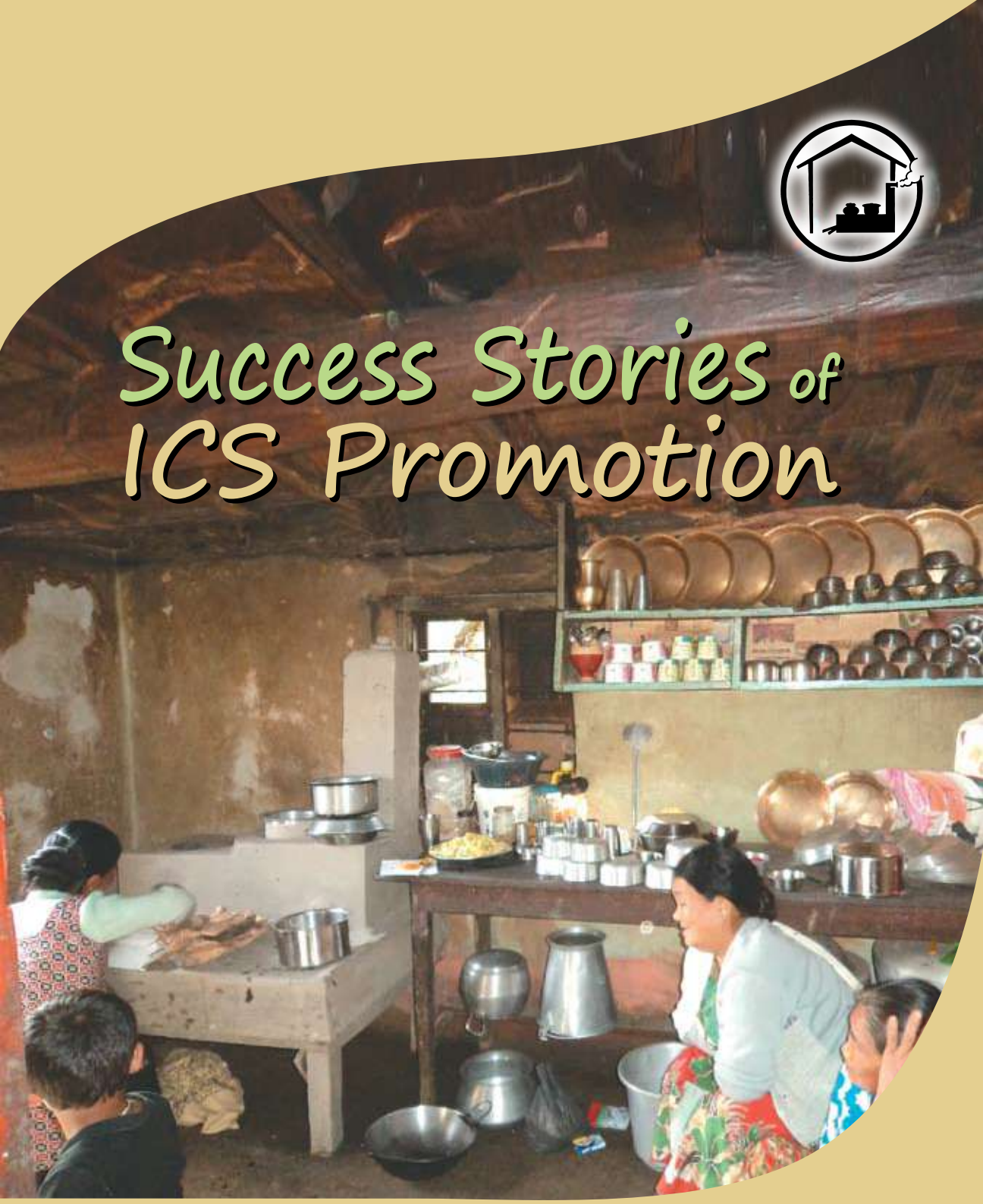

Success Stories of ICS Promotion

Biomass Energy Support Program

Alternative Energy Promotion Centre/Energy Sector Assistance Programme

Success Stories of ICS Promotion

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Foreword

Alternative Energy Promotion Centre (AEPC) was established in 1996 by the Government of Nepal with the objective of promoting renewable energy technologies (RETs) in the country with aim to improve the livelihoods of rural people and to reduce the dependence on traditional energy sources. Since its inception, AEPC has been promoting different kinds of RETs like solar energy, micro hydro, biomass energy technologies (biogas, improved cooking stove, biodiesel, briquette etc) and wind energy in the country. AEPC has been executing various programmes and projects supported by external development partners and Energy Sector Assistance Programme (ESAP) is one of them.

Biomass Energy Support Programme (BESP), under AEPC/ESAP, is one of the important programmes among the various programmes of AEPC to promote improved cooking stoves (ICS) in the country. AEPC has been disseminating mud and metallic ICS throughout high hill, mid hill and Terai districts of Nepal through BESP and has become successful in disseminating more than 500,000 ICS with the involvement of local government bodies, NGOs and private companies following the public private partnership approach. ICS is a simple technology which reduces fuel wood consumption, provides ease in cooking and space heating, creates opportunities of employment at local level, helps in environment conservation, reduces indoor air pollution and improves health. The successful promotion of mud ICS in mid hills and Terai districts without providing direct subsidy has become a unique aspect of the programme. But in metallic ICS, government provides subsidy amounting to NRs. 2,700 for two pot hole and 4,000 for three pot hole types and the subsidy gets revised time to time as per the progress review and suggestions of partners and stakeholders. As ICS reduces energy consumption leading to reduction in GHG emission, is in the process of being registered as carbon project. This may be useful to generate resources for the management of the programme in future.

In this context, we are happy to present the publication entitled "Success Stories Related to Improved Cooking Stoves" incorporating experiences of the ICS programme. We would like to convey our sincere gratitude to all the external development partners, the government organizations, NGOs and private sector partner that made active participation in the attempts for rural development organized by the centre.

I would like to express my appreciation and best wishes for continuous success in future to the partners and story writers, users, entrepreneurs, and stove promoters who shared their success stories and experiences related to ICS promotion and use. I thank BESP team who made contributions in various ways for the publication of this book. Special thanks to Mr. Dipak Paudel, Assistant Programme Officer, BESP for his efforts in coordinating the publication activities and providing the final outlook to this book incorporating the views and suggestions from different people.

Prof. Dr. Govind Raj Pokharel
Executive Director

Foreword

Energy Sector Assistance Programme was implemented by DANIDA In 1999 with a view to achieving ongoing sustainability in the rural/renewable energy sector in Nepal within a 20 year timeframe. The first phase of the programme built a strong foundation for future action and provided benefits to around 1.5 million people in rural Nepal.

ESAP II aims to provide energy solutions to more than 1 million households in Nepal. Access to clean, affordable, and reliable energy in rural areas can make an important contribution to improved health, better education and the reduction of poverty. By promoting rural development, the programme is helping to support and sustain the ongoing peace process.

Biomass Energy Support Programme is one of the components of ESAP II. This component has been successfully promoting the environment friendly and efficient Improved Cooking Stoves in all ecological zones of the country. Till now, the component has disseminated more than 500,000 ICS and created opportunities for employment in local level, reducing indoor air pollution, and improving health of rural people. To show the impact of a decade long programme, the Biomass Energy Support Programme of ESAP II has published "The Success Stories of ICS Promotion."

The publication provides information about the success of promoters/stove masters and users and the hope is that the stories will encourage the potential ICS users to improve their stoves.

I would like to thank entire Biomass Energy Support Programme team especially Ms. Karuna Bajracharya, Component Manager, Mr. Nawa Raj Dhakal, Counterpart, and Mr. Dipak Paudel, Asst. Programme Officer for their valuable contribution for publishing this document.

Finally, I would like to thank all stakeholders of AEPC/ESAP involved in this sector.

Niels Juhl Thomsen
Chief Advisor
Energy Sector Assistance Programme (ESAP)

Preface

Biomass Energy Support Programme of AEPC/ESAP is making a direct contribution in improved health and nutrition level of the rural population in general and women and children in particular by decreasing the risk of smoke borne diseases. It has also contributed to the reduction of drudgery, thus saving time for other productive tasks that contributes to their socio-economic empowerment and improved environment by reduction in consumption of the fuel wood.

The programme has been very successful in disseminating ICS in mid-hill districts without direct end-user subsidy. The success can be attributed to its principles of working through non-government and government organizations at local and central level, enhancing their capacities and allowing them to work efficiently in a decentralized manner as well as with massive awareness programme to create the demand. The programme-efficiency has been achieved through implementation of the activities that provided effective information, enhanced capacity for quality monitoring and eased repair and maintenance at the grass-root level among the ICS Promoters and the Users.

The programme has also been effective in addressing gender and poverty issues in rural areas by involvement of the poor and marginalized women in the ICS activities especially in construction of ICS. Currently, half of the active stove promoters are women. Till date more than 500,000 Improved Cooking Stoves (which includes HH mud stoves, institutional stoves, and metallic improved cooking stoves) have been disseminated since the programme initiation in 1999 A.D. Under the program, more than 100,000 stoves are being constructed every year.

This “Success Stories of ICS Promotion" has prepared from the experiences of more than 40 promoters/ stove masters and ICS users involved in ICS promotion and use. This success chronicle has been developed reflecting the success of activities of BESP, the successful use and promotion of ICS. We believe that this success story will provide additional encouragement and motivation to the promoters/stove masters and users for further dissemination or use of the improved cooking stoves. The program also believes that this success story will be helpful in demonstrating the success and effectiveness of the program to the relevant stakeholders.

All the stories included in this publication are based on the information provided by district and regional partners during the period of 2011 and 2012.

Lastly, I would like to thank all those promoters, users, and field staff at RRESCs and local partners who have shared these stories. I would also like to thank entire biomass energy team for all their effort to bring stories in this shape and especially Mr. Dipak Paudel, Asst. Programme Officer of BESP for his effort in collecting, compiling and updating the related information to give it final shape during preparation of this book.

This type of publication is our first attempt. We always appreciate your valuable comments and suggestion for improvement of the publication in the days to come.

Biomass Energy Support Programme
AEPC/ESAP

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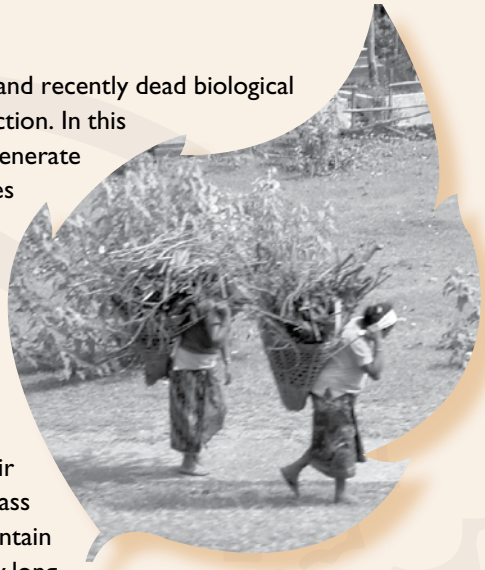
Biomass Energy Support Programme

What is Biomass Energy



Biomass, as a renewable energy source, refers to living and recently dead biological material that can be used as fuel or for industrial production. In this context, biomass refers to plant matter grown to generate electricity or produce heat. For example, forest residues (such as dead trees, branches and tree stumps), garden waste and wood chips may be used as bio-fuel. Biomass also includes plant or animal matter used for production of fibers or chemicals and may also include biodegradable wastes that can be burnt as fuel. However, it excludes organic material which has been transformed by geological processes into substances such as coal or petroleum. Although fossil fuels have their origin in ancient biomass, they are not considered biomass by the generally accepted definition because they contain carbon that has been "out" of the carbon cycle for a very long time and their combustion can therefore, disrupt the cycle.

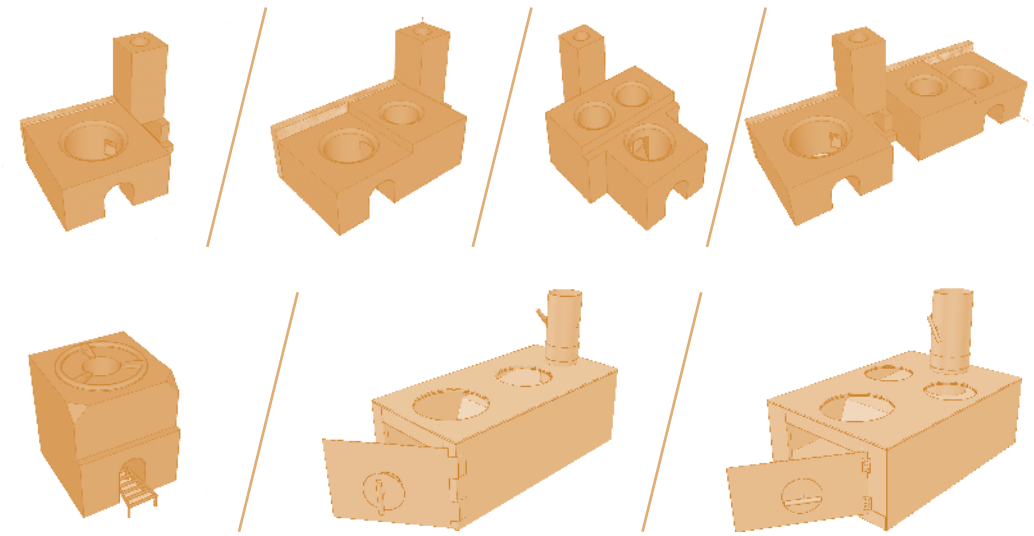
Improved Cooking Stoves

Improved cooking stove (ICS) is a device that is designed to improve combustion efficiency of biomass, consume less fuel, save cooking time, convenient in cooking process and creates smokeless environment in the kitchen or reduction in the volume of smoke produced during cooking against the traditional stove.

Various types of ICS

Technology	Description	Advantages
Mud Brick ICS	• Most widely used ICS technology that uses clay, rice husk, dung and a few metal rods. • The most common version is the one with two potholes. A baffle is used to direct the flame and hot air to the second pot.	• Low cost Can be built locally Wide network of promoters Well accepted technology, particularly in the mid-hills Efficiency above 15%
Institutional Mud Brick ICS	• AEPC/ESAP has developed a larger version of mud-brick improved stoves suitable for institutions such as schools, restaurants and Small scale industries.	• High efficiency and fuel saving (35-40%) Fire can be extinguished whenever required. Suitable for road side hotels, barracks and camps

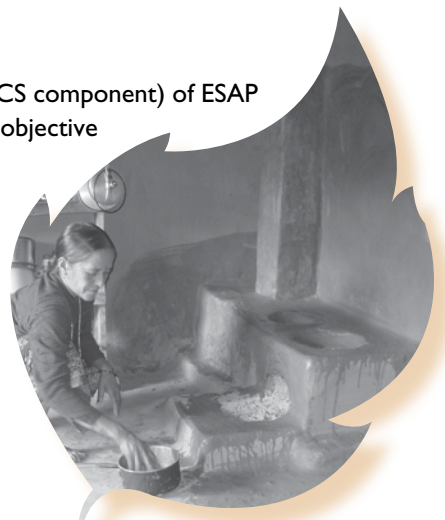
Technology	Description	Advantages
Metallic Stoves	• Similar to improved mud stove but made from metal to allow space heating as well. • Some models have three potholes as well as a slot for baking bread. Adjustable air vent in the main door allows regulation of air flow and damper in flue pipe allows transfer of heat efficiently towards cooking pots.	• Good for cooking, water heating and space heating Up to 40% less fuel wood consumption Government subsidy for high hills (above 2000m VDCs) Rs. 2,700 for 2 pot hole and Rs. 4000 for 3 pot hole is available
Rocket stoves	• An insulated double wall metallic stove designed to improve convective heat transfer.	• High efficiency (25-30%) Portable Suitable for any part of Nepal
Gasifier	• Converts solid biomass such as wood chips and rice husk, into a gas which is then burnt to produce a blue flame.	• Very efficient Portable Electricity can also be generated
Bee hive briquette stoves	• They have two compartments separated by a grid and aeration is through natural draught. Some stoves have air flow control mechanisms. These stove are made from clay or metal.	• Portable Smoke reduced by 90% Briquette used is relatively inexpensive Suitable for urban areas too



Introduction to BESP

The Biomass Energy Support Programme (previously known as ICS component) of ESAP Phase 2 was initiated in March, 2007 with a realigned development objective intended to be accomplished in five years.

During ESAP Phase I and the bridging phase, the ICS component was one of the most successful one in achieving its objective and meeting dissemination targets. It was focused on improving fuel wood efficiency and addressing gender and health issues through ICS programmes in the mid-hills.



ESAP Phase 2 provided a more comprehensive approach towards overall biomass energy development to support the achievement of the long-term development objectives of poverty reduction, social justice, and the empowerment of the rural population. In addition to promoting ICS, the Biomass Energy Support Programme had an objective of working on strengthening biomass energy policy, building institutional capacity and promoting decentralization in the rural energy sector.

In Phase 2 BESP had broadened its scope of work and included all major biomass energy technologies i.e. technical support for biomass briquettes, bio-fuel and gasifiers including improved cook stoves. It had also broaden its coverage area by including improvement of cooking stoves at hotels, restaurants, schools, army barracks, and religious centres across the country.

This programme is supported by Denmark, Norway and Nepal government. Only the expenditures of activities conducted by the RRESCs under the programme and the reimbursements for employees associated with the programme is incorporated in the economic assistance system of the programme as indirect support and no direct subsidy is provided to end users for the installation of the improved cook stoves. The promoters trained by the programme receive the compensations for their skill and labor from the stove users for the installation of the stoves.

Aims of the Component

"Biomass Energy Support Programme" aims to improve livelihoods of rural people, especially rural women, through introduction of affordable, efficient and appropriate biomass energy technologies. The appropriate strategies and approaches of this component is believed to develop policies and institutions supporting energy provision improvements in the rural areas that eventually increases access to efficient and environment-friendly rural energy solutions, which address social justice. It also aims to address issues related to policy formulation and implementation, lobbying policy implementation through coordination mechanism among national institutions and programmes and institutional capacity building of the sector through awareness raising and human resources development.

Key Elements

1. To support AEPC in coordinating the biomass energy sector.
2. To maintain the quality of ICS by closely monitoring household and institutional ICS installations.
3. To provide biomass solutions for efficient natural resource utilization and income generation.
4. To identify a range of ICS products suitable for the Nepali market and produce a comprehensive set of promotional and instructional materials.

5. To develop and produce promotional materials for all biomass technologies.
6. To carry out capacity building activities in biomass technology for the rural energy sector.
7. To work with partners on awareness raising and demonstration campaign at a national level and on promotion and user-training activities at a local level.
8. To conduct an indoor air pollution measurement study.

Development Objectives

In order to ensure that the ESAP development objective adequately reflects the issues identified, the development objective of ESAP (Phase-II) has been reformulated as;

The living conditions of the rural population improved through enhanced access and affordability to rural energy solutions that are efficient, environment-friendly and that address social justice.

Immediate Objectives

The Biomass Energy Support Programme (BESP) in ESAP – Phase II expedited mass dissemination of improved cook stoves in Mid-hills, High Hills and Terai Plains along with initiatives taken to introduce and promote other biomass technologies for optimized technical and social uses of biomass resources. Specifically the immediate objectives were:

- Improve capacity of local organizations to offer affordable biomass energy solutions to the rural communities with quality assurance.
- Gender, health, environment and socio-economic issues, including reduction of women and children's drudgery are addressed through implementation of biomass energy solutions.
- Adoption of biomass energy solutions is popularized in the rural communities.

Strategy

Based on the lessons learned from ESAP Phase I, the overall strategy in the ESAP Phase II activities was through NGOs, Forest User Groups and other relevant organizations throughout the country, on the basis of the best practices guidelines and support mechanisms. Thus, the ESAP Phase – II Biomass Component was not driven by the target numbers of stoves or technologies to be installed.

The main strategy was focused on overall sector issues and enhancement of the procedures and framework for support to the biomass energy sector rather than on detailed project development and preparation, as the sector environment was expected to change dynamically over the next five-year period. The core strategies as below was used to address the identified barriers:

1. Strategies for management and coordination improvement

2. Strategies for development of versatile stove models for mid hill and to improvise the current promoted models as well as development of high hill and Terai models.

The Programme expected the following outputs:

1. Capacity increment of district-based LPOs to implement and monitor BE solution interventions, specifically in scaling up ICS dissemination and working in a decentralized manner.
2. ICS dissemination scaled up and integrated in other rural development programmes with creation of demand without subsidy but quality interventions, after sales services and availability of different models of ICS to the end users.
3. A uniform need based approach shall be adapted by all development organizations in dissemination of Biomass Energy Technologies with activities as be national seminar, experience-sharing workshops, networking and support for development of a forum. Continuous improvement on standards and guideline for technical quality monitoring of biomass technologies will be in place while research institutions will be involved for developing standards.
4. Other Biomass Energy solutions shall be identified, tested in local conditions, and applied.
5. Policy shall be in a place for identified Biomass Energy solutions i.e. especially gasifiers, briquettes and cogeneration while special efforts shall be made on identifying technologies, piloting and quality validation, pricing and subsidy policy and create environment for private sector involvement.

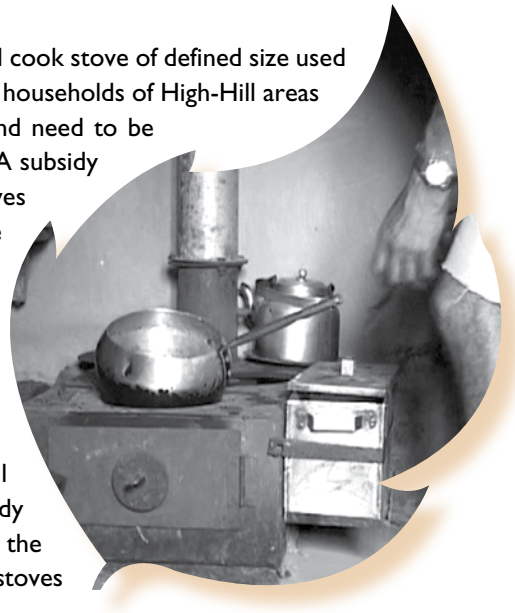
6. Awareness among rural people on efficient Biomass Energy solutions shall have been created. A of range of information materials, tools to create sufficient awareness with help of printed materials, audio, visual and use of media shall be developed, their impacts assessed and the information materials improved.
7. Commercialization of BETs with involvement of private sector shall be made through orientation cum interaction, capacity building, human resource development and information dissemination campaigns organized to attract private sector along with quality assurance mechanism and technical assistance.
8. Biomass stoves shall be installed in the next 5 years in all ecological zones. Impact studies, random sampling, indoor air pollution and MIS database will be supporting documents for validate promotion of biomass technologies in all five ecological zones. These studies will also identify the socioeconomic and health benefits.

Subsidy

The Subsidy for biomass energy technologies is as follows:

1. No direct subsidy will be provided for the promotion of household mud improved cook stoves in Hilly and Mid-Hilly and Terai districts of Nepal.

2. Subsidy will be provided to efficient improved metal cook stove of defined size used for both cooking and space heating purposes in the households of High-Hill areas since they are expensive for general population and need to be transported to the remote areas after fabrication. A subsidy amount of NPR 2,700 for 2 pot hole metallic stoves and NPR 4,000 for 3 pot hole metallic stoves will be provided to the stoves that meet the standards defined by AEPC.
3. Subsidy will be provided to household and institutional gasifiers (modern stoves) to reduce the firewood consumption and significantly improve the indoor air pollution. A subsidy amount of NPR 2,000 but not exceeding 50% of the cost will be provided to household gasifier. Similarly, a subsidy amount of NPR 5,000 but not exceeding 50% of the cost will be provided to institutional gasifier. The stoves should meet the standards defined by AEPC.



4. Different organizations are involved in the promotion and development of ICS. These institutions have provided various kinds of supports. Close coordination will be established with NGOs and donor countries to make these kinds of direct and indirect support more effective.

Achievements

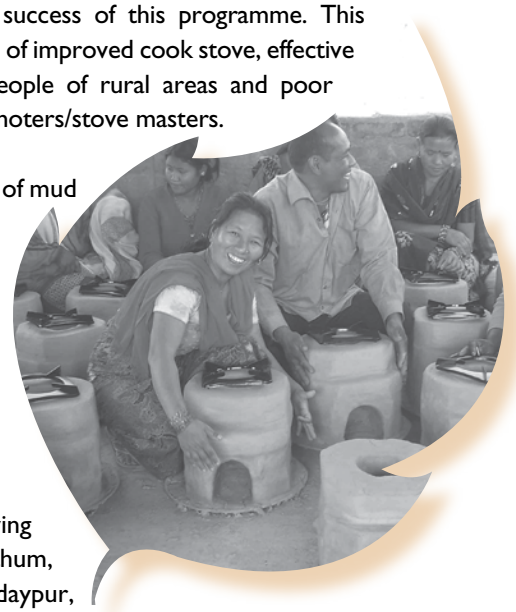
AEPC/ESAP's BESP is making a direct contribution in the improvement in health and nourishment level of rural people and specially, in the reduction of risks of women and children to smoke related diseases. Along with that, it is also making a contribution in poverty alleviation, saving of time for production oriented activities and environment conservation through reduction in fuel-wood demand.

Component activities

- **R & D and action research**
- **Policy formulation**
- **Promotion and dissemination of proven technologies**
- **Piloting of technologies**
- **M & E**
- **Material support**
- **Advocacy**

This programme has been successful in disseminating improved cook stoves in mid hills and Terai districts without any subsidies. Thus, the originality of the programme is its dependence in market demand. Work is being conducted in central and regional level through non government and government organizations with development of their capacity and permission have been granted to them to organize sufficient awareness programmes for demand creation and to work with competence, in accordance with the concept of their

decentralization are the indicators for measuring the success of this programme. This programme has provided access to services as installation of improved cook stove, effective information, quality monitoring and maintenance to people of rural areas and poor background through local partner organization, and promoters/stove masters.



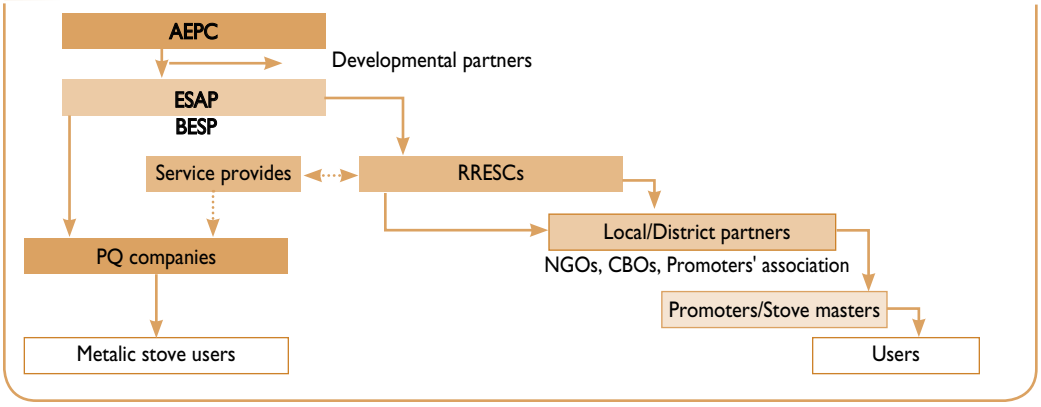
The specific achievements of the programme in the field of mud brick improved cook stoves can be listed as:

Achievements (Till end of December 2011)

- More than 500,000 ICS installed with more than 100,000 stoves being installed per year without subsidy.
- Programme working in the hills of the following districts: Taplejung, Panchthar, Sankhusabha, Tehrathum, Dhankuta, Bhojpur, Okhaldhunga, Khotang, Udaypur, Sindhuli, Dolakha, Ramechhap, Sindhupalchowk, Kavre, Kathmandu, Bhaktapur, Lalitpur, Rasuwa, Nuwakot, Dhading, Makwanpur, Tanahun, Gorkha, Lamjung, Nawalparasi, Baglung, Parwat, Myagdi, Kaski, Palpa, Gulmi, Syanja, Arghakhanchi, Surkhet, Dailekh, Jajarkot, Rukum, Rolpa, Salyan, Pyuthan, Dang, Bajhang, Bajura, Achham, Darchula, Doti, Dadheldhura, Baitadi, and Kailali.
- 7,032 metallic improved cook stoves installed in high hill region of the country through pre-qualified companies.
- Installed more than 1500 Institutional/commercial ICS in the mid-hill and Terai region.
- Piloted 30 portable rocket stoves in the Terai region
- 15 regional renewable energy service centres (RRESC) are providing services to the biomass energy sector
- One District Development Committee/ District Energy And Environment Section (DDC/ DEES) is providing services to the biomass energy sector
- The programme worked with more than 285 Local Partner Organizations (LPO)
- BESP of AEPC/ESAP has been awarded by International Result Award -2007 by Partnership for Clean Indoor Air (PCIA) for Improving People's Health, Livelihood and quality of life by reducing Indoor Air Pollution.

- Special Achievement Award - Biomass Energy Support Programme of AEPC/ESAP, has been awarded by Special Achievements Award-2011 from Partnership for clean Indoor Air (PCIA) for 'Monitoring Impacts of Interventions'.
- 32 metallic cook stoves manufacturing companies were pre-qualified
- Programme launched in 13 districts of Terai since July, 2010, i.e., Sunsari, Jhapa, Parsa, Bara, Siraha, Rautahat, Rupandehi, Kapilvastu, Kailali, Kanchanpur, Mahottari, Dhanusha, and Bardia.

Programme Implementation Modality



A widow earns respect through ICS construction

Story 1

When she visited various households in her hometown, Ward No.8 of Dhamja, Baglung Distrcit, to promote ICS Mina Bhandari was often humiliated with words such as, "We won't use a stove constructed by a widow." Mina, however, did not let such meanness deter her and her continuous devotion eventually changed people's attitudes, as she explains below.

"Oh, God, save me from this horrible smoke, exclaimed a man as he exited his kitchen, cursing his absent wife. His response both frustrated and amused me. I thought to myself, "You men don't cook daily, do you? Just think how your wife suffers." This encounter happened in 2005, just after I had completed a training in making ICS. I was trying to raise awareness among the locals about ICS. I wanted to talk more about ICS to the man but as the stove had already caused him enough trouble to him, I did not want to provoke him.

When I reached home, I mused deeply, "Why would a man curse a woman for all the problems at home when the solution is somewhere else?", "Why it is always a woman who is responsible for cooking?", "Isn't it also a man's duty to look after his family and cook for them?", "Since traditional stoves are the problem, why not make ICS as the solution?" I asked these same questions at every house I visited and convinced many to construct ICS. I talked to the wife of the same man I had overheard earlier. She and her husband agreed to construct an ICS, but were somehow reluctant. At first, I did not understand why. Then it dawned on me that they did not want a widow to construct their stove; they wanted a male promoter, not me.

When I realised the real reason they did not want an ICS, I started hating them. I felt sorry for such stupid fools who chosen not to accept a good way to cook the food in their kitchen, instead rejecting my offer just because I am a woman. I though how unfair it was that society, instead of supporting a widow like me, instead harassed and humiliated for a mishap I neither desired nor was responsible for. I am a widow whose heart has been repeatedly scarred by such spurious blame. "What can a woman expect from the people of a country who prevent a woman from doing something as trivial as building a stove just because she is a widow?" I felt myself hating the people around me as I had never hated them before.

I looked at myself in the mirror and looked at the world. It was a matter of not only making stoves but of upholding my self-respect and fulfilling my right to live. I decided not to give up. I worked hard, ignoring all the superstition, ill-treatment, and rejection.

In 2005, I got the opportunity to participate in a seven-day ICS promoter training jointly organised by Dhaulagiri Community Resource Development Centre and Bhimpokhara Youth Club. Afterwards, I began to build ICS. It was a real challenge in the beginning, but I persevered, drawing moral support from the two organisations which trained me. I have now constructed more than 600 ordinary ICS and around 50 with water-heating capacity. I have built stoves in many places, including Dhamja, Bhimapokhari, Pala, Bihun, Resh, Tagram, Singana, Lekhani, and Baglung municipality in Baglung District as well as in various villages in Myagdi District. People are impressed with my work so they come to call me from very distant villages. I am happy that people are becoming aware and that traditional concepts are gradually changing.

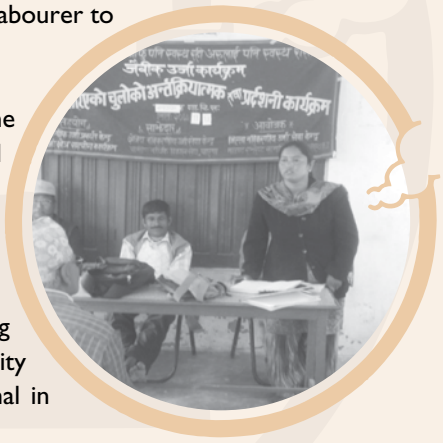
I am thankful to the two support organisations, which helped me to learn many new things, travel to many places, and improve my relations with society. I am hopeful that a day will come when the state will provide good facilities to and space for widows like me. I believe that we have equal rights to live as we, too, share the same roof of the world with other living beings. We are strong and independent, so we can work and act for ourselves. We have formed a group of widows in our district. I kindly request all readers to cooperate and empathise with widows and to let us work so that we can live with dignity. I am very grateful to and cannot forget Dhaulagiri Community Resource Development Centre, Bhimpokhara Youth Club, and Dhaulagiri ICS Promoters' Association and all of my friends, without whom nothing would have been possible.

Sheer will power sees Dalit woman succeed as an ICS Social Mobiliser

Story 2

The old proverb 'Where there is will, there is way' is certainly applicable to the story of Bimala Nepal, who, though she born into a family of Dalits, the so-called untouchable Hindu caste, is actively involved in ICS promotion. As Manoj Kumar Thapa, District Coordinator, Mount Everest Social Development Organisation (MESDO), Kapilvastu District reports, she has put behind her social discrimination to build over 415 ICS in her community and achieve the rank of number one social mobiliser.

Born in 1978 to Babul Kumal and Shova Nepali, Bimala migrated to Nepal from Meghalaya, India, with her two sisters, brother and her mother in 1991, when her father died suddenly. Because he had been the only income earner, the family suffered an economic crisis. Even so, with her mother's help, Bimala earned her school-leaving certificate; she was, however, unable to continue studying after that. In 1994, she married Prem Bahadur Nepali, but marriage did not bring her economic security either. After her mother-in-law died, Bimala's her husband went to India in search of employment and Bimala began to work as a wage labourer to feed the family.



In 1999, GIZ (then GTZ) formed a group which Bimala became a member of. She took a loan from the group, summoned her husband back from India, and started a successful shoe shop. That shop is still doing well today. In 2005, the Mount Everest Social Development Organisation honoured her as a general member of that group, appreciating her good work. In 2007, she was able elected to the organisation's working committee under its Dalit quota. She worked as a community mobiliser in a programme supported by Heifer International in 2010.

When the AEPC/ESAP began implementing its BESP in one municipality and 19 VDCs of Kapilvastu District in partnership with RRESC/Rural Economic Development Association, Palpa and the MESDO, it appointed Bimala as a facilitator in recognition of her experience. Since Bimala is a Dalit, it was a great challenge for her to establish her position as ICS promoter. Though the law forbids caste-based discrimination, social practice dictates that Dalits cannot enter the kitchens of so-called high-caste people in the society. She worked with both Chaudarys [an indigenous Terai group] and pahadiyas—people from the hills. It was the pahadiyas who were a problem. Initially, she used to wonder what they would think of her being a Dalit and doubted that they would let her build a stove in their homes. She soon found a way of working with those who had

a problem with her so-called low-caste status, however: she would explain to a helper how to build the stove and construct a dummy for him or her to emulate outside the house. These assistant stove-masters would then build the stove inside the house, following her instructions. It was challenging at first as her helpers were amateurs, but now they are more professional and learned and Bimala's job is easier. Carrying out follow-up tasks, however, remains tough due to the many social restrictions she has to deal with. She always gets permission to enter her client's home to monitor the ICS construction.

Bimala has made her desire to continue to study come true by enrolling in grade 11. She is happy to be a student again. Because of her hard work and her enthusiasm, she is the top ICS technician cum social mobiliser. In fact, she is probably the best of the 10 permanent social mobilisers in the Terai region. She has already facilitated to construct around 415 ICS in the area surrounding her village. Bimala Nepali exemplifies the claim that hard work and will power can challenge and overcomes social adversity and discrimination.

Health worker helping ICS promotion

Story 3

Laxmi Angbuhang of Ward No. 4, Changey VDC, Taplejung District, is a local health worker who believes that women in urban areas are healthier than those in rural areas. This she knows from experience: she has worked in Changey's sub-health post for the last five years. Until she discovered the ICS, she used to wonder if it would be possible to make a smoke-free stove with no negative impact on health.

Namsaling Community Development Centre in Ilam has implemented biomass energy activities in seven districts of Nepal in partnership with local NGOs and the AEPC/ESAP. After its local partner in Taplejung, the Environment Conservation and Development Committee, trained three local people to construct ICS in 2005, an ICS construction campaign began in Changey VDC.

Though Laxmi did not have opportunity to observe the ICS training, when she discovered its benefits, she invited recently trained ICS promoter Man Bahadur Sharma to construct an ICS in her home, where she lives with her husband and two children. She paid him NPR 500 in wages and spent NPR 400 on construction materials. While the stove was being built, her neighbours inquired about the ICS and its cost. Laxmi opined that the investment was well worth the benefits: "My ICS saves me 1000 kg of firewood. Moreover, it works like a thermos: when I go to work in the morning, I leave a pot of water on the stove and when I return in the evening, it is warm. My kitchen is smoke- and soot-free. We have no smoke-induced headaches or eye irritation and we spend less on medical treatments". Her husband Surya agreed and added, "Kitchen work is more comfortable, so I prepare food, too."

Laxmi asks all who visit the sub-health post if they have an ICS. If they say they do not, she tells them of its benefits and encourages them to build one. Her advocacy has increased the demand for ICS and thereby the number of job opportunities for ICS promoters like Man Bahadur. Changey VDC authority is now so convinced of the benefits of ICS that it has allocated money for ICS promotion.

VDC members are confident that ICS construction will reduce indoor air pollution and lighten women's work load.

Out of the house and into the workforce

Story 4

Rama Tiwari's job as an ICS promoter keeps her busy and has made her independent. Every morning before dawn she leaves her home with her toolkit to earn a livelihood.

The youngest child of Chhabilal and Indra Kumari Adhikari, Rama was born in 1974 in Ward No. 5 of Mahakali, Shilame, Nuwakot District. She married Uddhab Tiwari when she was just 16 and still studying in grade 7. She has three daughters and one son and until 2009, spent her time doing household work. Life was not always smooth for her.

Two years, she got the opportunity to participate in a training in ICS-making organised by the CRT/N. Rama didn't find it easy to implement her theoretical knowledge on the ground: it took time to make local people aware about the importance of ICS. After becoming a member of the Rural Energy Promotion and Environment Conservation Centre, she started to serve neighbouring VDC s like Kakani, Madanpur, Thanapati, Thansing, Bageswori and Bidur, charging NPR 300-550 for each stove she constructed. She also maintains stoves. For every stove she has installed—more than 567 altogether—she has recorded the date of construction and the location and nature of the installation.

Rama said that the training had enabled her to take up a new profession, a lucrative one. In fact, she's already earned NPR 300,000 and has been able to pay for her children's education and marriages as well as to pay off all her loans. She was awarded second prize for her devotion to the promotion and construction of ICS. In her view, ICS keep kitchens free of indoor air pollution and she advocates that people adopt them persuasively.

Rama confessed that there used to be some conflict within the family went she travelled long distances to build stoves but added that she had faced and overcome these challenges. Making ICS has brought about positive changes in her life and economy of her house.

A knowledgeable and technically skilled woman can compete with any man

Story 5

Ratna Kumari Dhamala (Khanal) visits various villages armed with her ICS construction kit and her eagerness to share her conviction that ICS are important and useful. She credits her successes in her life, including her ability to earn for her family and to educate her children, to her knowledge about and skill in ICS construction.

Born in 1973, the third daughter of Lila Bahadur and Dilkumari, Ratna Kumari explained that her family's poverty prevented her from continuing her and saw her marry Nawaraj Khanal in 1988, when she was just 15. She farmed and did wage labour to help support her nine-member family, which includes her five children, but they were always living a hand-to-mouth existence. Since she could not meet all her family's economic needs, she requested that she be allowed to take part in a training in ICS promotion offered by the CRT/N in Dhading District. This training changed her life.

After the eight-day training, she decided to adopt ICS construction as her profession, convinced that hard work would be the key to her success. She has now constructed more than 1,250 ICS at various places like Jyamrung, Nilkantha, Muralibhanjyang, Chainpur, Dhuwakot, Katunjey, Kalleri, Sunaulabajar and Khalte VDCs. For each stove, she charges between NPR 150 and NPR 700, depending on the situation and the location. She claims to have earned more than NPR 400,000. With her earnings, she has bought jewellery and land.

Ratna Kumari is very good at what she does. In 2007 and 2009 she was selected to participate in an exposure visit organised by the CRT/N. In 2006 she was rewarded first prize for "best promoter" and in 2007, she took home second. In 2010, she got a letter of appreciation for her hard work and the remarkable number and quality of ICS she constructed. Ratna Kumari confessed that she used to be extremely introverted and shy but that with time and the chance to participate in various ICS training programmes and meetings, she has become more outgoing. She is happy that she was selected to be interviewed for a documentary on ICS.

In her free time, she makes bee-hive briquettes, a skill she learned at another training and one which helps her earn extra income. She holds three positions of authority: she is the treasurer of the ICS Promoter's Association in Dhading, she is a social worker, and she works as an advisor at the Renewable Energy and Environment Conservation Centre. Ratna Kumari is proud to say that provided that a woman is skilled she can compete with men on an equal footing. She is very happy that she helps keep women and children healthy by constructing ICS.

Women's group members decide to construct ICS

Story 6

Dudhi Maya Tamang, the manager of Phyafulla Women's Group constructed an ICS in her own home and convinced other group members to do the same.

Although Dudhi Maya Tamang is not well-educated, her knowledge about and involvement in social and women's empowerment got her nominated as the manager of Phyafulla Women's Group in Ward No. 7 of Banakhu VDC, Kavrepalanchok District. Her group discusses issues related to household management, savings and their mobilisation, social development and the environment. Since Dudhi Maya is enthusiastic about learning about, experimenting with and accepting new things, the other members rely on her for new information and technology.

In a meeting, REMREC promoter Radhika Humagain informed the group about the advantages of ICS in protecting the health of women and child and conserving the forest and the environment. Dudhi Maya agreed to try out the new technology in her home. Once she was convinced of its value, she told others about its benefits, including the fact that she used half the firewood, that her kitchen was clean, and that she suffered from neither coughs nor eye irritations. She emphasised that her family's health was better and that she found it much easier to cook for large family of 14 members. All 300 group members were convinced and committed to constructing ICS. For its part, DDC Kavre supported the cost of the iron rods needed.

One day soon every kitchen in Banakhu will be free from indoor air pollution thanks to the efforts of people like Dudhi Maya. Hats off to them.

A differently-abled ICS installer proves society wrong

Story 7

Some Nepalis cling to the traditional misconception that a person who is deaf and mute can not possibly contribute to society. Chabilal Neupane has proved them wrong. By building ICS he has not only protected homemakers and children from smoke-related ailments but also proved that the "disabled" are, in fact, very able.

Fifty-year-old Chabilal was born deaf and mute. Although he is now a permanent resident of Ward No. 5 of Taklak VDC in Parwat District, his father used to work in India, so he studied up to grade 7 in that country. Then, due to poverty, he was forced to drop out. After his father died, was compelled to take over the entire responsibility for the household. Today, he looks after his mother, wife, two sons, and two daughters.

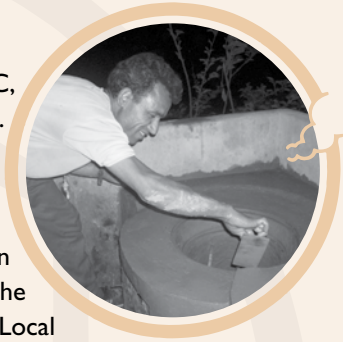
Though Chabilal was very hardworking and honest, he did not prosper until he attended a training in ICS promotion organised by INPRED Nepal and the Dhaulagiri Community Resource Development Centre in 2007. After the training, he built an ICS in his own home and saw for himself that an ICS keeps a kitchen smoke-free and saves firewood. Convinced, he started a campaign to get at every household in his village to install an ICS. In just one-and-a-half years, he has already constructed more than 300 stoves. He turns over all his earnings to his mother, who is very happy that her son is an ICS builder. He is well known throughout the village as a maker and a promoter of smokeless ICS. He leaves no stone unturned to advertise ICS—even touting their advantages at marriage ceremonies. He is always ready with his copy and pencil to draw sketches of ICS so that he can convince potential users. He determined to increase ICS usage in his village to 100 per cent.

The organisation is so impressed with his work that they awarded him a letter of appreciation. Chabilal is an inspirational personality: he convinces everyone, differently-abled or not, that hard work, determination and good intentions make everything possible.

ICS: A friend of handicapped promoter

Story 8

Many young Nepalis are migrating to India and the Gulf in search of employment opportunities so they can raise their standard of livings, but Purna GC of Okharkot has bucked the trend of going abroad to earn money by adopting ICS construction as his profession. Mohan KC writes of Purna's experience in the renewable energy sector.



Purna was born on 30 October, 1967, in Ward No. 3 of Okharkot VDC, Pyuthan District. He is the eldest son of Man Bahadur and Sumitra GC. When he was two years old, he burnt his right leg badly and now is physically challenged.

Purna confided that, at first, he had not been confident that a profession relying on mud and water could really earn him a living. Nonetheless, he attended an ICS promoter training in 2005 jointly organised by the Local Development Fund in Pyuthan District and the CRT/N in Dang District. Though he had never thought it possible, his continuous hard work has enabled him to construct more than 500 ICS and, by charging between NPR 500 and NPR 2500 depending on the type of stove, to earn about NPR 400,000.

He has constructed ICS in a number of VDCs in Pyuthan District, including Maranthana, Torwang, Bangemaroth, Okhorkot, Badikot, Tushara, Lung, Liwang, Punja and Khung as well as the villages of Malagiri, Purkot, and Purkotdaha of Gulmi District and Hansapur and Gokhunga of Argakhanchi District. Purna said that, for him, the quality of a stove must have top priority. He provides maintenance for free the first time on of the stoves he has constructed breaks down. He can make many models, including one-pot-hole, two-pot-hole, multipurpose, and institutional, but always constructs a stove considering the user's wishes and the needs and size of his or her family. Purna's wife added that his income has enabled them to look after their family and educate their children.

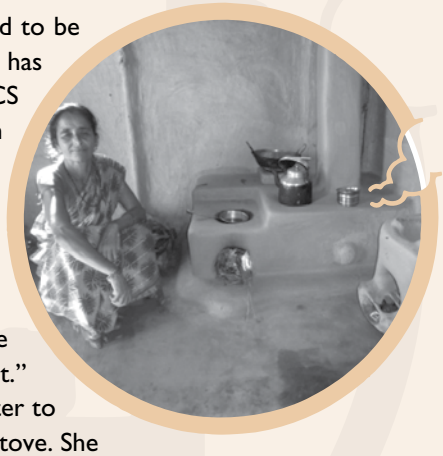
Purna proudly claims that the 500 ICS he built have reduced firewood consumption by at least 500 quintals and has improved the health of 500 families. For him, ICS construction is the ultimate business: it supports society and is socially responsible. In recognition of the contribution he has made to society, he has been awarded many awards, received letters of appreciation letter, and been chosen to tour many districts. In order to strengthen the bio-energy business, he has established *Arati Chulo Nirman Sewa* [Aarati Cook Stove Construction Service], from where he distributes pamphlets and prepares signboards about the ICS. Purna also asks families for whom he built an ICS if their stoves work well, if they maintain it properly, and maintenance properly and if there is any kind of problem. Because of Purna's concern and the quality of his stoves, many customers, including Kalpana Gurung like the ICS which Purna makes.

An ICS changes life in the kitchen

Story 9

Kamal Paudel, District Coordinator, Jhapa writes about ICS from the perspectives of user Rewata Sharma and stove-master Sujan Kanwar, starting off by asking Rewata about the cost of an ICS, which, he suggests, is a lot.

In response to my question, "Don't you think NPR 900 is a huge investment for an ICS?" Rewata answered, "I thought so in the beginning, but, later, after I had realised what the benefits of the stove are, I felt that the stove- master has built it very cheaply indeed. Not only can does an ICS cook food with less firewood [than a traditional stove but it also cooks it faster. In addition, it channels smoke out of the kitchen and holds two pots." Rewata had an ICS installed nine months ago and is very pleased with it.



Rewata, a member of Srijanshil Business Group, said, "I used to be vexed thinking about all the smoke in my kitchen but my ICS has transformed life in my kitchen. If properly maintained, an ICS causes no problems whatsoever." When other villagers learn about Rewata's clean and safe kitchen, they ask about her ICS and the stove-master who made it. Even passers-by ask to look at it. Their requests make Rewata happy. "I show them my ICS and inform them of its benefits and show them the information, education and communication materials I received from Sahara Nepal. After all, the more ICS which are constructed, the more we can conserve the environment." Rewata was given a portable rocket stove by the stove-master to thank her for having hired him to construct a two-pot-hole stove. She claimed that her rocket stove is very effective as it is mobile.

In the one-and-a-half years since the ICS construction programme was launched in Rewata's village, stove-master Sujan Kanwar has constructed around 140 stoves. He opined that the income from this job—NPR 150 for a small rocket stove and NPR 1500 for a big one—is better than the income from other jobs. For each stove he builds, he deposits NPR 25 in a group fund. By saving in a group Sujan has strengthened his economic capacity. He declared, "In the beginning it was quite frustrating that so few people wanted an ICS, but now these stoves have become well advertised and many people wish to construct them as they are easy to use and build." An ICS can be easily constructed using locally available materials such as mud, cow dung, salt, sugar, a corrugated sheet, and iron rods. Sujan proudly boasted, "The best part of making ICS is that I can earn for my family as well as help many families make their kitchens free of air pollution." He is sure to continue this job and is grateful to Sahara Nepal for having trained him.

Sahara Nepal implements the BESP activities in Jhapa District with support from Namsaling Community Development Centre of Dharan and the AEPC/ESAP. By the end of 2011, about 2,000 ICS of different types, including rocket; one-pot-hole, two- pot-hole and three-pot-hole stoves, had been constructed in Jhapa alone. Building all these stoves are around 90 stove-masters, who belong to four business groups, through which they are engaged. The programme collaborates with the District Energy and Environment Section of the District Development Committee, VDCs, community forestry user groups and other local community organisations and cooperatives. A variety of partnership arrangements have been made with these partners, include the provision of subsidies up to 50% for designated communities.

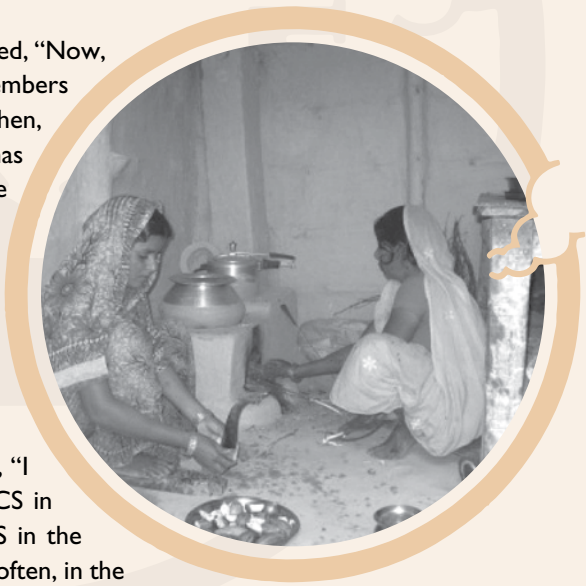
The more healthful a kitchen, the happier a family

Story 10

Aarati Devi Sharma, a resident of Akdwara in Ward No. 8 of Lakhanpur VDC in Parsa District, has proved that something as small as a stove can make a family happy. Now that she has an ICS, the male members of her family also help in the kitchen and she is able to reach class on time. Her positive experience serves as an incentive for others to construct their own ICS .

Aarati's family is very large 14 members. Obviously, they have a big kitchen and spend much time cooking and dish-washing. Since Aarati is a teacher at a child development centre, it is her duty to reach school on time. However, she used to be late most days. She discussed her problem with her sister-in-law, who had participated in a one-day VDC-level ICS workshop and exhibition and was able to describe to Aarati the benefits of ICS. They both decided to construct their own ICS. Aarati explained how much she had paid: "I requested stove-master Rambabu Singh to construct a two-pot-hole ICS. He charged me NPR 500. Since the VDC provided a cash rebate of NPR 200, I spent NPR 300. I had to add another NPR 50 for additional wages for the preparation of the mud and the transportation of the mud bricks needed."

Aarati, explaining the comforts of her new ICS stated, "Now, we have peace and happiness at home. The male members of our family, who never used to help in the kitchen, now do. Moreover, our total cooking time has declined to about three hours from five, we have cut firewood usage by one-third, and have drastically reduced the amount of smoke and soot in the kitchen. Our house used to be dirty and dingy in five or six days. Since our work load has decreased, I can reach school on time and I have time for other work."



Further describing the benefits of ICS, Aarati said, "I am always happy to explain the importance of ICS in our lives. I have talked about the benefits of ICS in the VDC, in the child development centre, and, most often, in the neighbourhood. While we were not sure we wanted to spend NPR 500 on a stove, we have now realised we have saved more than NPR 8,000 on firewood alone. In addition, we will reap savings because our expenses on health care have also declined. The slogan I tout is 'the more healthful the kitchen, the happier the family'."

ICS save the expense of buying gas

Story 11

Tired of the smoke and soot of her traditional stove, Sunita Devi Kanwar bought a gas cylinder, but when her neighbour told her about ICS she tried that instead and discovered she saved a lot of money and still had a smoke-free home. Below, the coordinator of the Kailali Kanchanpur Rural Electrification Umbrella Organisation, Bal Bahadur Kathayat, looks at the relative costs of gas stoves and ICS and other issues.

Sunita Devi Kanwar lives in the settlement of Baskota in Malakheti VDC, Kailali District. She has been using a two pot-hole ICS for more than a year and identified its main benefit: "After I started using my new ICS, I decreased the use of gas. In fact, I have not even touched the gas cylinder to cook food since I had an ICS constructed."

Persuaded by her neighbour Divya Raj Joshi, Sunita hired the trained ICS promoter Suresh Malashi to construct an ICS at her home. She spent slightly over NPR 800 on its construction: she paid Suresh NPR 500 as the promoter and spent another NPR 100 for other labour. In addition to NPR 200-worth of iron rods, she also purchased one kilogramme of sugar and one packet of salt for use in construction.

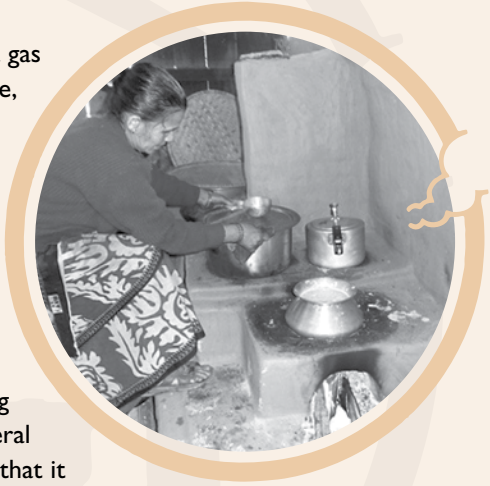
Smiling, Sunita recalled, "I used to use a traditional stove. It made my kitchen dirty and created a lot of smoke. I suffered from eye irritations and spent a lot of time cooking. To address these problems, I bought a gas cylinder for a huge amount of money. Later, I had an ICS constructed. It has saved on the expense of buying a new cylinder every one or two months. Now, if I had I known about ICS, I would never have bought the gas cylinder in the first place." She shares the happiness the ICS has brought her: "My ICS channels smoke out of the kitchen and consumes less firewood. I plan to build an ICS in my new home too. Thanks to my ICS, I no longer suffer from eye irritation and I save money. These days, I only use gas to make tea."

Sunita is so satisfied with her ICS that she suggests to all her customers that they, too, construct ICS. In fact, her husband teases her that she must be getting a commission from the ICS organisation. But, in all earnestness, he, too, believes that ICS have many advantages and advocates that his customers adopt this effective and efficient technology. He thinks that children and women benefit a good deal from ICS, and thanks the AEPC/ESAP and the Kailali Kanchanpur Rural Electrification Umbrella Organisation.

Replacing a gas stove with an ICS saves money

Story 12

Because he struggled to run his business with a traditional cook stove, Indra Panta, a resident of Ward No. 3 of Dhupu VDC, purchased a gas stove despite the expense. Later, because Indra ignored the recommendation of the District Chairperson of the Federation of Community Forest Users Nepal to construct an ICS, his wife went directly to promoter Bhola Raj Panta to hire him to construct a three-pot-hole ICS. Based on his conversation with the Panta family, the field technical coordinator in Sankhuwasabha District, Krishna Tamang, writes about the benefits they reaped.



"Cooking on an ICS is faster and easier than it is on even a gas stove. It is much better than gas," Indra praises his new stove, which promoter Bhola Raj Panta installed in January 2012.

In Dhupu, a village far from Sankhusabha's headquarters in Khandabari, the community forest users' group has launched a one-house-one-ICS campaign in association with stakeholders in alternate energy. Although Hem Raj Thapamagar, the District Chairperson of the Federation of Community Forest Users Nepal in Sankhuwasabha had strongly advocated that Indra construct an ICS, explaining that it would protect the forest and the environment in general and also help to keep his shop clean, Indra refused, saying that it looked similar to a traditional stove and that it would be difficult to supply firewood and keep a fire lit. He was not keen a building an ICS because he had purchased a gas stove to overcome the problems of a traditional stove. His wife, however, went around him and ordered a three-pot-hole ICS because it is she who spends the most time in the kitchen.

Mrs. Panta recalls their disagreement: "We had an argument as I had an ICS installed without his approval. As time went on, however, he grew to like it and now he cooks more than I. I used to cook with my eyes burning and tearing up and with a nagging headache, but now none of these ailments plague me. I feel that our ICS is like a godsend for me and my family."

Admitting that he had been wrong to refuse to build an ICS, Indra praised their ICS: "Cooking is much easier with the new stove. It is no longer necessary to keep blowing the fire and cooking pots are less covered with soot. In addition, three dishes can be cooked at once." Expressing his happiness with their new ICS, he declared, "I am a hotel entrepreneur who used to cook food on a traditional cooking stove and later on a gas stove. Since we got our new ICS, I have not used

the gas stove as the ICS is more comfortable and pleasant to use. Now I can serve customers tasty food quickly as the ICS lets me cook three dishes at once." Now that the Panta family has stopped using its gas stove, it saves money as well as firewood and cooking time.

Many of the Pantas' customers have also constructed ICS in their homes. Fifty ICS have been constructed in Dhupu and more are on their way. Promoters charge customers between NPR 600 and NPR 1000 depending upon the size and type of ICS. The Pantas paid NPR 800 for their stove.

Welfare done by ICS

Story 13

The biomass energy activities implemented by Sahara Nepal in Jhapa brought happiness to the community by training some members to take up ICS construction as a new profession. Kamal Paudyal, the ICS coordinator of Jhapa District, writes of the experience in Dangibari VDC, where a new ICS intrigued wedding guests.

Approximately eight kilometres north of the East-West Highway, in the village of Dangibari, Hima Devi Adhikari explained how happy she is to have a two-pot-hole ICS in her kitchen. She exclaimed happily, "The ICS made my daughter's marriage possible." During the wedding ceremony, a heavy rain prevented her from cooking on the stove specially constructed outside for the purpose, but she was easily able to cook the large amounts of food necessary on the ICS in her kitchen. She observed that the wedding guests had been fascinated by the stove's chimney, which channels smoke out of the kitchen.

Remembering the days when her kitchen was so smoky she would cough, she said, "I never used to want to even enter the kitchen, but these days I love my kitchen. Not only does my ICS ventilate the smoke but it enables me to cook two things at once, thereby saving on firewood consumption, and speeding up cooking. After I had paid NPR 800 for my stove, I feared maybe it would be a waste of money, but now I know that I got the best possible stove for the least possible price. I think the many benefits of my ICS are worth more than I paid for it.

Hima's stove was constructed by Megharaj Dhital, a trained stove-master who lives in Ward No. 8 of Dangibari and is a member of Kankain Business Group. Hima thinks her stove is attractive and user-friendly. She is grateful to stove-master Dhital. Hima's husband is also keen to advertise the benefits of the stove: "I suggest that everyone build an ICS as such stoves are smokeless, consumes less firewood than traditional ones, and even keep kitchens clean".

It isn't just Hima and her family who are excited by ICS. Stove-master Megharaj is too. He has constructed various types of ICS in more than 60 households, earning enough money to manage his household expenses and to put aside some money for the future. For each stove he constructs, he deposits NPR 25 in a group fund.

Ram Narayan Sharma of Dangibari Health Post highlighted a further benefit of the ICS, "ICS help protect people from smoke-related diseases such as eye irritation, respiratory infections, asthma, sinusitis, and pneumonia. They also use less firewood and therefore help conserve the environment."

Health improves with ICS

Story 14

After a talk with Chandra Bahadur of Sanne VDC, Guruprasad Neupane of PARDEP-LSM, Dhankuta, wrote, "There is a wise old saying, 'health is wealth.' Indeed, a clean environment, especially in one's own home, is a must for good human health. Smoky kitchens harm women's health, but ICS can protect them." Below Guruprasad shares more of what he learned from the interview..

Traditional stoves emit a huge amount of smoke in the kitchen, smoke which is very harmful to human health. To protect ourselves, we must make our kitchens smoke-free and eliminate indoor air pollution. To support rural people in this endeavour, PARDEP, in partnership with Namsaling Community Development Centre, is implementing biomass energy programme. The programme trains ICS promoters and provides information, education, and communication materials and other technical support. In places where ICS have been constructed, women's and children's health conditions and the local environment have improved. Chandra Bahadur's lower-middle class family is one family that has reaped the benefits.

The four members of Chandra Bahadur's family used to cook on a traditional stove, but in 2010, after being made aware of ICS, Chandra Bahadur hired a trained ICS promoter to build one in his kitchen. He happily shares, "The ICS has changed our lives. These days we cook delicious food in less time and with less firewood. As our kitchen is smoke-free, I think we are also protected from sinusitis, asthma and eye problems." His wife agrees, "The kitchen used to be dirty and smoky and our clothes used to get dirty quickly. ICS construction has made the kitchen smoke-free and both it and our clothes are cleaner." Neighbours are impressed enough to inquire about the neatness and cleanliness of their kitchen. If all the other families in the village construct ICS in their homes, everyone is sure to experience a change.

Bohoragaun, an indoor air pollution-free village

Story 15

Bohoragaun in Ward No. 4 of Chakratirtha VDC, Lamjung District is a two- hour drive and a one-hour walk from Besisahar. This village of 52 households, 27 Gurung and 25 Chhetri families, is located 900 meters above the sea-level. For the most part, they have been ignored by the government, perhaps because they are relatively naïve. For example, while rural electrification started in 1999, the villagers still have no electric lighting. .

Committee for the Promotion of Public Awareness and Development Studies (COPPADES) is the only organisation in the village. It promotes economic and social development and has been implementing an ICS programme in partnership with Rural Empowerment Society and with support from the AEPC/ESAP.

Villagers use to argue that they did not need ICS as they were able to get firewood from a nearby forest very easily. In a way they were correct: they can fetch firewood and fodder as they wish. They also opined, "ICS won't heat our rooms, so our houses will fall into ruin quickly. Besides, it will take a long time to cook on these stoves."

After hearing such negative responses, the COPPADES organised a one-day ICS awareness programme. At least one member from each of the 52 households participated in the training, which helped them to realise the importance of ICS. After the programme, the villagers decided to construct ICS in their homes and make the village indoor air pollution-free.

The residents of Behoragaun worked hard to see all their kitchens models of cleanliness, installing ICS after ICS until, on 12 February, 2010, Chakratirtha VDC declared itself an indoor air pollution-free VDC at a programme attended by the district justice, chief district officer, political representatives, media persons, and representatives from governmental and non-governmental organisations. Jhamak Bahadur Khadka, a key facilitator of the initiative, proudly shares that the programme was a huge success and that their village would be held up as an exemplar at the national level. These days the villagers are working to improve health and hygiene and to conserve the forest and environment.

With the construction of ICS, women are no longer exposed to smoke and, as firewood consumption is remarkably less, the forest is protected. Naramaya Gurung, an ICS user, claimed

that women now attend community group meetings in the time saved by cooking on an ICS. Another housemaker, Shanta Khadka, remarked that children are can study more comfortably, even in the kitchen. The villagers also say that kitchen management techniques, like making a rack to dry cooking pots, have improved their health and environment. One women health worker pointed out that ICS help in preparing food faster, making it easier for children to study, and improving health, especially among children.

The residents of Behoragaun promote ICS enthusiastically, telling every guest about their cooking experience. They highlight the following differences that they witnessed when they made the switch from traditional stoves to ICS.

Traditional stove	ICS
• Consumed 2500-3500 kg of firewood annually.	• Consumes 1200-1500 kg of firewood annually.
• The village required about 156,000 kg of firewood. To collect this amount, about 1248 labourers were used at wages amounting to NPR 249,600.	• As the demand for firewood decreased by about half , the cost of collecting it declined to NPR 125,000.
• Smoke impaired woman and child health.	• Kitchens are free from air pollution.
• Cooking was time consuming.	• Saves cooking time.
• There used to be accidents and people got burnt.	• There are no reports of mishaps.
• The kitchen used to be dirty and it was difficult to wash pots covered in soot.	• The kitchen is cleaner and it is easier to wash pots.
• Since the stove had to be re-lit if food had to be re-heated, energy was lost.	• ICS retain heat, so they keep food warm.
• No one enjoyed being in the kitchen as it was filled with smoke.	• Now even men and children enjoy cooking and women have more free time as others take over the responsibility for cooking.
• Their used to be many respiratory diseases.	• The incidence of respiratory diseases has declined remarkably.

Contributing to make entire VDC indoor air pollution-free

Story 16

ICS promoter Ram Bahadur Shahi of Rum VDC has proved that dedication and hard work can make a VDC indoor air pollution-free. A social mobiliser who works for the Local Development Fund Purna Nath Yogi in Dailekh District writes of Ram Bahadur's success.

In 2003, the community-based organisation Pragatishil Community Development Group began implementing a village development programme in Rum VDC in order to alleviate poverty, protect the environment, and promote social development. Ram Bahadur Shahi is one of the organisation's active members.

To support his family of eight, Ram Bahadur used to work as a labourer. Then in 2004, he participated in an eight-day ICS promoter training organised by the Local Development Fund with support from the BESP. He learned both the theory behind and the practical aspects of ICS construction and was provided with a set of tools to make ICS. He promised to construct ICS in Rum VDC and make it an indoor air pollution-free VDC.

As he had promised, he visited each household to inform the residents of the benefits of ICS and to convince them to construct one. Convinced by Ram Bahadur's advocacy, the villagers agreed at a group meeting to pass a resolution stating that every household should construct an ICS, paying Ram Bahadur a wage of NPR 300. As a result of their decision, both demand for ICS and jobs for Ram Bahadur increased. By the end of 2011, Ram Bahadur had constructed ICS in 291 of the total 331 households in Rum VDC and is confident that he will be able to make Rum an indoor air pollution-free VDC soon.

With the income he has earned from constructing ICS, Ram Bahadur has constructed a home for his family. He has also invested in income-generating activities for family members to engage in.

In response to the success of ICS implementation in Rum, the Local Development Fund, in partnership with the Rural Energy Development Programme, plans to implement a rural micro-hydro project in the village. The credit goes in part to Ram Bahadur say the villagers.

"Ram Bahadur has taught us that we have to invest in our welfare and that if we invest in something we feel a sense of attachment toward, ownership of, and pride in it. We realised with the need for investment when we paid for our ICS," say the villagers. In acknowledgment of Ram Bahadur's good work, the villagers now call him "Chule Dai" ("Stove Brother").

Bhojpur District moves towards indoor air pollution-free status

Story 17

Under the initiative of Samuhik Abhiyan and local promoters and with support from local governments and other stakeholders all VDCs in Bhojpur Distrcit have launched indoor air pollution-free campaigns. One of the initiators of this campaign and the field technical coordinator in Bhojpur District, Milan Bhandari, describes the progress made.

The ICS plays a positive role in conserving forests and the environment, controlling indoor air pollution, and improving women's health and children's health and education. ICS is an efficient technology not just to control indoor air pollution but also to reduce the adverse impact of climate change. In Bhojpur District, Samuhik Abhiyan has been implementing the national ICS programme since 2008 with support from Namsaling Community Development Centre, a RRESC under the AEPC/ESAP. The ICS programme was piloted in five VDCs in the eastern part of the district and has now spread to over 63 VDCs. With the programme's support, more than 130 promoters have been trained, half of whom have taken up ICS promotion as their livelihood, and more than 5,500 stoves installed .

'Samuhik Abhiyan (Community March)' is a local leading organisation which works with village and district development committees, the district energy and forestry offices, the Livelihood Forestry Programme, community forest and women's group, and media partner Chomolungma FM to effectively implement development activities and ensure that its target groups have access to development efforts. To promote ICS in Bhojpur, Samuhik Abhiyan has been implementing various activities, including training for ICS promoters, women's awareness programmes, school-level orientation programmes, and an exhibition in coordination with the RRESC.

The RRESC, believing that ICS should be constructed only when users demand them and only in VDCs which support the programme, has been working towards making all VDCs free from indoor air pollution. After successfully constructing ICS in all 568 households in Yaku VDC and in all 637 households in Bokhim VDC, the acting local development officer of Bhojpur declared that these VDCs were indoor air pollution-free VDCs in a celebration organised by the RRESC on 2011. To ensure that the ICS constructed will be maintained and that the VDCs willl continue to be indoor air pollution-free, a small sustainability fund was provided to both VDCs. Inspired by its success, the organisation aims to declare six more VDCs indoor air pollution-free in the fiscal year of 2012-2013.

ICS empower women

Story 18

Sushila Bhatta has not only helped support her family with the income she earns from installing ICS but has paid of her family's loans and saved NPR 100,000. She is very pleased with the changes the ICS has brought in her life.

Thirty-three-year-old Sushila married Susharshan Bhatta back in 1994, when she was just 15. She then moved from her hometown in Ward No. 2 of Dhola VDC, Dhading District, to Ward No. 2 of Maidi VDC, Ukhubari Dhading District, where she and her husband and their two children still live. She participated in an ICS training session in 2004, when the ICS initiative was first launched.

Almost every morning sees her head off to nearby villages equipped with the measuring tape, knife, and brick mould she needs to construct ICS. Everywhere she travels, she impresses upon locals the importance of ICS. She has installed stoves in the Dhading VDCs of Dhola, Nalang, Muralibhanjyang, Chainpur, Semjong, Naubise, Jivanpur, Kebalpur, Nuwakot and even in some villages of Kathmandu District. She already has more than 1,500 ICS to her name. Charging NPR 200-600 rupees for each, she has earned more than NPR. 400,000, money she has used educate her children, pay for medical care, run her household, and buy agricultural inputs like fertilisers and seeds.

Sushila is equally pleased with the reputation her job has earned her. In the fiscal year 2009/10 she was awarded a letter of appreciation for the number and quality of ICS she built and in the fiscal year 2010/11 she won second prize in Dhading District.

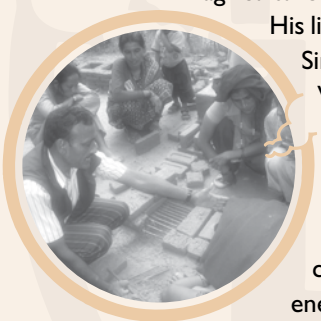
Sushila is more than just an installer of ICS. She was also trained to make beehive briquettes, the fuel used in some ICS, and is the vice president of an organisation which promotes ICS. She distributes posters promoting ICS and explains how to use them. She works hard to make people aware that ICS promote the conservation of forests and reduce the workload of women. She also emphasises that now that they have ICS, women do not have to travel such long distances and spend so many hours to collect wood and that they and their children are less exposed to smoke and soot. She is proud to introduce a technology that both promotes good health and conserves the environment. She vows she will participate in other training sessions on renewable energy. In her view, the greatest benefit of an ICS is the fact that it keeps the kitchen clean and smoke- and soot-free.

Teacher turned promoter

Story 19

Forty-three-year-old Ramsharan Thapa of Ward No.2 of Simle, Purangaun VDC, Kavrepalanchok District, once taught primary school. Then, in 2005, this grade 10 graduate participated in an ICS promoter training and took up a new profession. He has so far constructed more than 1,600 ICS and is popular for his success as an ICS promoter and guardian. He is now associated with Ganesh Renewable Energy Promoters' Association in Kavre, which is a local partner for REMREC. Below is the story of his journey from teaching children to promoting ICS.

Ramsharan has a family of five: himself, his wife and their daughter and two sons. He started his career as a primary teacher in Tapeswore Primary School, Gaurabisauni, Deupur VDC, but after teaching for four years, he left the job to migrate to India in search of employment. Unsatisfied by the income he earned there, Ramsharan returned to his village, where he got involved in politics and, in 1998, was elected ward chairperson. Later he participated in a training in agriculture under the Rural Agriculture Programme and started an agro-business. His life took a turn when, in 2005, he participated in an ICS promoter training. Since then, he has built 1600 stoves, one in 85% of the households in his VDC and some in households in neighbouring VDCs, rendering them all indoor air pollution-free. He earns about NPR 80,000 annually just constructing ICS and is quite pleased by that fact: "I cover household expenses and pay for my children's education with my income." Ramsharan was also trained to make beehive briquettes and too construct institutional ICS, thereby increasing his capacity in the bio-energy sector.



Now a senior promoter and a member of Kavre District Promoters' Association, Ramsharan also trains new ICS promoters and conducts refresher training sessions. He makes visits to ICS users and explains to them how to maintain their stoves when he finds one that is damaged. If it is necessary, he calls local promoters to carry out repairs. He loves ICS construction so much that he constructs ICS in his free time, when he is not conducting trainings or monitoring ICS. He is proud that during the Dhulihel Festival in 2004, he helped REMREC win the prize for best stall by constructing demonstration ICS.

He is very popular in own VDC, Purangaun, as well as in Dapcha. People often ask him, "Where are you going? Are you going for an ICS programme? Does that VDC have an ICS programme?" People also recognise him as a social worker who is always ready to solve any problem with an ICS. He is grateful that the ICS earned him this recognition.

Mason becomes ICS promoter

Story 20

A mason by profession, Man Bahadur Tamang has left this line of work after being trained in ICS installation and now constructs 25 to 32 ICS a month. The field technical coordinator in Solukhumbu District, Gopindra Rai, tells Man Bahadur's tale.

Young Stars Club, with support from the RRESC/Resource Management and Rural Empowerment Centre (REMREC), is implementing biomass energy activities in 12 VDCs in Solukhumbu District. Under this programme, Man Bahadur Tamang, a resident of Ward No. 3 of Deusa VDC was trained in ICS construction in 2011.

Man Bahadur, who is just barely literate, used to support his four-member family working as a mason. After he was trained in ICS construction, he began doing both lines of work at once. However, his construction skills help him build good-quality stoves quickly and soon he began to focus exclusively on ICS construction, which pays him more money. Till, he has constructed more than 300 ICS and makes 25 to 32 ICS a month. In the last year or so, he has saved about NPR 200,000 from ICS construction. He also received first prize from the REMREC and the Young Stars Club at their meeting of ICS promoters.

Expressing happiness, he declared that he had earned name and fame from ICS. Now villagers call him "Chulo (Stove) Tamang" instead of Man Bahadur.

ICS construction business: more appropriate than agriculture

Story 21

Govinda Awasti, a resident of Ward No. 2 of Laharepauwa, Simle, Rasuwa District, was a farmer until three years ago, when he began to promote ICS. Now his new occupation keeps him very busy indeed.

Born in December 1970, the first of four sons of Bhabanath and Bhabakumari, Govinda describes himself as a simple, literate man. His family was very poor and he found it impossible to earn an adequate livelihood as a farmer. Addressing his household's financial needs was a real struggle.

Then, in 2009, he got the chance to participate in an eight—day training in ICS promotion supported by the CRT/N and organized by Laligurans Community Development Centre in Ward No. 9 of Laharepauwa, Rasuwa District and learned a skill that has enable him to earn a livelihood. He has constructed more than 300 ICS at various VDCs in Rasuwa, including Laharepauwa, Yarsa, Dhaibung, Saramthali, Ramche, Bhole, Dadagaun, Thulogaun and Haku. Depending on the type of ICS and the amount of labour he must perform, he charges NPR 300-500 or, for those who cannot pay in cash, he accepts payment in kind. With the money he has earned, he has improved his family's standard of living, educated his children, and sought medical treatment.

In 2009 he participated in a study-tour organised by the CRT/N that helped him find out a lot about the happenings in and needs of various districts. In the years 2010 and 2011 respectively he was awarded first and the second prizes in efficient ICS promotion by CRT/N. He's also certified as a promoter by AEPC/ESAP.

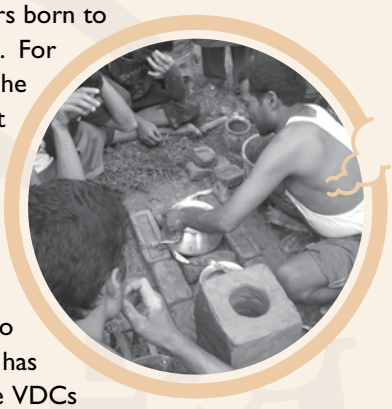
Govinda has trained new ICS promoters several times and, for his work, received letters of appreciation from Centre for Rural Technology/Nepal and the AEPC/ESAP. He also got further training himself—in beehive briquette-making.

Govinda is sure that ICS construction is the best sector to dedicate oneself to and that he will continue to promote this environmentally-friendly technology in the future.

Improved cooking stoves break the cycle of poverty

Story 22

Kiran Aryal, a resident of Ward No. 5, Tasarpu VDC, Dhading District, has been constructing ICS for the last seven years. Taking up this occupation has seen this former poverty-stricken farmer become a successful entrepreneur.



Forty-one-year-old Kiran is the fourth of six son and three daughters born to poverty-stricken parents, Amar Bahadur and Chandraprava Aryal. For most of his adult life he engaged in traditional agriculture, but though he is literate and believes that it is through hard work and struggle that a person earns dignity and respect, he never was able to earn a satisfactory income, until 2004, that is, when he participated in an eight-day ICS promoter training organised by the CRT/N with support from the AEPC/ESAP.

Those eight days from 25 March to 2 April, 2004, convinced him to adopt a new profession: ICS installation. In the last seven years, he has installed more than 1,600 ICS—about two every three days—in the VDCs of Tasarpu, Bhumesthan, Thakre, Naubishe, Goganpani, Cablepur, Muralibhanjyang, Maidi, Gajuri and Chhatredeurali in Dhading Distirct; the VDCs of Tistung, Palung, Daman, and Agra in the neighboring district of Makwanpur; and in Thankot VDC of Kathmandu District.

While he charges between NPR 300 and NPR 600 for each stove, for those who cannot afford his rate, Kiran is willing to barter for goods or services. Such flexibility makes him popular indeed among cash-strapped locals. With the income he has earned, he has not only met household and medical expenses but also paid for his children's education. On top of that, he managed to save NPR 300,000, money he put toward purchasing a plot of land in Chitwan.

Kiran's work is much appreciated. In 2006 and 2007 he was named "best promoter" for his hard work and the number and quality of the ICS he installed. He has continued to work enthusiastically since then, too. In 2009/10 he received a letter of appreciation and, in 2010/11, second prize. In both 2007 and 2009, Kiran was chosen to participate in an inter-district educational tour organised by the CRT/N. He also was selected to share his theoretical and practical knowledge with trainees at training sessions for ICS promoters organised by the CRT/N.

In Kiran's view, ICS construction provides new job opportunities and ICS keep kitchens free of smoke and soot and save time. Their usage reduces firewood consumption and thereby contributes to efforts to protect the environment. He believes that the stakeholders should take more actively promote ICS, launching new initiatives and assuming new roles.

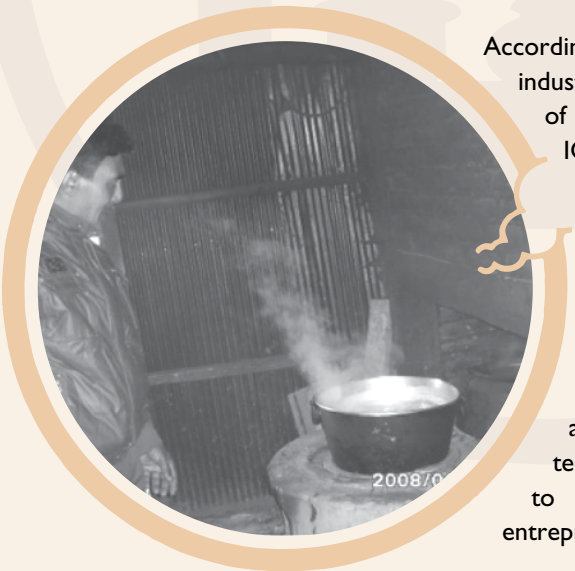
ICS construction foster micro business

Story 23

By profession a teacher, Shivalal Pradhan of Rungsung, Pashupatinagar VDC, Illam District, started the Koseli Lollipop Factory in 2000. He soon ran into problems because the huge amount of firewood he needed was expensive. Then he discovered ICS. In fact, since constructing an institutional model, he has been able to expand his business.

In 2000, Shivalal hired workers from Kalingpong, India, and started a dairy business making various dairy products like ghee, lollipops, and a local candy called pusthakari from 40 litres of milk. Now, his factory processes 100 litres of milk daily, benefit local dairy farmers, and employs five local workers. His products are renowned in Jhapa, Kathmandu, and even India. He earns more than NPR 150,000 a month and has been able to pay back the loan he took from the Nepal's Agriculture Development Bank.

Shivalal was finding it difficult to meet the huge demand for firewood. In fact, firewood was the biggest expense he faced. He was also aware that burning firewood was harming the environment. Thus, with technical support from the Namsaling Community Development Centre and the AEPC/ESAP and his own personal financial investment, he constructed a two-pot-hole institutional ICS. This stove has reduced his annual expenses by NPR 200,000 because it uses less firewood. He also said that demand has increased because his products are now odourless and more hygienic.



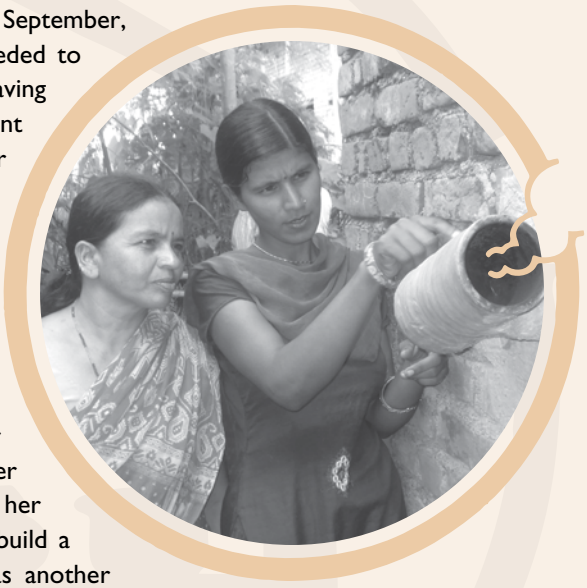
According to Shivalal, in Ilam alone there are about 22 industries, which together consume huge quantities of firewood. He believes that if they construct ICS, they will save many trees and the environment in general as well as earn more profit. For his part, Shivalal plans to construct two more ICS and establish branches in Kathmandu, Fikkal and Jhapa.

In this way, the ICS encouraged a teacher to become a successful entrepreneur. The adoption of practical, energy-efficient technology such as ICS is a sure to contribute to local economies and promote entrepreneurship.

Rain or shine, Sushila Gaire promotes ICS

Story 24

With the support of Manoj Kumar Thapa, District Coordinator of the District Renewable Energy Service Centre, Kapilvastu District, widow Sushila Gaire proved that she could, indeed, construct excellent quality ICS. Because of her skill, she has seen the fees which she charges double and been named "best stove-master" in the district. Manoj tells Sushila's story below.



Born to Vishnu Prasad and Khima Gaire on 2 September, 1982, Sushila Gaire earned the money she needed to stay in school until she earned her school-leaving certificate by working as a helping hand in different households. Then, because of poverty and her duty to educate her siblings, she was forced to drop out though she did not want to.

She married Vishnu Prasad Gaire in 1999. Eight years later, tragedy befell her: her husband died, leaving on her shoulders the burden of supporting herself and two sons, one of whom is mentally challenged. It was difficult indeed for her to feed the family as there was no one by her side to share the burden. With help from her maternal home, however, Sushila managed to build a shelter in Barkalpur VDC. Earning a living was another matter. "For about a year, I worked various jobs, including as an inspector during elections, a labourer and a social mobiliser. After that, I became jobless as I lacked the necessary skills," rued Sushila.

One day, we [the MESDO, Kapilvastu District] published a notice in 20 VDCs of Nawalparasi District requesting applications from people willing to take part in a stove-masters' training. Sushila was one of the applicants. Beginning on 1 December, 2010, we conducted a week-long training in Kopawa VDC. While she was a trainee, Sushila expected that demand for ICS would soar and that she would construct two ICS a day, earning NPR 700. After the training, however, she was sorely disappointed. She returned to her village, constructed an ICS in her own kitchen and began to inform others about ICS, but no one showed any interest in having one built. Sushila speculated that people didn't ask her to construct an ICS because they believed that a widow was not capable of doing so.

At the centre, she said to me, "Sir, I want to leave this occupation and try something else because no one wants to construct ICS." Later, however, we organised an energy exhibition and interaction programme. After this, a few households asked her to construct ICS. Then we organised another interaction and invited Sushila to take part. During the interactions, we took participants to houses where Sushila had built ICS to show them her work.

Since then, the demand for ICS has increased and Sushila has started visiting many households to provide them with more information about ICS and to take orders. These days, Sushila has her hands full as the demand for ICS is very high in both her village and neighbouring settlements. "People from neighbouring villages in India have asked me to construct ICS, offering INR 1,000 a day, but I want to serve my fellow Nepalis first," Sushila explained. Three months after the training, she had constructed more than 90 ICS and earned more than NPR 40,000.

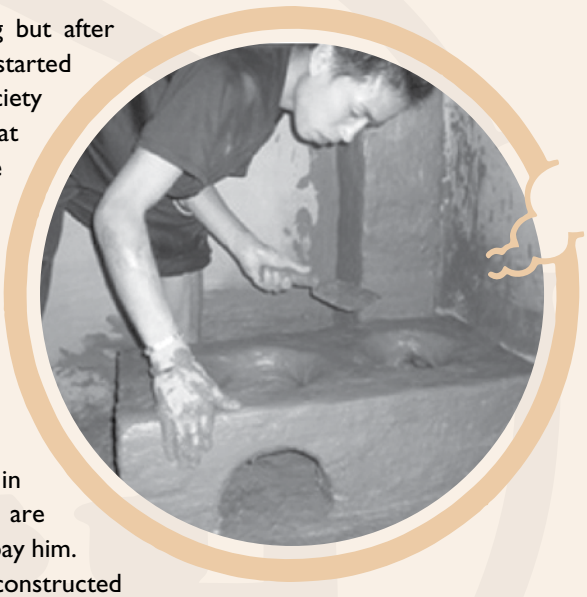
To promote ICS, Sushila has even constructed a number for free. For households which cannot pay her cash, she has built ICS in exchange for food grains. When she started this venture, she was frustrated. Now, the frustration has gone and Sushila is confident, excited and satisfied. She said that the income she earns from ICS construction goes to paying her sons' school fees, meeting household expenses, and paying insurance premiums. She borrowed NPR 10,000 and used her savings to buy a colour television and other gadgets. Over time, her service charge has also increased. "Earlier, I used to charge NPR 240 per ICS, but these days I charge between NPR 400 and NPR500," declares Sushila, and adds, "I also take my cut—NPR 10 for each stove for the fire-gate and outlet."

Today, Sushila is the top stove-master in Kapilvastu District. Rain or shine, Sushila is busy. In the rainy season, when it is too wet to sun-dry bricks, she constructs ICS using bricks she made in the winter. "This year, I could not construct 100 ICS as planned as the rainy season started early. Next year, I plan to construct 150 to 200 ICS," Sushila declared.

Learning ICS construction skills improves living standard

Story 25

Gyan Bahadur Limbu, a resident of Ward No. 4 of Jaljale VDC, Terathumn District trained to be an ICS promoter at a programme organised by Deurali Society with financial and technical assistance from Namsaling Community Development Centre. Jyoti Limbu writes about how the programme increased Gyan Bahadur's income and improved his standard of living.



Gyan Bahadur used to spend his days farming but after attending an ICS promoter training in 2009, he started informing people about ICS through Deurali Society and other cooperatives. He explained how that endeavour went: "In the beginning people were unwilling to have an ICS built, perhaps because of the cost, but I did not give up. I kept informing them about its good features until the gradually realised that ICS improves health and conserve the environment because they are smoke-free and use less firewood than a traditional stove. Then they began to ask me to construct ICS."

Gyan Bahadur has constructed above 130 ICS in his village and in neighbouring villages. People are impressed by his diligence and don't hesitate to pay him. More and more are grateful for the ICS he has constructed and praise his skill.

Gyan Bahadur is satisfied with his job. He observes, "I have been able to utilise my theoretical knowledge to earn a living. I have earned both money and fame. Learning how to make ICS is a good way of improving one's standard of living."

Villagers' "Small Brother" is the big brother of the ICS

Story 26

Villagers calls Chandra Bahadur Rawal "Sandai" ("Small Brother") possibly because he's short, but ICS users call him "Tuldai" ("Big Brother") for the attractive, top-quality ICS he makes. Since 2004, when he was trained in ICS construction and maintenance, he has already constructed 2,200 stoves in his own VDC, Shikharpur, Sindhupalchok District, and in nearby villages.

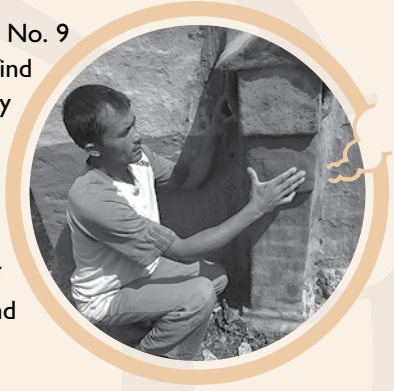
Chandra, a resident of Baguwa in Ward No. 7 of Shikharpur VDC, is the son of Ram Bahadur and Sita Rawal. He was born in 1972. Four years later, his father died and his mother sent him to live with his maternal uncle. He went to school until grade 7 and then was forced to drop out because he could not afford to pay for grade 8. After he married in 1990, Chandra was forced to migrate to India to earn a livelihood for his wife and two sons and two daughters. Because he could not find a good job, however, he returned home.

In 2004, Nawa Raj Sapkota of Community Development and Environment Protection Organisation informed him about a chance to participate in a training workshop for ICS promoters. This training finally provided him with an opportunity to earn a livelihood. Chandra now visits each household in target villages, promoting and constructing ICS. He proudly announces the number of ICS he has constructed—2,200—and the amount he makes each year—between NPR 90,000 and NPR 100,000. He and his seven-member family live happily on that income. Wishing that he himself had had more formal education, he sends his children to school. He has also built a house and purchased three ropani [0.14 hectares] of land.

Dharma Bahadur's dharma, or religious duty

Story 27

Dharma Bahadur is a happy man. He earns up to NPR 10,000 a month constructing ICS and supplements that income by selling recharge cards for mobile phones and operating a grinding mill. Dharma, whose name means "religious duty" in Nepali, feels that he has indeed done "dharma" by constructing ICS and alleviating the hardships that women once had to face while preparing meals on traditional, smoke-belching stoves.



Dharma has come a long way since his birth in 1975 in Ward No. 9 of Pakarwas VDC, Ramechhap District. He struggled to find remunerative employment in Kathmandu for three years only to return home because he was unable to make a living. With no means to feed the five other members of his family—his mother, wife, son, and daughter—Dharma was very worried indeed. Then, in his search for a means to earn a livelihood, he discovered that Community Development Society of Manthali had been running an ICS programme since 2004 and asked if he, too, could take part.

The ICS promoter training that he took part in in 2006 changed his life for the better. He now installs between 20 and 25 ICS and earns between NPR 8,000 and NPR 10,000 every month. He believes that, in comparison, the Gulf offers nothing for a labourer. On average, he speculated, a Nepali labourer in the Gulf earns between NPR 14,000 and NPR 16,000 a month, but since this sum is spent on medical treatment for family members and on the repayment of loans taken to fly abroad, many workers return home empty-handed. For Dharma, the case is different. Income from the ICS job has helped him diversify and augment his sources of income. He now operates a grinding mill and sells recharge cards for mobile phones. In fact, these days Dharma does not have to worry about feeding his family. With many sources of income, Dharma easily supports his family.

Dharma spends his days going to various villages equipped with his tools for ICS construction. When he sees women cooking on ICS instead of smoke-belching traditional stoves, Dharma feels that he has earned religious merit. Leaving the path of dharma is out of the question for Dharma Bahadur.

Krishna Bahadur: One of the successful promoter

Story 28

Eight years ago, thierty-five-year-old Krishna Bahadur Bhujel, a farmer and labourer, gave up his occupation to try a new venture: ICS promotion. These days, Bhujel is well known in Lamjung and Tanahun districts for being a successful promoter, as the field technical coordinator in Tanahun District, Padam Raj Khanal, explains.

Though he was born in India, Bhujel completed his primary education in Ghasikuwa VDC, Tanahun District, where he lived with his parents Man Bahadur and Phul Maya in Ward No. 5. He got no further formal education. He began to farm and work as a wage labourer, jobs he did—but not very prosperously—until 2004, when he participated in an ICS promoter training. The switch to this new occupation has, finally, brought prosperity to Bhujel. This farmer who once owned just half a hectare of near-barren land and a one-room hut now owns a four-room concrete house and has a regular source of income. What's more, his three children are getting a good education.

After completing the training, Krishna Bahadur installed an ICS in his own dwelling. With the benefits of ICS before his eyes, he had no problem convincing other villagers to switch to the improved stove. Krishna Bahadur that he had already installed more than 1,300 ICS and that, using his experience and expertise, he builds stronger and better ICS than the model he was taught to make. He charges NPR 200 to 700 depending upon size and types. He has also received prizes for good work and is now works as a advisor for district promoter's association.

ICS promotion: the ideal occupation

Story 29

Madan Raj Uchai Thakuri feels that constructing and installing ICS is the perfect job for him. Since receiving ICS promoter training, Thakuri, a former farmer, has pursued ICS construction as a socially responsible business and a source of income. His story is below.

Madan was born in 1969 to Hasta Bahadur and Mina Kumari of Ward No. 2, Bharatipur VDC, a remote and backward settlement in Nawalparasi District. He was the first of their sons. He earned his school-leaving certificate at a village school in 1984, but due to the family's poverty, was unable to continue his education. He taught at Kalika Primary School from 1986 to 1991 as a volunteer before switching to agriculture. In 1995, he married Sabitra despite the fact that, economically, he was not prospering. To repay the loan that he had taken for his wedding, he was forced to head to Delhi in search of work.

After five years of hard labour, he returned home in 2000 as poor as ever. Madan then thought of flying to the Gulf to work: he took a loan, got a passport, handed over money to a foreign employment agent and waited for a year to fly abroad. As his wait landed him nowhere, he returned to farming.

In 2009, Madan took part in a ICS promoter's training conducted by RRESC/Rural Empowerment Society of Damauli VDC and Sahamati Study Centre of Gaidakot VDC in Nawalparasi District and began raising awareness on the benefits of ICS and constructing them on demand. The RRESC and its partners, through monitoring and facilitation, encouraged and assisted Madan in his venture.

His wife added that the income he has earned through ICS construction has helped him meet household expenses and send his children to school. He's made more than 100 and charges NPR 500 for each. However, he gives a discount for poor households and builds ICS for neighbours in exchange for their labour.

Madan has trained new promoters. He also made a trip to six districts, including Tanahun, Kaski, Syangja, Palpa and Dhading, which inspired him to expand his business. These days, Madan constructs ICS in neighbouring villages, too. For promoting ICS, Madan has received prizes six times; his average annual prize money is NPR 4,000. Madan believes that his future is also ICS construction. He feels that what he is doing is similar to social service. He is still eager to improve his economic condition and wants to take training in fitting solar panels and producing bio-fuel in order to do so.

Well-educated youth takes up ICS promotion

Story 30

Janga Rai was born in Sidhithumka VDC in western Ilam. This Bachelor's degree-seeking 23-year-old gave up his job teaching and took up social work. Soon after he started to promote ICS when he realised the contribution these stoves make in conserving the environment and reducing indoor air pollution. Namsaling Community Development Centre's Prakash Khatiwada wrote of Janga's passion.

Known as the Land of the Sunrise and the Queen of the East, Ilam is Nepal's district with the most potential and the one where various great patriots have been born, including Janga Rai, the son of Tul Bahadur and Manmaya, who came into the world on 13 April, 1989.

From his childhood, Janga has been an introvert with an interest in social and political issues and literature. He completed his schooling at Janajyoti Boarding School is not pursuing a Bachelor's degree. He once taught but because he did not find teaching a very satisfying job, he quit and took up social work. In August 2009, he attended an ICS promoter training organised by Namsaling Community Development Centre. Ever since, he has dedicated himself to promoting and constructing ICS in his village so that he can see Sidhithumka become indoor air pollution-free.

Janga believes that the ICS plays a vital in controlling many environmental problems, primarily deforestation and indoor air pollution. He has built more than 200 ICS in western Illam. He said that the money he had earned had helped him support his wife and his new child, born soon after his marriage in 2010.

Janga also believes in the concept "together we can" and works with other promoters devoted to the biomass energy sector. They have registered the Biomass Energy and Environment Conservation Forum to promote ICS in partnership with Namsaling Community Development Centre in 12 VDCs of Illam District.

The active participation of young people like Janga will definitely contribute to the development of the biomass energy sector.

From idle loafer to productive ICS promoter and entrepreneur

Story 31

At one time, roaming around the village was the sole "occupation" of Dundi Raj Sapkota of Ward No. 3 of Bharaul VDC. But that changed after he took part in an ICS promoter training, organised by Namsaling Community Development Centre with support from the AEPC/ESAP. Nowadays he is busy promoting and constructing ICS.

Reflecting about his past, Dundi Raj explained how much his ideas had changed: "Even while I was taking part in the ICS promoter training, I thought that I would not be going anywhere, that I would just construct ICS in my house and in the kitchens of a few neighbours. However, as the demand for ICS increased, the ICS business became my profession. In fact, I am thinking of institutionalising my business. I am very happy with what I am doing."

At his workshop, Dundi Raj and his family as well as two hired workers work busily to make bricks for ICS and chimneys. For each brick they make, Dundi Raj pays his workers NPR 1; thus, through ICS promotion, he has generated employment opportunities in his village. His family of five members has also started a poultry farm with 100 chickens.

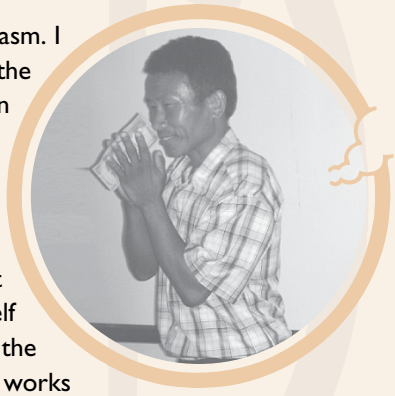
Dundi Raj keeps himself busy throughout the day, promoting ICS and searching for households which want to have a new stove constructed in their kitchens. He never gets tired of singing the virtues of ICS. Thus, whenever he enters Bangebagar, people start shouting, "Chulo ayo, Chulo ayo," referring to his arrival as the arrival of the "Stove-maker." He is overjoyed when he hears these words.

Name and fame through ICS

Story 32

Though he was born in a very poor family indeed, Bir Bahadur Chepang has earned about NPR 300,000 by constructing 1200 ICS. He has paid off all his debts and has bought about a hectare of land for himself. He narrates the story of his struggle below.

My name is Bir Bahadur Chepang. I was born in 1963 in Ward No. 5 of Mahadevstan VDC, Dhading District. I am the third son among the six sons and three daughters of Mohan Lal and Lali Maya. Until 2005, when I participated in an eight-day ICS construction training conducted by the Centre for Rural Technology/Nepal, agriculture was my main occupation. Since then, however, I have visited many villages to construct ICS. Whenever I leave home, I always carry the tools I need to promote and construct ICS—a mould key, a knife, and a measuring tape.



I always tell others about the importance of ICS with great enthusiasm. I have constructed more than 1200 stoves in my village as well as in the neighbouring villages of Benighat and Gajuri. Taking into consideration how much labour is involved and the type of stove I am constructing, I charge between NPR 250 and NPR 700 for each ICS. I have probably earned more than NPR 300,000 doing this job. That income pays for household expenses, my children's education, medical treatment, and house maintenance and even paid to outfit my home with solar power I also bought a piece of land for myself and paid off all my debts. I am proud that I am the first person in the village to have taught children in the secondary level. My daughter works with the Chepang Association. That certainly is good news.

I also got the opportunity to participate in an exposure visit organised by the Centre for Renewable Technology Nepal. My travels increased my knowledge of ICS. I also received second prize and a letter of appreciation from that organisation for the quality and the quantity of my output. I am now a member of the Dhading Promoters' Association. Recognising my contribution to society, many people have asked me to be involved in various social organisations.

I am pleased that I contribute toward conserving the environment and promoting women's health through ICS construction. I feel that I have helped rural women to reduce their work load by constructing ICS; with traditional stoves, they had to walk long distances in search of firewood and spend a lot of time cooking. I have also prevented them from developing respiratory diseases and eye problems. When I visit places promoting ICS with posters, calendars, and users' manuals, I feel that I overwhelmed with the respect that locals accord me. I am grateful for the name and fame I have earned through ICS construction.

ICS promotion–a socially responsible business

Story 33

Sikendra Pandit, a resident of Pipradhi, Bara District, has earned about NPR 30,000 constructing 96 ICS. He sees his work as a lifestyle as much as a profession and is proud to be doing something that helps society so much. Below he describes his experience.

My name is Sikendra Pandit. Because I am from a poor farming family, agriculture is my profession and hard work, my reality. In December 2010, I got the opportunity to participate in an ICS stove-master training organised for a business group by the Health and Environment Protection Centre with support from the AEPC/ESAP. Later, as part of a capacity-building initiative provided to me as the coordinator of Shree Gadhimai Energy Group, I participated in a five-day training in institutional stove construction. These training sessions taught me to construct household and institutional stoves. Nowadays, I construct, maintain, and market ICS and give advice on kitchen management. I do not hesitate to say that ICS promotion is both my profession and my lifestyle.

As a promoter, I inform people of the benefits of ICS whenever and wherever I get the opportunity to do so and, as per their demands, build ICS. Thus far, I have constructed more than 100 ICS in Pipradhi, Bariyapur, South Jhitkaiya, Piparpati and Telkunwa VDCs. I am working towards making my own VDC, Pipradhi, indoor air pollution- free by constructing an ICS in every household. I believe in hard work and honesty, so I construct stoves taking family size into consideration and always maintaining quality. People appreciate my ICS and call me "Stove-Master" rather than Sikendra.

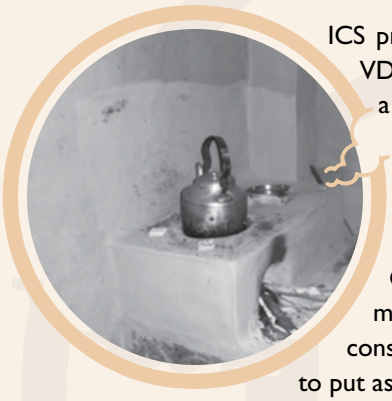
My confidence has increased as I have grown more experienced. I am proud to say that I have good job near home because of my new skill. I distribute posters, calendars, and users' manuals to promote awareness among locals. I expect that my income will increase as locals become more aware.

By building ICS, not only do I have employment but have protected women and children from eye problems and respiratory ailments and saved them cooking time and firewood. Who can deny that ICS promotion is a socially responsible business?

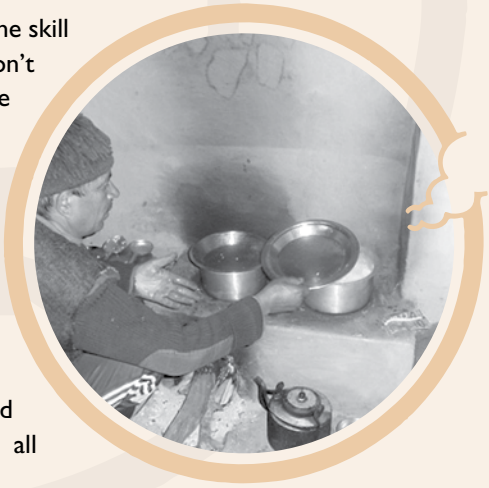
ICS promotion improves living standard

Story 34

"Health is wealth" they say, but to live healthily one needs a healthy environment. Fortunately, ICS can help create one. ICS not only improve health, especially that of women and children, but also create rural employment and conserve forests. Based on her conversation with ICS promoter Rohini Dhakal, the field technical coordinator in Tehrathum District, Joyti Limbu, writes of the benefits of ICS.



ICS promoter Rohini Dhakal, a resident of Ward No. 2 of Morahang VDC, now has a better standard of living thanks to her job. She owns a small house and a piece of barren land, but to make a livelihood to support her six-member household, she used to struggling, living a hand-to–mouth existence. Now, however, after participating in an ICS promoter training organised by Deurali Society in Tehrathum with support from the Namsaling Community Development Centre, Rohini is self-employed. He constructs 15 to 20 ICS per month, getting paid NPR 500 per stove. Laborish Rohini has constructed around 356 ICS and earned NPR 175,000. This is enough to put aside some savings after taking-care of household expenses.



He identified some of the benefits of his new job: "With the skill I have learned, I am able to send my children to school. I don't think they'll ever be unemployed because they will be educated. I am very happy I can send them to school. I am also happy to have developed better social relationships and broader social networks." A hard worker, Rohini has received many awards, including one for begin the best promoter, and was selected to be trained to build institutional cook stoves.

He pointed out that ICS improve family health, keep kitchens clean, provide employment in the village, and create a clean environment and recommended that all households make one in order to change their lives.

A worthwhile investment

Story 35

Khamba Bahadur Thapa, originally of Lakuri Um VDC in Dailekh District, now resides in Ward No. 9 of Latikoili in Surkhet District, where he both farms, and, part-time, promotes ICS. Though he was once known only as a farmer, today he is well known in Dailekh and Surkhet districts as a very busy businessperson.

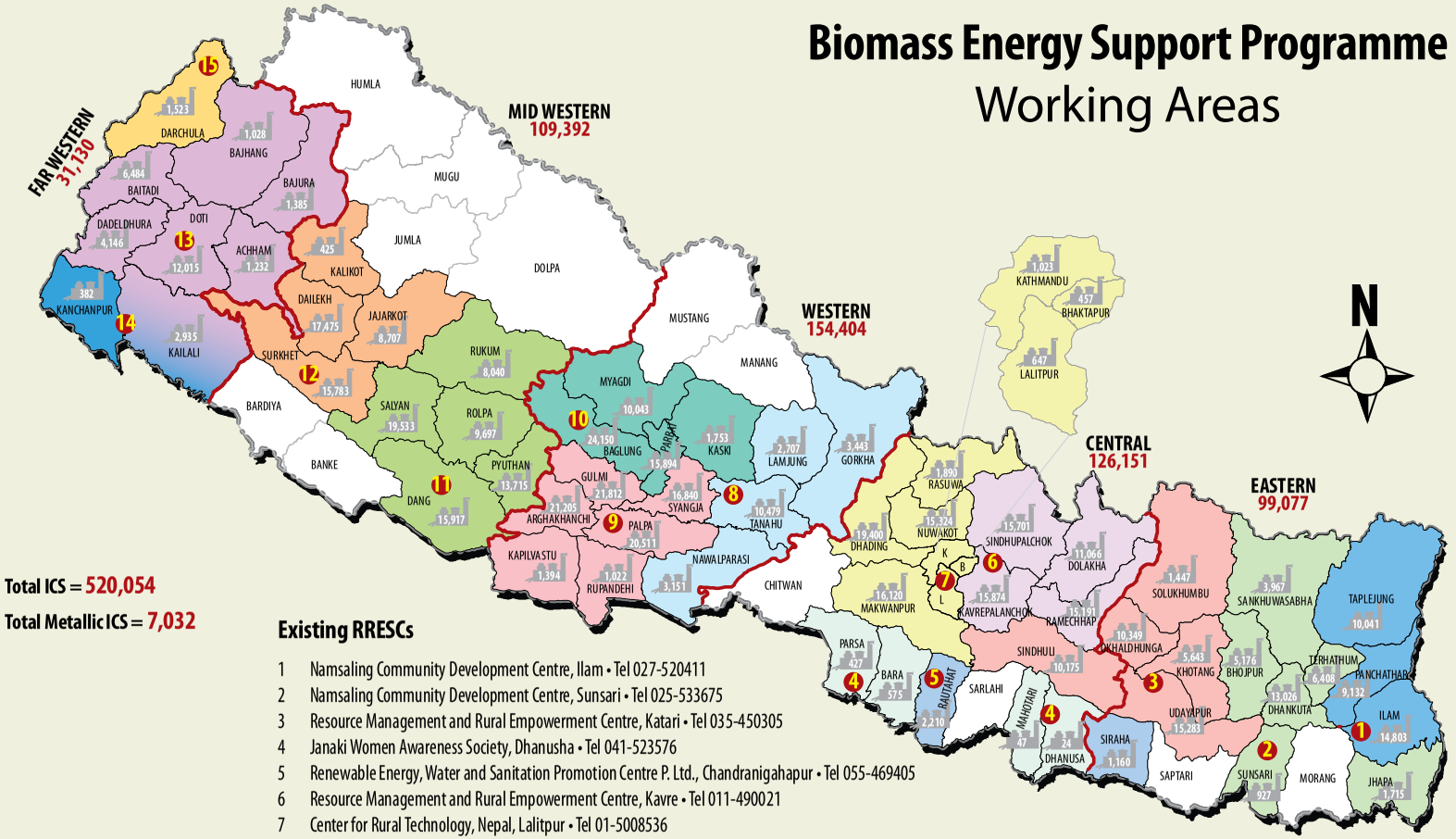
In 2001, Khamba Bahadur participated in an ICS promoter training held in his village because he was not earning enough from farming. Though ICS construction is a completely new profession for him, he does not find it difficult to sustain himself doing it because locals follow the custom of installing and performing a religious ritual for their new stoves as a good sign for the beginning of new things. He stated, "I have constructed 1,800 ICS so far. The custom of worshipping new stoves as a way of starting over has become a source of inspiration and an opportunity for me to thrive." He explained that he uses his skill in addition to his theoretical knowledge in order to introduce innovations: "I mix salt, sugar, and goat hair with mud to make it stronger and, still preserving the same basic look of the stove, I design various types of ICS that are suitable for any kind of interior. He calculates that the cost of a stove is NPR 100 for the ring, NPR 150 for the chimney outlet, and NPR 100 for salt, sugar and got hair. He adds NPR 350 as his wage and charges NPR 700 for each stove. For those who have little income, he charges only NPR 250. He also barters, exchanging his service with goods. He is famous for building top-quality ICS and for his friendliness.

In response to a question about how ICS are promoted at the local level and whether or not villagers are willing to pay the actual cost of the stove, Khamba Bahadur explained that they are because the AEPC/ESAP through its partner RRESC/Sundar Nepal in Surkhet District has provided the necessary training, equipment and information, education and communication materials for ICS promotion. He admitted, though, that at first they are reluctant but that after he had persuaded them of the benefits that an ICS will bring to their lives, they agree to pay. He added, "Why would people need any financial support for making a stove that benefits them personally?" He thinks that a user's personal investment in an ICS makes him or her responsible for its effective and efficient use. Khumba Bahadur is pleased by how unexpectedly successful his ICS business has been over the last decade.

Pre-Qualified Manufacturing Companies

SN	Name	Address	Phone No.
1	Banepa Metal Udhyog	Banepa-5 Shree Marga	011-660435
2	Chandra Metal Industries	Ranipauwa- Pokhara	061-534788
3	Development Trade Link	Teku- Kathmandu	01-4671657
4	Karnali Vidhut and Metal Workshop Pvt. Ltd.	Chandan Nath - 6 Jumla	087-520261, 690216
5	Mustang Engineering Metal Work Shop	Prithivi chowk, Pokhara	061-531430
6	National Structure and Engineering Pvt. Ltd.	Patan Industrial Area, Lalitpur	01-5542393
7	Rijwan Engineering Udyog	Nepalgunj, Banke	081-522052
8	Shree Dhungeshowari Mechanical Workshop	Jiri-7, Dolakha	049-690495
9	Siddhartha Engineering Works	Industrial Area Nepalgunj	081-523017
10	Shanti Engineering Works	New Road , Pokhara	061-521305
11	Shree Singha Bahini Metal Works and Energy	Jirikhamti-1 Terhathum	026-460485
12	Sindhu Urja Prabardan Kendra Pvt. Ltd.	Ichok-6, Sindhupalchowk	01-2054100
13	Sun Works Nepal	Balkhu, Kathmandu	01-4330854
14	Trishul Agri-tools and Engineering Pvt. Ltd.	Dhapasi-8 Kathamandu	01-2151557
15	Nepal Energy Development Company Pvt. Ltd.,	Ekantakuna, Lalitpur/ WS: Bharatpur, Choubish kothi	056-527663
16	Prabidhi Uthan Engineering Kendra (TUEC)	Hetauda, Makwanpur	057-522880
17	Gramin Urja Tatha Prabidhi Sewa Kendra	Kumaripati, Lalitpur	01-5008536
18	Krishna Grill & Engineering Works Pvt. Ltd.	Biratnagar, Morang	021-471492
19	Panchakanya Metal Engineering	Pokhara, Kaski	061-527797
20	Gorkha Energy and Environment Pvt. Ltd.	Palungtar, Gorkha	01-438096
21	Malika Engineering & Mechanical Works	Dhangadhi, Kailali	091-525330
22	Motherland Engineering Group Pvt. Ltd.	Kalanki, Kathmandu	01-4385585
23	S.K. Engineering Industries,	Butwal, Rupandehi	071-548305
24	Jagdamba Engineering Works,	Nepalgunj, Banke	081-522184
25	Metal Nepal,	Siddhartha Nagar, Rupandehi	01-4354981
26	Nilkantha Technology Solution Pvt. Ltd	Dhading besi, Dhading	010-520782
27	REWSSPC	Chandranigahpur, Rautahat	055-690405
28	Centre for Rural Energy Promotion and Environment Technology Service (CREPETS)	Kalaiya, Bara	051-533728
29	Shree Trishakti Engineering Workshop,	Phidim, Panchthar	9742608061
30	Ananta Iron Industries,	Dharan, Sunsari	025-521563
31	Himali Power Development Pvt. Ltd.,	Narayangarh, Chitwan	056-692893
32	Shree Aditya Grill Udhyog	Ilam	027-520722

Biomass Energy Support Programme
Working Areas



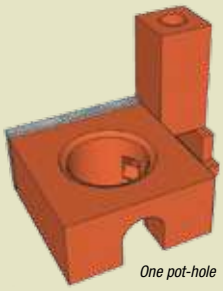
Total ICS = 520,054

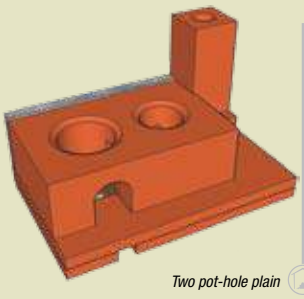
Total Metallic ICS = 7,032

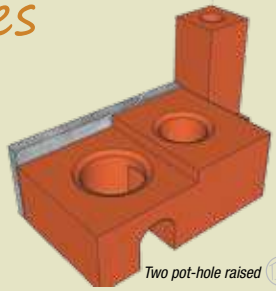
Existing RRESCs

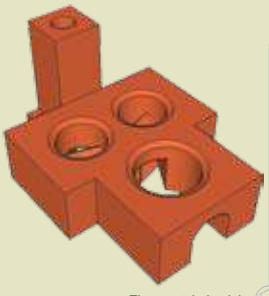
1 Namsaling Community Development Centre, Ilam • Tel 027-520411
2 Namsaling Community Development Centre, Sunsari • Tel 025-533675
3 Resource Management and Rural Empowerment Centre, Katari • Tel 035-450305
4 Janaki Women Awareness Society, Dhanusha • Tel 041-523576
5 Renewable Energy, Water and Sanitation Promotion Centre P. Ltd., Chandranigahapur • Tel 055-469405
6 Resource Management and Rural Empowerment Centre, Kavre • Tel 011-490021
7 Center for Rural Technology, Nepal, Lalitpur • Tel 01-5008536
8 Rural Empowerment Society, Tanahu • Tel 065-560539
9 Rural Economic Development Association, Palpa • Tel 075-520365
10 Dhaulagiri Community Resource Development Centre, Baglung • 068-520543
11 Development Concern Society, Dang • Tel 086-440148
12 Beautiful Nepal Association, Surkhet • Tel 083-520926
13 Rural Development Service Centre, Doti • Tel 094-440045
14 Kailali Kanchanpur Rural Electrification Umbrella Organisation, Kailali • Tel 091-550771
15 District Energy and Environment Section, Darchula • Tel 093-420277

Biomass Energy Technologies


One pot-hole


Two pot-hole plain


Two pot-hole raised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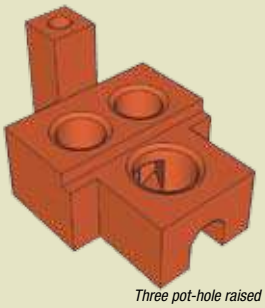
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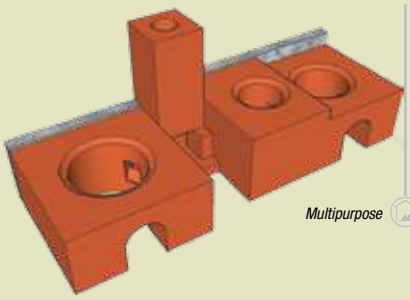
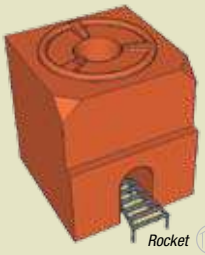
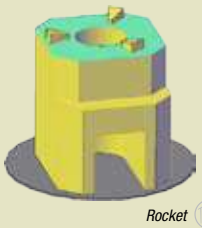
Institutional ICS


Multipurpose


Rocket


Rocket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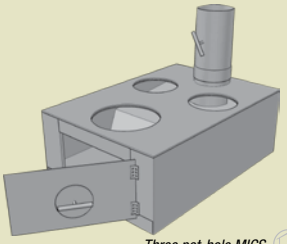
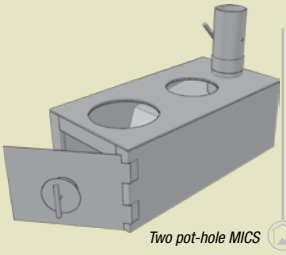

Three pot-hole MICS


Institutional Gasifier


Two pot-hole MICS

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Biomass Energy Support Program

Alternative Energy Promotion Centre/Energy Sector Assistance Programme

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