Aisha Solar Cooking Project (ASCP)

Evaluation Report to Solar Cookers' International (SCI)

PART I

MAIN DOCUMENT

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TABLE OF CONTENTS

Page Number

LIST OF TABLES

Page Number

EXECUTIVE SUMMARY

The Somali National state (SNS), where Aisha refugee camp is located, is widely recognized for exhibiting diverse settings and agro-eco systems displaying a wide array of environmental problems; marginal and vulnerable to natural and human-made calamities, largely affected by resource base degradation, series of drought occurrences and displacements.

Aisha refugee camp is under the broad control of the UNHCR taking responsibilities of running the camp through its' field offices, and managed by ARRA, the Ethiopian government's official agency. The camp currently hosts 13,985 refugees, mainly from north of Somalia (75% from different parts of Zella, the rest from Lughaye, Boroma and other districts), while the family size ranges from single headed households to those comprising as much as ten members, the average household size is 5.83.

Aisha Solar Cooking Project (ASCP) has been operating through *'intermittently adjusted'* periods since 1997 in promoting solar cookers in Aisha refugee camp by Solar Cookers International (SCI), a US-based international non-profit making NGO. ASCP ultimately aims at reducing fuel wood consumption (and the resulting time and/or household income spent for fuel wood) for individual families and promote ease of use and socio-cultural acceptability of solar cooking as a supplement to traditional wood based cooking methods.

The Aisha Solar Cooker Project evaluation, which comprised of four major phases (preparation, planning, in-camp assessments and feed-back meetings) was undertaken between 16 October and 14 November 2001 by a team involving an external consultant and members of SCI, UNHCR and ARRA staff. The evaluation was conducted using both qualitative and quantitative data collection/analysis methods: interviews, direct observation/on-site visits, reviews of broad-based literatures and the available secondary sources of information and structured household questionnaire and fuel wood measurement surveys. Summary of the findings are thus synthesized under four core themes; namely, relevance of the project, progress and changes made by the project over time, community ad stakeholders' participation and sustainability. In pursuant to these the following conclusions and lessons are drawn.

The team is sufficiently convinced by the evidences presented and variously obtained, rationalizing the relevance and timeliness of solar cooking technology as an alternative option that, together with other methods and shared efforts towards

improving livelihoods in Aisha/Degago, will notably reduce the firewood consumption and hence, make significant contributions in reversing the trends in environmental degradation. The relevance of projects' vision, objectives, and strategies towards addressing the problems and their continued relevance is significantly justified, mainly in terms of reflecting the felt needs of members of the target community.

The multi-dimensional awareness enhancements and the simultaneous moves taken towards distributing the technology package and facilitating the adoption process through strengthening local management committees, enabling the communities identify and articulate the related problems and the likely solutions are considered as major outputs that have largely been achieved resulting from the project intervention. By all accounts, as a zero-firewood device Cookit's supremacy in 'reducing fuel wood and charcoal consumption' and the impacts implied therein (expressed in terms of cost, labor and time saved, etc), is undoubtedly proved in Aisha refugee camp.

While noting the progress that the project has shown towards meeting most of the outputs, clearly its' current initiatives would not be sustained without continual efforts by the SCI-ASCP, which based on our assessments, remain the best and leading organization for taking the Aisha solar cooking program further in time and capacity.

Hence, by taking the various aspects of the project's performances, achievements, challenges, limitations and opportunities into account, it is recommended that SCI and its' partners should consider devising ways of running the ASCP further in time and capacity, depending upon funding and the local situation including repatriation of Aisha refugees and related, for at least two phases, each of which involving the widely accepted standard/full project cycle of 3-5 years.

Towards this end, the evaluation team recommends that the SCI-ASCP, together with partner organizations, adopt rationally interlinked 'phasing-out' and 'phasing-in' strategic moves.

1. THE SETTING

1.1. Overview

The Somali National State (SNS)[1] is one of the regional states of the country, which took its' current name, size and shape during early to mid nineties, following series of administrative restructuring processes carried out by the various regimes over the past numbers of decades.

SNS is widely recognized for exhibiting diverse settings and agro-eco systems displaying a wide array of environmental[2] problems; marginal and vulnerable to natural and human-made calamities, mainly associated with shortage, absence and/or erratic rainfall situations, resource base degradation and series of drought occurrences.

Inhabitants of the whole region within Ethiopia bordering Somalia and Djibouti have also suffered from decades' long regional instability, the effects of which are reflected in terms of series of inward and outward displacements leading to loss of productive assets and capabilities, amongst many. In light of such circumstances, no wonder that the SNS had long been hosting a large number of refugees, including in camps set by the United Nations Higher Commission for Refugees (UNHCR), one of the UN agencies with core mandate of protecting uprooted people in close cooperation with governments, who bear the primary responsibility to protect people on their territory. Aisha refugee camp (also referred to, as 'Deghago refugee camp') is one of the nine such camps that have been running within the SNS.

Ironically, the SNS is among other areas of the country labeled as the hitherto *'most neglected'* in terms of sustained external intervention, investment in productive, economic and social infrastructure, apart from short-term humanitarian/relief operations following series of emergencies. In the course of such paradoxical scenarios is Aisha, one of the Woredas currently within the jurisdiction of Jijiga zone, the area where Aisha refugee camp have been running within the SNS for over a decade.

[1] Based on the previous administrative classification, referred to as 'Region 5'

[2] Concepts and definitions of the *'Environment'* herein used are based on the views of the World Bank, which include: *The natural and social conditions surrounding all organisms, particularly humankind, including future generations. Environmental concern encompass not only the natural environment (air, water and land), but also human ecology, health, safety and socio-economic issues such as cultural heritage, indigenous peoples and their know-how, settlement and resettlement related issues and induced development, amongst many.*

With due consideration to the situations in hand, major changes in the national policy framework were made since 1992, focusing on 'poverty alleviation', particularly in the rural sector and with considerable emphasis on targeting the hitherto *'neglected, conflict-prone, degraded resource base, ….. backward'* regional states. In deed, it was only since 1995 that a shift in emphasis were made since 1995 from emergency-based relief programs to long-term development initiatives and addressing, amongst many, the long standing environmental problems and natural resource base degradation were considered key for the envisioned success.

1.2. Aisha and Aisha/Deghago Refugee Camp

1.2.1. Overview

The establishment of Aisha refugee camp for hosting refugees dates back to 1990[3], during the period when Somalis mainly from the North West Somalia (Zello District) left their homes fleeing series of fights, which broke out during and after the downfall of the Zeiad Berre regime.

The camp is located in northeastern Ethiopia 30 km south of the actual settlement, Aisha town, at about 16 km west and 80 km south of the borders of neighboring countries, Somali and Djibouti, respectively. With a population of about 1000, Aisha town is a stop on the railroad line between Dire-Dawa in Ethiopia and Djibouti, comprising a region-based administrative structure, apparently undeveloped services and an army outpost.

The process that led to choosing Aisha as a refugee site amongst many other places from within the region, according to the camp coordinator, involved the local community and carried out considering the various criteria in use for selecting refugee settlement areas, including proximity to water resources, security and minimal claims on the land (preferably *"no-mans'-lands"*, in his words). Nevertheless, Aisha refugee camp and its' physical environs, in particular as they stand nowadays, are located in a fragile, near desert environment, noticeably in danger, flat and treeless except some dry thorny bush and scrubby trees, providing no shelter from the high winds, periodic sand storms or rain, poor soils, erratic (absence of) rainfall with trivial seasonal rains.

[3] Dates for the establishments of the camp are variably expressed by/in different sources. Although the differences are not too wide, for instance, August 1989 is indicated in the Baseline Energy Survey report whereas the camp coordinator cites 1990, the latter of which is apparently in line with the dates that caused the displacements.

1.2.2. Demography and institutional set up

Based on the revalidation exercise held in November 1999, Aisha camp currently hosts 13,985 refugees (registered under 2,398 heads of families), mainly from north of Somalia (75% from different parts of Zella, the rest from Lughaye, Boroma and other districts). The camp population has been 15,996 prior to the November 1999 re-registration. The homogeneity of the camp population can further be explained by the fact that refugees in the camp are all ethnic Somalis. As per the data obtained from Administration for Refugee and Returnee Affairs (ARRA) and UNHCR offices in Aisha, about 95% of which are from Issa clan while the rest representing Issak, Gedebursi, Hawya and other clans. Data, kindly supplied by ARRA Aisha office, on the refugees' tribal composition and place of origin and, for comparison purpose, findings of the household surveys that looked into some part of refugees' background are presented as **ANNEX 1, under Tables 1a and 1b**, respectively.

While the family size in Aisha camp ranges from single headed households to those comprising as much as ten members, the average household size is 5.83. Demographic figures, kindly supplied by the UNHCR Aisha office, referred to as *'Agreed Aisha Camp Population'*, disaggregated by family size, number of heads and members of households are shown in **ANNEX 2**.

Notwithstanding the efforts that both ARRA and UNHCR made during the last three years in updating the camp's demographic information, accurate figures on the rate of changes in camp population is hardly available, nor explicable factors were provided for the substantial decrease in camp population, from 15,996 to post November 1999 re-registration figure, 13,985. In fact, quite the opposite trend was implicated in the Baseline Energy Survey document, indicating a 1.8% annual population growth rate in 1996.

Aisha camp is divided into 'zones' (also locally termed as 'sections'), a sort of artificial boundaries set for various administrative and social services related purposes. At its' current settings, the camp comprises of six zones laid out for refugees, locally identified as A1, A2 (splits of what was previously known as 'zone A'), B, C, D and E. Additional zone (F) is also included within the camp settings, in use as a protectorate settlement for local people, particularly referred to as IDP, 'Internally Displaced People' (locally identified as *merameadibes*)[4].

[4] Such a hamlet, according to informants including the UNHCR officer, contains a notable size of local people [about 2500 households, apparently holding similar population with that of the refugees), who are living (used to live) within 15-20 km radius of the refugee camp and are being supported as IDP with funds donated by Prince AbdulAziz (of Saudi?) donations. Started in 2001 and not yet known when it might end.

Like most refugee camps in Ethiopia, Aisha is under the broad control of the UNHCR taking responsibilities of running the camp through its' field offices, and managed by ARRA, the Ethiopian government's official agency. Although at varying degrees and capacities, both the UNHCR and ARRA are entrusted to play key institutional roles influencing and making sustainable changes in the livelihoods of the current refugee communities, well beyond facilitating their day-to-day amenities.

It is worth noting that ARRA plays pivotal roles not only as a legal entity representing the government in legalities and issues that relates with the camp, but also as implementing agency and coordination. Also to be noted is that, normally (presumably, by policy), UNHCR is not an implementing agency as such, except in piloting projects and emergency undertakings which need to phase-out and handed over to other NGOs or ultimately to local structures.

1.2.3. Services/Assistances and interventions

Food distribution is the major component of services. Refugee communities receive at regular intervals (once a month) as part of the standard *'care and maintenance assistance'* and, depending upon availability of resources rendered to the local communities as well, as *'relief assistance'* in cases of emergencies.

Medical, education and potable water are included in the package of basic services provided to the refugee and the surrounding communities. Ensuring access to potable water is one of the commitments that both ARRA and UNHCR have been striving to meet along with the health services. A borehole (of 120 meters depth) with two water reservoir is currently at full services in providing tap water to refugees and neighboring communities. The school, which is capacitated to provide formal education of grade 1-8 level, currently holds 564 students and 13 teachers. Enrollment in formal and informal schooling system, according to most informants whom the team held discussions with, has shown significant growth during the last five years.

Other interventions, currently operational through different organizations, though at various success levels, exhibiting significant variations in relations between and modalities of working with each other, include:

- A multi-faceted project dealing with environmental management. A program initiated by the UNHCR and ran for some time with joint efforts of ARRA-UNHCR, Women's Association, local people (original inhabitants) and refugee communities.
  - At its initial stage/phase, the project is said to have performed well through an incentive giving package that those who took active part in implementing

environmental work like, hole preparation, planting and growing tree seedlings were accredited by providing them with energy saving stoves (ESS), and/or solar cookers freely, in the form of prize. Tools and buckets, although were part of the package planned at initial stage, were not given out as incentive.

- Due to some problems, however, the project at its' later stage have, as worded by a key informant, *faced accountability problem*, *apparently lost owner*. As and when the Task Force lost control of the work, the project was handed over to the Region 5 [SNS] Bureau of Agriculture (BoA) with continued funding from the UNHCR, which is the case to date. Being run from a further distant location, Jijiga, using a single staff on site, the project is yet far from functioning well, increasingly loosing control of the work. *For various reasons, such a project, which is meant and believed to bring about a far reaching impact, is currently at a freezing state,* as stated by Aisha Woreda Administrator, the view shared by almost all informants.

- Capacity building project: A program initiated and implemented by an NGO, SCF-USA since, October 1999, with the aims of building capacity and social mobilization.

Another important project is Aisha Solar Cooking Project (ASCP), the project of particular interest for this evaluation, underway through *'intermittently adjusted'* periods since 1997 in promoting solar cookers in Aisha refugee camp by Solar Cookers International (SCI), a US-based international non-profit making NGO. It so happened that the initiation and establishment of the ASCP concurred with the period (indicated above under section 1.1.), during when regional states were largely geared towards making long-term development efforts and, above all, the role of NGOs and the 'project approach' were sought crucial for the country's development in time, space, volume and modes of operation.

1.3. SCI and ASCP

1.3.1. SCI-ASCP: Background

Aimed at improving the environment and ultimately making the world a better place to live in, it was during the period when international forces were trying to reach as many areas as then possible in promoting solar cookers focusing on people living in developing countries that SCI was set in motion. Concern on environment was the central factor that motivated the SCI's establishment, as was for many international

agencies to put strenuous efforts in advancing technologies[5], like solar cooking packages.

SCI, originally called as Solar Box Cooker International, was started by solar cooking enthusiasts in 1987 in the SW USA (Phoenix, Arizona area). Following the survey, undertaken worldwide, it began with advocacy work on the uses of solar cookers, though initially not reached wide enough, later in time has shifted towards designing and implementation of demonstration projects. But also, undergone a strategic planning process, through which the ways forward are devised and policy guidelines are being written, taking account of experiences in the international development and local circumstances.

Mission statement

SCI will assist communities to use the power of the sun to cook food and pasteurize water for the benefit of people and environment

Accordingly, six goals are identified underpinning SCI's commitments to the service delivery areas of 'project management, technical support, education, information exchange, research and advocacy'.

Thirteen years on since SCI came to be operational, it has played key roles in hosting and/or co-sponsoring the first 3 worldwide Solar Cooking Conferences, managed creating significant awareness on the needs for using solar cookers and disseminating basic knowledge and expertise together with the Cookits (which emerged fast when resolving the Rwanda crisis) to over 25,000 families through its' Africa-based projects. ASCP is one of such projects.

1.3.2. Project Objectives: Past and current

The development and implementation of ASCP have not been easy task for both SCI and all other organizations surrounding the project purposes. Accordingly, both short and longer-term objectives were set for the project, based on the project design, stages of implementation and other factors (and 'matters arising') that might relate to limiting the operational period, including budget and administrative issues.

Objectives set for the initial stage (termed as *'Introductory Phase'*)

- To assess the suitability of the Cookit in a variety of refugee field situations in Ethiopia, taking into account weather patterns, cost effectiveness, effect upon fuel consumption, ease of use and socio-cultural acceptability

[5] For our purposes, *'Technology'* comprises know-how and skills, goods and services, equipment (hardware) and their appropriate organizational and managerial procedures, institutions and (social) support structures

The overall objectives in line with SCI's ultimate motives, as set out in the TOR for Aisha Evaluation

- To reduce fuel wood consumption (and the resulting time and/or household income spent for fuel wood) for individual families and
- To promote ease of use and socio-cultural acceptability of solar cooking as a supplement to traditional wood based cooking methods

Specific Objectives of the Project, as set out in the MOU/tri-partite agreement signed between UNHCR-ARRA-SCI, to complete the Aisha Solar Cooker Project; into effect for 8 months, May-December 2001

- To initiate the production of cooking bags and Cookits within Ethiopia in collaboration with local Manufacturer in Ethiopia
- To continue exploring counterpart commitment from the beneficiaries such as tree planting and other environmental activities in collaboration with UNHCR environment sector (integration of Solar Cooker Project with other environmental projects in Aisha camp)
- Continue to encourage plastic waste recycling in an effort to contribute to general camp cleanliness thus enhancing environmental health and also keeping weaving skills in the community alive while they make useful items and also teach the youth traditional skills
- Conduct and evaluation of the Solar Cooking Project in collaboration with UNHCR and ARRA, which is tentatively scheduled to begin in October 2001

2. THE EVALUATION

2.1. Evaluation Objectives and Primary Activities

Objectives of the evaluation and *primary activities* for addressing the respective objectives, as set out in the Terms of Reference (TOR) for Aisha Solar Cooker Project evaluation, entitled 'Aisha Evaluation Description' are:

A. To document the level of usage of solar cookers and the amount of fuel wood savings through solar cooker use
   - *Fuel wood measurement survey*: By carrying out measurement of daily fuel wood usage of individual families over a certain number of days

B. To identify factors that influence solar cooker usage
   - *Questionnaire survey*: Questionnaire to be completed by each one of the families taking part in the fuel wood measurement survey
   - *Focus Group Discussions (FGD):* By conducting, focus group meetings and interviews with refugee camp officials, leaders and groups of women

C. To identify significant factors which may have affected project implementation
   - *Questionnaire survey; FGD*

D. To identify any other benefits of the project such as environmental waste reduction (plastic bags), improvement of self-esteem for women
   - *Questionnaire survey; FGD*

The 'core 30 days' Aisha Solar Cooker Project evaluation, which comprised of four major phases (preparation, planning, in-camp assessments and feed-back meetings) was undertaken between 16 October and 14 November 2001 by a team involving an external consultant and, at varying degrees, by members of SCI, UNHCR and ARRA staff:

- Alemayehu Konde; External Consultant (Team Leader)
- Margaret Owino; Regional Representative (East Africa), SCI
- Mohammed Tahir; Field Assistant, Aisha Refugee Camp, UNHCR
- Nadir Aden Hassen; Coordinator, Aisha Solar Cooker Project, Aisha Refugee Camp, SCI
- Eyob Awoke; Protection Officer and Officer In Charge (OIC) of Aisha Refugee Camp, ARRA
- Berhanu Alemayehu; UNHCR, Sub-office; Jijiga

The TOR for the Evaluation drawn out by SCI in consultation with UNHCR and ARRA is at **ANNEX 3.**

2.2. Evaluation Methodology and Process

2.2.1. Sites and Informants Selection

Drawing evaluation sample sites using one or combination of the various sampling methods, possibly by conducting a matrix ranking exercise against certain area-specific criteria and/or randomization, deemed unnecessary, as Aisha Refugee Camp contains quite a small number of closely linked sections/zones and by large exhibiting similar feature. All zones were, thus considered for the evaluation.

With the general aims of increasing the team's ability to generalize results to the total population and ensure that the sample includes units of interest in the evaluation, both probability and non-probability (purposive) sampling methods were employed for selecting informants.

The probability sampling: For practical reasons (including, camp dynamics and time factor), a single-stage random sampling method was employed for administering questionnaires [see below, under *'Structured interviews'*]. Households[6] (representing *sample unit*) were selected from the 'ration card list' in current use for distributing ration (representing *population*) availed beforehand by ARRA.

The non-probability (purposive) sampling: Purposive sampling methods were of significant help to the evaluation team for understanding the process-progress-impact and related issues, which are by large the qualitative aspects of the project and collaborating agencies' performances.

Depending upon the type and modalities of interventions made in the camp, a range and combination of purposive sampling approaches were considered for selecting informants, both in-group and at individual levels.

2.2.2. Information Collection and Analysis: Methods and Approaches

The evaluation was conducted in a more of a 'process-type' approach, using both qualitative and quantitative data collection/analysis methods: interviews, direct observation/on-site visits, reviews of broad-based literatures and the available secondary sources of information and structured household questionnaire and fuel wood measurement surveys.

[6] Defining what constitutes a household is more complex, especially in the urban and resettlement areas, given the dynamic changes in traditional family norms and values and prevailing rural-urban linkages. In urban areas, the households are complex and often multi-locational with household members in different places in different seasons, or with multiple occupancy of house stand. With due acknowledgements on this fact, the widely accepted and common working definition of a *household*, also adopted for this evaluation is – *those living under the same roof, who have a sleeping area and who eat the same evening meal, from the same pot.*

While not undermining the paramount importance of quantitative survey methods for measuring changes against baseline studies hitherto conducted in the area, stronger emphasis are made on the qualitative methods and substantial efforts are made to compliment and triangulate the quantitative data with the qualitative information. This process has actually helped to draw community perceptions and opinions on changes (positive or negative).

A range of qualitative information gathering and analysis methods, mainly in-depth interviews tailored in various forms centering on - *semi-structured interviews*, including *focused-group and key informants' interviews* were employed during the evaluation process.

Methods like *direct observation* and *secondary sources* of information were used to get adequate insights on the project's performance and impacts.

Direct observations and on-site visits

The team (individually, in group or/and on sharing specific responsibility) made extensive visits to as many zones and areas of particular focus by the project, where project activities were carried out and held discussions with the available members of *project-targeted households*, as time and logistics permitted. Moreover, the team, coincidently and deliberately, called on to some households residing in three randomly selected zones (A1, C and D) where solar cookers were in actual use and, also held focused discussions with women who, for various reasons, have not involved in project activities (eg; trained for and use of Cookits).

In cases when the team faced practical difficulties of gaining random access to the intended member of the household, 'group' and/or 'individual' semi-structured interviews/discussions were held with the available members of project-targeted and non-targeted households with as much combination and focus to the various sex, age and wealth groups as possible.

The various societal and organizational decision makers at different levels of hierarchies were also contacted as appropriate, time and availabilities permitted. Included in the wide array of informants were:

- *Organizational*: Members of field based staff, mid-high level officials and/or decision makers of stakeholders' and other organizations operating in and around the camp, identified as having been directly or indirectly involved at different periods of the projects' life span; or/and recognized for having some level of awareness and knowledge about the past and current intervention efforts, including that of the ASCP.

- *Target/beneficiary group*: Members of households (of various age and sex groups, with particular focus on female members), trained and with direct experiences in using and owning solar cookers, but also other types cooking technologies
- *Community/committee leaders*: Community representatives, leaders and members of the various committees
- *Non-targeted group*: Members of households who have not used and owned solar cookers (emphasis on female members)
- *Trainers/facilitators and related group*: Members of the community who have served as trainers, facilitators, experts, technicians, etc in delivering knowledge and promoting solar cookers' usage in particular, and of other interventions sharing purposes with the ASCP (including projects on energy saving stoves and nursery development)

See **ANNEX 4** for the list of people interviewed.

Secondary sources of information

Information on the historical, conceptual and methodological background, process and achievements of the projects' was, also provided through a comprehensive selection of project, Region and sector-based existing documentation and knowledge. Project-related documents reviewed include:

- Proposals and planning documents
- Reports
  - Baseline Survey report
  - Progress reports
  - Previous review and evaluation reports
- Policy documents and strategy papers
- Agreements, relevant correspondence and minutes of meetings

List of documents, together with all other References used as sources for background and secondary information is at **ANNEX 5.**

Structured surveys/interviews

With the overall aims of obtaining detailed household level information for measuring and understanding the progress made towards meeting project objectives and positive changes brought about through project interventions, questionnaire and fuel wood measurement surveys were conducted. In addition to complementing and cross checking the qualitative information, each survey is designed in views of addressing the review objectives.

Information obtained through formal surveys were analyzed using both quantitative (statistical) and qualitative methods.

Formats of the 'household questionnaire' and 'fuel saving measurement' surveys, which have been administered in 160 households (sampled out of all sections of the camp) are at **ANNEXES 6 (A and B,** in English and Somali languages**) ANNEX 7**, respectively. Analytical findings for the respective surveys (except those incorporated within the respective topics of the report as appropriate) are shown in **ANNEXES 8 and 9**.

2.3. Further Analytical Frameworks

2.3.1. Satisfaction Matrix

The framework for examining key issues of time-bound concern (mostly referred to as constraints, challenges and opportunities) that relate with the SCI-ASCP (and stakeholders alike) in their efforts towards bringing in changes involves the uses of the 'satisfaction matrix' approach, an assessment tool largely employed for looking into the effects of external interventions and the related diverse range of factors through the eyes of the local communities.

The satisfaction matrix has been useful in identifying people's own criteria for a satisfactory environment as well as measuring their satisfaction levels for each criterion and their perceptions of the impact of the project.

2.3.2. Feedback Meetings

The preliminary outcomes of the evaluation (in particular, of the Focus Group Discussions and initial analysis of the questionnaire survey) were presented in the Feedback meeting held at Aisha camp. Participants were drawn from the refugee and local communities, most organizations and from various levels of responsibility, mainly operating in the project site having a direct and/or an indirect link, at different levels of collaboration with the project.

All possible efforts are made towards making the best uses of this forum at which selected audience representing the stakeholder organizations and communities, critically discussed the preliminary results of the evaluation.

2.4. Methodological Challenge

Assessing the impacts of one of the multiple projects from the current perspective by singling out ASCP-SCI's merits from others (like that of the Energy Saving Stoves Program) has been difficult probably remained as the main challenge of the evaluation process. This is mainly because - that both projects have simultaneously (and concurrently) been operational, with similar (and in most cases, complementary) - objectives, modes of operations and stakeholders, towards meeting the needs of a more or less similar target beneficiaries.

To add on the methodological challenges, both projects were operational in more of apparently mixed forms, running as pilot or/and at full scale, and the likely performance and impacts of these projects were not formally (and/or in appropriate manner) assessed and documented.

In order to avoid the potential dangers of discrediting (or the otherwise) one or the other, all possible methodological considerations were made towards isolating individual impacts from those of obtained as a result of both projects.

2.5. Structure of the Evaluation Report

The progress and changes that were brought about by the Solar Cooking Project (and other rationally linked projects as appropriate) are assessed against the envisaged processes, objectives and cross-cutting premises, and whenever applicable, at different points in time.

Findings of the assessment are synthesized under the following four core themes, from which recommendations are drawn incorporating outputs of the feedback meetings and participants' suggestions regarding the way forward:

- Relevance/Appropriateness of the project
- The Process, Progress and Time-bound, Impacts/Changes
- Community Participation, Partnership and Learning
- Sustainability

For simplicity of presentation and ease of reading, the outcome of this evaluation is divided into *two major PARTS, five Sections and numerous Sub-sections*. Sections 1-5, the main text, are contained herein PART I of the report and all Annexes within PART II.

3. ASSESSMENT

3.1. Relevance/Appropriateness of the project

3.1.1. The Regional-National Scenario

The solar cooking technology has emerged and subsequently developed out of the increasingly high demand for some alternative energy sources. Our survey of literature suggests that solar cooking has long been globally recognized as one of the major technological options for reducing pressure on forest resources that could be used side by side with other conservation methods and fuel wood saving initiatives.

As evidenced in our survey of literature, non-governmental and international organizations are largely acclaimed for playing key roles, together with governmental organizations, local institutions and private agencies, in the process of conveying, developing and promoting technical solutions, including forestry development activities, the various types of improved stoves, biogas plants and solar cooking as alternative supplementary cooking option.

Regarding the extent of efforts, however, several key references seem to agree that the promotion of solar cookers in the developing world is still at infant stage or far below the perceived target and the detailed advantages so far obtained by thousands of people known for adopting solar cookers are yet to be quantified.

In the face of such scanty and varied levels of efforts so far made by and among developing nations, as we look into the national scenario, the relevance of enabling communities to make the best uses of sun light for cooking is increasingly being considered as a 'worthwhile intervention' both in rural and urban Ethiopia.

The fact that the Ethiopian government has largely moved in favor of long-term development efforts and the role of NGOs and the 'project approach' were sought crucial for the country's long-term, sustained development, could also be considered as significant changes apparently witnessed during the period when most solar cooking programs, certainly including the ASCP, were operational. Such a shift in views of the government, as noted by local development practitioners in reference to experiences previously faced by the various development agencies, has been a 'great breakthrough' in creating 'conducive local environment' for initiating rural development programs, including solar cooking initiatives, and facilitating the subsequent implementation process.

Albeit the widely acknowledged lack of database on 'who does what' in the various sectors of development, however, quite few organizations/projects are mentioned for having been variously involved in the development and promotion of solar cookers in some parts, but varied settings (mostly in arid parts) of the country. Regardless of the scope and area of intervention and the number of active operational years, these include: SELAM Technical and Vocational Center, Care-Ethiopia, Hope Enterprise, GTZ (German Technical Aid), Agro Action, World Food Program, Arba Minch Water Technology Institute (AWTI), Arba Minch Solar Initiative (AMSI), and the SCI-ASCP.

3.1.2: The Case of SCI-ASCP

This section examines the appropriateness of program interventions vis-à-vis local situations and needs; the relevance of the project/program motives, entry point (in this case, the solar cooking technology), strategies and approaches for addressing the problems in the given situation.

3.1.2.1: Reflections on the Settings

Simply put, Aisha is one of the woredas within SNS's jurisdiction, where large-scale land degradation and deforestation has taken place in the past. Furthermore, as noted by the current administrator of Aisha woreda (also shared and largely spelled out by refugees and surrounding communities), under/mis-utilization of resources, lack of or misguided priorities and minimal attention to the woreda development are amongst major factors that have contributed for the current state of 'backwardness'. Refugee communities in Aisha further stressed that most of them were caught by surprise when they realized the increasingly high rate at which deforestation has gone and its' effects felt so soon (Case study in Box 3.1).

Box 3.1: "Shocked as deforestation goes fast". At last, the long overdue coping mechanisms!

It was during our initial periods of stay in this area, when most of us do no know with each other nor had grounds to think about the surrounding environment that most wood resources were cut…. All types of trees were wiped out fast, way beyond our expectations to the extent that we could not notice the changes and consequences until the last few number of years….. No law of any form enforcing environmental protection and conservation measures are in place to date, nor awareness enhancing initiatives undertaken for most of the period of our stay as refugees in Aisha

Nowadays, we have reached to a state, when we hardly see any forest within our vicinity….but, at an increasingly far locations, the nearest being at a minimum of one day walking distance; the land has lost most of its' vegetative cover…..so, all ranges of environmental catastrophes followed…..

Although late, the HCR-ARRA and all of us were shocked as deforestation goes fast and started realizing the various changes made in our area……..then all felt like taking some actions, sort of coping mechanisms ….BUT – What? How? Where? Who? …a furthermore time was needed for getting suitable answers…and finally, activities like tree planting, energy saving stoves and solar cooking were initiated at different time and ran at varied pace…

We are happy to have been benefiting out of the various technologies (cookers, in particular) and services (like - education, health, water, sanitation, etc); and yet expecting much in the years to come

Box 3.2: Clips from the Pre-ASCP Baseline Energy Survey

The progressive deterioration of the sparse vegetation resulting from grazing by livestock and removal of wood for firewood, charcoal, construction and fencing since the camp's establishment in 1989;

All families in the camp use firewood and charcoal,

Further to our field-level assessments, much of the findings of the Baseline Energy Survey that looked into the pre-ASCP situations highlight the vulnerability of livelihoods to the negative trends and the major causes for what it referred to as 'progressive deterioration'. See Box 3.2 for excerpts illustrating this position.

3.1.2.2: Project entry point, motives and approaches

Since March 1997, the ASCP has been operating in Aisha refugee camp in promoting solar cookers, where SCI has built years of experience in various African settings. One might further, but cautiously, describe SCI/ASCP as one of the only two organizations/projects with particular specialty and direct intervention focus on solar cookers and, in deed the only organization/project that has been operating under refugees' settings of the country.

The ASCP ultimately aims at contributing to the commitments[7] entered by the SCI through meeting a multiple sets of objectives; drawn at different stages/periods of implementation towards attaining strategically ad periodically prioritized outputs (see Section 1.3.2).

The most crucial feature of ASCP's motives lies within the overall objectives, involving multi-dimensional strategies and activities, focusing on *development and promotion of solar cooking technology* as key area of intervention. *Advocacy, technical and educational support* are staged at the heart of this program.

Improved linkages and strong bondage between all stakeholders and enhancements in the target communities and their institutions participation are implied within the overall operational framework.

3.2. Process, Progress, Time-bound Changes and Impacts

3.2.1. Process, progress & accomplishments: Project's Perspectives

The SCI-ASCP's viewpoint on strategies and approaches employed series of efforts made by the project (and at times, together with collaborating-implementing institutions) and the progress and achievements made towards attaining the

[7] Otherwise referred to as Mission Statement (stated in section 1.3.1)

intended purposes-outputs during the period when the project was effectively operational are highlighted below:

Sensitization, introduction-familiarization and motivation

As part of its' start-up operations, communities were sensitized about the causal links that led towards the longstanding environmental problems that Aisha camp and the surrounding areas had already been facing and, the multi-faceted future effects of the increasingly high rate of degradation on their livelihoods.

Amongst the diverse range of causal links, emphasis were made on the increasingly high needs for fuel wood and that led towards the considerably high-level deforestation as the major cause-effect relationships that led towards the then state, emphasis were made on following aspects, which in a effect have been used for justifying the envisioned entry point and strategy;

Along with awareness enhancement and sensitization initiatives on the urgency for reducing deforestation, introducing solar cooking technology to communities in an around Aisha camp and the familiarization, demonstration and motivation process were among efforts that the project undertook during its Introductory Phase;

Capacity development-enhancements

An all-level capacity enhancement by setting appropriate venues and facilitating training-workshops and educational meetings is the key aspect of the performances, in deed the most appropriate means/strategy chosen by the project for gaining considerable need-based achievements within the limited period of intervention.

About 90% of the camp inhabitants have involved in and benefited from the diverse range of group meetings; regular and practice (hands-on) workshops, demonstrations and home visits; formal trainings (largely focused on training-for-trainers) covering a wide range of issues tailored to support local needs and meet the project's purpose. These include, among many other topics/issues designed for developing target beneficiaries' skills and capabilities, augmenting the rates of adoption and utmost participation in the project: Solar cookers' usage and maintenance, food preparations, food habits, issues related with recycling plastic bags and fireless cookers

Distribution-Dissemination-Adoption

Distribution of Cookit (the package for solar cooking chosen amongst a range of available technologies to suit the local condition); facilitating and ensuring the adoption and sustainable uses across the camp through pre/post-distribution training-demonstration efforts are the most crucial feature of the overall program

objectives, which the project strived achieving with as much high level of success as funds, camp dynamics and other variables (internal or/and external to the project) permit.

While not undermining the hard slog and subsequent outcomes of the project during its' initial stage of intervention (in particular during 1997-1998), achievements of the project since May 1999 in distributing the technology pack are shown in Table 3.1, illustrating the respective distribution of 1603, 14860 and 1864 pieces of Cookits, plastic bags and pots to target beneficiaries.

Apparently drawn taking a range of issues into account, including the effects of disparities between households on the levels of adoption, notably the differences in wealth structure and family size, which in many cases reflect sharp contrast in capabilities, solar cooking components are distributed in three major, but largely flexible ways. These are: free of charge, putting up for sale and the third, more of promotion-oriented way, letting users freely own Cookits and plastic bags after/by working on them (and possibly, proving/demonstrating whether Cookits are doing well in the area).

Table 3.1: Number and percentage distribution of Cookits, plastic bags and pots distributed since May 1999 by mode of distribution

Cookits distributed to users since May 1999	Pcs	Percent Of Total
Freely distributed	84	5%
Distributed by working on it	619	39%
Sold	900	56%
Total	*1603*	
Plastic bags distributed to users since May 1999	**Pcs**	**Percent of Total**
Freely distributed	3109	21%
Distributed by working on it	4298	29%
Sold	7453	50%
Total	*14860*	
Pots [including lids] distributed to users since May 1999	**Pcs**	**Percent of Total**
Freely distributed	1099	59%
Ready for distribution	765	41%
Total	*1864*	

Source: Project office, Aisha

As can be seen from Table 3.1, of the total number of Cookits and plastic bags, which the project managed distributing to users since May 1999, significantly higher

proportion (56% and 50%, respectively) were sold to users as compared to other methods, whereas free distribution has been kept to the minimum (5% and 21% of the total, respectively). In fact, the latter method was solely employed in case of the pots that were distributed since May 1999. The next most important way of dissemination employed by the project is 'distribution to users by working on it', through which 619 (39% of the total) Cookits and 4298 (29% of the total) plastic bags were handed over to users since May 1999.

Monitoring, evaluation and reporting

Owing to a range of time bound factors, both internal and external to the project environment, the SCI-ASCP and its' partners have undergone through various modes and intensities of monitoring, evaluating and reporting the progress made by the project. Prior to 1999, the period that SCI had to rely on UNHCR staff for getting the ASCP going is largely identified as an 'unsatisfactory period' in terms of progress monitoring, evaluation and reporting. The then lack of communication (including absence and/or poor telecommunication services) coupled with ill SC-UNHCR relationship has contributed more towards this. Otherwise, the post-1999 period could be considered as that of when significant changes were made towards the following-up process on the success and constraints faced by beneficiaries in using solar cooking set. Together with Committee members of Women's Association, project staffs were engaged in a continuous process of advising users. This was after the SCI employed own site-based staff (and updated at Nairobi) in order to improve project management and enhance work efficiency. Nowadays, the area has telephone line through which a two-way communication has become possible between the project coordinator and Nairobi, the Regional HQ, as and when necessary, certainly when the outcome of any monitoring event necessitates the link.

Apart from the one currently underway, the project has undergone through an evaluation process, way back in1998, apparently disputed one; less popular, the outcome of which have not been favorably received by the SC-ASCP for a range of reasons. The likely effects of this particular evaluation on the project are briefly discussed under section 3.2.2.

Monthly reports and other means of communications are employed to get HQs and partner institutions informed and in some cases get multiple-way feedbacks between field and institutions at various levels

Further monitoring and reporting are undertaken by the UNHCR and ARRA through their respective officers-in-charge, who as part of the duties assigned to them are independently engaged in monitoring events within and around the refugee camp

(obviously including ASCP's intervention efforts) and report to their respective organizations.

3.2.2. Findings of the Evaluation: Analytical Reflections

With particular focus on major themes surrounding the evaluation objectives, findings of the evaluation on the progress changes and impacts made by the project are presented next.

3.2.2.1. The level of usage and fuel wood savings through solar cookers

Outcome of the Household/Fuel-wood Measurement Surveys and Informants' Reflections

Some four years on since the Aisha Baseline Energy Survey was conducted, the usage of cooking devices has shown significant changes from intensively high use of the traditional stove alone (75%) and negligibly low use of and combination with charcoal stove (20%) to, as evidenced in Table 3.2, increasingly high level usage of improved devices and combination of alternative technologies.

Table 3.2: Magnitude in the usage and alternative combinations of cooking devices

Cooking Devices in use	Percent
Traditional (3-stone type)	3.3
Energy Saving Stoves (ESS)	0
Solar cookers (Cookit)	2.2
Charcoal Stove	0
Paraffin Stove	0
Fireless Cooker	0
Traditional and ESS	1.1
Traditional and Cookit	3.9
ESS and Cookit	4.4
Cookit and Charcoal	0.6
Traditional, ESS and Cookit	29.4
Traditional, ESS and Charcoal Stove	1.1
Traditional, Cookit and Charcoal Stove	3.3
ESS, Cookit and Charcoal Stove	3.3
Traditional, ESS, Cookit and Charcoal Stove	38.9
Traditional, ESS, Cookit, Charcoal and Paraffin Stoves	8.3
Total	*99.8*

Source: Analysis of Household Survey

With the exception of 10 (5.5% of total) households surveyed, 6 and 4 of who indicated for solely using traditional and solar cookers respectively, the large majority (94.3%) of households use multiple cooking devices. Of the various sets of devices in use as alternative means of cooking, combination of the traditional, ESS, Cookit and charcoal stove are by large favored (39%) followed by the former three (29%) as the most common combination. The very fact that the traditional stoves are solely being used by only 3.3% of the population while the large majority (86%) use it together with others, the newly introduced devices is much telling not only how deep the fuel shortage problems are felt, but also the trends in the levels towards adopting need-based technologies (Table 3.2).

Looking into the magnitude of sources of fuels in use by households, similar trends are noted that the best possible combinations of cooking fuels are in use by 95% of respondents. As indicated in Table 3.3, 50% of sampled respondents use solar, firewood and charcoal while 45% use the former two.

Table 3.3: Sources of cooking fuel/energy commonly used by households in the camp

Source of cooking fuel	No. of participants	Percent
Solar only	0	0
Fire wood only	6	3.3
Charcoal only	0	0
Paraffin only	0	0
Solar & Fire wood	81	45
Solar, Fire wood & charcoal	91	50.5
Fire wood & charcoal	2	1.1
Total	*180*	*99.9*

Source: Analysis of Fuel Saving Measurement Survey

Findings of household survey, indicating beneficiary communities' perspectives on the training-dissemination efforts made by the project during the *intermittently adjusted* period suggest that all, but 6 (3.3% of the total) respondents have benefited out of the project, receiving Cookits and trainings during the period between 1997 and 2001 inclusive, while 1998 has been the period when both Cookits and training delivery reached the highest rate. However, the pattern and intensity of provisions of Cookits and the respective training were inconsistent across the years (Table 3.4).

In light of the two main modes of distributions employed by the project (illustrated in Table 3.1), the household level Cookits possessions are indicated under Tables 3.5 while the state of household level monthly plastic bags acquisition are shown in Table 3.6.

Table 3.4: Cookits and training received from ASCP during 1997-200: Beneficiaries point of view

Year	*Cookits Received*		*Trained*	
	No. of Respondents	Percent	No. of Respondents	Percent
1997	40	22.2	39	21.7
1998	56	31.1	58	32.2
1999	45	25	45	25
2000	29	16.1	28	15.6
2001	4	2.2	4	2.2
Not given	6	3.3	6	3.3
Total		*99.9*		*100*

Source: Analysis of Household Survey

As shown in Table 3.5, Cookit possession at a household level ranges between 0 and 4 while the mean lies at 1.7. On the average, each household owns 1-2 Cookits, either received from the project on no cost basis or acquired on purchase or both in cases of multiple Cookits' ownership.

Table 3.5: Cookits possessed at a household level

Cookits possessed	Mean (n=180)	Standard deviation	Range
Total owned	1.7	0.83	0 – 4
Number given	0.9	0.46	0 – 2
Number bought	0.8	0.63	0 – 3

Source: Analysis of Fuel Saving Measurement Survey

Table 3.6: State of monthly household level plastic bag acquisition

Plastic bags	Mean (n=180)	Standard deviation	Range
Total acquired	5.0	2.08	0 – 15
Number bought	2.6	1.73	0 – 10
Number given	2.4	1.48	0 – 9

Source: Analysis of Fuel Saving Measurement Survey

The magnitude in the utilization of solar cookers at household level however varies. Table 3.7 indicates that outcome of survey questions presented in qualitative terms, solar cookers are always put to use by only 22% of the households whereas 72% of the households indicated for not using it on the-day-to day basis.

Table 3.7: Intensity/magnitude of solar cooker utilization at household level

Intensity of use	No. of respondents	Percent
Always	39	22
Sometimes	130	72
Never	4	2
Not responded	7	4
Total	*180*	*100*

Source: Analysis of Fuel Saving Measurement Survey

A further change noted is the enhancements in social interaction, which is highly likely to have been resulted from the growing interest in the utilization of solar cooking device. Table 3.8 shows the trend of changes in lending-borrowing of cooking devices ever since (presumably stimulated by) Solar cookers are introduced from none during early years to 9% as at the evaluation period, such increase of which is largely exhibited in case of Cookits.

Table 3.8: Magnitude in the usage of cooking devices through borrowing-lending at household level

Type of cooking device	*Borrowed*		*Lent out*	
	No. of respondents	Percent	No. of respondents	Percent
Traditional	1	0.6	0	0
ESS	1	0.6	0	0
Cookit	16	8.9	1	0.6
Charcoal stove	4	2.2	3	1.7
Paraffin stove	0	0	0	0
Fireless cooker	0	0	0	0
None of the devices	158	87.8	176	97.8
Total	*180*	*100.1*		*100.1*

Source: Analysis of Household Survey

In case of specific uses being made out of solar cookers, most household prefer using it for cooking a similar range of items. Though at varied levels, Cookits are largely preferred for cooking tea and/or rice while also, depending upon a range of factors, the combination of other items are cooked using Cookits (Table 3.9). While economic differences has implications on the type of food to be prepared and eaten by each household, Cookits are by large in use for cooking rice, tea and spaghetti. In fact, the type of food to be prepared using Cookits is determined by the state of the sun. According to our informants, they always look at [monitor] the sun's intensity before choosing the type of food and even before start cooking using Cookits.

Table 3.9: Magnitude on type of food item a household prefers cooking with Cookits

Food item	No. of respondents	Percent
Tea only	21	11.7
Rice only	13	7.2
Wheat grain only	9	5
Tea and rice	41	22.8
Tea and wheat grain	19	10.5
Tea, rice and wheat grain	12	6.7
Others	58	32.2
No specific preference	1	0.6
99 (cooker not given)	6	3.3
Total		*100*

Source: Analysis of Household Survey

What follow are the outcome of the household surveys, indicating the trends in the uses of fuel energy (particularly of the fuel wood and charcoal) and the respective cost implications as compared with the baseline data of survey held in 1997 as appropriate. Note that the baseline data, the basis for comparison (referred in tables below as 'changes noted) on per capita consumption for firewood and charcoal are 0.93 and 0.27, respectively.

Table 3.10: Changes noted on per capita firewood and charcoal consumption by intensity in Cookits' use

Intensity in Cookits use	Firewood consumption (kg)			Charcoal consumption (kg)		
	Daily Av.	Percapita	Changes noted (%)	Daily Av.	Percapita	Changes noted (%)
Always	3.04±1.921	0.52	-44%	0.33±0.883	0.06	-78%
Sometimes	3.95±2.559	0.68	-27%	1.25±1.585	0.21	-22%

Source: Analysis of Fuel Saving Measurement Survey

Table 3.10 shows the influence generated out of the intensive uses of Cookits, leading to 44% and 78% reduction in firewood and charcoal consumption, respectively for those who most frequently (referred to as 'always') use Cookits. The daily per capita firewood/charcoal consumption and the respects costs are shown in Table 3.11.

Table 3.11: Per capita firewood/charcoal consumption and cost by Cookit users

Firewood		Charcoal	
Daily Average Consumption/ household (kg)	Daily Average Cost/household (Birr)	Daily Average Consumption/ household (kg)	Daily Average Cost/household (Birr)
3.68±2.456	1.84±1.229	1.08±1.540	0.38±0.539

Source: Analysis of Fuel Saving Measurement Survey

Regarding the daily per capita firewood consumption in general, the quantitative and qualitative evidences obtained through this evaluation suggest the reduction in the fuel wood and charcoal consumption and the cost implied therein. These are highlighted below.

3.2.2.2. The extent to which program interventions brought changes

The paramount importance of solar cookers in reducing costs that could have been incurred for purchases and collection of fuel wood (mostly expressed in terms of money/cash, labor and/or time saved) while ensuing lower rates of deforestation in the area (variously expressed, including - *longer life for trees, breaking the inherent cycle of cutting trees, increased time-out period of cutting trees*, …) are among issues most stressed by communities as a major breakthrough of the project.

Box 3.3: Just started witnessing changes

Forest is rain; forest is fuel energy; forest is crop; forest is livestock; forest is asset; forest is money. Forest, in general, is livelihoods. By reducing their destruction and reclaiming them, even if it was to a limited extent, most of us have just started witnessing how valuable these things are

All what members of Aisha and the surrounding communities had to say about high values attached to solar cooking, the short run impacts achieved through this specific intervention as rescue-technology and the perceived long term impact are reflected by an elderly informant, who said, in their words, *just started witnessing environmental changes and will definitely benefit more if we continue using it* (Box 3.3).

According to key informants, the price a household pays to get hold of firewood through any one or combination of the available options (self-collection and/or purchase) has substantially reduced as they start using solar cookers, given the increasingly growing trends they witnessed during the last number of years.

The current figure obtained out of the household surveys shows a much-reduced rate of fuel wood purchase and collection. For instance, currently 56% of the communities buy one quarter to three donkey loads of fuel wood depending upon a range of factors including size of household (number of feeding mouths) during a period ranging from less than 10 days to about a month [see Table 6 and 2, placed within ANNEX 8 – which precisely adds up to 57.2%]. Furthermore, about 40-41% of the respondents spend 30 Birr a month to buy a donkey load of fuel wood. The cost of fuel wood that, according to the various women groups, all members of Aisha communities had to cover fully during the pre-project periods, has nowadays (post-project period) reduced by more than 40%. For precise figures, see Table 2 in ANNEX 8, which illustrate that 43.9% and 36.1% of the respondents are not currently buying firewood and charcoal respectively. In general, this assessment safely concludes that the reduction in firewood consumption lies within the range of 32% (compared with the baseline data of survey held in 1997, as indicated in Table 3.11 [3.68 kg divided by 5.83 members per household yields .63 per capita]) and 43.9% (analysis of the household survey on current situation, indicated in Table 2 of ANNEX 8).

Also the survey output on the current state indicates that about 71% are engaged in collecting fuel wood, depending upon a range of factors including strength of member/s of the household fetching the fuel wood (largely the women) and the means of transport (eg; camel donkey human-manly on the back of the women), by traveling to various collection sites, distance that ranges between 10 and 50 km far from Degago. This has been the task, which has to be performed at full scale and more often during the pre-project periods. According to informants, for instance, what they used to travel to an area called Quud [a mountainous area across section E] for as much as 4 times per month has nowadays reduced to twice a month.

3.2.2.3: Constraints, challenges and opportunities/prospects

Mainly based on beneficiaries' perceptions, findings are summarized focusing on the following issues:

- Factors that influence the solar cooker usage: One of the key elements of the overall assessment exercise focused on the comparative merits-demerits analysis surrounding the various cooking devices and, the challenges and prospects that particularly relates with Cookit
- Factors that may have affected project implementation

A. Factors that influence solar cooker usage

Why a cooking device is most preferred and why not the other?

As evidenced in Table 3.12, the criteria (principal factors) drawn by beneficiaries for a 'satisfactory' cooking device are based on the respective issues of particular concern and reflections on the future possible scenario.

Factors that could positively or negatively influence solar cookers' usage, drawn by key informant groups composed of ASCI-targeted beneficiaries who made a further look into the pros and cons aspects of Cookit's performances based on own criteria (illustrated in Table 3.12), are shown in Table 3.13.

In confirmation with the outcome of surveys and discussions held with various stakeholders, Cookit's contributions in 'reducing fuel wood and charcoal consumption' and the impacts implied therein (expressed in terms of cost, labor and time saved), lies at the centre of issues, expressed by the various groups of target beneficiaries (Table 3.13).

On the other hand, diverse ranges of factors (most of which are interrelated) are noted for negatively influencing solar cookers' usage in Aisha context. These are further sorted out into two major categories, considering the respective root causes.

Drawbacks that are perceived to have some causative linkage with technological aspects of Cookits take the first category (summarized in Table 3.13), while the cost that might be incurred for the cooking set, which in specific terms include the price that a household pays for acquiring and running a Cookit, is described as a separate issue needing appropriate consideration.

Table 3.12: Criteria for a satisfactory cooking device and the respective issues of concern: Beneficiaries' perspectives

Satisfaction matrix for Solar Cooker [Cookit]	
Criteria (principal factor) for a satisfactory cooking device	*Issue/concern: Anticipated outcome-satisfaction*
Less use of fuel wood	Labor, time and cost
Speedy cooking	Efficiency/cost: Largely assumed that the faster the device cooks, the less fuel it uses
Not emitting excessive fire	Taste: The food not damaged/burnt by excessive fire; tasty Efficiency and cost: fuel wood consumption kept to the minimum; less costly
Easy and safe for using at all places and time	Safety and convenience
The cooking process not affected by rains and bad weather conditions	Efficiency/cost, convenience
Able to cook for all sizes small-medium-large families serving the needs of the extended type of family structure and, as much as possible able to cook for large number of people, during when societal celebrations are needed like religious holidays, weddings and other group-based celebrations	Efficiency/cost, social affairs
Cooking devices obtained at no cost (or at negligible cost, like that of the 3-stones) are highly preferred, even if they do not meet all of the above-mentioned satisfaction factors. For devices that are not freely obtainable, those whose initial costs are 'extremely' low (not more than 3 Birr, most suggested as indicative price), coupled with a further low running (or no) running costs are much preferred, provided that most of the satisfaction factors are met	Cost (initial and running) of the device: Notwithstanding the values attached to each device based on beneficiaries' own criteria, 'affordability in terms of initial and running costs' and 'availability at near distance, preferably in local markets' are the center of attention for all members of the Aisha communities.

Source: Outcome of Focus Group Interviews

Table 3.13: Merits and drawbacks of Cookits: Beneficiaries' perspectives

Satisfaction matrix for Solar Cooker [Cookit]	
Merits of the Cookit	***Tech-related Drawbacks of Cookit***
In use for much longer period of the year: Cookit is very much liked for it's extended uses during summer period (for about 6 months a year at best), during when it can be used 'full-time' (all the day; 10am to 5pm; largely for preparing two meals a day); whereas during winter-cloudy-windy period, Cookits can best serve for preparing lunch (maximum once a day). In Aisha context, one could possibly (arguably, to some) use Cookit all the year round, though at varying levels depending upon the variations on sun's heat/intensity	*Cookit is non-durable:* The very fact that it is not made of durable material has significant cost and efficiency related implications, making it quite unworthy despite the high level reduction in firewood consumption. *Not working or/and largely inefficient during cold/windy/rainy period:* ❑ Affected by rain, cloud and wind. Useful during one of the two seasons (summer) *Limited size-efficiency/speed:* ❑ Could cook, for instance, up to only 0.5 and 0.75 kg of wheat and rice respectively ➢ Small in size, not able to cook for large family size: Serves for small/medium-size family (ideal for 6-person household); not useful for larger (10+) family [large families being the typical feature of the communities in Aisha, if not all Somalis] *Cookit is a slow cooker:* ❑ Food could be delayed, unless longer period is given ❑ Not useful when speedy cooking are needed, for instance for catering for guests as they arrive *Needs for "watching eyes":* ❑ Both Cookits and 3-stone need guarding from children and domestic animals. ❑ Whereas Cookits alone can be blown away by wind – unless protected *Limited food type cooked using Cookits:* It is much preferred for cooking certain types of food, like rice, tea, spaghetti, etc. (also see Table 3.9) *Others:* Cookits turn out to be ineffective when the black paint of the dish fades away
Ease of application with utmost safety: A case in point is a blind, old woman, indicating the high levels of safety and ease of application, who said, "even me can work on and effectively use the Solar. I can reorient it to the sun's direction whenever needed…." Reduced levels (in some cases, total removal) of danger and worries, which were largely occurring using the 3-stone, include: ❑ The effects that smoke might cause on women's eyes is no more the case using Cookits ❑ Worries about fire accidents on the grass-cloth-plastic made houses reduced in light of the frequently occurring heavy winds	
Saves time: Some time spared by households allowing them to carry out other jobs while it is cooking. The time that they take for reorienting Cookits to the sun's direction is insignificant for many group of respondents	
Reduced fuel wood/charcoal usage, hence, less labor and/or money: Households save some (good amount – few said) money and substantial labor (which could otherwise be used for firewood collection) that could be spent on other items of particular needs to the household and for collecting/buying fuel wood for cooking: ❑ while Cookits are not in use and ❑ other types of foods not preferred cooking with Cookits	
Technical advantage: The fact that flames are not seen wasted while using Cookit is viewed by many in correlation with efficiency, marking it in terms of its' technical merits. For many others, not seeing flames wasted is more of a psychological satisfaction, no regrettable waste, as said by a woman.	
Taste: A food cooked with Cookit is much tasty than that of cooked with traditional one, as using open fire exposes the food for smoke	
Cooks most food items available to refugees: Although at different levels of intensity and strength, Cookit can virtually cook everything available to most refugee households. (Also see next column, for the differing reflections)	

Source: Outcome of Focus Group Interviews

Category 1: Drawbacks having some causative linkages with the very technology

Issues that surround 'Cookit's flimsiness' are, perhaps the single most important and heightened aspect reiterated by each and every household and groups and all members of stakeholder organization that the team had discussions with, as the major factor impeding solar cookers' usage in Aisha. With some degrees of variation, the views that are reflected regarding active period of service that any one of the current solar cooking set might render are:

- Some groups, for instance said that a household that frequently (on daily basis) uses Cookits for preparing food twice a day can only use it and its' components for up to: 1.5 month [cartoon]; 4 days [plastic]
- Others noted; a Cookit is best used for 3 months of the year [with utmost efficiency] before it gets dismantled for up to 5 months (max) provided that it is looked after well (with several maintenance).

However, all agree that the currently available Cookit can never be maintained to last longer than 5 month. In fact, communities in Aisha camp are aware of models of much better strengths and qualities, including the one they used to work with some time ago, a further issue that apparently makes the feelings of dislike shift towards being less looked after (see Box 3.6).

Interestingly, most of the remaining factors that are perceived to have some causative linkage with technological aspects of Cookits are largely considered as being less serious, which they can simply live with or coping strategies are devised for mending the drawbacks. Boxes 3.4 and 3.5 illustrate this position.

Box 3.4: Compromising the pros and cons

Speed related aspects:

Yes, Cookit is not fast enough in cooking food. But, the delays are not intolerable [manageable waiting period stressed] – also could fix/program, based on the family's food need, which is largely similar and routine.

Issues related with periodic applicability of the Cookits:

Though Cookits are less effective during winter (which is relatively cloudier) and preferable during summer, they can be used the year round in Aisha even if at slower rate depending upon the variations on sun's heat/intensity. This is a sort of negligible matter, as compared to the problems that communities might face using other cookers.

Box 3.5: Making the best uses of (or/and mending Cookits) drawbacks: Coping mechanisms/strategies developed and largely adopted in Aisha Camp

Keeping firewood/charcoal as backup for handling Cookit's periodic applicability

To cope with Cookits's limitations that relates with the periodic applicability, they collect fuel wood and store as reserve for cloudy/rainy season while using the Cookit during sunny seasons.

Multiple cookers' use: Shifting mechanism

If there is a high intensity sun, locally termed as 'good sun', Cookits cooks best and the food tastes best, according to all informants interviewed. Nevertheless, if the sun's heat is continuously disturbed by wind while the Cookit is in the process of cooking, the food will become less tasty, much towards unsatisfactory level. During such cases of disturbances by the wind, they have developed a mechanism of transferring the food on to the available fire wood cookers (mainly, 3-stone ones) to complete the cooking process. This is proved for saving the food from not being spoiled and hence, maintains the taste as being cooked by Cookit.

Social/Institutional arrangements and personal efforts: Strategic moves for acquiring Cookits

Although most households hardly manage getting the tattered Cookits replaced, using a solar cooker seems to be a non-stop process. In the light of the levels of poverty spread across much of the sections, the strategy in use for getting hold of Cookit at household's disposals include:

- Borrow Cookits from friends, relatives and kin group; or
- Borrow money from friends, relatives and kin group for buying Cookits; or
- The final resort, use the already worn out Cookits for as much it goes by making a thorough day-to-day maintenance, sewing and re-sewing. In fact, most noted that they exert efforts in mending the Cookit once it starts getting ragged.

Category 2: Drawbacks related with the cost of acquiring and running a Cookit

Notwithstanding the values attached to each device on the basis of beneficiaries' own criteria, 'affordability in terms of initial and running costs' and 'availability at near distance, preferably in local markets' is the center of attention for all members of the Aisha communities.

Reflections on the future possible technological and cost related scenario made by key informant groups composed of ASCI-targeted beneficiaries, also shared by almost all members of the communities and the imminent challenge ahead are shown in Box 3.6.

Box 3.6: Views, feelings, advices and recommendations for possible future

Provision of Cookits freely:

Amongst the diverse views that were reflected in favor of free or near free supply of Cookits, the following aspects were largely suggested to be given due consideration:

- Providing Cookits free for selected households, who are identified as being very poor members of the communities, at a pre-determined interval (like, twice/thrice per year)
- Notwithstanding the minimal cost of the Cookit package (6 birr for a cookit, painted dish and 2 plastic bags) households of many sections by large would like to get it freely at a predefined period.
- Some suggested the gratis to be taken as part of the bi-annual package of support being rendered by the UNHCR
- Needs for much higher levels of subsidy on Cookits – up to free supply

Making Cookits much durable and efficient:

- Make substantial changes on Cookits – technological modification:
  - Hardening of the Cookit's cardboard, through the uses of much stronger and thicker material while making it more effective
  - Notable increase the size of Cookits while enhancing its' efficiency
- The previous cartoon (presumably, the Kenya make) was much stronger and durable than the latter ones (presumably, made by Selam center in Addis). As said by the executive member of the Women's Association, "….the Cookit, which are being distributed during the last few years easily wears off and gets collapsed…. especially, the recent brand is hopeless when contacted with water.."
  - Hence, get other models, made of better materials, like that they are aware of being promoted by SCI and its collaborators and being used elsewhere (the pictures of which are posted in SCI office), presumably in Kenya under refugees' situations

THE CHALLENGE: Correlating Size, Durability and Limitless Period of Efficient Uses

Based on the drawbacks, beneficiaries, in general, expressed their views (apparently shared by SC-ASCP management team) on the needs for cooker that is much durable and able to change a low intensity sun heat into a high powered energy and hence, that cooks large sized dishes faster and at all times

B. Factors that (may) have affected project implementation

1. Deficient 'Project Planning-Design-Preparation' affecting the project cycle: Critical reflections

To start with, it is appropriate noting that planning-design aspects of programs/projects have long been of considerable concern to development practitioners. From the early days of official development aid in the 1950s to the present, for instance, a variety of planning (management, monitoring and

evaluation) approaches/tools[8] were developed against diverse set of definitions and conceptual backgrounds. In the course of such diversities, the planning and preparation[9] approaches, which have gained a record level of acceptance to date, are those involving some or all of the following features:

- Help making the program/project design more transparent by clarifying the reasoning behind and hence, allow program/project components and activities to be tailored to local conditions and needs rather than those of rigidly fixed
- Allow involvement of stakeholders (though with varying degrees) towards developing effective implementation strategy and, hence can be used to build consensus amongst all interested parties, from policy makers to beneficiaries
- View any development project as a set of causally linked visionary elements (identified as the *goal*, *objectives/purposes*, *outputs/results*, *activities*, *indicators* and the respective *means of verification*, *assumptions* and *inputs*) providing a mechanism for their step-by-step conceptualization (see **ANNEX 10** for Working Principles surrounding the Visionary Elements);
- Managerial tool for defining realistic objectives and the means for accomplishing [strategies]

In the light of the above-highlighted premise, we believe that the needs for passing through an appropriate process of program/project planning are a virtual necessity, though may not be a recipe for success, but without it, a program/project is much more likely to fail.

In case of the ASCP, however, the project design-planning-preparation aspect is an area that has suffered from notable limitations.

For some of our key informants, the process that the SCI has undergone for getting the project into Aisha is a matter of concern; in particular, the overall inceptions and initiations of the project have not been something that evolved from the field, rather from the top, most probably Geneva. That in 1997, SCI contacted UNHCR's Geneva office indicating its interest of initiating the project; committed to and ran a training[10] at Aisha camp, marking the startup of the project supports from the UNHCR, as a key agency holding the lion's share responsibilities in making the ASCP a real development project.

While not undermining the paramount values attached on the development programs that are locally generated, the route taken by the SCI (as project initiator)

[8] Some amongst many approaches include: Objectives Oriented Program/Project Planning (ZOPP); Program/Project Planning Matrix (PPM); Result Based Management (RBM) and; Logical Framework Analysis (LFA)

[9] Project preparation, in broader terms, refers to the completion of a feasibility study on which concerned organizations will normally base the appraisal of the project in question for the final decision

[10] Training-for-Trainers, delivered by American volunteers staying at Aisha for 3 weeks

towards bringing the project into Aisha, efforts made towards securing initial funds and the subsequent initiatives in 'keeping the project going' are rather appreciable, given the relevance of the proposed intervention and lack of local capacity.

A closer look into elements crucial for 'sustaining the project', however suggests that the needs for drawing, agreeing upon and implementing workable institutional arrangements, binding principles and operational modalities have not been given appropriate consideration by and between SCI-ASCP and its' partners (particularly the UNHCR, as key partner). The range of setbacks that the project had faced during most parts of its' operational period (in particular at the earliest stage) were much dependant on the 'periodic misunderstandings' that has prevailed between the SCI-ASCP and the UNHCR branch offices, most issues presumably related with in-house (within UNHCR, HQs and Regional/field offices).

Regarding the project design-planning-preparation aspect, the team's contention emanates from what could have been the 'absolute necessity' for a development project (unarguably like, the ASCP); leave alone the 'formality' aspects.

While not doubting that the team has been provided with most (presumably, all) of the basic and appropriate project documents, hardly any of them give the impression of a standard, 'Original Project Document', nor provide a comprehensive overview of the ASCP, which in principle could have served as benchmark for monitoring and assessment of the process and impact. The overall framework, above all, the visionary elements[11] vital for developing a project document and hence, for implementing and assessing the progress are deficient. In fact, there is no reason to believe that any one of the widely available logical planning methods/process was employed.

Amongst issues that have made significant contribution for slow pace since initial stage and at times threatening the very existence of the project, the following are noted:

- Following the agreements to work in Aisha with UNHCR, the project was initially placed in the wrong UNHCR's department, under "Women and Children Department", while the "Environmental Department" could have been the right place; though noted later this had negative influence on the project
- For reasons beyond SCI's control (presumably within UNHCR's ability) substantial delays (by up to 16 months) in getting Cookits and plastic bags from Nairobi into the country.

[11] With reference to the descriptions of visionary elements (ANNEX 10), included in the missing or/and defective elements are the goal, time bound input-outputs, various sets of indicators and the respective means of verifying them

- Learning from past experience, actions were taken later in time; hence proper delivery resumed:
  - Acton: Stopped importing; Selam Technical and Vocational Center was identified and selected to produce the kit and plastics while Kalu-Work Ethiopia for producing the pots

- UNHCR sponsored evaluation was conducted, the next most important factor that might have affected the project's implementation

2. Evaluation: Overview and implication of the evaluation on the ASCP

Monitoring and Evaluation are nowadays of critical importance for realizing the objectives of development programs and projects.

Although its' broad agenda will not be achieved in every case, and some parts of it shall only be undertaken selectively, evaluation attempts to:

- Critically re-examine, in the light of subsequent developments, the project rationale articulated in the original plan;
- Determine the adequacy of the project to overcome identified constraints and to promote the desired changes;
- Compare actual attainments with the targets set and to identify reasons for shortfalls or over-achievements;
- Assess the efficiency of project implementation procedures;
- Determine the effects and impact of the project; and
- Present the lessons learned and the recommendations that follow from them.

In the light of the above mentioned functions of an evaluation the one that has been carried out in1998 was however less useful, rather detrimental, as far as the ASCP is concerned, the outcome of which have been not been favorably received by the SCI-ASCP for a range of reasons, including the following:

- Unilaterally planned and ran by the UNHCR without involving SCI;
- Wrong procedures followed;
- Not carried out during a pre-agreed/determined period, or at appropriate period of implementation;

Hence, no wonder that the relevance of this evaluation has not only been questioned, but also raised concern as to whether it was part of the moves towards finding reasons to terminate the project. As hypothesized, inauspicious recommendations were drawn from the project's few months already staggered work.

Following the recommendations, the project went on a halt, in fact terminated. After passing through lots of pros and cons on the project's termination and appeals by

SCI at Geneva level, the SCI was allowed to reinitiate in 1999 and run the project by solely covering the full cost, both funding and implementing organization.

It was since then the apparent needs for setting a well-defined organizational arrangement and procedures were recognized; and at a later period the effects of ill-fated evaluations on the project's performance was realized.

3.3. Community Participation, Partnership and Learning

The basic objective of this section of the evaluation is to explore operational principles and values, with particular focus on aspects largely considered as key for gauging the project's performances.

3.3.1. Community participation

Community participation is one of the core and cross cutting strategy of the Aisha program in general, which is also SCI's core organizational strategy. In fact, the other two institutions key for Aisha camp, ARRA and the UNHCR, as well acknowledge the needs for involving target communities should any meaningful development take place.

The move towards ensuring community participation, in case of the ASCP, normally starts during the early process of planning, from selecting target sections/beneficiaries and continues along the various stages of implementation.

3.3.2. Partnership and learning

Ideally, "partnership" would entail voluntary co-operation between two independent organizations, dialogue based on mutual respect and knowledge, a common sense of purpose, openness, transparency, accountability, trust and recognition of the local communities and their institutions and those of local GOs and NGO as the primary agent among others. The principles and values of each organization are the governing factors for the formation and nurturing of the intended partnership.

Whichever way is partnership defined, however, the needs for involving other organizations, mainly the UNHCR and ARRA, was crucial to the project, which initially involved signing formal agreements.

In case of ASCP, there has never been a well defined mode of partnership, as SCI's partners' selection was different in the past, nor a well establish policy guidelines set, which should have been institutionalized.

3.4. Sustainability: Phasing in or Phasing out?

With a view to a future withdrawal of the solar cooking project, this section aims at assessing the continuity, sustainability of program benefits and the degree of integration of activities within the prevailing local and federal government systems.

Based on the findings of this evaluation, which are based on the views of target beneficiaries and all stakeholders and outcome of household surveys in general, the project has shown some level of progress towards meeting most of the outputs in a way that could largely contribute towards meeting the objective it intends achieving during the years ahead. For a range of reasons including the prevailing lack of capacity and capability, it has been clear that the project's initiatives would not be sustained without continual efforts by the project. Table 3.14, partly illustrates the afore-mentioned position.

Table 3.14: Percentage of the perceived expectation of the benefit out of the CooKit that has been met as at the evaluation period

Level of Achievement	Number of households (Frequency)	Percent
Fully	1	0.6
Largely	5	2.8
Partially	88	48.9
Likely	73	40.5
To early to tell	6	3.3
Not achieved	1	0.6
Cooker not give	6	3.3
Total		*100*

Source: Analysis of Household Survey

4. CONCLUSIONS AND LESSONS DRAWN

This chapter briefly summarizes the conclusions and lessons drawn, which are seen as key issues emerging from the detailed analysis in the preceding chapters of this report as relevant. In a few cases, reflections on some additional analysis or thinking are included in this chapter, which has not already been done in the preceding ones.

4.1. Reflections on the Problem

The nationwide seriousness of the environmental situation has long been highlighted in many national and international studies, further back to the 1850s since the travelers' account of the situation in large parts of the country signaled the alarmist tone. Although the projections of various indicators are difficult to substantiate, there is no doubt that the degradation is serious, with far reaching consequences for national socio-economic life, food production and by large, the vulnerability of rural livelihoods.

By all accounts, therefore, efforts towards tackling the root causes of environmental degradation and the related contributory factors through implementation of area-focused and need-based programs in a sustainable manner are justified.

Our assessment on the situations where the ASCP has been operational reflects that environmental degradation, mainly caused by massive deforestations, has increasingly been amongst the major problems negatively affecting all livelihoods in Aisha/Degago and the surrounding areas. The trends in the natural resource use (particularly of deforestation and devegetation) that have been exhibited in and around Aisha/degago during the last two decades, evidently suggest the needs for concerted efforts, not only for the betterment of current generation, but also to protect livelihoods of the future generation from the imminently high vulnerabilities to the various environmental catastrophes.

The evaluation team strongly believes that the SNS in general and, principally focused on the areas of prime concern, Aisha Woreda and the refugee camp, are the legitimate targets undoubtedly deserving sustained external interventions, investment in productive, economic and social infrastructure, amongst many, by international agencies and indigenous NGOs.

The team considers the changes made by the government during early nineties in the national policy framework as major opportunities for local and international agencies committed in working towards the better futures of the SNS in general and of the areas of prime concern, Aisha Woreda and the refugee camp, in particular.

4.2. Relevance: The Technology and SCI-ASCP Objectives

4.2.1. Technological relevance

Documented cases that looked into the national scenario confirm the needs for looking at alternative sources of fuel for cooking, together with the appropriateness of solar energy for cooking. For many federal level government officials, with whom the team leader held informal discussions, making the best possible uses of solar cooking devices is amongst the 'long overdue cases of Ethiopia'. In fact, the gap between the periods when the needs for reducing pressures off its forest resources are recognized and that of taken for realizing the appropriateness of solar energy are considered as, 'significantly wide'.

In cases of Aisha/Degago, almost all informants that the team held discussions with and the available documented evidences reflected similar views about the rationale behind and appropriateness of activities that aim at addressing the longstanding problem. Accordingly, interventions by external agencies, which in specific terms employed various entry points, notably tree planting and introducing variety of stoves are considered relevant and in particular, the needs for and appropriateness of the solar cooking technology is by all measures well justified.

In general, the team is sufficiently convinced by the evidences presented and variously obtained, rationalizing the relevance and timeliness of solar cooking technology as an alternative option that, together with other methods and shared efforts towards improving livelihoods in Aisha/Degago, does notably reduce the firewood consumption and hence, make significant contributions in reversing the trends in environmental degradation.

4.2.2. Relevance: The SCI-ASCP, motives and the overall framework

The designs, purposes, outputs and implementation modalities of the ASCP are built on the similar projects previously started and underway by SCI in Kenya refugee camps. The likely prevalent effects of the local settings underlying the refugee camps and the massive deforestations on environmental situations form the basis for the major element of intervention, the solar cooking technology, and the experience-based high-level 'mutual support-benefit-learn' ambiance, which is rooted within the purposes and outputs of these projects.

The most significant strengths of the ASCP are centered on the SCI's notable organizational capacities and experiences in technology development and promotion through field-based projects.

Based on the available documented evidence and discussions held with target beneficiaries, staffs of the project and of collaborating organizations, the relevance of projects' vision, objectives, and strategies towards addressing the problems and their continued relevance is significantly justified, mainly in terms of reflecting the felt needs of members of the target community.

4.3. Process, Progress and Impacts of the SCI-ASCP

4.3.1. The Process and Progress

The process embodied within the ASCP's overall intervention framework can be categorized into four major themes (namely, *Ground-setting, Skill and capacity enhancement, Dissemination* and *Progress assessments*), each of which in turn involve a number of closely linked undertakings.

The ground-setting component of the project framework (which include sensitization, introduction, familiarization and motivation) is among the most successful undertakings carried out within the limited period and, of course with utmost efficiency and achievements; perhaps one-and-the-only-one component that has been accomplished with real sense of collaboration between the SCI-ASCP, UNHCR and ARRA:

Efforts headed for developing local skill and capacity through the various means (including training-workshops, educational meetings and house-to-house cross visits carried out in phases, pre/during/post Cookit package distributions) and encouraging target beneficiaries' participation in demonstrating to others are acknowledged.

As we look closely into qualitatively expressible achievements and the trends in accomplishing the envisioned outputs-purpose, the skill-capacity development and the subsequent/concurrent Cookit package promotion *process* are singled out as being met with utmost success. Efforts made by the project in close and significantly high collaboration with key member of local communities and their institutions (like, Women's Association) have indeed promoted greater and far-reaching learning not only in the camp and neighboring communities, but also members of government and non-government organizations staff.

Survey findings on the training-dissemination efforts made by the project suggest the successful delivery of Cookits and trainings for target communities during the

period between 1997 and 2001 inclusive, though the pattern and intensity of the respective provisions were inconsistent across the years.

In general, the multi-dimensional awareness enhancements and the simultaneous moves taken towards distributing the technology package and facilitating the adoption process through strengthening local management committees, enabling the communities identify and articulate the related problems and the likely solutions are considered as major outputs that have largely been achieved resulting from the project intervention.

4.3.2. Time-bound Impacts of the SCI-ASCP: Analytical Reflections

The levels of solar cookers usage and the resultant enhancements/reduction in fuel wood saving/consumption are key aspects, in deed the most important effect/impact indicators underlying SCI's motives of *'enabling communities use the power of the sun to cook food….for the benefit of people and environment'*, towards which it envisioned bringing in impacts through the successful implementation of the ASCP.

Following the positive outcome of key undertakings mentioned in the above section and the subsequent course of action, considerable progress are noted towards attaining the first-level outputs in a way that could largely contribute towards meeting the purpose (ultimate objectives) it intends achieving in the years to come. Beneficiaries' views and analysis of household and fuel wood measurement surveys that looked into the overall changes/impacts resulting from the ASCP (its' partners and other organizations of shared vision, as applicable) throws some light on the underlying successes.

The following sub-sections provide a brief overview of the conclusions drawn on major findings that emerged from the detailed qualitative and quantitative data analysis.

4.3.2.1. The use of new-improved and combinations of cooking devices

The high rate of adoption resulting from intervention efforts made by different actors towards meeting the shared objectives is central to the following, wider perspective outcome in the usage of new/improved cooking devices while successfully breaking the social stigma attached to the traditional (three-stone) cookers that development agencies witnessed significant changes during the last number of years:

1) The usage of cooking devices has shown significant changes during the last five years, from intensively high use of the traditional stove (70%) to increasingly high-level adoption of new/improved technologies and usage of alternative combination of the locally available cooking devices (94%)
2) The very fact that the traditional stoves are solely being used by only 3.3% of the population is much telling about the positively skewed trends in adopting need-based technologies like that of the Cookit and ESS
3) The magnitude of sources of fuels in use by households exhibits a more or less similar pattern in terms that the best possible combinations of cooking fuels are in use by the large majority (95%) of respondents, 50% of which use solar, fire wood and charcoal while 45% use the former two

4.3.2.2. The levels of solar cookers utilization at household level

From the household survey, indicating beneficiary communities' perspectives, the increasingly high rate of success on the training-dissemination efforts made by the project has become evident, almost all respondents have benefited out of the project, receiving Cookits and trainings, while also enhancements in social interaction are noted.

The trend of changes in lending-borrowing of cooking devices is noted ever since (presumably stimulated by) solar cookers are introduced.

4.3.2.3. Changes in firewood/charcoal usage and the implied benefits

In Aisha, where 'fuel wood' has long been a central issue, no wonder that the '*with'* and *'without'* scenarios of the related interventions is amongst the top most important daily topics of discussions for most members of communities in and around Aisha. Certainly, all of our key informants were to the view that the fuel wood and charcoal consumption has decreased ever since they started using the new/improved cooking devices, though the varying effects of each are noted. By all accounts, however, as a zero-firewood device Cookit's supremacy in 'reducing fuel wood and charcoal consumption' and the impacts implied therein (expressed in terms of cost, labor and time saved, etc), seems to have been taken as an 'undoubted fact'.

Findings of the household surveys show a much reduced rate of fuel wood purchase and collection wood and thus, the cost of fuel wood. In light of the increasingly growing trends communities' witnessed during the last number of years, the team has evidenced that the price a household pays to get hold of firewood through any one or combination of the available options (self-collection and/or purchase) has substantially reduced.

4.4. Constraints, challenges and prospects

4.4.1. Factors that influence solar cooker usage

Factors noted by target beneficiaries for negatively influencing solar cookers' usage in Aisha context take two major categories considering the respective root causes: those perceived to have some causative linkage with 'technological' aspects and that related with the 'cost' of Cookits.

4.4.1.1. Drawbacks related with the very technology

The very fact that the new generation Cookit is not made of durable material and the comparatively smaller amount of food it cooks have significant cost and efficiency related implications, making it quite unworthy despite the high-level reduction in firewood consumption.

Despite the large number of merits and the range of innovative steps being taken by the users (including, multiple cookers use, borrowing-lending arrangements and putting the dismantled cooker back together), the whole issue of concern regarding the solar cooking kit has much to do with the fast developing effects of the "technological backsliding". The fact that communities in Aisha camp are aware of models of much better strengths and qualities, including the one they used to work with some time ago, illustrates this position.

4.4.1.2. Drawbacks related with the cost of acquiring & running Cookit

The cost of acquiring and running a Cookit is the next most important drawback for many while a further up ranked problem for the poorest section of the communities, while also concerns are expressed on 'affordability in terms of initial and running costs' and 'availability at near distance, preferably in local markets'.

4.4.1.3. The future possible: Communities views and ASCP's challenges

Provision of the solar cooking pack free of any charge by many and varied levels of subsidy by some seem to dominate the reflections regarding the future possible cost related scenario; while beneficiaries, in general, expressed their views (apparently shared by SCI-ASCP management team) on the needs for cooker that is much durable.

Following the 'future possible scenario' perceptions of target beneficiaries, making the best mix by correlating size, durability and extended period of usage with utmost efficiency remains being SCI-ASCP's challenges ahead should efforts towards developing the next generation continues.

The needs for updating the communities with recent developments on solar cooking technology and related energy-saving innovations, further follow up, support and technical backstopping are, therefore, among key issues that emerged out through the evaluation process. An issue at stake that the team was uncertain about was whether these needs could be met as at the end of the current funding period.

4.4.2. Factors that (may) have affected project implementation

Of the ranges of factors, which are noted for negatively influencing the project's performance, our assessment reflects the following two as major categories considering the respective root causes. The first, which could be categorized under those largely known as 'factors internal to the project', relates with the very design-planning aspects of the project while the second relates with the design, process and outcome of an [UNHCR-sponsored) evaluation undertaken in 1998.

Although the latter could, in theory be positioned under 'factors external to the project', the team questions its very existence, as apparently avoidable factor had appropriate considerations been given on the design-planning-preparation aspects of the project. These include the needs for prior efforts in making the project design more transparent by giving appropriate considerations on the clarity of and causal linkages between visionary elements, drawing, agreeing upon and implementing workable institutional arrangements, binding principles and operational modalities.

The basis for the 'misunderstanding' (on the other hand referred to as 'un-cooperativeness') between parties (mainly between SCI-ASCP and the UNHCR) largely lies on the various aspects of project preparation, including the deficiency in setting up organizational and procedural arrangements, the effects of which were reflected in various phases of the project, to the extent of threatening the very existence of the project following the UNHCR sponsored evaluation.

In general, a number of factors that remained being the challenges of the ASCP, to our view, affecting large parts of the project cycle including the process of implementation were rooted on the defective project preparation that the project is based on.

4.5. Community Participation, Partnership and Learning

Significantly high performances are noted during the training and on site following up processes involving communities their institutions, particularly women's groups as key agents.

The prevailing lack of a well defined values and working principles for benefiting through 'partnership and learning' is likely to be addressed through the forthcoming strategic plan, which is recently devised and being developed by the SCI.

4.6. Sustainability: Phasing in or Phasing out?

Based on the extensive survey of literatures and outputs of a number of researches conducted at different settings, solar cooking is largely described as meeting most of the criteria in use for assessing the sustainability of a given technology. Regarding the ASCP, the following sustainability gauges are met: Rate of success[12]; Compatibility with local system[13]; Profitability[14]; Contribution to reducing risk[15]; Ease of using by target users and beneficiaries[16];

While noting the progress that the project has shown towards meeting most of the outputs in a way that could largely contribute towards meeting the objective purpose it intends achieving, clearly the project's current initiatives would not be sustained without continual efforts by the project, far from meeting the two of the most important sustainability. These are 'the need for institutional support' and 'ease of carrying out the program at low cost with maximum participation of the local community'.

On a further promising look towards the future, the wider use of solar energy, well beyond for cooking purpose, is broadly laid out in the most recently drawn 'rural development policy for Ethiopia' as being a timely and appropriate avenue, which the government aims at encouraging at all levels towards developing the country in sustainable manner.

[12] The rate (probability) at which the technology functions in the given area and hence, serves the envisioned purpose

[13] Suitability of the technology to the local system; the various local elements, including socio-economic and natural conditions, management practices of target communities

[14] Financial and/or economic advantage, one of the most important factors determining the acceptability and adoption of new technology by local community

[15] As local communities are most interested in solutions that help reduce risk in their operations, the adoption process and hence sustainability remain paramount

[16] Better chance of acceptability and adoption of new solution/technology if target users and beneficiaries manage to test it by themselves without incurring a high initial investment of cash or/and labor

5. RECOMMENDATIONS AND THE FUTURE DIRECTIONS

As this review followed a more of a 'process-type approach', with particular focus on the qualitative aspects of the project's performances while also considering all possible quantitatively measurable aspects, the recommendations that follow were discussed at some length in various fora with a range of resource persons and key informants. Above all, the preliminary findings were critically reviewed during the Feedback Workshop involving a range of key resource persons and officials representing the stakeholder organizations. In spite of the difference on some issues, the preliminary views and recommendations were by far strengthened during this Workshop and more suggestions regarding the way forward were drawn through further post-field level assessment efforts.

5.1. The future of the project: Potential ways ahead

Because of the continual efforts, initial indications are emerging in favor of the notable steps that have been made towards the envisaged purpose. Remarkable changes are also noted in thinking towards sustainable environmental management and gearing efforts in favor of the poorer and the most disadvantaged sections of the communities.

Although significant steps are taken during ASCP's active life span towards refuting the myth that 'the rural poor, in general and communities living in refugee camps, in particular are the causes for all sorts of environmental destruction', owing to the factorial combinations of a range of internal and external factors, the ASCP, as at the evaluation period, is yet at far distance from achieving the purpose (ultimate objective, as mostly indicated) and obviously a further long way to go for attaining the vision that SCI envisages to ultimate arrive at. Our assessment suggests that the current state could be considered as a good first step.

In order to go far enough in bringing significant changes on the already threatened environment by way of assisting refugee and neighboring communities in addressing their top most problem of fuel energy shortage, the need for further intervention, in deed sustainable solar cooker promotion efforts is paramount.

In the light of the currently evident local situations in terms that the woreda has no capacity for taking over the program nor other indigenous or/and international organizations ready for taking part in the program currently underway or/and those

with sufficient background and experience in running solar cooking projects are available, the SCI-ASCP remain the best and leading organization for taking the Aisha solar cooking program further in time and capacity.

Hence, by taking the various aspects of the project's performances, achievements, challenges, limitations and opportunities into account, it is recommended that SCI and its' partners should consider devising ways of running the ASCP further in time and capacity, depending upon funding and the local situation including repatriation of Aisha refugees and related, for at least two phases, each of which involving the widely accepted standard/full project cycle of 3-5 years.

Towards this end, the evaluation team recommends that the SCI-ASCP, together with partner organizations, adopt rationally interlinked 'phasing-out' and 'phasing-in' strategic moves with the following objectives:

1. *Phasing out*: Take the current form/state of the project into an effective end without affecting the ground set, matters in progress and the respective achievements therein
2. *Phasing in*: Initiate and develop a full cycle operational program for running, initially, phase I of the ASCP with a view of capitalizing on and promotion of the previous efforts, ground set, matters in progress and the respective achievements therein

In all efforts towards meeting the above set of objectives, the team strongly advices taking the following aspects into consideration:

5.1.1. Phasing out

- ★ The phasing out process, as opposed to *'terminating a project'*, should entail a well-designed modes and modalities of operation that should be given sufficient time, thoughts and efforts for unfolding the previous undertakings and laying an appropriate ground for the forthcoming intervention
- ★ As part of the lessons learnt out of whole issue surrounding the 'defective preparation', a project that lacks exit strategy is highly likely to face an abrupt termination. The needs for drawing exist strategy should, therefore be considered as an integral component of the design-planning process of a development program.
  - ➢ In case of the forthcoming proposals, a forward look into the post-ASCP scenario is advised including - as of when, how and for which organizations would responsibilities be shifted over. Phasing the forthcoming project out should be sought as and when:

- all or most of its' activities are institutionalized, incorporated within other projects (of shared motives) or local framework;
- when ownership feelings are developed;
- taking Kenyan and Zimbabwean experience as exemplary reflection towards the sustainable use of solar cookers, when Cookits are locally or in nearby areas are produced and available in local markets, beneficiaries are paying the full cost of the Cookit when taking from the project and also in buying from local producers

➢ In order to ensure continuity and hence, sustainability of the program interventions, exploring and documenting all means of handing over the project by assessing the potential takers, including the following as alternative or making the optimal combination are recommended:

- Organize/invite and assist in creating appropriate grounds (which could include seeking funds from international agencies as appropriate) for:
  - Private investors and firms to continually run the program in a sustainable manner with some profit margin
  - Community Based Organizations, local NGOs with reputed experience in serving refugee communities
  - Governmental organizations and other agencies, including technical colleges and universities working on technology development and promotion
  - Local users and their institutions (like, the women's/youth associations) and project staff through a prior enhancements of responsibility taking capacity and forging links with local governmental organizations

★ As both a phasing out and phasing in strategy, SCI-ASCP should keep its presence by getting formally registered as an independently operating NGO or in partnership with other NGO of similar legal status. The likely similarities or minimal difference in principles and values of organizations should be considered as condition key for working in partnership

➢ Working as independently recognized legally registered project like that of Kenyan based projects rather than relying on and obeying orders of other organizations is considered by the team as the best possible move that the SCI-ASCP has learnt from past experiences. We do encourage and strongly recommend it.

5.1.2. Phasing in: The overall makings, process and project cycle

Planning-design:

The proposed projects should start with proper planning-design and the following in place:

- Defined goal, short/long-run objectives and activities to be met within a pre-defined period of time
- The various types of indicators, systems and tools for monitoring and evaluation
- A phasing out strategy to be implemented as of a pre-defined period
- Clear set of working principles and operational modalities; clear guidelines on terms of participation, partnership, sustainability, etc

Organizational/Project values, principles, operational methods and modalities

- ★ Most issues that relate with the overall project principles and modes of operations, like participation, partnership, networking, sustainability, etc should get appropriate attention with utmost efforts towards updating them in context with international/national scenario
- ★ 'Participation' should be considered as central element to all values. Four broad types of participation can be distinguished in popular participation projects and programs, while noting the possibilities for distinguishing a continuum of participation, ranging from minimal participation to intense participation:
  - Involvement: the rural poor get involved in and benefit from the activities of rural development projects.
  - Community development: the rural poor participate in specific tasks.
  - Organization: the rural poor participate through a formal organization.
  - Empowerment: the rural poor actively participate in development projects and gain access to, and share in the resources required for the development initiative in hand
- ★ In all cases, reinforcing the participatory approach currently in use with much better and workable one is highly recommended
- ★ In general, proper thoughts towards revisiting the methodological aspects, including those discussed in the text, is crucial at this point in time. This, in turn, could be facilitated through tailored on-going training and sharing experiences with other practitioners, among many

Enhancing the effectiveness of the project structure/organization and staffing:

- ★ Further attention must be given to assessing the quality of the project's achievements
- ★ The necessary fine-tuning of the forthcoming phase requires a clear vision of the long term SCI-ASCP process and especially the post phase

- ★ The project recognizes that a *process approach* must be taken in its activities with a continual refining of project activities in the light of the feedback from the field. This is supported but care must be taken to ensure that the project does not deviate from its objectives.
- ★ Monitoring, Evaluation and Impact Assessments (MEIA):
  - ➢ There is also the question of MEIA, which needs to not only assess the day-to-day and terminal period performances, but also to look at the process. This is not easy to do, and major agencies are looking at possible new approaches. But the fact is that ultimately, results need projects on the ground, and the effectiveness of the process can not be assessed until there is some mechanisms are devised
  - ➢ Despite its' crucial effects, this aspect of the component has not been given appropriate considerations, largely overlooked or left out for lack of capacity.
  - ➢ M&E need some conceptual and methodological considerations towards making continuous qualitative and quantitative assessments, both from communities, stakeholders and organization/project points of view
  - ➢ M&E should not be considered as tools for 'controlling the project', but as a dynamic learning process and mechanism for future improvements
  - ➢ The needs for holding meeting at a priorly defined and agreed period (like, fortnightly, monthly, etc) with communities to discuss on all issues [including problem area] arising during the period in question needs appropriate considerations

Research and Development:

- ★ The current views of the SCI in taking Research and Development further as a major component by giving much weight than has so far been, is highly appreciated

Staffing and human resources:

- ★ The needs to have project staff on the ground who reports directly to the SCI higher level offices is well, but belatedly recognized by the SCI-ASCP. We encourage the continual implementation
- ★ Adequate number and quality of human resources should be in place, at grass root level
- ★ Noting that less or no guarantee might mean loosing a member of trained staff to in favor of other projects, revisiting/drawing terms of employment that could encourage and ensure stable working atmosphere/environment is advised:
  - ➢ Along this line, issues that SCI failed paying attention to include: employing staff on a short-term [3 months], in case of the current project coordinator, a one-year renewable contract

Institutional linkages, partnership and learning:

- ★ Getting as many partner organizations' involvement into the process of technological development and promotion at all levels through genuine participation has to be at the top of SCI-ASCP priority list. SCI should work independently and in partnership with others within mutually agreeable pre-defined roles of partners in planning every need and modalities ahead of time and accordingly executing. Efforts needed towards this include:
  - ➢ Concerted efforts towards 'melting the ice'; Strengthening all N/GO (and re-establishing the already damaged) linkages with adequate and acceptable agreements on the basis of mutual interest and benefits
  - ➢ Formalizing linkages and working modalities. Signing Memorandum of Agreements with each partner, on which all necessary issues: roles, obligations, pre-agreed timings, etc are set clearly.

Integration with other organizations of shared vision: 'All-in-one' or 'one-in-all'?

- ★ We appreciate that the project has acknowledged the fact that solar cookers are not a stand-alone technology, which could not be taken as a sole technology for cooking all needed by a household at all times; that it can't work in isolation with other cooking technologies. It can only complement the locally available technologies. It has to be integrated with other locally known and available tools.
  - ➢ The above fact strongly suggests the needs for integrative efforts with other projects of shared objects, so also endorsed by the team
- ★ For various donor-project related and organizational principle cases, suggesting the merge of projects with similar vision (changes from 'one-in-all' into 'all-in-one' could be difficult. Taking the recommendable side, however, for a range of obvious reasons the needs to devise a clear-cut strategy and modalities of operation that highlights the complementary roles of different activities to be undertaken by the different projects. ASCP and various energy saving and environmental projects are cases in point

Targeting: The case of local communities:

- ★ We believe and strongly recommend the current practice being undertaken in Kakuma that deliberately targeting local communities together with refugees

Solar cooking technology: Technical, production, cost, marketing/delivery:

- ★ Research/study to tailor the product to the needs of local communities; undertake a study on types and potential uses of variety of cookers, their applicability to the local situations and cost implication
- ★ It is important/vital getting the technology produced in the country, if not within the local area of implementation; hence look for a range of (alternative)

manufacturing firms and encourage competitions, like that of the cases in Nairobi

- Towards this end, undertaking action based research on how/where/by whom the Cookits and plastic bags can be manufactured within the country is recommended
- Consider organizing universities/poly techniques and technology developing (engineering) agencies to produce a good quality cookers with some profit margin

★ Create all possible grounds towards producing the package within the country, tested to meet local situations address the limitations (indicated in the text), enhance the quality and promote the uses, even if at full cost

★ Creating a sustainable link with range of local manufacturers to support and enhance the ownership feelings of the project is highly recommended

★ The mine risk project is a case in point, as issues surrounding the project were reportedly forgotten as it phased out

Aisha Solar Cooking Project (ASCP)

Evaluation Report to Solar Cookers' International (SCI)

PART II

ANNEXES

Evaluation Team Members

Alemayehu Konde; External Consultant (Team Leader)
Margaret Owino; SCI
Mohammed Tahir; UNCR, Aisha
Nadir Aden Hassen ASCP, Aisha
Eyob Awoke; ARRA, Aisha Refugee Camp
Berhanu Alemayehu; UNHCR, Jijiga

Alemayehu Konde
Addis Ababa
Ethiopia

January 2003

LIST OF ANNEXES

ANNEX 1 – Origin and Tribe

Table 1a: Tribal Composition and Place of Origin and the Respective Percentage[1]

Tribal composition

- Issa 94.68%
- Issak 2.34%
- Gedebursi 1.32%
- Hawya 1.04%
- Others 0.62%

Place of origin

Harirad	Zella District	35.45%
Abdul-Kader	Zella District	22.5%
Zella	Zella District	10.13%
Jedi	Zella District	7.66%
Lughaye	Lughaye District	3.51%
Garrisa	Lughaye District	3.46%
Boroma	Boroma District	2.86%
Others		14.43%

[1] Source: ARRA Office; Aisha

Table 1b: Clan/Sub-clan composition[2]

Clan	Frequency (Number of households)	Percentage
Daroob Gari	5	2.8
Darood Abergale	1	0.56
Diqe Re Gedi	1	0.56
Gadabursi Dabub	1	0.56
Haineya Koranle	1	0.56
Haweya Haber Gadi	1	0.56
Hawiye/Haber Gidir	3	1.7
Issa	55	30.56
Ise Re Ali	1	0.56
Ise Re Gedi	46	25.56
Ise Re Kool	28	15.56
Issa Unun	1	0.56
Issa Ali Guran	7	3.9
Issa Cali Gran	1	0.56
Issa Furlabe	1	0.56
Issa Huble	2	1.1
Issa Mamasan	3	1.7
Issa Odagob/Gedi/Kool	4	2.2
Issa Re Ashkir	2	1.1
Issa Re Muse	3	1.7
Issa Re Kude	1	0.56
Issa/Odah/Kool	1	0.56
Issa Re Ugadh	1	0.56
Issa Sad Musse	1	0.56
Issa/Odah god/Re Gedi	2	1.1
Jaarso	1	0.56
Jibril	1	0.56
Jilal	1	0.56
Shekash	1	0.56
Somali Issa	3	1.7
Total	180	100.2

[2] Source: Household Survey undertaken by the Evaluation Team

ANNEX 2 - Demography

Data obtained from UNHCR, Aisha Office

Agreed Aisha Camp Population Figure by family size, number of heads/members of households

Family size	Head of Family (HOF)	Beneficiaries
01	59	59
02	97	194
03	207	621
04	345	1372
05	468	2340
06	356	2136
07	288	2016
08	234	1872
09	85	765
10	261	2610
TOTAL	**2398**	**13985**

ANNEX 3 – TOR for Evaluation

AISHA EVALUATION DESCRIPTION

I. BACKGROUND – HISTORY OF PROJECT

The SCI Aisha Refugee Camp Project began in 1997 when volunteers from Sacramento and Kenya trained refugee women to become the first trainers. Approximately half the current trainers are from the original group. Though encountering a number of difficulties in the first year of the program, by 1999 virtually all of the 2,000 families in the camp were trained and provided a CooKit. While in the initial Memorandum of Understanding (MOU) with the United Nations High Commission for Refugees (UNHCR), UNHCR covered the major portion of the project costs and supervision of the project, per the current MOU, SCI now pays an on-site Program Coordinator, incentives for seven Trainers and Assistant Project Coordinators and cost of supplies and transport. UNHCR provides transportation to and from the camp, accommodation in Aisha and assists in other ways such as customs clearance of supplies.

Objectives of the project are a) to promote ease of use and socio-cultural acceptability of solar cooking as a supplement to traditional wood based cooking methods and b) to reduce fuelwood consumption (and the resulting time and/or household income spent for fuelwood) for individual families.

II. SUMMARY OF CURRENT STATUS

Currently, more than 95% of families in the camp are in possession of CooKits. Cooking bags which are a necessary ingredient to the solar cooking process are available for sale at approximately ½ Birr per bag but, in cases of extreme hardship, are distributed free. Records of bag sales indicate that solar cookers are being used 15% of the total days possible for solar cooking. Visual measurement through transect walks have shown an average of 70% usage.

At meetings between SCI staff, community leaders and solar cooker users, the majority of participants express happiness with the project and the benefits that they receive. Degree of usage seems to be influenced by a number of factors including cost of bags, and level of income.

Since the start of the project, fuelwood has become more expensive with refugees or fuelwood sellers having to travel farther and farther from the area to find wood to cut.

III. REASON FOR EVALUATION

SCI and UNHCR would both like to see the results of an objective project evaluation now that the project has provided the majority of users with sufficient time to learn how to use solar cookers. Within the field of solar cooking worldwide, the accumulation of expertise has been focussed heavily towards technological aspects rather than socio-cultural and programmatic aspects. Due, in part, to this imbalance and, in part, to its own history and values, SCI is committed to continuing to build a stronger expertise in the socio-cultural and programmatic aspects of solar cooking projects. This evaluation will further SCI's progress in the development of that expertise.

An earlier evaluation was conducted when the project was just starting in spite of the fact that a number of administrative problems prevented the full distribution of CooKits. With a view towards future implementation of this type of project in other areas, it is important to document the benefits as well as the difficulties and lessons learned that will contribute to improvements in planning, implementing, monitoring and evaluating projects.

IV. OBJECTIVES OF EVALUATION

A. Document the level of usage of solar cookers and the amount of fuelwood savings through solar cooker use.
B. Identify factors that influence solar cooker usage
C. Identify significant factors which may have affected project implementation
D. Identify any other benefits of the project such as environmental waste reduction (plastic bags), improvement of self-esteem for women.

V. ACTIVITIES, METHODS AND PROCEDURES

The evaluation will include three primary activities:

A. Measurement of daily fuelwood usage by a random sampling of individual families over a fourteen day period. 12 Surveyors to each work with fourteen families visiting each family in the morning and evening with scales to weigh the amount of fuelwood present and record usage figures. Results from this activity will address Evaluation Objective A.

B. Questionnaire to be completed by each one of the families taking part in the fuelwood measurement survey. Addresses Evaluation Objectives B, C & E.

C. Focus group meetings and interviews with refugee camp officials, leaders and groups of women. Addresses Evaluation Objectives B, C & E.

In addition, Dr. David Goldenberg will film key elements of the evaluation exercise and other subjects related to the project. He will work around the exercise schedule and will not interfere with evaluation activities.

VI. TENTATIVE SCHEDULE

The core 30 days of the evaluation would begin on 20 March and run till 18 April. Not all evaluation team members will be present for the entire period.

Day 1 & 2: Addis Ababa. Meeting of Consultant with representatives from SCI, UNHCR and the Film Producer (FP) to prepare tentative schedule and questionnaires.

Day 3 & 4: SCI & UNHCR representatives travel to Aisha. Purchase food supplies and see preparations in Aisha and Refugee Camp.

Day 5: Consultant and FP travel to Aisha Refugee Camp via Dire Dawa.

Days 6,7 & 8: Evaluation team meets with Surveyors, conduct orientation and field test and prepare questionnaires. Some focus groups –* Activity C. (May require an extra day to return to Dire Dawa for the copying of questionnaires if necessary and it cannot be done in Aisha (ARRA?).

Days 9, 10 & 11: Complete Activity B – survey of individual families.

Day 12: Meeting of Evaluation Team and Surveyors to review initial work of Activities B & C and prepare to begin Acitivity A.

Day 13: Begin 14 days of Activity A. Whole Evaluation Team present.

(*Acitivity C will be conducted in parallel with Activity A.)

Day 16: Film Producer returns to Addis Ababa.

Day 20: Consultant returns to Addis Ababa. (SCI and UNHCR representatives to supervise the last seven days of Activity A.)

Day 27: Last day of Activity A.

Day 28: Meeting of Surveyors, SCI staff, Community Leader, UNHCR & ARRA staff to review process.

Day 29: UNHCR & SCI representatives return to Addis Ababa.

Day 30: UNHCR & SCI representative meet with Consultant to review process and details for processing survey instruments and preparation of report.

Day 44: Consultant circulates draft of evaluation for comments & feedback to UNHCR and SCI offices.

Day 74: Consultant delivers final report to UNHCR & SCI.

* Some focus groups would be conducted at the very start to help test some of the questions for the survey and additional focus groups would be conducted in parallel to the fuelwood measurement survey.

VII. EVALUATION TEAM MEMBERS:

Dr. Amare – UNHCR Project Representative
Margaret Owino – SCI Regional Representative
Dr. David Goldenberg – Advisor & Film Producer
Terry Grumley – SCI Executive Director
Consultant to be selected

To be assisted by UNHCR Field Assistant, M. Tahir and SCI Project Coordinator, N. Hassan.

VIII. DUTIES OF CONSULTANT

A. Conduct an evaluation of the Solar Cooking Project in Aisha Refugee Camp comprised of the elements listed in section V above and per the schedule identified in section VI above.
    1. Guide the Evaluation Team.
    2. Prepare questionnaires
    3. Modification/adaptation of questionnaire if appropriate
    4. Sample selection of households
    5. Provide guidance for selection of surveyors
    6. Organize and carryout training for surveyors
    7. Supervision of data collection
    8. Conduct focus group meetings and individual interviews

A. Data processing and analysis
B. Report writing

It is estimated that the Consultant will need to allot twenty-two to twenty-five days to complete this work. One day will be required to review documents prior to entering into the schedule listed in section VI above. The Consultants participation in that schedule through day twenty will require eighteen days. It is expected that an additional five days will be allotted for data processing, analysis and report writing.

IX. PROVISIONS/DELIVERABLES BY SCI & UNHCR

SCI will provide
1. A description of the evaluation, terms of reference and contract for the Consultant.
2. A representative to participate as part of the Evaluation Team.
3. Supplies for the exercise including scales, writing materials, food and other necessities while in Aisha.

UNHCR will provide.
1. A representative to participate as part of the Evaluation Team.
2. Transportation back and forth between Dire Dawa and Aisha as required
3. Transportation back and forth between Aisha Town and Aisha Refugee Camp each day - for four to eight people.

4. Accommodations at Aisha for three to six people.

X. SOME ISSUES TO BE ADDRESSED

1. Does activity A – the fuelwood measurement survey - require fourteen days of measurement or could this still produce an adequate data base with a shorter period of measurement? (Some questions to be answered ahead of time: How often do people buy or collect fuelwood? What kind of cycles of activity exist such as food ration distribution, market days, etc.? Will there be ritual activities during the 14 days which may represent anomalies? What does this season represent in terms of available sun days, ease of travel for fuelwood collection, availability of resources/cash?)
2. The recharging of batteries from the cameras for filming as well as lap top batteries and any other electrical equipment.
3. Records show approximately 1,300 Energy Saving Stoves (ESS) have been distributed in the camp. Some families in possession of these are using them and some are not. In the selection of families for the survey it will be important to include some families who use solar cookers only, some who use ESS's only and some who use both in order to get comparative data.
4. Preparation of questionnaires.
    a) There is a question as to what degree the questionnaire can be prepared ahead of time. An earlier preparation would help in the preparation for computer analysis and ease of data entry, but an early preparation without adequate participation from the families ahead of time may result in an inappropriate instrument. Further thoughts are requested on this issue.
    b) There appears to be no photo copier or reproduction machine in Aisha. This needs to be confirmed. Assuming that the questionnaire will be adapted/modified in the camp, copies will need to be made. Possibilities include going to Dire Dawa for copies, taking extra cartridges and/or printers, taking a copying machine with us. How was the camp census done? Other surveys?
1. A baseline survey was conducted in 1997 and an evaluation 1998. Copies of these documents will be distributed for background information. There are mixed feelings as to whether or not or to what degree these might useful for reference in this evaluation. After all members of the evaluation team have had time to review these documents, a decision can be made on this.
2. Selection of sampling. The size and method of selection of the sampling will have to be determined by the Consultant. The figures noted above in section V are only estimates. The previous baseline survey took seven days with 75 households. More variables now may necessitate a larger sampling size.

XI. ASSUMPTIONS

1. That there are a sufficient number of people within the camp that have the qualifications and motivation to be surveyors.
2. Due to the nature of the refugee camp situation where the majority of services are provided free, it is inconsistent to measure the performance of the solar cooker project with the criteria of sustainability since other projects are not subjected to the same criteria.
3. There are too many factors that are impossible to measure when using the criteria of cost-effectiveness in a project of this type. Consequently the focus of this evaluation will look at effects of fuelwood savings per individual family rather than cost-effectiveness of the overall project. (However, some rough estimates on cost-effectiveness might be generated with the data on fuelwood costs.)

ANNEX 4 – List/Group of People Interviewed

Organization-based

Eyob Awoke; Protection Officer and OIC (Officer In Charge), ARRA

Aklog Kifle Wolde-michael; Nursery Forman, BoA, Region 5

Elmi Abar Fure; (Aisha) Woreda Administrator

Mohammed Jama; Religion Teacher

Ahmed Mohammed; Camp Representative, SCF-USA, Aiysha

Terry Grumley; Executive Director, SCI

Pascale Dennery; Senior Official, SCI

Nadir Aden Hassen; ASCP Coordinator

Margaret C.A. Owino; Regional Representative (East Africa), SCI

Mohammed Tahir; UNHCR Field Assistant, Aisha

Dr Amare Gebre-Egziabher; Environmental Planner and UNHCR Consultant

Focused Groups

Elders

Jama Elmi Hader
Hassen Worseme Egal
Omar Sultan Waber
Ali Hussien Sugal and
Ali Waber Awale

Representatives of local communities surrounding Degago Refugees camp

Ali Jama Migre [Community Leader]
Tahir Hadi Kahin [Police Representative]
Hassen Ahmed Kahin [Member, local elders]
Hussien Farah Darar [Member, local elders]

Leaders of the Women's Association [15+]

Section B, C and D

Large number of women at different sessions

Feedback Meeting

Women's Association members [10+]
Elders [6+]
Representative of surrounding communities [Ali Jama]
Enumerators
Review team members

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ANNEX 6A – HOUSEHOLD QUESTIONNARE: ENGLISH VERSION

Household Questionnaire

Date of interview: _____

Household number: _____

Household Head (HoF): _____

Clan/Sub-clan: _____

Camp Name/Number: _____

`

Enumerator: _____

Wealth rank of the household _____
(Time and conditions permitting, to be filled after the relative wealth-ranking exercise is carried out)

DATA TRANSLATED BY: _____
(in case of the Somali version to English)

DATA INPUTTED BY:_____

CHECKED BY: _____

Version of - Thursday, 25 October 2001

Some Codes to be used
Don't know = 88
Question not applicable = 99
None or zero = 0
1 - Yes, 2 = No

Enumerator_____ Household Number/Name_____

Respondent _____

TABLE 1: HOUSEHOLD (HH) DEMOGRAPHIC DETAILS: by individual and household
Household - (i.e. those living under same roof who have a sleeping area, who eat the same evening meal, (BOTH currently present and currently ABSENT).

1	2	3	4	5	6	7	8	9	10	11	12
ID #	**Name**	**Currently present?**	**Relation to the HH head**	**Sex**	**Age**	**Currently attending school?**	**Final grade achieved (or current grade if still attending)**	**Any other formal training attended or received certificate?**	**Main current activity**	**Major secondary activity** **(Assuming that people are likely to have more than 2 activities)**	**Which institutions/organisations are you affiliated with most?** **And/or** **Which intervention do you involve?**
1= HH head		1= Present 2 = Absent	1=Head 2=Spouse 3=Child 4= Relative (mother, father, brother, sister, etc) 5 =Other (specify)	1=M 2=F	In years If <1, indicate in months	1 = Yes 2 = No	Grade achieved 1-12 (grades) 13 = Over 12th grade 14 = Participated in "Literacy" course only 15 = Did not attend school	1 = Military training 2 = Agri/livestock related 3 = Energy saving stoves 4 = Solar cooking related 5 = Finance/credit related 6 = Other (specify) 7 = No other formal training 88 = Don't know	1= Formally employed 2 = Casual labour (daily wage/piece work) 3 =Artisan (all forms) 4 = Herder/Cultivator 5 = Trade (within Aisha) 6 = Trade (in/out of Aisha) 7 = Firewood collection 8 = Charcoal making 9 = Food preparation 10 = Student 11 = Housework 12 = Not working 13 = Retired/disabled/young 14 = Other (specify) 88 = Don't know	1= Formally employed 2 = Casual labour (daily wage/piece work) 3 =Artisan (all forms) 4 = Herder/Cultivator 5 = Trade (within Aisha) 6 = Trade (in/out of Aisha) 7 = Firewood collection 8 = Charcoal making 9 = Food preparation 10 = Student 11 = Housework 12 = Not working 13 = Retired/disabled/young 14 = Other (specify) 88 = Don't know	1 = Administrative/Committee 2 = Government initiated/led programme (specify) 3 = Association (Women, Student, Youth, Refugee, etc) 4 = Solar Cooking Projects 5= Energy Saving Stoves (specify) 6 = Local/Social institutions (like related with funeral, banking/saving, feast, group-work; religion affiliated, etc) [Specify using local names) 7 = Service/Producer cooperative 8 = Political party 9 = Other (specify) 10 = Belong to no institutions 88 = Don't know
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
Etc											

Translated by ***(in case of the Somali version to English):***

_____

13. What cooking technologies do you use?
    a. traditional 3 stone_____
    b. energy saving stove_____
    c. CooKit (solar cooker)_____
    d. charcoal stove_____
    e. parafin stove_____
    f. fireless cooker_____
    g. Others (specify) _____

14. Do you borrow cooking devices? _____
    If so, which?
    a. traditional 3 stone_____
    b. energy saving stove_____
    c. CooKit (solar cooker)_____
    d. charcoal stove_____
    e. parafin stove_____
    f. fireless cooker_____
    g. Others (specify) _____

15. Do you lend cooking devices? _____
    If so, which?
    a. traditional 3 stone_____
    b. energy saving stove_____
    c. CooKit (solar cooker)_____
    d. charcoal stove_____
    e. paraffin stove_____
    f. fireless cooker_____
    g. Others (specify) _____

16. Do you buy fuel wood? _____ .If yes,
    a. how much do you pay?_____
    b. for what amount?_____
    c. how often?_____

17. Do you buy charcoal? _____. If yes,
    a. how much do you pay?_____
    b. for what amount?_____
    c. how often?_____

18. Do you collect fuel wood? _____. If yes, how often do you collect fuelwood?

19. If you collect fuel wood, how many kilometers do you walk to collect it? (will need to put into local context and terms)

20. How is it transported?
    a. camel_____
    b. donkey_____
    c. human_____ . By whom?_____

21. Do you use any other source of energy for cooking?_____
    If so, what?_____
    a. how much do you pay?_____
    b. for what amount?_____
    c. how often?_____

22. When was the CooKit issued? _____ When did you receive training?

23. Is there any problem in the usage of the solar cooker? _____. If yes, what are they? What do you suggest the solution to be?

24. Is your solar cooker still functioning? _____yes _____no

    Please describe any measures you have taken to replace or repair CooKit?

    If not, why not?

25. Which months/seasons are better for solar cooking? Why?

26. Which months/seasons are worse for solar cooking? Why?

27. What do you prefer to solar cook?

28. Please list your five largest expenses over the last year.

29. Please rank those expenses in order of largest to smallest.

30. What do you find to be the benefits of solar cooking?

31. Have there been noticeable changes after SCI started working in the area? If so, what?

32. What do you find to be the drawbacks or difficulties with solar cooking?

33. Please indicate whether the perceived expectation of the benefit of the CooKit has been met by putting the number(s) indicated below:
    1 = fully achieved
    2 = largely achieved
    3 = partially achieved
    4 = likely to be achieved (after some years/months if certain conditions are met)
    5 = to early to tell
    6 = CooKit usage is already identified as a challenge awaiting further work
    7 = not achieved

Translated by ***(in case of the Somali version to English):***
_____

ANNEX 7. FUELWOOD POTENTIAL ASSESSMENT FORM

ASSESSMENT OF FUEL SAVING POTENTIAL
AISHA REFUGEE CAMP
AISHA SOLAR COOKERS PROJECT EVALUATION (OCT – NOV 2001)

Name of interviewer_____Date_____

1. Family information: Names:_____Ration card No._____Section_____
2. Persons present and eating in the house – hold No._____Adults_____Children_____Income earners_____
3. Uses solar cookers: Always_____Sometimes_____Never_____
4. Cookits owned_____No. given_____No. bought_____
5. Plastic bags used per month_____Bought_____Given_____
6. Main sources of cooking fuel: Solar_____Firewood_____Charcoal_____Paraffin_____

Date	Day	Sunny Y / N / CL	Solar cooking times	Used energy saving stove	Used hay basket	Firewood						Charcoal						Money spent
						Had	Used	Has	Collected	Bought	Price / kg	Had	Used	Has	Bought	Borrowed	Price / kg	F: C:
	1																	
	2																	
	3																	
	4																	
	5																	
	6																	
	7																	
	8																	

Other related issues noted:

ANNEX 8. Analytical Findings of the Household Survey

Analysis of Household Questionnaire: Assessment on the status of Aisha Refugee Camp[1]

Table 1: Section of the Camp included in the interview process

Sections	Frequency (Number of house holds)	Percentage
A1	70	38.9
A2	40	22.2
B	30	16.7
C	25	13.9
D	10	5.5
E	5	2.8
Total	180	100

Table 2: Amount of fuel wood and charcoal purchased by a household for a certain period

Fuel wood			Charcoal		
Donkey load	Frequency (Number of house holds)	Percentage	Sack	Frequency (Number of house holds)	Percentage
¼ (0.25)	2	1.1	¼	0	0
1/3 (0.3)	2	1.1	1/3	0	0
½ (0.5)	12	6.7	½	3	1.7
1	72	40	1	92	51.1
2	11	6.1	2	18	10
3	2	1.1	3	1	0.6
12	0	0	12	1	0.6
None	79	43.9	88	65	36.1
Total		100			100.1

[1] Excluding the Tables that are incorporated in the text (within Part I of the report)

Table 3: Frequency on fuel wood and charcoal collecting practice

Days interval	Fuel wood		Charcoal	
	Frequency (Number of house holds)	Percentage	Frequency (Number of house holds)	Percentage
<10	12	6.7	21	11.7
10-19	44	24.4	56	31.1
20-30	41	22.8	35	19.4
>31	3	1.7	3	1.7
None	80	44.4	65	36.1
Total		100		100

Table 4: Number of days interval commonly exercised to collect fuel wood (how often?)

Days interval	Frequency (Number of house holds)	Percentage
5	3	1.7
7	8	4.4
8	2	1.1
10	17	9.4
12	2	1.1
15	47	26.1
17	1	0.6
20	18	10
24	3	1.7
25	5	2.8
30	17	9.4
???	5	2.8
No	52	28.9
Total		100

Table 5: Sites from where fuel wood is commonly being collected

Collected from	Frequency (Number of house holds)	Percentage
Biyo Gurgur	31	17.2
Biyo Diidlay	9	5
Biyo Qabobe	16	8.9
Buu Dhaxmadaw	2	1.1
Bur Dagale	1	0.6
Buur Dhagas	12	6.7
Cadaad	2	1.1
Eles	22	12.2
Maar maar	14	7.8
Quud	18	10
None	53	29.4
Total		100

Table 6: Total time taken (including gathering) for a trip to collect fuel wood

Time taken (hours)	Frequency (Number of house holds)	Percentage
<10	12	6.7
10-20	44	24.4
21-35	47	26.1
>35	24	13.3
No	53	29.4
Total		99.9

Table 7: Means of transportation after fuel wood is collected

Means of transportation	Frequency (Number of house holds)	Percentage
Donkey	99	55
Donkey and Human	21	11.7
Human	6	3.3
No	54	30
Total		100

Table 8: Request and attitude of the community towards solar cooking device

Response	Frequency **(Number of house holds)**	Percent
Satisfactory	2	1.1
Negative attitude (do not appreciate)	2	1.1
Request change the cartoon	164	91.1
No	6	3.3
Cooker not given	6	3.3
Total		99.9

ANNEX 9. Analytical Findings of Fuel saving Assessment

Assessment on the fuel/energy saving potential of Aisha Refugee Camp[1]

Date of interview 5 – 11 November, 2001

Table 1: Section included, from the camp dwellers, in the interview process

Sections in the camp	Frequency (Number of house holds)	Percentage
A1	69	38.3
A2	42	23.3
B	33	18.3
C	25	13.8
D	7	3.8
E	4	2.2
Total	180	99.7

Table 2: Number of persons in a household (house hold members residing in the compound at the time of interview)

	Mean	Standard deviation	Range
HH size	6	2.4	1-11
Adults	3	1.6	1-9
Children	3	1.8	0-8

20% of the household members in the camp, considered in this questioner, are income earners.

Table 3: Intensity of the radiation as per the use for solar cooking

Response	Frequency*	Percentage
Good	1231	97
Bad	13	1
Blank (no response)	23	2
Total	1267	100

* Total count of the response of sampled household across the seven days of observation (Household x 7)

[1] Excluding the Tables that are incorporated in the text (within Part I of the report)

Table 4: Length of hours for cooking food items using solar cooker (per day)

Cooking hours	Frequency*	Percentage
0	97	7.6
1	1085	85.6
2	59	4.6
3	3	0.2
Blank (no response)	23	2.0
Total	1267	100

* Total count of the response of sampled household across the seven days of observation (Household x 7)

The mean cooking hour was 0.97 hours (Stdev = 0.367) with the rang of 0 – 3 hours.

Table 5: Length of hours for cooking food items using energy saving stove in a day basis

Cooking hours	Frequency*	Percentage
0	17	1.3
1	186	14.7
2	420	33.1
3	523	41.3
4	94	7.4
6	1	0.07
Blank (no rsponse)	26	2.05
Total	1267	99.9

* Total count of the response of sampled household across the seven days of observation (Household x 7)

The mean cooking hour was 2.40 hours (Stdev = 0.367) with the rang of 0 – 6 hours.

In addition to these practices, three stone was used by 5 % of the respondents in the camp.

ANNEX 10. Project Preparation and Visionary Elements: Overview and Working Principles

Project preparation, in broader terms, refers to the completion of a feasibility study on which concerned organizations will normally base the appraisal of the project in question for the final decision

In line with its' objectives (shown in Box) project preparation must provide sufficiently accurate estimates of costs and expected results to enable decisions to be taken on project funding or financing. In addition, the definition of the project goal, objectives, results/outputs, indicators, components, organizational arrangements and procedures should usually be detailed enough to permit the executing agencies to use the study and its supporting working papers as a source of guidance for project implementation.

Objectives of 'Project Preparation'

Project preparation aims at demonstrating that a project based on the chosen concept is:

- in accordance with the country's development objectives and priorities;
- technically sound and the best of alternatives;
- attractive to the intended beneficiaries;
- operationally and managerially workable;
- economically, financially and socially viable;
- sustainable; and
- environmentally sound

Goal: In terms related with development projects/programs, goal is a visionary element, largely expressed with a broad statement indicating – the intended accomplishments, the overall change that is needed to address a certain problem and hence, the developmental benefits to be gained from the project/program

Objective/Purpose: A visionary element expressed with utmost precisions, clearly indicating key aspects of performances in a manner that are – Specific, Measurable, Achievable, Realistic and Time-Bound (otherwise abbreviated as, SMART). Objective/purpose, in general described/defined as: The forethoughts the project wishes to accomplish by a given time; a concrete step towards the overall goal, vision and mission; the project's immediate purpose, through which it contributes to achievement of its goal and; the behavioural changes/action taken by the target group and the immediate effects of this action

Output/Result: Output is a visionary element indicating, in specific and possibly measurable terms, the impacts, consequences or major achievements that the project/program activities would deliver as its interventions collectively represent the project's strategy to meet its purpose. Though 'result' and 'output' tend to be used as apparently similar terms, the former is largely considered as indicating much of the qualitative aspects, more precisely 'result' is expressed in terms of 'qualified outputs'

Activity: The task specifically designed in view of translating inputs into the respective results/outputs that project/program staff (and/or partners) have to complete during the respectively designated period

Indicators: Tools central to the planning, implementation, monitoring, evaluation and impact assessment of a development project/program. Indicators are variables designed to provide a standard against which the progress of an activity are measured/assessed against stated targets towards delivering its' inputs (input indicators), providing its outputs (output indicators) and achieving its objectives (effect and impact indicators). Indicators are also increasingly being referred to as 'Objectively Verifiable Indicators' because they should be objective, quantitative wherever possible, and that quality and timing should be specified. These attributes are commonly known as *'QQT'* (Quantity, Quality and Timing').

The Means of Verification: the specific sources and methods that can he used to obtain information on the indicators

Assumptions: Statements (best/wise guesses) that are made indicating the important risks or uncertainties about matters outside the direct control of the project

Input: A visionary element indicating the human, financial and material resources necessary to implement the project/program (by type, amount and value). Particular series of activities and resources result in the project outputs