor areas. In all three districts, the mean floor of the 50-60 Wp system users is significantly higher than the other two categories.

6.7.1.3 No. of Rooms in the House

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	4.10	5.04 ^a	5.02 ^a	3.95	4.15	4.27	3.21	3.49	3.96 ^{gh}
Std Deviation	1.16	1.64	1.50	1.47	1.39	1.62	1.14	1.29	1.24
Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53

There is a significant difference in the no. of rooms in the house in Kurunegala and Ampara. Among the 50-60 Wp users before grant removal in Kurunegala and Ampara, the mean is significantly higher than the other two categories. There is no significant difference in the district of Ratnapura.

6.7.1.4 Toilet facility

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Sanitary fitted					2%				
Water sealed	83%	92%	98%	89%	92%	91%	64%	64%	68%
Pit latrine	15%	6%	2%	11%	6%	9%	28%	33%	30%
Other	2%	2%					5%	4%	2%
No sanitation facilities available							3%		
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

In Ampara there is no proper sanitation facilities and others (sharing with other houses etc). Furthermore, the pit latrine usage is higher which is indicative of the low sanitation facilities in that district.

6.7.1.5 Value of the house

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	198,820	264,865	322,745 ^a	337,000	307,500	312,091	103,451	144,818	135,274
Std Deviation	160,353	164,434	192,604	225,556	182,669	208,950	94,027	126,875	115,760
Valid N	N=50	N=52	N=51	N=55	N=52	N=55	N=61	N=55	N=53

There is a significant difference in the value of the house in Kurunegala. The mean for the 50 - 60 Wp users before grant removal is significantly higher than the other two categories. However there is no significant difference for the other categories in the other districts.

6.7.1.6 Status of the House

After considering a few factors, houses have been categorized into four categories. The algorithm is as follows.

What is the nature of this house ?	What material is the outer walls primarily made of ?	What material is the roof primarily made up of ?	The nature of the foundation	What material is the floor primarily made up of ?	What is the current value of the house?	Categories
Single house	Clay blocks	Roof tiles	Metal & cement	Cement	If above Rs 300,000	Medium Quality
A paired house	Earth blocks	Asbestos		Terazzo	Rs 100,000-300,000	Average Quality
A flat	Cement blocks	Concrete				
Annex	Unbaked clay block	Metal sheets	No foundation	Clay & cow dung		Lower Quality
A hut	Clay	Coconut leaves	Metal & mortar	Wood		
Shanty	Metal & wood	Other	Other	Sand bed floor		
Other	Coconut leaves			Other		
	Others					

6.7.1.7 Status of the House

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
High Quality	12%	32%	49%	40%	35%	31%		7%	8%
Medium Quality	27%	32%	29%	16%	35%	15%	15%	18%	26%
Average Quality	12%	8%	2%	4%	6%	15%	3%	9%	13%
Lower Quality	50%	28%	20%	40%	25%	40%	82%	65%	53%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

6.7.2 Assets Ownership

6.7.2.1 Assets Availability

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Furniture & fixtures	88%	94%	90%	98%	98%	98%	95%	96%	98%
Black & white TVs	90%	89%	92%	85%	88%	89%	89%	76%	91%
Radio cassette recorder	87%	94%	82%	85%	88%	89%	87%	85%	75%
Bicycles	54%	75%	65%	33%	23%	24%	69%	75%	70%
Sawing machines	27%	25%	29%	42%	35%	42%	20%	16%	25%
Motor bikes & scooters	10%	26%	29%	7%	6%	7%	11%	11%	21%
Petromax lamps	10%	17%	14%		6%	4%	8%	7%	4%
Tractors – hand driven	4%	8%	10%		2%	2%	10%	7%	4%
Fixed phones	4%	11%	18%		2%	5%	2%	2%	4%
Colour TVs	4%	2%	6%	4%	2%	4%	2%	5%	2%
CD /VCD/VCR	4%	2%	4%	5%	6%	5%		2%	
Cellular phones	2%	2%	4%	4%	6%	5%		4%	
Gas cookers	2%	2%	8%	4%		2%			
Kerocine cookers		6%			2%	2%		2%	2%
Fans	2%	2%		2%		2%		4%	2%
Vehicles	4%	2%	6%		6%	4%	2%		4%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

6.7.2.2 Total Assets Value

The previous table shows the ownership of assets. All the asset values have been obtained for each of the items and the following table presents the descriptive statistics on the total value.

Value of the Assets

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Mean	67,427	109,518	92,586	41,253	50,113	58,138	55,953	61,044	102,338
Std Deviation	133,869	154,105	107,898	29,453	64,865	66,914	59,653	67,463	245,481
Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53

Though numerical difference exist, there is no significant different in the three districts when it comes to the value of assets in the three categories.

7.0 Energy Usage, SHS and the Customer Satisfaction

7.1 Source by purpose before Purchasing the SHS

7.1.1 Source by purpose before Purchasing the SHS-Lighting

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Bulbs (Incandescent)	4%	2%				2%			
Bulbs (Florescent)	6%		6%	4%	2%	5%			2%
Kerosene lamps	98%	100%	98%	100%	98%	96%	100%	98%	100%
Hurricane lamps	42%	36%	41%	25%	12%	35%	38%	25%	34%
Petromax lamps	21%	26%	27%	5%	12%	4%	23%	5%	23%
Coconut oil lamps							2%		
Others		4%		11%	6%	5%			
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

Almost all the respondents used Kerosene lamps for lighting purposes before purchasing the SHS

7.1.2 Source by purpose- Cooking before SHS

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Fire wood cookers	100%	100%	100%	100%	100%	100%	98%	100%	100%
Paddy husk cooker		2%					2%		
Gas	2%	2%	4%						
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

7.1.3 Source by purpose- entertainment before SHS

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Radio	21%	8%	10%	20%	15%	29%	11%	13%	8%
Radio cassette recorder	69%	87%	78%	53%	77%	47%	70%	69%	62%
Black & white TV	87%	92%	90%	71%	83%	65%	66%	71%	72%
None above	4%	4%	4%	15%	6%	18%	13%	5%	13%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

For Cooking purposes, fire wood has been used in almost all the houses before the arrival of an SHS. Also, most of them had a Black & white TV before purchasing SHS. The following table presents the TV ownership before and after the SHS purchase.

7.1.4 Energy Requirement Changes with Equipments

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Radio cassette recorder-- Before SHS	69%	87%	78%	53%	77%	47%	70%	69%	62%
Radio cassette recorder- After SHS	87%	94%	82%	85%	88%	89%	87%	85%	75%
Black & white TV-- Before SHS	87%	92%	90%	71%	83%	65%	66%	71%	72%
Black & white TVs- After SHS	90%	89%	92%	85%	88%	89%	89%	76%	91%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

It is clearly evident that the Radio and TV usage has increased after the purchase of an SHS.

No of liters used before SHS for Kerosene Lamps for Lighting

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Avg. liters per month	6.9	8.2	9.5 ^a	6.3	6.8	7.9	6.1	6.3	6.6

The number of litres of kerosene used per month is significantly higher amongst the 50-60 Wp users than the 35-40 before and after grant removal users in Kurunegala.

7.2 Technical Specification of the SHS

		Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapur a 35-40 Wp Before Removal	Ratnapur a 35-40 Wp After Removal	Ratnapur a 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Bulbs (Incandescent)	Mean	1.00	1.00	3.00	2.75	2.00	3.00	1.00	1.00	.
	Std Deviation	0.00	0.00	0.00	1.50	.	.	0.00	.	.
	Valid N	N=5	N=5	N=2	N=4	N=1	N=1	N=2	N=1	N=0
Bulbs (Florescent)	Mean	2.25	4.25	3.04	3.40	3.12	3.71	3.40	2.00	3.73
	Std Deviation	0.50	1.28	0.81	1.15	1.03	2.04	0.89	0.00	2.20
	Valid N	N=4	N=8	N=27	N=25	N=26	N=35	N=5	N=2	N=26
Bulbs (CFL)	Mean	4.82	4.83	5.53	4.03	4.45	5.41	4.93	4.64	5.46
	Std Deviation	0.99	0.90	2.16	1.66	1.18	2.33	0.92	0.73	1.64
	Valid N	N=51	N=46	N=51	N=40	N=38	N=49	N=58	N=55	N=46
Black & White TV	Mean	1.00	1.00	1.00	1.04	1.00	1.02	1.00	1.00	1.00
	Std Deviation	0.00	0.00	0.00	0.21	0.00	0.15	0.00	0.00	0.00
	Valid N	N=48	N=46	N=46	N=45	N=45	N=47	N=55	N=45	N=48
Colour TV	Mean	1.00	1.00	1.00	1.00	.	1.00	1.00	1.00	.
	Std Deviation	0.00	0.00	0.00	0.00	.	0.00	.	.	.
	Valid N	N=2	N=4	N=2	N=2	N=0	N=2	N=1	N=1	N=0

Radio cassette recorder	Mean	1.04	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.00
	Std Deviation	0.21	0.00	0.00	0.15	0.15	0.00	0.00	0.00	0.00
	Valid N	N=45	N=48	N=44	N=44	N=44	N=50	N=53	N=45	N=41
Fan	Mean	1.00	1.00	.	.	1.00
	Std Deviation	.	0.00	.	.	0.00
	Valid N	N=1	N=2	N=0	N=0	N=2	N=0	N=0	N=0	N=0

A Majority of the respondents used the CFL bulbs for lighting. However it is imperative to point out that the usage of Florescent Bulbs is high in Ratnapura and amongst the 50-60 Wp users in Kurunegala and Ampara districts.

Significant Test

No of Bulbs (CFL)	Mean	4.82	4.83	5.53 ^{ab}	4.03	4.45	5.41 ^{de}	4.93	4.64	5.46 ^{gh}
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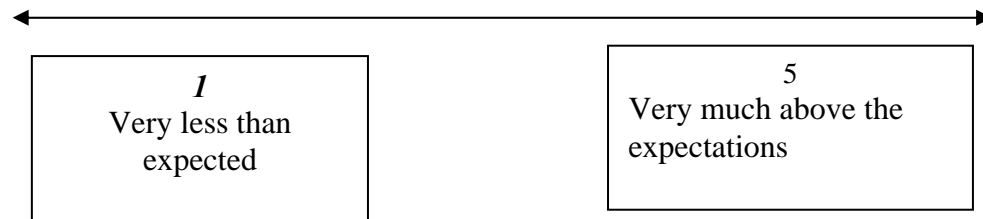
There is a significant difference in the number of CFL Bulb usage in the three district. In all three districts, the mean for the 50-60 Wp system users is significantly higher than the other two categories

7.3. Customer Satisfaction

Interpretation of the Satisfaction Score

Q: *(Int. Hand over the card containing the levels of satisfaction)* Now think about the time before purchasing of the Solar Home System. When you think about what you have expected before such a purchase, and the experience after purchase, tell me how satisfied are you with your Solar Home System on the attributes I read out. *(Int. Read out the attributes. Rotate the statements. Start from “√”statement. Mark the level of satisfaction on the following table.)*

1	Very less than expected
2	A little less than expected
3	At the same level of expectation
4	A little more than expected
5	Very much above the expectations



The mean score is calculated based on the ranking given above which indicates the average level of satisfaction. If the mean score is closer to 5, it indicates that the users are totally satisfied and, if it is closer to 1, it means that users are totally dissatisfied.

7.3.1 Customer Satisfaction on Technical Aspects

		Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampa ra 50 - 60 Wp Before Remo val
The number of electrical appliances usable	Mean	3.00	3.38	3.16	3.00	3.04	3.27	2.89	2.98	2.98
	SD	0.91	1.06	0.88	0.55	0.71	0.83	0.73	0.49	0.54
	Valid N	N=52	N=53	N=51	N=54	N=52	N=55	N=61	N=55	N=53
Stability & quality of the electricity	Mean	2.90	3.51	3.25	3.18	3.23	3.31	2.95	2.98	2.98
	SD	0.93	1.07	0.82	0.75	0.76	0.84	0.97	0.49	0.50
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53
Quality of the electricity	Mean	2.98	3.55	3.29	3.20	3.44	3.40	2.98	3.04	3.00
	SD	0.87	1.05	0.67	0.83	0.85	0.71	0.68	0.51	0.48
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=60	N=55	N=53
Breakdowns	Mean	2.94	2.77	2.13	2.93	2.86	3.00	2.40	2.61	2.24
	SD	1.25	1.42	1.03	1.25	1.06	1.22	1.22	0.89	1.18
	Valid N	N=17	N=13	N=24	N=41	N=35	N=40	N=35	N=23	N=29
The time spent by the company for repairs	Mean	3.00	2.75	2.17	3.22	3.17	3.10	2.14	2.77	2.37
	SD	1.37	1.54	1.11	1.29	1.11	1.02	1.14	0.87	1.28
	Valid N	N=17	N=12	N=23	N=41	N=36	N=39	N=35	N=22	N=27
Provision of information on system related and	Mean	2.87	3.55	3.12	3.53	3.69	3.60	2.54	2.69	2.55
	SD	0.89	1.14	0.87	0.90	0.64	0.74	0.92	0.77	0.80
	Valid N	N=52	N=53	N=50	N=55	N=52	N=55	N=61	N=55	N=53

usage										
Input given on technological issues	Mean	3.02	3.43	3.33	3.45	3.56	3.53	2.83	2.81	2.89
	SD	0.90	1.03	0.71	0.86	0.70	0.74	0.81	0.59	0.51
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=59	N=54	N=53

In the Sri Lankan context, on a 5 point scale, 4.00 or above is the average that is given to the most successful product or service. In Ampara, the customers are most dissatisfied when it comes to the technical aspects 3.69 is the maximum mean score given and that to on attributes that are not very important of the customer. The possible reasons could be over expectation, either created by the Vendors or the influencers or the customers them selves. Furthermore, the technical capability may not be sufficient for their requirement. Hence the reasons for such a low satisfaction level has to be explored in the future studies as it does have important bearing on the Solar Industry Growth analysis.

The significant test has been done after collating all the above seven ratings one variable and the finding are as follows.

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Overall	2.4	2.6	2.6	2.9	3.0	3.0	2.4	2.4	2.4

There is no significant different in the three categories across the three district.

7.3.2 Satisfaction on Quality of Life After the SHS

		Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Changes in the lives of the kids at home	Mean	3.23	3.45	3.41	3.96	3.67	3.64	3.48	3.42	3.64
	Std Deviation	1.00	1.35	0.85	0.88	0.81	0.91	0.77	0.69	0.48
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53
Changes of the lifestyle of the Chief Wage Earner	Mean	3.17	3.49	3.43	2.85	2.94	3.20	2.95	3.20	3.08
	Std Deviation	0.92	1.01	0.85	0.76	0.89	0.89	0.78	0.52	0.47
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53
The lifestyle changes of the housewife	Mean	3.54	3.89	3.61	4.11	4.02	3.84	3.46	3.73	3.85
	Std Deviation	0.98	0.91	1.00	0.88	1.02	0.92	0.77	0.59	0.63
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53
The changes faced by the total household as a whole	Mean	3.29	3.70	3.61	3.75	3.65	3.78	3.18	3.45	3.64
	Std Deviation	0.91	0.97	0.67	0.91	0.81	0.79	0.70	0.63	0.68
	Valid N	N=52	N=53	N=51	N=55	N=52	N=55	N=61	N=55	N=53

Though the customers are not satisfied with the technical aspects it may be observed that they are satisfied with the quality of life.

The significant test has been done after collating all the above four ratings one variable and the finding as follows.

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Overall	3.3	3.6	3.5	3.6	3.5	3.6	3.2	3.5 ^g	3.6 ^g

There is a significant difference when it comes to the quality of life in Ampara. The levels of satisfaction is significantly low amongst the 35-40Wp system users before grant removal when compared to the after grant removal of 35 – 40 Wp and 50-60 Wp system users in Ampara. Apart from this, there is no significant difference in the other districts.

8.0 Consumer Behaviour

8.1 Purchase Decision Process

8.1.1 Source of Awareness

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
The companies who sell SHS / the sales ..	67%	55%	71%	80%	83%	71%	80%	73%	77%
Micro finance institutes who finance such..		2%		2%	2%			2%	
My friends	15%	6%	4%		6%	5%	3%		
My family members	4%	6%	2%	2%	4%	7%		2%	2%
Any other relative of mine		11%	10%	4%		4%	2%	4%	
My neighbors	10%	17%	8%	13%	6%	13%	13%	20%	21%
Radio, TV, newspaper or other media		2%					2%		
Others	4%		6%						
Don't know		2%							
Base	52	53	51	55	52	55	61	55	53

8.1.2 Source of Knowledge

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
The companies who sell SHS / the sales	71%	62%	71%	80%	83%	65%	79%	82%	79%
Micro finance institutes who finance such ..		2%			2%		2%	2%	
My friends	15%	8%	4%		6%	5%	3%	2%	
My family members	4%	8%	6%	4%	4%	9%		2%	2%
Any other relative of mine		8%	10%	2%		4%	2%	2%	
My neighbors	6%	11%	8%	13%	6%	16%	13%	11%	19%
Radio, TV, newspaper or other media				2%			2%		
Others	4%		2%						
Don't know/Can't say		2%							
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

When it comes to sources of awareness and knowledge on SHS, there is no difference. In most cases, more than two third or even three quarter of the SHS users awareness/knowledge stems from the vendors. So the growth of the industry per se is largely dependent on the active participation and support of these vendors and the competitiveness in the industry.

8.1.3 Decision Maker

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
The chief wage earner of the household decided alone	21%	4%	12%	15%	23%	25%	39%	35%	25%
The chief wage earner decided with the family members	75%	91%	88%	80%	77%	69%	48%	58%	64%
Another member of the household took the decision	4%	6%		5%		5%	13%	7%	11%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

It is clearly evident that the decision to purchase an SHS is done by the CWE in consultation with the other members of his family. This is not surprising as past research done for the durable market in Sri Lanka and in other countries have also revealed the same.

8.1.4 Decision Influencer

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
The companies who sell SHS / the sales agents	71%	57%	59%	78%	79%	64%	85%	80%	81%
Micro finance institutes who finance such ..		4%	4%	2%	2%		3%	2%	
My friends	19%	6%	4%	5%	19%	11%	3%		4%
My family members	21%	28%	43%	11%	23%	29%	13%	15%	8%
Any other relative of mine	2%	8%	2%	9%	13%	9%	3%	4%	
My neighbors	17%	11%	10%	18%	29%	20%	13%	16%	28%
Radio, TV, newspaper or other media					8%	4%			
Others	6%	4%	8%	2%					2%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

The SHS vendors plays a key role in influencing in most of the cases. Apart from him, the other family members and neighbors are also important influencers.

8.1.5 Reasons to Purchase

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Inability to obtain electricity from the national power grid	44%	43%	55%	22%	31%	51%	23%	20%	26%
for education purposes	17%		4%	18%	15%	4%	8%	7%	9%
Security	8%	19%	12%	18%	13%		10%	20%	17%
As its difficult to carry batteries for recharging	8%	2%	4%	4%		2%	2%	4%	4%
As kerosene costs more	6%	8%	6%	15%	10%	5%	34%	7%	21%
As it is difficult use kerosene	4%	6%	4%		2%	2%		2%	2%
For own economic activities	2%		2%	2%				2%	
As it costs a lot charge the car battery	2%	2%			2%		2%	5%	
As it takes a longtime to get power/electricity	2%	4%	2%	4%		4%	2%	9%	4%
As there's less electricity	2%	4%	2%	5%	17%	22%	10%	5%	6%
For household purposes	2%	2%	4%	5%	8%	7%	3%	2%	

As it is expensive get electricity from the national grid		4%	2%	2%				5%	
Others	4%	8%	4%	6%	2%	4%	7%	11%	11%
Base	52	53	51	55	52	55	61	55	53
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Inability to obtain electricity from the national power grid was the key motivating factor for most customers to purchase the item. .

The vendors play an important role in building awareness as well as act as influencers in the decision making process. The key trigger for purchasing it is not to satisfy their current energy requirement but to get an alternative source of power due to the non availability of it form the national power grid.

8.1.6 Perception on National Grid

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Getting connected to national grid from the location of my household is expensive	73%	60%	67%	75%	71%	60%	57%	65%	42%
The monthly bill is costly	38%	21%	27%	29%	21%	22%	15%	9%	2%
The electricity from the national grid is of poor stability	29%	13%	16%	7%	27%	13%		11%	9%
There can be more household hazard due to electricity form the national grid	27%	13%	16%	16%	35%	15%	21%	11%	15%
Others	15%	8%	16%	7%	13%	24%	7%	5%	17%
Not agree at all	2%	6%	6%			2%	3%	4%	9%
Don't know /Can't say	4%	25%	8%	4%	4%		8%		13%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

8.1.7 Perception of Future Expansion of National Grid

Q. Look at this card and tell me that when we purchased this system, i.e.(*Int. Read out the date*), what was idea about the time that it will take for your area to receive electricity from the national grid? (*Int. Single response only*)

1	We will not receive electricity from the national grid for another 5 years in this area
2	We will not receive electricity from the national grid for another 10 years in this area
3	We will not receive electricity from the national grid for another 15 years in this area
4	We will not receive electricity from the national grid for another 20 years in this area
5	Others (Specify)

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Not receive with in another 5 years	33%	23%	43%	25%	21%	22%	26%	25%	34%
Not receive with in another 10 years	10%	11%	12%	18%	35%	24%	20%	27%	36%
Not receive with in another 15 years	4%	11%	6%	9%	2%	7%	11%	4%	9%
Not receive with in another 20 years	15%	23%	20%	4%	8%	16%	15%	11%	11%
Others	13%	9%	10%	5%	4%	4%	5%	13%	4%
Never	4%	8%		2%	6%	2%		2%	
Can't Say	21%	15%	10%	36%	25%	25%	23%	18%	6%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

17. Look at this card and tell me now what was idea about the time that it will take for your area to receive electricity from the national grid? (*Int. Single response only*)

1	We will not receive electricity from the national grid for another 5 years in this area
2	We will not receive electricity from the national grid for another 10 years in this area
3	We will not receive electricity from the national grid for another 15 years in this area
4	We will not receive electricity from the national grid for another 20 years in this area
5	Others (Specify)

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Not receive with in another 5 years	27%	17%	22%	33%	48%	27%	23%	31%	43%
Not receive with in another 10 years	6%	15%	16%	9%	6%	15%	25%	24%	32%
Not receive with in another 15 years	4%	9%		11%	2%	7%	5%		2%
Not receive with in another 20 years	13%	17%	16%	5%	8%	16%	10%	7%	8%
Others	23%	13%	31%	5%	2%	7%	11%	15%	11%
Never		8%	2%	2%	6%	2%		2%	
Can't Say	27%	21%	14%	35%	29%	25%	26%	22%	4%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

The above table indicated that the perception has certainly changed after purchasing the SHS.

8.2 Financial Arrangements

8.2.1 Loan Obtained or Not

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Yes	98%	98%	96%	89%	88%	87%	100%	100%	100%
No	2%	2%	4%	11%	12%	13%			
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

8.2.3 Finance Institute of Loan Obtained

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
SEEDS	33%	35%	55%	73%	87%	88%	69%	85%	68%
LOFC	27%	27%	8%						8%
Ceylinco	18%	2%	10%	22%	13%	10%	25%	4%	17%
Corporative societies	6%	2%					5%	9%	
LOLC	12%	35%	22%	2%		2%		2%	8%
Development societies							2%		
C.O.F.C	2%								
Alliance finance			4%						
No records	2%			2%					
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	51	52	48	49	46	48	61	55	53

As a financial institute, SEEDS is the leading organization in Ampara and Ratnapura while in Kurunegala, the other players have a relatively high contribution.

8.2.4 Loan Specifications

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Initial deposit (SLRs.)									
Mean	5,640	6,444	7,977 ^{ab}	4,989	4,966	6,137 ^{de}	5,074	5,058	6,288 ^{gh}
Std Deviation	2,197	1,624	2,508	1,863	1,378	2,649	1,864	1,253	2,018
Valid N	N=51	N=52	N=48	N=49	N=46	N=48	N=61	N=55	N=53
Installment (Monthly)									
Mean	1,479	1,517	1,662 ^{ab}	1,049	1,080	1,420 ^{de}	1,095	1,025	1,413 ^{gh}
Std Deviation	335	156	339	293	250	470	394	205	196
Valid N	N=50	N=51	N=48	N=49	N=46	N=48	N=61	N=55	N=53
Payment Period									
Monthly	100%	98%	100%	100%	100%	100%	48%	42%	58%
Quarterly							5%		
Half annually							48%	58%	42%
Other		2%							

Payment Period (Avg Months)									
Mean	36	36	39	37	35	39	36	35	36
Std Deviation	4	1	5	9	9	11	2	3	2
Valid N	N=51	N=52	N=48	N=49	N=46	N=48	N=61	N=55	N=53
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	51	52	48	49	46	48	61	55	53

When it comes to Initial payments, in all three districts, the 50-60 Wp system users means are significantly higher than the other two categories.

8.2.5 Default Payment

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Yes	55%	31%	29%	24%	11%	13%	10%	13%	17%
No	45%	69%	71%	76%	89%	88%	90%	87%	83%
Base	51	52	48	49	46	48	61	55	53
No of times defaults									
1	28%	47%	36%	8%	40%	17%	50%	67%	11%
2	16%	13%	21%	42%			50%	33%	44%
3	32%	27%	14%	25%	40%	17%			11%
4	8%	7%	14%		20%	33%			11%
5			7%	8%					
6	4%			8%		33%			11%
7		7%							
8			7%	8%					
9 or more	12%								11%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	25	15	14	12	5	6	6	6	9

In Kurunegala, the percentage of defaults payments is higher than other areas.

8.3 Future Expansion

8.3.1 Willingness to Expand

Q. Now think that you are given a chance to upgrade your Solar Home System at a cost. Would you like to go for such an upgrading now?
 1. Yes 2. No

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
Yes	23%	42%	25%	31%	4%	31%	7%	11%	11%
No	77%	58%	75%	69%	96%	69%	93%	89%	89%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%
Base	52	53	51	55	52	55	61	55	53

8.3.2 Nature of the Expansion

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
2 bulbs for the Rs. 7,500.00 to Rs. 10,000.00	23%	25%	10%	65%	73%	56%	10%	7%	11%
4 bulbs for the of Rs. 12,500.00 to Rs. 15,000.00	2%	6%	2%	5%	4%	5%			
6 bulbs for the of Rs. 20,000.00 to Rs. 22,500.00	2%	2%		2%	2%	2%		2%	
..colour TV for the cost of Rs. 40,000 to Rs. 45,000								2%	
Other	2%		4%	4%		2%	5%	4%	4%
No needs	10%	17%	31%	5%		9%	10%	16%	11%
Don't know/Can't say	50%	34%	45%	15%	13%	20%	52%	53%	64%
Total	12%	17%	8%	4%	8%	5%	23%	16%	9%
Base	52	53	51	55	52	55	61	55	53

8.3.3 Willingness of the 2 bulbs for cost of Rs 7,500-10,000

	Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal
I am definitely not willing to go for such an upgrading		15%	40%	6%	5%	32%		25%	17%
I may not be willing to go for such an upgrading	8%			11%	18%	10%			
I might or might not go for such an upgrading	17%			36%	18%	29%	33%	25%	33%
I might be willing to go for such an upgrading	42%	69%	40%	36%	47%	26%	67%	25%	33%
I am definitely will to go for such an upgrading	17%	15%	20%	8%	11%	3%			
Do not know / Cannot say	17%			3%				25%	17%
Total	12%	17%	8%	4%	8%	5%	23%	16%	9%
Base	52	53	51	55	52	55	61	55	53

9.0 Summary and Conclusion

The primary objective of the “Market Survey” was to determine whether there has been a significant change in consumer behavior (purchasing decision) as a result of the phasing out of the GEF co-financing grant.

The Market Survey focused on establishing customer profiles (income level, size of home etc), identifying energy requirements and measuring customer satisfaction level among the identified three customer categories as stipulated below,

- using 35 to <40 Wp systems sold before grant removal,
- using 35 to <40 Wp systems sold after grant removal, and
- using 50 to 60 Wp systems sold before grant removal

The Market Survey findings are to be used by the consultant working on the solar industry growth analysis, with focus on:

- (a) State of the industry
- (b) Impact of phasing out the GEF co-financing grant on the industry and
- (c) Suggestions for sustained growth of the industry.

The results have been analyzed and presented in the report from chapters’ three to eight on based on the different parameters with a view to answer the above mentioned information areas.

Analyzing the Universe.

SHS Vendors Sales Strategy

The Sales strategy of the ShellSolar supplier has been to target the high Wp system users in all three district. ShellSolar controls more than half (53%) of the 50-60 Wp market in Kurunegala, more than two third (67%) of Ratnapura and more than one third (40%) of the Ampara markets respectively.

Access's focus areas are the Ampara market (40% share) along with Ratnapura . Surprisingly Access who enjoyed a 45% market share in Kurunegala prior to the grant removal end up with a 5% share post the grant removal

Possibly a dynamic and competitive market that warrants sub segments hence this marketing strategy is understandable however given the nature and scope of the RERED "project" it cannot be treated as a "normal" business venture in a given environment. The above marketing strategies adopted indirectly implies that the grant or loan mechanism provided will not facilitate the desired "social" objectives, especially if ShellSolar and Access continues its current strategy.

Price Variations

It is noted that post the grant removal the "normal" and "purchase" prices have significantly increased in the three districts for 35-40 Wp systems.

The sales in March for 35-40 Wp systems, pre grant removal was more than 1/3 of sales achieved in 4 months in the three respective districts. It would be beneficial to promote the SHS in all districts by all the SHS Vendor companies jointly during the harvest seasons to maximize sales as this period would be a cash rich period for HoH. The drop in the sales figures for July and August post the grant removal should be a temporary decline and can be expected to change direction in the medium term.

As discussed during the presentation of the initial findings to the World Bank further analysis of data should provide a far more conclusive and interesting evidence.

Customer Profile

Customer profiles were analyzed extensively on demographics, activities engaged in, income, earnings and receivables for HoH and individual family members along with the receivables from various sources, expenditure and wealth indicators. Of the above profiling only the significant findings have been incorporated in the summary and conclusion document. The significant differences are summarized in the following table for the selected 18 attributes.

Customer Profile - Summary

		Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal	Page Number
		a	b	c	d	e	f	g	h	i	
1	Age of the HoH (Years)	41	46 ^a	47 ^a	44	45	47	42	41	44	36
2	Land Extent (Perch)	210	253	231	247	227	212	310	303	306	44
3	HoH Earnings from all the sources	8,240	8,980	7,750	8,800	9,678	9,634	8,775	7,989	8,725	48
4	Other Members Earnings from all the sources (Rs)	7,883	10,047	7,885	7,798	7,395	11,667 ^{de}	10,783	8,387	8,956	49
5	All Members- Earning from Salary and Wages (Rs)	11,497	10,997	10,100	10,433	9,615	10,962	9,987	10,119	10,006	50
6	All Members Earning from the Own Economic Activity (Rs)	5,921	8,989 ^a	7,655	8,560	9,334	10,674	8,054	7,607	6,523	50
7	All Members Earnings from all the sources (Salary & wages, Own Economic activity, Employer) (Rs)	11,149	14,158 ^a	11,375	12,025	12,053	14,485	11,381	10,131	11,273	50
8	Samurdhi Benifit (Rs.)	415	379	309	330	287	272	333	415	328	52
9	Recevable (Samurdhi, pension etc) (Rs)	1,115	579	1,363	330	493	273	333	406	328	53
10	Total Income (individual income, receivable and foreign income etc) (Rs)	14,220	16,152	13,265	12,393	12,096	14,876 ^{de}	12,807	11,941	11,749	53

		Kurunegala 35-40 Wp Before Removal	Kurunegala 35-40 Wp After Removal	Kurunegala 50 - 60 Wp Before Removal	Ratnapura 35-40 Wp Before Removal	Ratnapura 35-40 Wp After Removal	Ratnapura 50 - 60 Wp Before Removal	Ampara 35-40 Wp Before Removal	Ampara 35-40 Wp After Removal	Ampara 50 - 60 Wp Before Removal	
11	Total HH Expenditure at the time of the purchase of SHS (Rs)	5,935	7,337 ^a	6,754	5,773	6,856	7,487 ^d	5,414	4,967	5,265	54
12	Last Months Expenditure (Rs)	8,862	10,813 ^a	9,880	8,798	9,591	10,002	8,569	7,947	8,432	55
13	Average Floor area (No of feet)	633	808 ^a	815 ^a	516	542	664 ^{de}	411	474	639 ^{gh}	58
14	No. of Rooms in the House	4.10	5.04 ^a	5.02 ^a	3.95	4.15	4.27	3.21	3.49	3.96 ^{gh}	59
15	Value of the house (Rs)	198,820	264,865	322,745 ^a	337,000	307,500	312,091	103,451	144,818	135,274	60
16	Value of the Assets	67,427	109,518	92,586	41,253	50,113	58,138	55,953	61,044	102,338	64
17	Kerosene used for Lighting (liters)	6.9	8.2	9.5 ^a	6.3	6.8	7.9	6.1	6.3	6.6	68
18	CFL Bulbs in the SHS (#)	4.82	4.83	5.53 ^{ab}	4.03	4.45	5.41 ^{de}	4.93	4.64	5.46 ^{gh}	70
	No of aspects significantly higher than before removal	No	7 (39%)	6 (33%)	No	No	5 (28%)	No		3 (17%)	
	No of aspects significantly higher than after removal	No		1 (6%)	No	No	4 (22%)	No		3 (17%)	
	Total no of attributes	18	18	18	18	18	18	18	18	18	

A close evaluation of 18 key attributes indicates that significant differences exist for 6 attributes between 35-40 Wp system users pre grant removal and amongst the 50-60 Wp system users during the pre grant removal, in Kurunegala. A close evaluation of 18 key attributes indicates that significant differences exist for 5 attributes between 35-40 Wp system users pre grant removal and amongst the 50-60 Wp system users during the pre grant removal, in Ratnapura.

In addition to the significantly higher scores for the identified attributes in a further five attributes numerically higher mean values can be witnessed in Kurunegala and Ratnapura respectively. The conclusion to be drawn is that the 50-60 Wp users are of a significantly higher profile in comparison to the 35-40 Wp system users prior to the grant removal in Kurunegala and Ratnapura.

In Kurunegala 35-40 Wp system users post the grant removal are significantly (39%) higher than the 35-40 Wp system users pre the grant removal in addition to the six attributes where the values are numerically higher. Hence it can be concluded that the 35-40 Wp system users post grant removal are of a significantly higher profile in comparison to the profile of the 35-40 Wp pre grant removal users in Kurunegala.

CONSULTANT SERVICES TO CARRY OUT A SOLAR INDUSTRY MARKET SURVEY IN SRI LANKA

1. Introduction

The Government of Sri Lanka requested the World Bank and GEF to support the country in mainstreaming renewable energy options for rural electrification and augmentation of generation capacity to the national grid. The request resulted in the Energy Services Delivery (ESD) Project which performed highly satisfactorily and was completed on December 31, 2002. Its successor the Renewable Energy for Rural Economic Development (RERED) Project was approved by the World Bank Board on June 20, 2002, and is presently under implementation. Both projects supported the development of the solar photovoltaic (PV) industry.

The RERED Project provides support for solar PV investments to expand the market and gain commercial viability. In particular, the Project's refinance, grant, and technical assistance (TA) support seek to solidify the existing middle-range solar home system market and expand service to other applications such as smaller systems accessible to poor households and community applications for health clinics, schools and street lighting. These initiatives should build economies of scale and increase awareness for poor families. Further capacity building in respect of micro-finance institutions and other household financing organisations serving limited communities is also necessary to expand credit access. These measures should enable Sri Lanka to achieve the RERED target of 85,000 solar home systems.

2. GRANT MECHANISM

The grant mechanism for the solar industry reflects the objectives of the five main stakeholders: (i) building a market around proven systems and ease of administration (Administrative Unit, DFCC); (ii) reducing grants over time with a clear exit strategy (GEF); (iii) providing incentives to deepen the market and enabling access for rural poor (IDA); (iv) assuring sustainability of successful product lines and increasing scale (Solar Industry); (v) affording quality and choice at reasonable prices (Consumers). The grant mechanism developed by adopting the above objectives precludes subsidies for already viable solar products; limiting grants only to systems smaller than 60Wp during the first year, then only to those smaller than 40Wp during years 2 and 3, and finally only to systems smaller than 20Wp during the last two years of Project implementation.

The follow-on RERED Project tries to accommodate the interests of the five key stakeholders in structuring the GEF co-financing grant. The maximum co-financing grant under the RERED Project was set at a value lower than what was available under the ESD Project. Further, RERED started off (effective October 2002) with the phasing out the GEF co-financing grant for systems larger than 60 Wp. As the next step, with effect from July 2004 the GEF co-financing grant on solar home systems larger than 40 Wp was also removed.

It has been agreed with the Solar Industry that the impact of the co-financing grant exit strategy would be closely monitored, although the period following the second step (removal of grant for systems over 40 Wp) is relatively short.

The progress of the solar component over the first two years of implementation of the RERED project is satisfactory and has reached a stage where the co-financing is phased out for the best selling product line. To ensure continued sustainable growth of the industry a small Market Survey is proposed to complement another parallel analysis of the solar industry by an external consultant.

3. Objective

The objective of the Market Survey is to determine whether there has been a significant change in consumer behaviour (purchasing decision) as a result of the GEF co-financing grant phase out. The Market Survey will provide reliable information to the consultant working on the solar industry growth analysis, which will focus on: (a) state of the industry; (b) impact of the phase out of GEF co-financing grant on the industry; and (c) suggestions for the sustained growth of the industry.

4. SCOPE OF WORK

The consultant's work will include, but is not limited to, the following tasks in assessing the impact of the June 2004 grant phase out on consumer behaviour. Grant on systems in the 40-60Wp range was removed with effect from 30 June 2004.

The consultant will survey a sample of customers:

- using 35 to <40 Wp systems sold before grant removal,
 - using 35 to <40 Wp systems sold after grant removal, and
 - using 50 to 60 Wp systems sold before grant removal
- to establish a customer profile (income level, size of home etc), requirement of energy and customer satisfaction level.

Analyse the data gathered and establish if the customers who purchased the 35 to <40Wp systems after grant removal are similar in profile to (a) the 35 to <40 Wp system customers before grant removal and (b) the 50 to 60 Wp system customers before grant removal.

It is proposed that samples for each of the three categories be drawn from three districts, such as Ratnapura, Ampara and Kurunegala. Since incomes and lifestyles could vary by location, comparison between the three groups may have to be district-specific. Details of solar home system installations will be made available by the Client for the consultant to construct a total of nine statistically valid samples. It is envisaged that an individual sample will have not less than 15 households.

The consultant will propose a methodology to complete the above assignment within 45 days. The methodology will inter alia define the sampling method and sample size, include the drafting of the field questionnaire, pilot testing and conducting interviews, followed by compiling and processing data, analysis and reporting of findings.

The consultant will provide an inception report addressing all of the above topics. This will include defining at least 25 core/comprehensive questions on which the final report will provide statistical answers (often an individual core question is a compilation of several questions in the field questionnaire).

5. Deliverables and disbursement

- Inception Report
- Results of pilot testing of questionnaire ... 30%
- Draft final report
- Final report ... 70%

6. Timing

- Results of pilot testing of questionnaire ... by 12 April 2005
- Draft final report ... by 12 May 2005
- Final report ... 2 weeks of receiving written comments on the draft report

7. Reporting and Counterpart Inputs

The consultant will report to the Project Director, RERED or his nominee at the RERED Administrative Unit, DFCC Bank, 73/5 Galle Road, Colombo 3. The Administrative Unit will assist the consultant in identifying customers from the Project database as per sampling criteria, and also provide letters of introduction as required.

Annex 2 : Questionnaire

Questionnaire No
Project Name

RERED 2005			

Conducted by

ACNielsen Lanka Pvt. Ltd.
425, R. A. De mel Mawata, Colombo - 03

April/May 2005

Sample Point No.	Province	District	U/R	MC/UC/PS	S.P. Number	HH. Number
Office Use Only						

Respondents Report :

Name with initial :	Province Name:.....	
Address : Number.....	District Name:.....	
Street/Lane/bylane:	Divisional Secretary Division Name:	
Village:..... Town:.....	1. Urban (MC/UC) 2. Rural (PS)	
Postal Code:..... Landmark of House:	MC/UC Name:.....	
Home Phone C.No..... PNo.....	PS Name:.....	
Office Phone C.No..... PNo.....		
Other important information depend on project eg.1. Field S.T. :1. Random 2. Booster		

Field Investigators Report :

Investigator's Name :	Code			
Date of Interview : Year: 2004 Month:.....Date:.....				
Time of Interview: Please use 24 hours system				
First Visit	From :	To :		
Second Visit	From :	To :		
I hereby certify that all information provided here is true and accurate and are being obtained from the respondent as instructed.				
..... Signature of interviewer				

Field Supervisors Report :

Method	Accompanied	Back checked	Scrutinized	Supervisor
Date Year/M/D/...../...../...../...../...../.....	Name :
Time (24 hrs)	From to	From to	From to	Code:

Total Quality Management Report

	Yes	Name/Code	Short Signature	Date(Year/M/D)
Field Scrutinized	1		/...../.....
Cording	1		/...../.....
Data Entry	1		/...../.....
Cleaning	1		/...../.....
Researchers	1		/...../.....
Analysis	1		/...../.....

Detail Field Supervising Report

Verification Areas		Results									
Name of the respondents		1	2	3	4	5	6	7	8	9	10
	1.										
	2.										
Age		3									
		<ol style="list-style-type: none"> 1. Conducting the interviews according to instruction 2. Not selecting correct respondent 3. Did not select correct house 4. Slipping some questions during interviews 5. filling the Questions according to self imagination 6. No proper explanation to the respondent 7. leading the questions 8. Spontaneous response without showing Show cards 									
1.											
2.											

	9. Respondent can't remember the interviews or interviewer * Not relevant
--	--

Rejections and reasons	
TQM Status	

Introduction

My name is, I am from ACNielsen the market research firm. This research is done to ascertain the usage of Solar Home Systems and the impact on created by this on the lives of yours and other family members. We were informed that you have purchased this Solar Home System recently. So we have selected your household to represent the larger majority who purchased such systems. Please let us check your documents which has come with your Solar Home System first.

(Int. Observe the actual situation of the system and complete the column for observation (b.). Fill the database column (a.) with the records available. If they agree Mark 1 in (c.) else mark 2 in (c.) For the appliances marked under Q8, mark the number of hours used under column (d.)

Items		Record (Mark down the information of items from 1 - 6) (a.)	Observation (Mark down the information of items from 1 - 6) (b.)	Match / mismatch record vs observation 1. Match 2. Mismatch (c.)
1	Name			
2	National ID number			
3	Company purchased			
4	Watt power (Wp)			
5	Purchased date (yyyy/mm/dd)			
6	Price of the panel (SLRs.)			

7. Components received with the Solar Home System.

Items		Record (Mark down the information of items recorded from 7.1 – 7.8) (a.)	Observation (Mark down the information of items from 7.1 – 7.8) (b.)	Match / mismatch between record and observation 1. Match 2. Mismatch (c.)
7.1	Solar panel			
7.2	Battery			
7.3	Controller			
7.4	Switches			
7.5	Wires			
7.6	Bulbs (Incandescent)			
7.7	Bulbs (Florescent)			
7.8	Bulbs (CFL)			

8. Appliances used with the Solar Home System and the usage in hours per day.

Items		Observation (Mark down the number of items in use 8.1 - 8.9) (a.)	Hrs used per day (b.)
8.1	Bulbs (Incandescent)		
8.2	Bulbs (Florescent)		
8.3	Bulbs (CFL)		
8.4	Black & White TV		
8.5	Colour TV		
8.6	Radio cassette recorder		
8.7	Fan		
8.8	Others (Please specify)		
8.9	Others (Please specify)		

9. Now, think about the situation before you have purchased this Solar Household System.....(*Int. Read out the date of purchase*) Then what are the sources that you have used to fulfill the household energy needs you had? (*Int. Mark the relevant answers in the following table, under the column “Energy Sources”. Multiple responses are possible*)
10. You told me the methods that you have used to generate energy before the Solar Home System is being purchased. Now tell me for the purposes I read out what are the appliances you have used before you purchased the Solar Home System i.e.(*Int. Read out the date of purchase*)? (*Int. Multiple responses are possible*)

9 Energy Sources		10. The Purpose		
		10a. Lighting	10b. Cooking	10c. Entertainment
1	Car batteries	1. Bulbs (Incandescent)	1. Fire wood cookers	1. Black & white TV
2	Dynamos	2. Bulbs (Florescent)	2. Paddy husk cooker	2. Colour TV
3	Bio gas	3. Bulbs (CFL)	3. Gas	3. Radio
4	Generators	4. Kerosene lamps	4. Coal cooker	4. Radio cassette recorder
5	Kerosene	5. Hurricane lamps	5. Others (Specify)	5. Others (Specify)
6	Fire wood	6. Petromax lamps		
7	Coconut Oil	7. Coconut oil lamps		
8	Dry cells	8. Others		
9	Others (Specify)			

11. Now I want to understand how the cost on various fuels and other has changed in your household after the purchase of this Solar Home System. Please let us know the usage of each of the appliance I read out before and after the purchase of the Solar Home System. *(Int. Ask for each of the items mentioned in the following table. Fill columns which are not reserved for official use)*

A	B	C	D	E	F	G	H	I	J	K	L
Appliance/ Device	Energy System	Number of units Before SHS	Number of units After SHS	Average no. of litres/units per month before SHS	Average no. of litres/units per month	Cost per litre/ Unit (Office use only)	Total cost per month before SHS (Office use only)	Total cost per month after SHS (Office use only)	Maintenance cost (wicks, gauzes etc) per month (SL Rs)	Cost of operation per month before SHS (Office use only)	Cost of operation per month after SHS (Office use only)
Kerosene lamps	Kerosene										
Hurricane lamps	Kerosene										
Petromax lamps	Kerosene										
Car batteries	Charging										
Generator											
Radio	Dry cells										
Others											
Total Cost											

12. Please let me know as to how did you get to know about Solar Energy System initially? *(Int. Single response only)*

1	The companies who sell SHS / the sales agents / the leaflets
2	Micro finance institutes who finance such projects (Eg. SEEDS)
3	My friends
4	My family members
5	Any other relative of mine
6	My neighbors
7	Radio, TV, newspaper or other media
8	Others (Specify)

13. How did you first get to know that you can use such a Solar Home System to generate electricity? *(Int. Single response only)*

1	The companies who sell SHS / the sales agents / the leaflets
2	Micro finance institutes who finance such projects (Eg. SEEDS)
3	My friends
4	My family members
5	Any other relative of mine
6	My neighbors
7	Radio, TV, newspaper or other media
8	Others (Specify)

14.a Can I know the name of the person who has decided to purchase the Solar Home System?

..... *(Int. Single response only)*

14.b *(Int. Compare with the existing reports and mark if the system is purchased by the same person)*

1. Person marked in the report
2. Not the person who is marked in the report

14.c *(Int. After completing the questionnaire go to Q34, check for the member ID of the respondent and mark it down below)*

Respondent ID

15. Now look at this card and let me know who participated in making the decision in your household in purchasing this Solar Household System? *(Int. Single Response only)*

1	The chief wage earner of the household decided alone
2	The chief wage earner decided with the family members
3	Another member of the household took the decision
4	Others (Specify)

16. Who influenced the decision maker to take such a decision? *(Int. Multiple responses possible)*

1	The companies who sell SHS / the sales agents / the leaflets
2	Micro finance institutes who finance such projects (Eg. SEEDS)
3	My friends
4	My family members
5	Any other relative of mine
6	My neighbors
7	Radio, TV, newspaper or other media
8	Others (Specify)

17. What is the main reason for you to take a decision to generate your household electricity using a Solar Home System? *(Int. Single response only)*

.....

18. Look at this card and let me know what are the perceptions you have in receiving electricity from the national grid system? *(Int. Multiple responses possible)*

1	Getting connected to national grid from the location of my household is expensive
2	The monthly bill is costly
3	The electricity from the national grid is of poor stability
4	There can be more household hazard due to electricity from the national grid
5	Other (Please specify).....

19. Look at this card and tell me that when we purchased this system, i.e.*(Int. Read out the date)*, what was idea about the time that it will take for your area to receive electricity from the national grid? *(Int. Single response only)*

1	We will not receive electricity from the national grid for another 5 years in this area
2	We will not receive electricity from the national grid for another 10 years in this area
3	We will not receive electricity from the national grid for another 15 years in this area
4	We will not receive electricity from the national grid for another 20 years in this area
5	Others (Specify)

20. Look at this card and tell me now what was idea about the time that it will take for your area to receive electricity from the national grid? *(Int. Single response only)*

1	We will not receive electricity from the national grid for another 5 years in this area
2	We will not receive electricity from the national grid for another 10 years in this area
3	We will not receive electricity from the national grid for another 15 years in this area
4	We will not receive electricity from the national grid for another 20 years in this area
5	Others (Specify)

21. Did you take any loan from a bank or any other finance organization for the purpose of purchasing this system? *(Int. Single response only. Mark the Answer in the following table)*

22. If the answer to Q21 is “yes”, fill Q22.1 to Q22.6& Q23. Else go to Q24.)

		1. Yes			2. No	
21	Did you take a lone					
22.1	Name of the lending institute					
22.2	Initial deposit (SLRs.)					
22.3	Value of an installment (SLRs.)					
22.4	Payment term duration	1.Monthly	2.Quarterly	3. Half annually	4.Annually	5.Other
22.5	Loan repayment period					
22.6	Interest rate <i>(Int. if don't know mark "99")</i>					
22.7	Have you missed payment of an installment ?	1. Yes			2. No	
22.8	Number of times you have missed					
22.9	Balance amount to be paid					

23. How did you get to know that you can take such a loan for purchasing of a Solar Home System from such an institute? *(Int. Single response only)*

1	I got to know such details from a company who sells Solar Home Systems
2	I got to know from such an institute which grant these loans
3	I got to know that from my friends and family
4	I got to know that from my family members
5	I got to know that from my relatives other than family members
4	I got to know this via media such as TV, radio and newspapers
5	Others (Specify)

24. What are the facts that you have considered in selecting a company for purchasing this Solar Home system? *(Int. Single response only)*

1	The Solar Home Systems sold by this company are cheaper than the systems with same capacity from other companies
2	The sales office of the company is close by to my household
3	Recommendations by the financing institutes for purchasing the system
4	Recommendations by my friends and neighbors
5	Information by the sales agents from the company I have purchased
6	Others (Specify)

25. *(Int. Hand over the card containing the levels of satisfaction)* Now think about the time before purchasing of the Solar Home System. When you think about what you have expected before such a purchase, and the experience after purchase, tell me how satisfied are you with your Solar Home System on the attributes I read out. *(Int. Read out the attributes. Rotate the statements. Start from “√”statement. Mark the level of satisfaction on the following table.)*

	Very less than expected	A little less than expected	At the same level of expectation	A little more than expected	Very much above the expectations	Not applicable
1. The number of electrical appliances usable	1	2	3	4	5	6
2. Stability of the electricity	1	2	3	4	5	6
3. Quality of the electricity						6
4. Breakdowns	1	2	3	4	5	6
5. The time spent by the company for repairs	1	2	3	4	5	6
6. Provision of information on system related and usage	1	2	3	4	5	6
7. Input given on technological issues	1	2	3	4	5	6

26. Are you satisfied with the changes of your lifestyle that you have experiences because of this Solar Home system? *(Int. Read out the attributes. Rotate the statements. Start from “√”statement. Mark the level of satisfaction on the following table.)*

	Very less than expected	A little less than expected	At the same level of expectation	A little more than expected	Very much above the expectations	Not applicable
1. Changes in the lives of the kids at home	1	2	3	4	5	6
2. Changes of the lifestyle of the Chief Wage Earner	1	2	3	4	5	6
3. The lifestyle changes of the housewife	1	2	3	4	5	6
4. The changes faced by the total household as a whole	1	2	3	4	5	6

27a. Now tell me from the day that you purchased you Solar Home system to i.e. *(Int. Read out the date)* upto July 2004, how many times did you face technical problems in your Solar Home system? *(Int. Single response only).*

Demographics

34. Now I would like to know the details about your family. *(Int. Ask questions in each column for all the members who are above 10 years. collect members information in the following manner in the household.1. CWE 2. Mother 3.Children according to the descending order of the age, 4. Grand parents 5. Other relatives)*

Name	Person 1 Number	Gender		Relatio nship to CWE	Age	34.6		Nature of the employment	Number of people working	What is the nature of the current economic activity ?	Ownersh p of agricultur al land	The size of the agric ultura l land	Highest educati on level	What is your nationality ?	What is your religion ?														
		1=M. 2=F.	Please look at the codes below			Years	34.6.1 Main current activities Please look at the codes below									34.6.2 Other current activities Please look at the codes below	Only ask from who mentioned 1 in 34.6.1 1. Permenent 2. Temporary	Only ask from who mentione d 3 in 34.6.1	Only ask from who mentioned 2 in 34.6.1 . 1=Agricultural 2= Technical 3= Service	Only ask from who mentione d 1 in 34.9 Please look at the codes below	Please look at the codes below	1=Sinhal 2=Sri Lankan tamil 3=Indian tamil 4=Sri Lankan muslim 5=Barger 6=Maley 7= Other	1=Buddhist 2=Hindh 3=Islam 4=Roman Catholic 5=Non 6=Other						
34.1	34.2	34.3		34.4	34.5			34.7		34.8	34.9			34.10	34.11	34.12	34.13							34.14					
	11	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	12	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	13	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	14	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	15	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	16	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	17	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	18	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	19	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	20	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6
	21	1	2					1	2		1	2	3				1	2	3	4	5	6	7	1	2	3	4	5	6

Relationship to CWE 1= CWE, 2= Spouse of CWE 3=Son / daughter 4=Spouse of son/daughter 5Grandchild, 6=Parent, 7Brother/Sister 8=Mother/father in law, 9Cousin 10=Border 11=Servant 12= other (please specify)

Education levels: 1=1st year, 2= 2nd year, etc until year 13 14=University, 15=Professional, 16= Technical, 17=Nursery, 18= Did not attend school, 19= Other (Please specify)

Current activities 1=Wage/salary earner 2=Own economic activity, 3=Employer, 4.Unpaid economic activities 5=Trying to find employment, 6=Student 7=Domestic work, 8= Retired 9=Mature and non workable, 10=Too young to attend to school, 11= other non economic activity

Nature of land ownership 1=New land reform policy 2=Redistribution of land 3= Heritage, 4= Voluntary redistribution of land 5=Purchase 6= Other reasons other than redistribution 7= Illegally occupied 8= Other

Can you categories this household as having main income from any of the sources mentioned below?

1	Paddy farming	8	Farming other
2	Growing tea at a small estate level	9	Armed forces
3	Growing rubber	10	Teaching
4	Growing coconut	11	Professional (Doctor, lawyer etc.)
5	Farming vegetables	12	Fisheries
6	Farming fruits	13	Other (Please specify)
7	Farming livestock		

36. *(Int. Observe and mark the nature of the family.)*

1. Extended family 2. Nuclear

37a. Now I would like to know the details about your household expenditure. First, think about the time that you have purchased this Solar Home System. i.e.*(Int. Read out the date)*, I am going to read out certain expenditure items. Please let me know the expenditure on those items per month. *(Int. read out the items one by one)*

37b. Now think about the situation last month. Please let me know the expenses you have experienced for the same items I have mentioned above. *(Int. read out the items one by one)*

(Int. Mark the answers down in the following table)

		37a.	37b.
1	Food & beverages		
2	Accommodation		
3	Fuel and electricity		
4	Cloths		
5	Health & medicine		
6	Transport & telecommunication		
7	Durable goods		
8	Education		
9	Total		

38. Is there any family member who is working abroad in your family?

1. Yes 2. No

41. Other income sources
 41a. Look at this card and let me know from January 2004 to June 2004, how much did you receive from the following income sources?

- 41b. Look at this card and let me know from July 2004 to present day, how much did you receive from the following income sources?
(Int. Give the card. If not received any mark "99" in the relevant columns)

	41a.	41b.
1 Pension and benefits		
2 Samurdhi		
3 Govt. Social security payments		
4 Govt. Other payments		
5 Family members / friends / relatives		
6 Non gov. organisations		
7 Other income (Interest on deposits /Company shares)		
8 Machinery related		
9 Borrowing of cattle for agricultural purposes etc.		
10 Others (Please mention)		

42. Now I would like to know about the nature of your house. *(Int. While asking each question mentioned in the table, observe)*

Does this house belong to a household member	Was this built or purchased ?	When?	What is the nature of this house ?	What material is the outer walls are made of primarily ?	What material is the roof is made up of primarily ?	The nature of the foundation	What material is the floor made up of primarily ?	What is the current value of the house?	Is there another house belong to any household	What is the total estimated value of that house? (Please ask only for those mentioned "yes" in 32.10)
42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	42.10	42.11
1 = Yes 2 = No	1 = Purchased 2 = Made	Year	1 = Single house 2 = A paired house 3 = Annex 4 = A flat 5 = A hut 6 = Shanty B 7 = Other	1 = Clay blocks 2 = Earth blocks 3 = Cement blocks 4 = Unbaked clay blocks 5 = Clay 6 = Metal & wood 7 = Coconut leaves 8 = Others	1 = Roof tiles 2 = Asbestos 3 = Concrete 4 = Metal sheets 5 = Coconut leaves 6 = Other	1 = No foundation 2 = Metal & mortar 3 = Metal & cement 4 = Other	1 = Cement 2 = Terazzo 3 = Clay & cow dung 4 = Wood 5 = Sand bed floor 6 = Other	(SLRs.)	1 = Yes 2 = No	

43. Can you tell me the length & width of your house? Length:.....
 Width:.....Number of rooms.....

44. Can you tell me the nature of the toilet you have in your home?
 1. Sanitary fitted 2. Water sealed 3. Other

45. What are the investments that you have done for this household from year 2000 up to date? (*Int. Please ask for investments higher than Rs. 1000*)

Investment purposes (Int. Look at the codes below)	Year invested	Amount (<i>SLRs</i>)
45.1	45.2	45.3
1.		
2.		
3.		

Codes for 45.1 1. To improve the roofing 2. To improve the floor 3. To improve the walls 4. An addition to the existing house 5. An addition of a new room

46. Now I am going to read out a list of durable goods normally found in homes. Please tell me as to what are they, their value, purchased year and the brand name where applicable.

Item	Availability 1 = Yes 2 = No goto next		Value (SLRs.)	Year of purchase	Brand
	46.1				
1. Furniture & fixtures	1	2			
2. Kerocine cookers	1	2			
3. Gas cookers	1	2			
4. Electric cookers	1	2			
5. Fans	1	2			
6. Sawing machines	1	2			
7. Radio vassette recorder	1	2			
8. CD /VCD/VCR	1	2			
9. Black and white TVs	1	2			
10. Colour TVs	1	2			
11. Bicycles	1	2			
12. Motor bikes & scooters	1	2			
13. Cars & vans	1	2			
14. Trishaws	1	2			
15. Tractors - hand driven	1	2			
16. Tractors- Large	1	2			
17. Other vehicles	1	2			
18. Petromax lamps	1	2			
19. Fixed phones	1	2			
20. Cellular phones	1	2			

47. Now I would like to talk to you about the debts you have taken for the period of last five years. *(Int. Ask the relevant questions for each column and fill up for all the loans that have taken including the one taken for the Solar Home System.)*

	The period obtained		The requirement (Check the codes below)	Where have you take the loan from? Check the codes below)	Amount	Annual interest rate
	Year	Month				
47.1	47.2		47.3	47.4	47.5	47.6
01						
02						
03						
04						
05						

Codes for 47.3 : 1 = Consumption 2 = Education,3 = Agricultural production ,4 = Other production other than agriculture,5 = Immigration,6 = Building a house,7 = Marriage,8 = Funeral,9 = Health related,10 = Other (Please mention)

Lending institutes 47.4 : 1 = Private commercial banks, 2 = Govt. commercial banks, 3= Village level commercial banks, 4 = Samurdhi 5=Corporative lenders 6=Village level development banks 7 = Friends / relatives , 8 = Personal lenders, 9 = Corporative societies, 10=Place of Employment, 11=Other *(Please Specify)*

48. Now would I be able to know about your social activities. (*Int. Ask for each category of clubs and societies mentioned below in the table.*)

Society or clubs	Do you have the membership? 1=Yes, 2=No		Personal code for most active member	What are the received advantages by joining this?
	48.1		48.2	48.3
1. Agricultural societies	1	2		
2. Funeral	1	2		
3. Village development societies	1	2		
4. Corporative societies	1	2		
5. Gramodhaya	1	2		
6. Smurdhi	1	2		
7. Sarvodaya society	1	2		
8. Women's Organisations	1	2		
9. Trading related societies	1	2		
10. Trader's unions	1	2		
11. Labour unions	1	2		
12. Professional societies (Doctors/Lawyers)	1	2		
13. Savings & finance societies	1	2		
14. Religious societies (Temples /churches etc.)	1	2		
15. Educational related	1	2		
16. Youth organizations	1	2		
17. Political societies	1	2		
18. Health societies	1	2		
19. Fisheries societies	1	2		
20. Others (Please specify) -----	1	2		

Benefit codes : 1=to improve my lifestyle, 2=It'll be important in an emergency, 3= To serve the society, 4=Leisure activity 5=Social status and self pride 6=Other(Specify)

48. I would like to read out few statements now. Please tell me up to which extent can you associate them with your lifestyle. *(Give the scale of association to the respondent. Read each statement one by one.)*

		I do not agree at all	I somewhat disagree	I neither disagree nor agree	I somewhat agree	I completely agree
1	I am very much attached to traditional values and customs	1	2	3	4	5
2	I am very much satisfied with what I have achieved in my life	1	2	3	4	5
3	I would like to give priority for my family requirements than those of mine	1	2	3	4	5
4	I believe that one should lean to use new things and use them.	1	2	3	4	5
5	I would like to watch TV and listen to radio quite regularly.	1	2	3	4	5
6	I think the proper place for women is at home.	1	2	3	4	5
7	I think that we need to save as much as possible for the future.	1	2	3	4	5
8	One should live in the present happily than worrying too much about the future.	1	2	3	4	5
9	I think TV and radio can be disturbing for educational work.	1	2	3	4	5
10	I think that I am a person with a good knowledge about the modern society.	1	2	3	4	5
11	I always expect a novelty and a challenge from my life.	1	2	3	4	5
12	When I go to purchase an item, I would like to purchase something that I am used to.	1	2	3	4	5
13	A woman's life is fulfilled by creating a pleasant atmosphere at home.	1	2	3	4	5
14	I would like to buy and experiment with new things.	1	2	3	4	5
15	I would like to consult the others at the household before taking an important decision	1	2	3	4	5
16	I would like to take important decisions on my own. I think the outcome is more favorable that way.	1	2	3	4	5
17	I do not like to stick to the traditions. I would like to take a risk and experiment new things.	1	2	3	4	5
18	I would like to go to the temple / church/ Kowil more regularly.	1	2	3	4	5
19	I work very hard in order to have a successful future.	1	2	3	4	5
20	I would like my children to have as many modern conveniences as possible.	1	2	3	4	5
21	I would like my family friends and neighbors to come to my house and have a chat regularly.	1	2	3	4	5
22	I would like to sit with my family members by TV and watch until late night.	1	2	3	4	5
23	I like to read more after completion of my daily work	1	2	3	4	5
24	I like to see my house lighted up all the time	1	2	3	4	5
25	I want to see my kids study as much as possible.	1	2	3	4	5

Customer category: 1. using 35 to <40 Wp systems sold before grant removal 2. using 35 to <40 Wp systems sold after grant removal 3. using 50 to 60 Wp systems sold before grant removal

Annex 3

Source: Population and Housing Census 2001, Kurunegala

Table 2 : Percentage distribution of population by age and sex

Age	Total %	Sex	
		Male %	Female %
Total	100	100	100
0 - 4	8.1	8.3	8.0
5 - 9	8.8	9.1	8.4
10-14	9.1	9.3	8.9
15-19	9.9	10.4	9.4
20-24	8.4	8.6	8.2
25-29	7.3	7.0	7.5
30-34	7.4	7.2	7.7
35-39	7.7	7.5	7.8
40-44	7.2	7.2	7.3
45-49	6.6	6.5	6.7
50-54	6.0	5.9	6.0
55-59	4.0	3.9	4.0
60-64	3.0	2.9	3.1
65-69	2.6	2.4	2.7
70-74	1.8	1.7	1.9
75 and over	2.3	2.2	2.4

Table 3 : Percentage distribution of population by relationship to head of the household and sex

Relationship to head of the household	Total %	Sex	
		Male %	Female %
Head	100	78.8	21.2
Spouse	100	1.7	98.3
Son/ Daughter	100	52.7	47.3
Son/ Daughter-in-law	100	29.7	70.3
Grand child	100	51.1	48.9
Parent of head or spouse	100	21.9	78.1
Other relative	100	49.1	50.9
Domestic servant	100	50.8	49.2
Boarder	100	55.6	44.4
Non relative	100	73.1	26.9
Visitor	100	67.2	32.8

District

Table 16 : Percentage of employed population (10 years and over) by employment status and sex

Employment status	Total %	Sex	
		Male %	Female %
Total	100	100	100
Employee	51.1	49.7	55.2
Employer	1.5	2.0	0.3
Own account worker	36.8	43.1	19.5
Unpaid family worker	10.5	5.3	25.0

Table 23 : Percentage of occupied housing units by number of occupants and average size of household

No. of occupants in the units	Percentage
Total	100.0
1 Person units	5.6
2 Persons units	12.4
3 Persons units	22.3
4 Persons units	26.9
5 Persons units	18.0
6 Persons units	9.0
7 Persons units	3.0
8 Persons units	1.6
9 Persons units	0.7
10 or more persons units	0.6
Not specified	-
Average size of household	3.9

Table 32 : Percentage of households in occupied housing units by type of toilet

Type of toilet	Percentage
Total	100.0
Water seal	69.2
Pour flush	10.2
Pit	10.9
Bucket	0.4
Other	1.7
Not using a toilet	6.0
Not stated	1.7

Table 34 : Percentage of households in occupied housing units by principal type of lighting

Principal type of lighting	Percentage
Total	100.0
Kerosene	48.0
Electricity	50.7
Solar	0.5
Other	0.0
Not stated	0.8

Table 35 : Percentage of households in occupied housing units by principal type of cooking fuel

Principal type of cooking fuel	Percentage
Total	100.0
Fire wood	94.8
Gas	3.8
Kerosene	0.3
Electricity	0.1
Saw dust/ Paddy husk	-
Other	0.1
Not stated	1.0

Annex 4 : Population and Housing Census 2001, Ratnapura District

Table 2 : Percentage distribution of population by age and sex

Age	Total %	Sex	
		Male %	Female %
Total	100	100	100
0 - 4	8.3	8.7	7.8
5 - 9	9.2	9.1	9.4
10-14	10.3	10.4	10.2
15-19	10.6	10.6	10.6
20-24	8.8	8.4	9.3
25-29	7.3	7.3	7.2
30-34	7.2	7.2	7.2
35-39	7.2	7.1	7.4
40-44	6.8	6.8	6.9
45-49	6.0	6.1	5.8
50-54	5.3	5.3	5.4
55-59	4.0	4.0	4.1
60-64	2.9	2.9	2.9
65-69	2.6	2.5	2.6
70-74	1.6	1.6	1.5
75 and over	1.9	1.9	1.9

Table 3 : Percentage distribution of population by relationship to head of the household and sex

Relationship to head of the household	Total %	Sex	
		Male %	Female %
Head	100	83.3	16.7
Spouse	100	1.5	98.5
Son/ Daughter	100	53.2	46.8
Son/ Daughter-in-law	100	29.7	70.3
Grand child	100	50.9	49.1
Parent of head or spouse	100	23.2	76.8
Other relative	100	49.1	50.9
Domestic servant	100	55.1	44.9
Boarder	100	54.2	45.8
Non relative	100	71.5	28.5
Visitor	100	68.0	32.0

Table 16 : Percentage of employed population (10 years and over) by employment status and sex

Employment status	Total %	Sex	
		Male %	Female %
Total	100	100	100
Employee	54.9	50.8	64.1
Employer	1.9	2.2	1.3
Own account worker	32.1	38.9	16.6
Unpaid family worker	11.1	8.1	18.0

Table 23 : Percentage of occupied housing units by number of occupants and average size of household

No. of occupants in the units	Percentage
Total	100.0
1 Person units	5.8
2 Persons units	9.3
3 Persons units	18.8
4 Persons units	22.6
5 Persons units	20.4
6 Persons units	12.2
7 Persons units	5.6
8 Persons units	2.8
9 Persons units	1.4
10 or more persons units	1.1
Not specified	0.0
Average size of household	4.3

Table 32 : Percentage of households in occupied housing units by type of toilet

Type of toilet	Percentage
Total	100.0
Water seal	66.4
Pour flush	8.2
Pit	20.1
Bucket	0.1
Other	1.1
Not using a toilet	3.1
Not stated	1.0

Table 34 : Percentage of households in occupied housing units by principal type of lighting

Principal type of lighting	Percentage
Total	100.0
Kerosene	54.0
Electricity	44.6
Solar	0.4
Other	0.1
Not stated	0.8

Table 35 : Percentage of households in occupied housing units by principal type of cooking fuel

Principal type of cooking fuel	Percentage
Total	100.0
Fire wood	94.3
Gas	4.4
Kerosene	0.4
Electricity	0.1
Saw dust/ Paddy husk	0.0
Other	0.1
Not stated	0.7

Annex 5

One-Way ANOVA Post Hoc Tests

Once you have determined that differences exist among the means, post hoc range tests and pair wise multiple comparisons can determine which means differ. Range tests identify homogeneous subsets of means that are not different from each other. Pairwise multiple comparisons test the difference between each pair of means, and yield a matrix where asterisks indicate significantly different group means at an alpha level of 0.05.

Tukey's honestly significant difference test, Hochberg's GT2, Gabriel's test, and Scheffé's test are multiple comparison tests and range tests. Other available range tests are Tukey's b, S-N-K (Student-Newman-Keuls), Duncan, R-E-G-W F (Ryan-Einot-Gabriel-Welsch F test), R-E-G-W Q (Ryan-Einot-Gabriel-Welsch range test), and Waller-Duncan. Available multiple comparison tests are Bonferroni, Tukey's honestly significant difference test, Sidak, Gabriel, Hochberg, Dunnett, Scheffé, and LSD (least significant difference). Multiple comparison tests that do not assume equal variances are Tamhane's T2, Dunnett's T3, Games-Howell, and Dunnett's C.