Entrepreneurship opportunities created for 2800 Women entrepreneurs.

Created awareness among 5,000,000 through mass awareness, local campaigns using various media.

Installed 30 hydraulic ramp pumps for irrigation and drinking water.

More than 9,000 Improved Water Mills constructed in the remote areas.

3,50,000 ICS (Mud made and Metallic) promoted in more than 32 districts.

Entrepreneurship opportunities created for 2800 Women entrepreneurs.

Installed about 400 rural electrification through Pico Hydro System.

Annual Report 2018
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Published by
Centre for Rural Technology, Nepal (CRT/N)
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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>AEPC</td>
<td>Alternative Energy Promotion Centre</td>
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<td>CBOs</td>
<td>Community Based Organizations</td>
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<tr>
<td>CISU</td>
<td>Civil Society in Development an Association of Danish CSOs Working in Development</td>
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<td>CREE</td>
<td>Community Rural Electrification Entity</td>
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<td>CRT/N</td>
<td>Centre for Rural Technology, Nepal</td>
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<td>CSOs</td>
<td>Civil Society Organizations</td>
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<td>DCC</td>
<td>District Coordination Committee</td>
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<td>DFID</td>
<td>The Department for International Development</td>
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<td>DIB</td>
<td>Danish International Human Settlement Service, Denmark</td>
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<td>DoHS</td>
<td>Department of Health Services, Denmark</td>
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<tr>
<td>EnDev/GIZ</td>
<td>Energizing development/ German Corporation for International Cooperation</td>
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<td>ENERGIA/Hivos</td>
<td>International Network on Gender and Sustainable Energy /Humanist Institute for Cooperation with Developing Countries</td>
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<td>GACC</td>
<td>The Global Alliance for Clean Cookstoves</td>
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<td>GESI</td>
<td>Gender Eqality and Social Inclusion</td>
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<td>GoN</td>
<td>Government of Nepal</td>
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<td>HAP</td>
<td>Household Air Pollution</td>
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<td>IAPHF</td>
<td>Indoor Air Pollution and Health Forum, Nepal</td>
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<td>ICS</td>
<td>Improved Cookstoves</td>
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<td>ISO</td>
<td>International Organization for Standardization</td>
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<td>IWM</td>
<td>Improved Water Mill</td>
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<td>IWME</td>
<td>Improved Water Mill with Electrification</td>
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<td>kW</td>
<td>Killo Watt</td>
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<td>L&amp;A</td>
<td>Lobby and Advocacy</td>
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<td>LFIs</td>
<td>Local Finance Institutions</td>
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<td>MFIs</td>
<td>Microfinance Institutions</td>
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<td>MoFALD</td>
<td>Ministry of Federal Affairs and General Administration, Nepal</td>
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<td>NACEUN</td>
<td>National Association of Community Electricity Users Nepal</td>
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<td>NEA</td>
<td>Nepal Electricity Authority</td>
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<td>NEFEJ</td>
<td>Nepal Forum of Environmental Journalist</td>
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<td>PA</td>
<td>Practical Action</td>
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<td>RE</td>
<td>Renewable Energy</td>
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<td>RETs</td>
<td>Renewable Energy Technologies</td>
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<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>SE4ALL</td>
<td>Sustainable Energy For All</td>
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<td>SNV/Nepal</td>
<td>Netherlands Development Organization Nepal</td>
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<td>T&amp;A</td>
<td>Transparency and Accountability</td>
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<td>ToT</td>
<td>Training of Trainers</td>
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<td>UNF</td>
<td>United Nations Foundation</td>
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<td>UNFCCC</td>
<td>United Nations Framework Convention on Climate Change</td>
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<td>USAID</td>
<td>The United States Agency for International Development</td>
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<td>USD</td>
<td>United States Dollar</td>
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<td>VDC</td>
<td>Village Development Commitee</td>
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<td>WEs</td>
<td>Women Enterpreneurs</td>
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<td>SCI</td>
<td>Solar Cooker International</td>
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<td>ICIMOD</td>
<td>International Centre for Integrated Mountain Development</td>
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<td>ICT</td>
<td>Information Communication Technology</td>
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<td>INforSE</td>
<td>International Network for Sustainable Energy Network</td>
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<tr>
<td>GewNet</td>
<td>Gender, Energy and Water Network</td>
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<td>INSEDA</td>
<td>Integrated Sustainable Energy and Ecological Development</td>
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<td>CANSA</td>
<td>Climate Action Network South Asia</td>
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<td>WB</td>
<td>World Bank</td>
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<td>CEEN</td>
<td>Centre for Energy and Environment, Nepal</td>
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<td>EERDC</td>
<td>Energy Environment Research and Development Centre</td>
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Improved Cookstoves (ICS) are more efficient, consume less wood, emit less emission and safer than traditional Cookstoves or three stone fire. Improved Cookstoves can be designed and built in various ways, depending on the local conditions and has multiple benefits, food can be prepared in less time thus saves time and can do other productive activities in this time. It releases less smoke; improves health as well, this also contributes in preservation of forests and associated ecosystem services, and in reducing emissions that contribute to global climate change.
Women entrepreneur selling ICS

Sewing cloth after entrepreneur training

Grain grinding from electric grinder

Women employees packing the products
Message from The Chairperson

Dr. Ananda Shova Tamrakar

Fiscal Year 2017/18 (2074/75 B.S) has been a remarkable year. We have reached many milestones but importantly, we have enabled more people specially women and remote community to achieve their own goals for the betterment of their livelihood. Since establishment, we have developed 2800 women entrepreneurs, provided awareness about renewable energy, climate change, and environment friendly technologies to around 5,000,000 people, constructed and distributed more than 3,50,000 ICS (Mud and Metallic), built 9000 IWM, 50 IWME and 30 hydraulic ramp pumps. My special thanks to our Development Partners, committed community people, dedicated management team, board members and staff who made it so.

Centre for Rural Technology, Nepal (CRT/N) was formed with the mission of developing, promoting and disseminating environmentally sound rural/appropriate technologies and strengthens capability of rural communities in creating better opportunities through mobilization of local resources to improve their livelihood conditions.

CRT/N specially enforces Rural Energy Technologies (RETs), local resources and environment friendly methodologies to uphold the economy, health and living standard of rural people. CRT/N also enforces gender sensitive approaches to encourage women and other disadvantaged groups. This year we have successfully completed various activities to promote locally available environment friendly technologies like solar dryer, rain water harvesting, plastic tunnel, drip irrigation, waste management, bee keeping, organic farming etc. Also, CRT/N is conducting various programmes to create awareness on renewable energy, gender and RETs among general public, policy makers and local leaders. One of the major achievements is that a municipality has integrated eco-village plan in its annual plan and has allocated budget for this, after being influenced by the RETs advocated by CRT/N.

We are deeply grateful to our many donors and partners for maintaining their financial and personal support to CRT/N programmes, and particularly those who have renewed, and in some cases extended, their commitment. We welcome those who look forward to working with us in tackling the complex needs of rural and remote communities.
It is our immense pleasure to present CRT/N’s Annual Report of the activities undertaken during the year 2017/18 (2074/75 B.S.). This report highlights CRT/N’s programmes as well as technical and institutional services provided for the promotion of rural and renewable energy for improvement of livelihood of rural communities in Nepal. Since its establishment in 1989, CRT/N has been engaged in developing and promoting appropriate rural / renewable energy technologies effective in meeting the basic needs and improving livelihood of rural communities. By realizing the importance of mainstreaming gender in the energy programmes, CRT/N has dedicated itself by integrating the gender issues in its programmes since 2004. Over the years, the importance and addressing of gender issues has increased enhancing effectiveness of the programmes. From capacity building to policy influencing, CRT/N has advocated and adopted various tools and mechanism to ensure that the core essence of gender in energy programmes remain crucial.

This year, CRT/N, with policy support of the Alternative Energy Promotion Centre (AEPC) of the Government of Nepal and in cooperation and collaboration of its partner organizations and stakeholders, has successfully completed six major programmes: Promoting Women-led Enterprises for Energy Access and Local Production (September, 2014 – March, 2018, WEE-Nepal), Energy: Empowering Women Uplifting Lives (January, 2015-March, 2018 Advocacy Project), ADB GRANT-9158 REG (2012-2014 extended phase completed in August, 2017), Rural Community Electrification with Water Mill and Micro Enterprise Development in Nepal (April, 2016-December, 2017), Product Development and Labeling of Clean Cookstoves and Standardized Biomass Fuels for Nepali Market (August, 2015 – February, 2017), Eco-village Development (January, 2015- July, 2017). These programmes have prioritized in policy advocacy, mass education and awareness, developing technical skills and institutional capabilities of the rural communities and stakeholders to support and ensure increased access to modern cooking services and other rural and renewable energy services including off-grid electricity supply through improvement and installation of improved water mills and pico/micro hydro systems. These initiatives have contributed in creating employment and income generating opportunities thereby developing rural enterprises, empowering local energy entrepreneurs through women-led businesses and in creating meaningful impacts in the lives of rural communities.

CRT/N, in collaboration with partner organizations, has continued to be engaged in the implementation of new programmes such as Green and Inclusive Energy (GIE) Programme (October, 2016 – December, 2017) which has now been extended up to December, 2020, EVD (Phase II, September 2017-June 2018), "Improving Rural Livelihoods in Nepal with Pico-Hydro Electrification and Improved Water Mill” (July 2018- September 2018) and emPOWER Project (July, 2018- June, 2019).

These initiatives support Government of Nepal's National Goal on “Clean Cooking Solutions for All”, Sustainable Development Goals (SDGs), United Nation’s Sustainable Energy for All (SE4ALL).

Finally, I would like to take this opportunity to express my sincere gratitude to all the Government organizations, sponsors, collaborators, partners and well-wishers for their continued cooperation, support and encouragement especially to National Planning Commission, Ministry of Population and Environment, Ministry of Energy, Alternative Energy Promotion Centre, Social Welfare Council, Nepal Electricity Authority, ENERGIA/Hivos, the World Bank, SNV/Nepal, EnDev/GIZ, CISU, DIB, GACC, ADB, NEFEJ, NACEUN, PAC, PA, RECON, IAPHF, University of Illinois, Kathmandu University, University of Illinois and Jhon University, DCC, Town and Rural Municipalities, National and Local Partner Organizations, Local Communities and Community-based Organizations (CBOs), Civil Society Organizations (CSOs) and Private Sector Organizations.

My special thanks to the CRT/N’s General Assembly and Governing Board for continued cooperation and support and sincere appreciation to all the staff members for their cooperation, hard work and dedication.
Introduction to CRT/N

**Background**

Centre for Rural Technology, Nepal (CRT/N) is a professional non-governmental organization engaged in developing and promoting appropriate rural technologies effective in meeting the basic needs and improving livelihood of rural people. Established in August 1989 under the Company Act, CRT/N has been re-registered with Government of Nepal (GoN) under the Social Organization Registration Act 2034 since October 1998. The organization is actively engaged in upgrading traditional technologies as well as developing new technologies with diversified and versatile applications to meet rural needs.

**Vision**

CRT/N as a professional / innovative organization and knowledge centre in renewable energy / appropriate technology delivering quality services to local communities for improving their livelihoods.

**Mission**

Develop, promote and disseminate environmentally sound rural / appropriate technologies and strengthen capability of rural communities in creating better opportunities through mobilization of local resources to improve their livelihood conditions.

**Objectives**

- Promote and disseminate rural/appropriate technologies to meet the basic needs of the people and improve their quality of life.
- Conduct adaptive and action-oriented research on indigenous and improved rural / appropriate technologies.
- Train and transfer technical information and know-how on production, installation and management of rural / appropriate technologies.
- Assist in development of technical and institutional capabilities for sustainable development.
- Provide technical support and consulting services in the field of rural energy and environment conservation and climate change.

**Area of Specialization**

Development and promotion of rural / appropriate and Renewable Energy Technologies (RETs):

- Household, commercial and institutional Improved Cookstoves (ICSs) (fixed type, prefabricated portable rocket stoves, metallic stoves);
- Briquette, pellet and charcoal;
- Improved Water Mill (IWM) with diversified end uses including electrification;
- Hydraulic ram pump;
- Solar cookers / dryers;
- Other appropriate and rural technologies
CRTN’s Priority Themes
All the Programmes / Projects running under CRT/N are focused on the following priority themes:
1. Total Access to Energy (through intervention of technologies; Improved CookStove (ICS), Improved Water Mill (IWM), and Hydraulic Ram Pumps (Hydram));
2. Household Air Quality;
3. Gender Equality and Social Inclusion (GESI) in Energy Sector;
4. Community Water Management;
5. Climate Change- Adaptation and Mitigation;
6. Productive End Use- Employment and Income Generation

Regional / International Activities
CRT/N has been involved at the regional and international level activities through the following networks, extension of technical supports and services:
- **International Network on Gender and Sustainable Energy (ENERGIA), the Netherlands:** ENERGIA links individuals and groups concerned with energy, sustainable development and gender;
- **Gender, Energy and Water Network (GEWNet):** In the capacity of the National Focal Point of ENERGIA for Nepal, CRT/N has been managing the GEWNet since 2002;
- **International Network for Sustainable Energy (INforSE), Denmark:** CRT/N is the National Focal Point for Nepal since 2005;
- **Nexus Carbon for Development, Singapore:** CRT/N is the Founding Member since 2008;
- **Global Alliance for Clean Cookstoves (GACC):** Through its support to RTKC at CRT/N, it has been supporting in the formation of International Standards on Clean Cookstoves and Cooking Solutions.

Membership
- Energy for All Partnership
- Gender and Water Alliance (GWA), the Netherlands
- Global Alliance for Clean Cookstoves (GACC), USA ; Implementing Partner
- Nepal Alliance for Clean Cookstoves (NACC) Nepal
- Global Village Energy Partnership (GVEP), UK
- International Union for Conservation of Nature (IUCN), Switzerland
- Partnership for Clean Indoor Air (PCIA), USA
- Solar Cookers International Association, USA
- The Mountain Fund, USA
- World Council of Renewable Energy (WCREE), Germany
- Global Gender and Climate Alliance Nepal (GGCAN)
- Indoor Air Pollution and Health Forum, Nepal
- The Alliance of Civil Society Organizations for Clean Energy Access (ACCESS Coalition)
- Climate Action Network South Asia (CANSA)
Programme Highlights

1. Promoting Women-led Enterprises for Energy Access and Local Production (WEE-Nepal)

CR/N as the lead organization along with National Association of Community Electricity Users-Nepal (NACEUN) and Practical Action Consulting (PAC) has been implementing the project “Promoting Women-led Enterprises for Energy Access and Local Production: WEE-Nepal”. Alternative Energy Promotion Centre (AEPC)/ Government of Nepal (GoN) has given policy support. This project is supported by ENERGIA, the International Network on Gender and Sustainable Energy hosted by Hivos, the Netherlands under its Phase 5 programme framework “Scaling up Energy Access through Women’s Economic Empowerment (WEE)” with funding from SIDA, NORAD and Ministry of Finance Finland. The project was implemented in the six districts: Khotang, Udayapur, Sindhuli, Kavrepalanchok, Lalitpur and Dhading.

Local Organization Promoting Women Entrepreneurs

Shree Bhumlu Salle Samaj Kalyan Samiti, Bhumlu Salle, Kavrepalanchowk has mobilized its own resources to impart skill training and income generation. It is a small community rural electrification entity (CREE) affiliated with National Association of Community Rural Electricity Users Nepal (NACEUN) and manages operation of grid electricity in the local areas. The CREE has taken initiative to promote woman entrepreneurs after its partnership with WEE-Nepal project from 2014. WEE-Nepal project sensitized the executives of the CREE regarding need for promotion of enterprises for benefit of financial health of the CREE itself as its revenue would increase through increased sales of electricity.

In order to institutionalize the woman entrepreneurship initiatives, the CREE has established a Woman Entrepreneurship Development Fund setting aside a small amount from its own resources. Establishment of the Fund has encouraged woman entrepreneurs to deposit some of the savings in the Fund on monthly basis. The woman entrepreneurs were benefited from the Fund in terms of receiving small loans at nominal interest rate. In an area where no financial institution exists, the Fund provided easy access to finance to the woman entrepreneurs.

The CREEs were motivated to have Local Government, Village Development Committee (VDC) in their channel. VDC has added USD 1500 (NRS 169,377.83) as grant last fiscal year to grow the Fund. CREEs expects to receive further coordination with the local government in future as well.

Poultry farm run by women entrepreneur
Achievement in brief

Energy Access Component
- 292 women sold or installed 36,257 ICS benefitting 181,345 Consumers.
- 119 Users and 6 Vendors received total loan amount equivalent to 13,825 EUROS through 6 different LFIs.
- More than 60 percent of WEs with positive profit margin.
- Self-confidence has been improved. 98 percent of them are making major business decisions (Client Satisfaction Survey, REWNET, 2016).
- 77 percent WEs are involved in major household decision-making. (Final Evaluation Survey, Scott Wilson Nepal, 2017).
- Some WEs emerged as true entrepreneurs serving large number of customers, and recognized by local agencies as stove entrepreneurs.

Productive End Use Component
- 227 WEs received total loan amount equivalent to 195,535 EUROS through 35 different LFIs.
- No defaults on loans taken by WEs (Final Evaluation Survey, Scott Wilson Nepal, 2017)
- More than 100 WEs registered with relevant government agency and known in the business community.
- 78 percent of WEs with positive profit margin
- 84 percent of WEs taking business decisions for their enterprise
- 87 percent of WEs taking decisions on household purchases
- Employment to 77 local people
- % of WEs satisfied by project support given:
  Excellent=35%
  Good=50%
  Satisfactory=13%
(Source: Client Satisfaction Survey, REWNet Report, 2016)
2. Energy: Empowering Women Uplifting Lives (Advocacy Project)

Energy: Empowering Women, Uplifting Lives is an advocacy project, an initiative to advocate and lobby for the integration of gender and social inclusion into national energy policies and programmes in Nepal. It was funded by International Network on Gender and Sustainable Energy (ENERGIA/Hivos). In Nepal, the project was led by CRT/N in partnership with Nepal Forum of Environmental Journalists (NEFEJ) and National Association of Community Electricity Users-Nepal (NACEUN). The project sets on the ground for the promotion of sustainable and inclusive energy systems in Nepal by raising public awareness and through the capacity building of SE4All stakeholders on the nexus between gender, sustainable development and renewable energy at national, community and household levels.

Findings from the Baseline Assessment of 130 CSOs

- The CSOs have very low confidence in state level support; present level of support is very limited. Similarly the state level dialogue too takes place on an ad hoc basis.
- Of the several activities the CSOs focus on advocacy, campaigning and lobbying for societal issues, human rights, budget allocation and on increasing access to energy. However, majority claim that their activities are not discernible and having very little impact.
- Though there were no direct questions related to policy reform / influence, the CSO activities in this sector have been proclaimed to be having very little impact. This factor also leads one to conclude that policy influencing or policy reform related activities face the same result.
- There is a balance in the percentage of CSOs highly claiming that activities related to gender equitable approach and it is having an impact and those that claim that the impact is low. Similarly, on activities on empowering the CSOs are actively involved in various empowerment activities however impact are less discernible.
- From this analysis it is evident that CSOs as an important arm of the state activities is yet to be fully recognized at the state level. This will require policy influencing as well as lobbying for a stronger position in the national development process.

Introduced Students-led Gender and Renewable Energy Activities

Advocacy project conducted school awareness programmes at various schools of Sindhuli, Udayapur, Dhading, Lalitpur and Kavre districts and sensitized 23,500 students and teachers of 53 Local Schools. This campaign was done with the aim of creating awareness on energy conservation and renewable energy. The main objective was to create energy awareness among students, teachers, and parents with the primary focus being the school students. Students are the best catalyst to bring about a change in the society. Building a new energy conscious generation by imparting education to school children can prove to be effective for a developing country like Nepal in the long run.

Student from Udayapur, Katari Participating in a Speech Competition on Renewable Energy and Gender
Development of Curriculum on Renewable Energy for Classes 1-5

Training of teachers and the alliance with the local Education Resource Centre led to the development of curriculum guide for classes 1-5. This also introduces the project to the National Curriculum Board. This Board in turn has taken a decision to promote the use of the curriculum districts other than only Lalitpur where it is being piloted (test). It has also been decided to develop similar curriculum for classes 6-9. The sector believes this initiation will lead to knowledge building, skill development in the long run and mass awareness thus contributing to clean energy programme at the local level and the national level at large.

The students of primary level (Class 1-5) will be able to know the following:
- Students will be able to identify, use and promote renewable energy available at the local level.

Specific objectives were to:
- Identify the scope of renewable energy
- Identify and promotion of renewable energy which are locally available
- Able to know the importance and uses of renewable energy
- Create awareness about renewable energy
- Know about that fact that energy will support in income generating activities
- Enhance the livelihood of people through renewable energy
- Teach about the advantage and disadvantage of renewable energy
- Adopt locally available energy
Sensitized local authorities on gender and energy agenda
Local government has an increasing role in the governance of provincial power. It is within the authority of local government to influence the energy choices of their community people. The project has carried sensitization programme for select local government representatives (newly elected officials).

Strengthened and mobilized media persons in the awareness activities
Reached out 2,059,495 people via online, newspaper, documentary, TV jingles / discussions, Radio –discussions. With the NEFEJ we built on-going relationships with the press and pitched cases and ideas on a regular basis. The project mobilised the press during events such as the national workshop on Gender and Energy and the training on gender and energy and also reached out to and briefed journalists on need for energy access for women for domestic and practical uses.

Collaborated with the “Golden 1000 Days Programme”
The Advocacy Project collaborated with the “Golden 1000 Days Programme” of USAID to conduct a mass awareness in their working village in Tallo Baraha Palanse, Sindhuli, to promote improved cook stoves in Sindhuli District. Thus the project was introduced to other USAID projects, one focusing on nutrition programme “Su-Ahara” has requested a meeting to discuss how the gender and energy agenda can be included in their project.

Assessment of micro financing institutions
In 1982, the government also launched women focused microfinance programme (PCRW) called ‘Production Credit for Rural Women through the Women Development Section of the Ministry of Local Development with the support of the government owned commercial banks for credit, which has reached 82,416 women. Microfinance has become a strong means to reduce poverty especially of the women. In the context of Nepal the key issues identified with respect to women and the fiscal service are as follows:

1. First and foremost, the product or the services provided by the financial institutions are basically profit oriented and such institutions provide credit facilities only to those who give really good repayment. This implies, the product and packages provided by these financial institutions do not meet the need and expectation of the women basically in the Nepalese rural setting (Shrestha, 2011).

2. Getting access to finance through the governmental institutions is very difficult for the women as well. The long and tiresome formalities that have to be fulfilled for getting access to finance is a major barrier for the illiterate women. (Shrestha, 2011).

3. Lastly there are very few of these institutions within easy reach.

Sixteen financing institutions were assessed. These operated commonly as savings and credits groups and co-operatives. Commonly they disbursed loan mainly for agriculture such as buffalo, cow, poultry, crops, vegetable cultivation, from NRs.12000 to Rs. 50,000 at an interest rate between 12-15 percent. Twelve of these had above 90 percent repayment rate. The total outstanding loan was Rs 25000 to 100,000 an average of four defaulters.
3. The Political Economy of Energy Sector Dynamics: Gender and Energy Research Programme

With support from ENERGIA/HIVOS; M.S. Swaminathan Research Foundation, India as a Lead Organization and Centre for Rural Technology, Nepal (CRT/N) as a Partner Organization, have conducted Gender and Energy Research Programme focusing on the political economy of energy sector dynamics from January 2015 to December 2018. The research programmes aims to better understand how rural women can have increased access to energy policies and increased participation in energy governance. It is being funded by DFID.

The central research question in the proposed research was: how can rural women be empowered to gain access to modern energy services? The research focuses on two specific areas of political economy: influencing by pressure groups representing women; and valuing women’s time. This study is situated in India and Nepal. In Nepal, the programme has been implemented in four districts namely; Kailali, Rupandehi, Kavrepalanchok and Dhading.

Initially, the research team investigated at the macro-level, where the formulation of energy policies and programmes by central governments takes place like AEPC. Second, the scope was at the meso-level, where energy policies are implemented and administered, often by networks of the district, and community and social norms play a role. Finally, at the micro-level, where energy services are delivered and used in the home were looked upon. These three levels need to be viewed in terms of their interaction with energy policy and practices.

During the reporting period, field based studies have been completed and final report is under development. Mainly participatory approach has been followed to collect information through micro, meso and macro level survey. At micro level, the survey included interview of households, in-depth interviews and focus group discussions with both men and women using structured and semi-structured questionnaires. Similarly meso and macro survey included interviews at district and national level using structured interview checklist. The methodology for the study included the following:

- Preliminary desk reviews of all relevant documents of research districts; Kavrepalanchok, Dhading, Rupandehi and Kailali.
- Held household survey mostly with women and few with men.
- Held in-depth interviews with personnel of saving and credit/Ward Citizen Forum/ teachers/Village Development Committee members
- Held focus group discussions with business groups/mother’s groups/energy users groups/farmers’ groups
- Held interviews with self-help groups (SHGs)/ Saving and credit Groups (SCGs) / village and ward leaders/ small business groups
4. Green and Inclusive Energy (GIE) Programme, Nepal

Green and Inclusive Energy (GIE) programme in Nepal, is being implemented by CRT/N as a lead organization in partnership with other four national organizations: Nepal Forum of Environmental Journalists (NEFEJ), National Association of Community Electricity Users Nepal (NACEUN), Renewable Energy Confederation of Nepal (RECoN) and Indoor Air Pollution and Health Forum Nepal (IAPHF).

The programme aims to support national civil society organizations to advocate and lobby for policy changes, reform and programmes to facilitate Nepal’s transition towards green and inclusive energy systems. The key objective of the programme is to contribute to the creation of an enabling policy environment to meet the domestic and productive energy needs of the poor, women, and marginalized groups through decentralized renewable energy and clean cooking energy solutions. Long term goals of this programme are:

i) to meet energy (domestic as well as productive) needs of everyone
ii) to mitigate climate change and,
iii) to ensure social and economic developments and to ensure productive participation of women in politics, economic and social development

4.1 Local Government has Integrated GIE in the Annual Planning

Sensitization programme on RE and Gender to the newly elected representatives being held in Sindhuli District

After the federal system come into effect, the planning and implementation of RE Programmes fall under the mandate of Local Governments Authorities (LGA). Thus, GIE programme is advocating to raise awareness of local authorities of renewable energy and gender and social inclusion (GESI) issues. In this respect, this programme has conducted L&A activities of the local government in its working districts. This included meetings with: the Environment and Energy department of the District Coordination Council, the Ministry of Federal Affairs and Local Development (MoFALD), local elected bodies, stakeholders of the National Environment Friendly Local Governance Programme, local CSOs and MFIs. The result has been that all newly elected local bodies have accepted the importance of clean cooking solutions for empowering women and improving health of women and children while nine village municipalities and one urban municipality of Sindhuli district, Nepal, have signed a commitment to integrate GIE in their plan. In doing so, the municipalities committed to work closely with CRT/N and NEFEJ to promote clean cookstoves in their respective districts.
4.2 Alliances with Media Groups Established to Regularly Cover and Raise Public Awareness on GIE Issues

The GIE programme aims to address these challenges through targeted public awareness campaigns that generate demand for RE products and on GESI. The campaigns will engage local media, as appropriate, to reach five million people focusing on clean cooking, lighting solutions, and energy for productive use and the role of women as Renewable Energy Entrepreneurs.

The Nepal Forum of Environmental Journalists (NEFEJ) and CRT/N conducted a series of training workshop for journalists and radio station personnel. As a consequence of these training sessions, Radio Sagarmatha, a FM community radio station, agreed to develop a regular RE and GESI radio programme. Tand broadcasted weekly episodes of a radio dramas entitled “Juneli”, on different aspects of the interlinkages between RE and GESI that have been aired in national Nepali language but also in Newari and Tamang languages and reached an audience of more than 2.5 million listeners. To date a review of listeners’ feedback indicates that the radio drama “Juneli” has received positive feedback from the listeners of Radio Sagarmatha.

4.3 Consumer Platform Contribute to Better Transparency on GIE Policies and Practices

The GIE programme aims to influence the type and level of information that electricity consumers receive from their service providers. Good governance and transparency on the operation and financial status of the CREEs (Community Rural Electrification Entities) are important to enable CREEs to function in an inclusive way. NACEUN as the national federation of all CREEs, has thus conducted training programmes for the executive committee of the CREEs in three districts in Tanahu, Nawalparasi and Gorkha in December 2017. The training focused on T&A principles, gender concepts, leadership skills, information sharing and public reporting methods. As a result, in September 2017, three CREEs from three districts (Tanahu, Nawalparasi and Gorkha) revised their bylaws to include mandatory 30percent female participation in their executive committee and in the public meetings and to report on budget spent on gender related activities. They have also agreed to Transparency and Accountability (T&A) principles and the process of disclosing information related to their income, expenses, progress and challenges with regards to electricity distribution and the effectiveness of their operations to their partners in regular and timely public meetings.
4.4 Facilitate Private Sector Engagement in Energy Access Policy Dialogue with the Government Official

As the advocacy body for the private sector, Renewable Energy Confederation of Nepal (RECON) lobbied key decision makers from AEPC and the Ministry of Population and Environment through meetings and in discussion forums to amend its policy “Renewable Energy Subsidy Delivery Mechanism 2013” with the following statement under article “4.2.2.2 Subsidy Delivery” to ensure the representation of marginalized groups as a priority in user groups that are responsible for the operations and maintenance and access the benefits of solar water system at village level. The policy thus commits that “If the people in the rural area, where there is no national transmission line and there is problem of water supply, wants to install the rural community solar water system, they have to form as users group and have to contact with the Centre or Section/Unit or Service Centre for detail information. While forming users group, special priority should be given to the poor, single woman, victim of natural calamities, conflict-affected and endangered ethnic nationality”. In July, 2017, new tariff rates were implemented by the Electricity Tariff Fixation Committee (ETFC) of the Nepal Electricity Authority (NEA). Feedback to NACEUN from the CREEs complained that the new tariffs were not affordable. NACEUN thus initiated and held a series of meetings with NEA, Ministry of Energy, and National Planning Commission in which it advocated to review the new tariff. As a consequence of NACEUN lobbying activities, in August, 2017 it was invited to become a member of the ‘Tariff Analyzing Committee’ of ETFC that commissioned a study to assess the appropriateness of the new electricity tariff rates for the CREEs. The report of the study is being reviewed by NEA and is expected to be used to establish an affordable tariff for the CREEs.

4.5 Enhanced Knowledge and Skills in the Health Sector on the Link between HAP and Human Health

The GIE programme identified the need for training of trainers (ToTs) that its consortium partner; Indoor Air Pollution and Health Forum Nepal (IAPHF-Nepal) provided ToT to Government Health Workers as an opportunity to raise the awareness of the key decision makers in the Department of Health Services (DoHS) on the inter-linkages between HAP, clean cooking solutions and health. IAPH Nepal thus invited the Director and key technical staff to attend ToTs held in Kathmandu. IAPH Nepal also invited key officials from the Alternative Energy Promotion Centre (AEPC), the government nodal agency for RE, as resource persons to explain the importance of clean cooking solutions from the perspective of
Gender, Energy and Water Network (GEWNet)

GEWNet was established in Nepal as an output of the National Consultative Workshop held in August 2002. It was initiated with support from ENERGIA, International Network on Gender and Sustainable Energy where Centre for Rural Technology, Nepal (CRT/N) hosts the Secretariat of the Network as the National Focal Point. With the changed context of the country, CRT/N, with the consultation among the members and partners, has revived and restructured this network under Green Inclusive Energy (GIE) Programme with the support from ENERGIA/Hivos to fulfill its objectives and contribute to the sustainable and integrated rural development with on-going and upcoming initiatives. The current development discourse emphasizes the need for green and clean energy systems for ensuring inclusive and sustainable development.

In Nepal, CRT/N is working as a lead organization that will implement the GIE programme with policy support from the Alternative Energy Promotion Centre (AEPC), and in partnership with Indoor Air Pollution and Health Forum (IAPHF), Nepal Forum of Environmental Journalists (NEFEJ), Renewable Energy Confederation of Nepal (RECoN) and National Association of Community Electricity Users Nepal (NACEUN). On 23rd August, 2018, this network conducted meeting with the Advisory Group members with the objectives to provide introduction about GEWNet; share information on GIE project and interact on activities identified by GEWNet under GIE programme. The programme provided the platform for all the members to provide comments/inputs on the network activities and direction for further action.

Meeting with the advisory members
5. Advocating for Up scaling for Local Climate Solutions as Eco Village Development as A Mean to Strengthen Pro-poor Climate Agenda in South Asia (EVD Phase II)

Global climate change and continued poverty are probably the two largest, long-term challenges for human development. Both issues have been addressed in recent international agreements, respectively in the UNFCCC Paris Climate Agreement and agreement on UN Sustainable Development Goals (SDGs), both agreed in 2015. Now, the key issue is how to reduce these global problems during the implementation phase of these agreements, where regional and national strategies and actions, as well as financing are crucial. As a densely populated and fast growing region, but still with a large part of the population living in poverty, development of South Asia is strongly linked with these two global issues. It is expected that South Asia’s emerging economies will bring an increase in living standards for many people in the region. However, with emerging economies and expanding populace, greenhouse gas emissions will increase along with the advanced consumerism of the emerging, primarily urban, middle class, and technological development of industries, while the development tends to leave large parts of the rural population in poverty. With the support of Civil Society in Development (CISU), coordinated by Danish International Human Settlement Services (DIB) and International Network for Sustainable Energy (INFORSE), Centre for Rural Technology, Nepal (CRT/N) has initiated project to address these issues.

The EVD concept combines a number of solutions for poverty reduction within sustainable energy, water management, agriculture and housing. The solutions have all proven successful individually, and in several cases also together, as promoted in the EVD project. Combined, they can provide the energy and resources needed for a development out of poverty for rural villages with minimal greenhouse emissions, giving a prosperous vision for the future of rural villages. Individually, the solutions can provide for instance cleaner cooking, light or better gardening. Together they can fulfill basic needs and provide energy and resources for increased income generation.

Converting waste into valuable asset
Ms. Sushila Shrestha, resident of Bethanchok-2 has been practicing vermin-composting at her house after she got training organized by CRT/N under EVD project. She was happy to learn this process and informed that the household waste is now not gone waste but transformed into a valuable substance that she called “black gold.” The manure from vermin-composting is used in the vegetable, which she has been growing under plastic tunnel. She mentioned that the process is very simple and no other cost or continuous monitoring is required, so, she is willing to continue this practice and get benefit from this.
ECO-FRIENDLY TECHNOLOGIES AND INITIATIVES AT ECO-VILLAGE DEVELOPMENT SITES OF NEPAL

108 Households Benefited

3 Improved Water Mill

2 Hydraulic Ram Pump

108 Portable Improved Cook Stove

53 Solar Home System

33 Plastic Tunnel (Off Seasonal Vegetable Farming)

18 Waste Water Management and Micro Irrigation

10 Fish Pond

43 Cow-shed Management

2 Biogas Repairing and Maintenance

103 Bio-composting

24 Rain Water Harvesting

50 Plantation of Hi-value Trees and Fruits

Centre for Rural Technology, Nepal (CRT/N) is promoting the Eco-Village Development (EVD) Concept since 2015. The various environmental friendly activities includes renewable energy technologies, improved agriculture practices, forest conservation, water and waste management by using locally available resources. The project has been implemented in three villages of Bethanchok Rural Municipality; Chalal, Dhungkharka and Chyamangbesi.

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INFORSE was established in 1992 at the UN “Earth Summit” in Rio de Janeiro to promote a transition to efficient and sustainable use of renewable energy. It is a network of more than 140 NGOs that are working for sustainable energy solutions to protect the environment, organizations and reduce poverty.

INFORSE-South Asia is one of 7 regional INFORSE networks. Its coordinator and regional focal point are elected by the members at regional and national level respectively. Integrated Sustainable Energy and Ecological Development (INSEDA), India is a regional coordinator of South Asia. In Nepal, CRT/N hosts the network as a National Focal Point. In South Asia, the most important project is currently on promotion of sustainable energy to reduce poverty in India, Bangladesh, Sri Lanka, and Nepal. It includes preparing and distributing manuals and other materials as well as capacity building of NGOs. The participating organizations have been involved in the development and promotion of rural and renewable technologies. INFORSE members in South Asia are cooperating within INFORSE-South Asia and with Climate Action Network South Asia (CANSA) to raise awareness of local climate solutions included in the Eco-Village Development (EVD) Concept.

With the plan to revive this network, Centre for Rural Technology, Nepal (CRT/N) on June 1st, 2018 conducted INFORSE Nepal Consultative Meeting to collectively strengthen the network through a creation of a “knowledge platform” and facilitate in the development and transfer of technologies appropriate to rural and village development. Stakeholders representing Non-Governmental Organizations (NGO) and few international service organizations participated in the network meeting. The consultative meeting provided the platform for all the concerned stakeholders to share their past and current project activities and exchange experiences among members and discuss on the way forward to strengthen cooperation and collaboration among the members and strengthen the INFORSE Nepal network collectively. As of now, INFORSE Nepal has total of eleven members.
6. Rural Community Electrification with Improved Water Mills and Micro-enterprise Development in Nepal

Introduction to the Project
Gramin Urja Tatha Prabidhi Sewa Kendra Pvt. Ltd. (RETSC) in collaboration with Centre for Rural Technology, Nepal (CRT/N) has successfully accomplished “Rural Community Electrification with Improved Water Mills and Micro-enterprise Development in Nepal” also known as IWME Project. The project was financially supported by EnDev/GIZ and SNV/N and implemented in adherence to the policy as well as guidelines of Alternative Energy Promotion Center (AEPC). The main objective of the project was to develop a reliable and sustainable community electrification solution along with intervention with productive use of electricity for promoting rural micro enterprises for rural Nepal. The project started in April, 2016 and ended in February, 2018. Apart from community electrification, the project provided additional service in the sector of economic activities through promotion of small scale micro enterprises based on the use of mechanical and electrical energy and created economic and employment activities through establishment and operation of micro enterprises like poultry farming, tailoring, restaurants, guest houses, shops, saw milling etc. The project was instrumental in seven districts: Kavre, Sindhuli, Khotang, Udayapur, Makawanpur, Dhading and Nawalparasi.
Achievements of the project:

- 1315 rural households (8041 beneficiaries) got direct advantage from basic lighting facilities through installation of 24 Pico Hydro/IWME sites generating 88 kW power in aggregate.
- Livelihood improvement of 3875 women and girls from the benefit of lighting services and efficient agro-processing services.
- Contribution towards better education of children through improved lighting services.
- Contribution towards improved health of rural people through displacement of kerosene being used for lighting facilities.
- Economic empowerment and employment opportunities of local people through establishment of 53 micro-enterprises (14 enterprises led by women) like poultry farming, tailoring, grocery shops, restaurants, hulling, grinding, carpentry etc.
- Gender empowerment through participation in IWME users’ committee (75 female members in different posts and 1 is chairperson)
- Institutional relationship with partners and stakeholders developed
- Recognition and ownership taken by local government agencies
- Contribution towards adaptation of climate change by displacement of kerosene lighting and diesel mills being used
- Employment creation of at least 24 persons as IWME powerhouse operator
- Employment creation of at least 48 persons as electrician at local level

Parabolic Solar Cooker in High Mountain

![User of Solar Parabolic Cooker at Mustang District, under project “Solar Cookers for Eco-Tourism Development in Nepal” supported by WISIONS](image)

The project was operated mainly in the Himalayan range covering mainly Mustang, Manang, Lamjung, Myagdi and Kaski District. The cookers were used by local lodge owners and household users as part of supplementing their fuel requirement to cook the food as well as to pasteurize the water.
Improvement in indigenous traditional water mills of Nepal has transformed socio-economic status of rural communities and mill owners from hardship to a sound and prosperous life by supporting faster and improved grinding facilities for grains and diversifying productive end uses like rice hulling, saw milling, oil expelling, spice grinding and even rural electrification.

“Improving Gender-Inclusive Access to Clean and Renewable Energy in Bhutan, Nepal and Sri-Lanka” project was supported by Asian Development Bank (ADB) under (Grant-9158 REG). In Nepal, the project aimed to increase rural poor women’s access to affordable and reliable clean and renewable energy sources and technologies in selected project sites under the rural electrification programme implemented jointly by Nepal Electricity Authority (NEA) and the selected Electricity Users Cooperatives (EUCs) representing the project communities. The major part of the project was implemented from 2012 to 2014, supported 500 women on their entrepreneurship development. The extended phase of the project was implemented in 2017 had target of developing 100 women entrepreneurs.

One of the major project activity of the extension phase was to assist women in establishing and strengthening energy based enterprises in rural areas. As part of this project, capacity building activities for women in energy based enterprises were conducted and further supported them in starting up and improving their business enterprises. Woman entrepreneurs received advanced skill-based trainings which provided upgraded knowledge, hands-on skill and practical experiences to selected entrepreneurs, which were useful for the successful operation and management of their selected enterprises. The advanced trainings conducted in the project areas include: advanced skill-based training on poultry farming, vegetable farming and beauty parlor/ cosmetics enterprises.

The project extended community mobilization support to the EUCs contributing to sensitization and capacity building of EUCs so that they internalize woman entrepreneurship development in their overall planning and implementation process. This was done through an orientation session for the Executives of the EUCs, support in business planning of the EUCs, support in selection of potential women entrepreneurs, conduction of training events; this also includes supporting woman entrepreneurs in their business through business mentoring. The project was implemented mainly in three districts; Kailali, Chitwan and Sindhuli.

The followings were the achievements of the project:

- Three EUCs are aware about importance of woman entrepreneurship development.
- One hundred fifty WEs (out of target of 100) were trained on business development and were provided advanced skill-based training.
- Woman entrepreneurs have initiated and smoothly operated their respective business enterprises.
- EUCs have assigned focal persons for promotion and development of women entrepreneurship.
- EUCs have taken positive steps to create Woman Entrepreneurship Development Fund.
- EUCs have expressed commitment to include woman entrepreneurship development in their regular planning process.
- Although all modules were equally important, but business game related modules of the training were found to be more effective and interesting for the women participants.
8. Improving Rural Livelihoods in Nepal with Pico-Hydro Electrification and Improved Water Mill

“Improving Rural Livelihoods in Nepal with Pico-Hydro Electrification and Improved Water Mill” has been awarded to the Center for Rural Technology, Nepal by Siemenpuu Foundation, Finland under Siemenpuu Foundation and EKOenergy Climate Fund through Small-Scale Renewable Electricity Projects to establish renewable electricity installations aiming at alleviation of energy poverty and social inequality in selected countries; Mali, Myanmar and Nepal.

The project will be implemented in Nepal from July 2018-September 2019 in Rautamai and Lingchunbuu Gaupalika (Village, Municipality) of Udaypur District. Two units of Pico hydro and Improved Water Mill system will be installed under this project.

Objective of the project:
The broad objectives of the project are installation and operation of Pico-hydro units for the development of micro enterprises that contribute to the socio-economic upliftment and livelihood enhancement of the beneficiaries contributing to the enhancement of their income and employment generation and community development.

Expected Outcomes
- Pico-Hydro units installed for generating electricity in off-grid area.
- Better education opportunity for the children due to lighting facilities.
- Decrease in workload of women and children from carrying agro products.
- Displacement of traditional diesel mills presently in use for agro-processing.
- Economic and social empowerment of men and women from economic and socially deprived groups of the targeted communities
- Reduction in gender violence as men and women will equally participate in household activities and livelihood opportunities
- Improved health due to access to clean energy and reduction in drudgery

Expected Results
- Available of reliable, local, clean solution for lighting
- Socio-economic upliftment of the beneficiaries (specially women and DAG) contributing to increase in income and employment generation and livelihood opportunities from micro enterprises and community development
- Increase in study hours of children in education as well as increase in number of children (boys and girls) in education due to clean and sufficient source of lighting
- Contribution towards low greenhouse emission by promoting renewable energy technology like water mill and Pico-hydro which will support in displacement of existing diesel mills
- Contribution to SDGs related with No Poverty (1), Zero Hunger (2), Good Heath and Well Being (3), Quality Education (4), Gender Equality (5), Affordable and Clean Energy (7), Reduced Inequalities (10), Climate Action (13)

No. of Beneficiaries: 155 HHs (810 Population; Female=465; Male=365)
9. Building Resilient Mountain Communities: Earthquake reconstruction in Dhungentar, Nuwakot District

Technical Support for Installation of Alternative Energy Technologies
International Centre for Integrated Mountain Development (ICIMOD) carried out a project “Building Resilient Mountain Communities: Earthquake Reconstruction in Dhungentar, Nuwakot”. In this project, CRT/N provided technical support to ICIMOD for the installation of renewable energy technologies and carried out study for waste management and irrigation potentials in the project sites.

ICIMOD supported project have carried out reconstruction of shelters damaged by major earthquakes during April-May, 2015, new construction of community center, restoration of irrigation and water infrastructure, livelihood improvements including capacity building and entrepreneurship development of the earthquake affected community, advising on gender equality and women empowerment, and development of an institutional framework to allow better disaster mitigation and risk management from future national disasters. The project also focuses on promotion of green solutions and improving resilient livelihoods in areas such as agriculture, water management, promotion of renewable energy based technologies, Information and Communication Technology (ICT) and promote self-sustainable local enterprises and public-private partnership. CRT/N was engaged by ICIMOD in this project from December 2017-April 2018. During this period, CRT/N has supported in the installation of rain water harvesting system, construction of plastic pond for micro-irrigation in kitchen garden and conducted trainings on the use of plastic tunnel for improved vegetable cultivation, parabolic solar cooker for cooking food, solar dryer, treatment for drinking water and drip irrigation technologies for improved farming in the project site.
10. The emPOWER Collective Project

Background
Nepalese society is characterized by social constructed gender based discrimination. With growing interest in creating a just and equitable society, a number of efforts are being made at different levels nationally and internationally to empower women and historically marginalized population. Previously, it was assumed that reservation policies and provision of resources (financial, educational, quota systems, property ownership, energy technologies etc.) automatically empower women and excluded groups. However, emerging evidence suggests that gender and socially inclusive policies and access to opportunities and resources alone may not be sufficient to ensure marginalized group’s participation in decision making at household or outside. In community development efforts, marginalized groups and women’s participation is often labeled as silent or passive participation. This suggests a need for not just empowerment through access to resources but also from within (by sparking desire to change and voice concerns) for women and the excluded groups.

CRT/N with technical support from University of Illinois and John Hopkins University USA and financial support from Climate and Health Research Network, USA is implementing The emPOWER Project in Sano Gau, Ward no. 11 of Panauti Municipality from July 2018-June 2019. The objective of this project is to assess the impacts of a personal empowerment program designed to increase women’s voice and agency as a means of improving rural development activities. Changes and progress in individual and community action plans will be compared at end line.

Activities to be carried out under Project
- Conduct a baseline study to systematically assess the local inhabitants’ participation in decision making and community activities
- Adapt and deploy the agency-based empowerment trainings for local marginalized and women groups
- Conduct mentoring exercises to reinforce these personal empowerment concepts and train participants to integrate these concepts into their lives
- Use participatory exercises to develop and conduct household level resource needs assessment instruments
- Follow changes over time with respect to goal setting, economic and personal empowerment.

Project Implementation Process Methodology
- Work closely with the local government to identify a marginalized and low-income village in Panauti Municipality (completed)
- Community members and local experts work together to identify and eliminate key personal and communal hurdles in community development, with strategic guidance from national and international experts
11. The Regional Testing and Knowledge Centre (RTKC)

Centre for Rural Technology, Nepal (CRT/N) has established RTKC with the support of Global Alliance for Clean Cookstoves (GACC), a public-private initiative led by the United Nations Foundation (UNF) to strengthen the cookstoves sector’s ability to perform various tests and evaluate stoves, communicate, improve performance of cookstoves and fuels and thus improve adoption of clean cookstoves. In line with GACC’s mission, RTKC Nepal is dedicated to improve the testing facility and provide quality service to stove builders and other stakeholders and extend services relating to stove testing and knowledge sharing and capacity building at the national and regional level and assist in the formation of National Standards on Cookstoves Performance Testing and harmonizing with International Standards.

Vision:
To impart stoves testing and knowledge development services and expertise in research, testing and development of bio-energy products in the region.

Mission:
To Improve Technology, communicate performance and promote sales and adoption of clean cooking devices and support the process of standardization in the country and the globe

Objectives:
• Enhance Testing Capacity of RTKC mapping to the International Standard Organization (ISO) and International Workshop Agreement (IWA) Tiers of Performance.
• Promote Research and Development on Clean Cooking Technologies
• Establish effective knowledge dissemination and networking with other Stove Testing and Knowledge Centres at the national and regional level.
• Advocate and support to Government of Nepal’s mission on “Clean Cooking Solutions for All by 2017” implemented by AEPC.
• Offer testing and monitoring services to organizations at national and regional level.
• Support ISO TC 285: Clean Cookstoves and Clean Cooking Technology in standards formation and advocate for National standards in compliance with the international standards
• Pave way to enhance the centre’s service menu to other environmental services such as industrial emissions monitoring, validating carbon projects; institutional energy audits design consulting etc.

During the year 2017-18, RTKC Nepal, in partnership with multiple national and international organizations, conducted above mentioned lab and field based stove testing, research and emission measurements. RTKC Nepal has been providing its lab testing services to clients as well as supported national and international researchers. The ratio of the under hood Laboratory Emissions Monitoring System (LEMS) tests on research to client is 4:10 for the year.
SCI PEP TEST STATION FOR SOLAR COOKERS:

With the equipment support of Solar Cooker International (SCI), RTKC Nepal has now acquired Solar Cooker Testing Station for Performance Evaluation Process (PEP) for solar cookers. With PEP test, this solar testing station of RTKC Nepal aims to provide services to test different types of solar cookers: panel, box, parabolic cookers etc.

Thermal performance results are acquired by the test instrument, which is capable of recording temperature, wind speed and solar irradiance to a space delimited file on an SD Card for later post-processing to compute a Standard Cooking Power. The test station is expandable to monitor temperatures up to 3 different cookers simultaneously. There is flexibility in test duration, test interval, test medium loading as well as software configurable according to sun elevation. It uses data smoothing and performs ASAE calculations so the user only needs to import the data into a spreadsheet for graphing and analysis.
12. Seasonal Kitchen Performance Test and Black Carbon Measurements from Biogas and Other Cooking Stoves in Nepal, Panchkhal, Kavre

Centre for Rural Technology, Nepal supported Mountain Air Engineering, USA to carry out field survey and associated Emission measurements for three seasons at Panchkal Valley of Nepal. CRT/N’s major responsibilities were to conduct Black Carbon Emissions Monitoring of 20 household for 2 meals and Seasonal Kitchen Performance test of same houses. For this various cooking measures like biogas stoves, traditional cookstoves, improved cookstoves, LPG gas and electric cooking devices were considered. Study was carried out for monsoon, winter and spring seasons. This project was implemented from May 2017 to August 2018.

Conducting SKPT Survey

Conducting Emission Test in Biogas Stove

The World Bank has provided technical assistance to the Government of Nepal (GoN) through the programme titled **Developing Improved Solutions for Cooking (DISC)**. DISC is currently supporting Alternate Energy Promotion Centre (AEPC) to prepare a roadmap on **Product Development and Labeling of Clean Cookstoves and Standardized Biomass Fuels for the Nepali Market**. DISC initiative of the World Bank (WB) assigned CRT/N to conduct a study and prepare a roadmap on Product Development and Labeling of Clean Cookstoves and Standardized Biomass Fuels for the Nepali Market.

**Project Duration**
- 12th August, 2015- 31st December, 2017

**Project Area**
- Throughout the Country

**Beneficiaries**
- All Bio-energy stakeholders in the country;
- Alternative Energy Promotion Centre (AEPC); Nepal
- Bureau of Standards and Metrology (NBS M) etc.

**The Objectives**
The objective of this program is to help broaden the menu of clean cooking options available to Nepalese households by identifying the attributes of high quality biomass fuel based cookstoves and processed biomass fuels that best meet the preferences of users in Nepal. The program has the following objectives:

- Establish cookstoves labeling criteria that will help identify high quality biomass based cookstoves that meet the criteria for Tier 3 and above that best meet the preferences of Nepalese users.
- Establish labeling criteria for processed biomass fuels available in Nepal that will help identify the highest quality fuels that best meet international standards and preferences of Nepalese users.
- Provide recommendations on possible next steps for the operationalization of a biomass based cookstoves and processed fuels standardization and labeling system for Nepal.

This assignment is a part of support to GoN through AEPC. The study was conducted by CRT/N together with its partners, Centre for Energy and Environment, Nepal (CEEN) and Energy Environment Research and Development Centre (EERDC) in close coordination with AEPC and World Bank.
### Centre for Rural Technology, Nepal

#### Balance Sheet

As on Ashadh 32, 2075 (July 16, 2018)

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<td></td>
<td>299,829.00</td>
<td>299,829.00</td>
</tr>
<tr>
<td>Add: This Year addition</td>
<td></td>
<td>119,000.00</td>
<td>-</td>
</tr>
<tr>
<td>Less: This Year Payment</td>
<td></td>
<td>(75,000.00)</td>
<td>-</td>
</tr>
<tr>
<td>Fixed Assets Reserve Fund (Projects)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Assets Reserve Fund</td>
<td></td>
<td>1,452,104.88</td>
<td>1,490,981.24</td>
</tr>
<tr>
<td>Current Liabilities &amp; Provisions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sundry Creditors</td>
<td>9</td>
<td>1,059,347.19</td>
<td>2,962,584.04</td>
</tr>
<tr>
<td>Staff Payables</td>
<td>10</td>
<td>-</td>
<td>149,285.00</td>
</tr>
<tr>
<td>Project Advances</td>
<td>11</td>
<td>19,510,036.05</td>
<td>26,397,447.60</td>
</tr>
<tr>
<td>Provision and Payables</td>
<td>12</td>
<td>186,000.00</td>
<td>937,627.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>34,245,727.82</td>
<td>44,010,891.57</td>
</tr>
</tbody>
</table>

### Assets

| Particulars                                      | 1    | 513,697.16   | 651,922.48   |
| Fixed assets                                    | 2    | 1,452,104.88 | 1,490,981.24 |

### Current Assets & Advances

| Particulars                                      | 3    | 2,546,358.31 | 6,978,411.39 |
| Sundry Debtors                                  | 4    | 77,330.00    | 138,833.00   |
| Staff Advances                                  | 5    | 3,348,004.14 | -            |
| Citizens Investment Trust                       | 6    | 42,500.00    | 42,500.00    |
| Deposits                                        | 7    | 21,469.00    | 19,905.00    |
| Prepaid Expenses                                | 8    | 26,244,264.33| 34,688,336.46|
| **Total**                                       | 0    | 34,245,727.82| 44,010,891.57|

**Significant Accounting Policies & Notes to Accounts**

Schedule 1 to 18 form an integral part of the financial statements.

As per Our Attached Report, these date

CA Madan Krishna Koirala
Madar Niraula & Co.
Chartered Accountants

Ananda Shova Tamrakar
Chairperson

Hari Gopal Gorkhali
Acting Executive Director/ Treasurer

Lamin K. Shrestha
Member
Date: 2075/05/31

Pawan K. Singh
Senior Accounts/Admin. Officer
Centre for Rural Technology, Nepal

Income & Expenditure Account
For the Year ended Ashadh 32, 2075 (July 16, 2018)

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Sch</th>
<th>2074-75</th>
<th>2073-74</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incomes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution from Projects</td>
<td>13</td>
<td>12,237,889.75</td>
<td>12,167,661.69</td>
</tr>
<tr>
<td>Other Receipts</td>
<td>14</td>
<td>414,868.80</td>
<td>1,841,705.76</td>
</tr>
<tr>
<td><strong>Received for Project Expenses</strong></td>
<td>15</td>
<td>58,177,054.50</td>
<td>46,903,214.41</td>
</tr>
<tr>
<td><strong>TOTAL INCOME</strong></td>
<td>A</td>
<td>70,829,813.05</td>
<td>60,912,581.86</td>
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<tr>
<td><strong>Administrative Expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Expenses</td>
<td>16</td>
<td>15,373,523.43</td>
<td>15,401,673.37</td>
</tr>
<tr>
<td><strong>Project Expenses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project/Program Expenses</td>
<td>17</td>
<td>55,392,540.62</td>
<td>45,446,596.29</td>
</tr>
<tr>
<td><strong>TOTAL EXPENDITURE</strong></td>
<td>B</td>
<td>70,766,044.05</td>
<td>60,848,269.66</td>
</tr>
<tr>
<td>Surplus before exchange gain/loss</td>
<td></td>
<td>63,749.00</td>
<td>64,312.20</td>
</tr>
<tr>
<td>Exchange gain/ (Loss) in Euro A/c</td>
<td></td>
<td>1,215.00</td>
<td>(969,190.25)</td>
</tr>
<tr>
<td>Surplus (Deficit) after Exchange gain / loss</td>
<td>A-B</td>
<td>64,964.00</td>
<td>(904,878.05)</td>
</tr>
<tr>
<td>Transferred to Staff Welfare Fund</td>
<td></td>
<td>6,496.00</td>
<td>-</td>
</tr>
<tr>
<td>Balance Transferred to Balance Sheet</td>
<td>A-B</td>
<td>58,468.00</td>
<td>(904,878.05)</td>
</tr>
</tbody>
</table>

**Significant Accounting Policies & Notes to Accounts**

Schedule 1 to 18 form an integral part of the financial statements

As per Our Attached Report of even date

---

Ananda Shova Tamrakar  
Chairperson

Hari Gopal Gorkhali  
Acting Executive Director/ 
Treasurer

CA Madan Kumar Niraulla  
Madan Niraulla & Co.  
Chartered Accountants

Lumin K. Shrestha  
Member

Date: 2075/05/31

Pawan K. Singh  
Senior Accounts/Admin. Officer
CRT/N Personnel

Management Team
1. Mr. Ganesh Ram Shrestha, Executive Director
2. Mr. Lumin Kumar Shrestha, Advisor
3. Mr. Hari Gopal Gorkhali, Senior Director
4. Dr. Purushottam Shrestha, Senior Director
5. Mr. Gyanendra Raj Sharma, Deputy Director
6. Mr. Shyam Kumar Rai, Deputy Director

Account and Administration Team
1. Mr. Pawan Kumar Singh, Senior Accounts/Admin Officer
2. Mr. Raju Maharjan, Accounts/Admin Officer
3. Ms. Rajani Gongal, HR Logistic Officer
4. Ms. Gita Subedi, Receptionist
5. Mr. Ram Krishna Dawadi, Driver
6. Mr. Sudesh Man Singh, Messenger
7. Mr. Ramesh Khadka, Messenger
8. Ms. Sanu Maiya Singh, Messenger

Programme Implementation Team
1. Dr. Indira Shakya, Consultant
2. Mr. Basudev Upadhyay, Consultant
3. Dr. Ashma Vaidya, Consultant
4. Ms. Paritra Tamrakar, Consultant
5. Ms. Lachana Shresthacharya, Senior Programme Officer
6. Ms. Shovana Maharjan, Senior Programme Officer
7. Ms. Ashma Pakhrin, Senior Programme Officer
8. Ms. Bina Kharel, Programme Officer
9. Mr. Prabin Shrestha, ICS R&D Officer
10. Mr. Subas Lamichane, Program Officer
11. Ms. Gyanu Bist, Event Associate and Communication Officer
12. Mr. Milan Shrestha, Assistant Programme Officer
13. Ms. Kaushila Rai, Senior Programme Assistant
14. Ms. Cheeja Adhikari, Senior Technician
15. Mr. Farsha Bahadur Tandan, Senior Technical Assistant
16. Mr. Bhim Bahadur Bohara, Biomass Technical Coordinator
17. Mr. Bodhraj Bhandari, Business Development Coordinator
18. Mr. Hari Prasad Ghimire, Business Development Coordinator
19. Mr. Keshab Bahadur Thapa, Biomass Technical Coordinator
20. Mr. Likh Ram Chaudhary, Business Development Coordinator
A hydraulic ram pump (Hydram) is an automatic pumping device which uses a large flow of water falling through a small head, to lift a small flow (10%) of water through a higher head. Since the establishment, CRT/N has installed 30 hydraulic ram pump. The hydram can successfully be used for:

- Household water supply and sanitation: A system can serve up to a few hundred households;
- Irrigation: A large system can supply water for a few hectares of land. Cereal crops may be planted, although vegetables, fruit trees and other cash crops requiring less water are more suitable;
- Enabling livelihoods such as cattle farming, agro-processing, fishponds.

According to Ms Ghalan, access to finance is very vital for starting a business and its expansion. Ms Ghalan shared that she is member in seven MFIs. She has taken loan of NRs 1,00,000 from different cooperatives, banks and microfinancing institutions for expanding her business. Ms Ghalan shared her experience that how Microfinance Institutions can play an important role in the growth of woman entrepreneurs.

Ms Ghalan is running a hotel and grocery shop and earning Rs. 60,000-70,000 per month. There is growth of woman owned enterprises based on energy but access to finance is repeatedly identified as a major constraint to woman entrepreneurs.

Ms. Purnima Ghalan, an ICS Entrepreneur

Hydraulic Ram Pump

Drinking water from Ram Pump

User Experience with Mud-ICS

“I am relieved from the smoke problem after using Improved Cook Stove”
- Ms Rachana Guragai, ICS user, Udayapur

“There are multiple benefits of ICS, if we use it and maintain it properly”
- Mr Tank Raja Guragai, Udayapur
Promoting Women-Led Enterprises for Energy Access and Local Production (WEE-Nepal)
- Energy: Empowering Women Uplifting Lives (Advocacy Project)
- Gender and Research Programme
- Green and Inclusive Energy (GIE) Programme (Nepal Project) in Nepal
- Advocating for up-scaling for Local Climate Solutions as Eco Village Development as a Mean to Strengthen Pro-poor Climate Agenda in South Asia (EYD Phase II)
- Rural Community Electrification with Improved Water Mills and Micro-enterprise Development in Nepal (IWME Project)
- Improving Gender-Inclusive Access to Clean and Renewable Energy in Bhutan, Nepal and Sri Lanka (ADB GRANT 9158 REG)
- Improving Rural Livelihoods in Nepal with Pico-Hydro Electrification and Improved Water Mill
- Building Resilient Mountain Communities: Earthquake reconstruction in Dhungentar
- Regional Stove Testing and Knowledge Centre (RTKC)
- emPower Project
- Seasonal Kitchen Performance Test and Black Carbon Measurements from Biogas and other Cooking Stoves in Nepal, Panchkhal, Kavre
Board of Directors

Dr. Ananda Shova Tamrakar, Chairperson
Dr. Ananda Shova Tamrakar was a professor at Tribhuvan University. She has served Tribhuvan University for 37 years. Besides teaching, she is conducting researches on pest management, water management, vermin composting and biodiversity. She has pursued Ph.D. from India. She has completed her Diploma of Environmental Management and Protection from University of Technology, Dresden, Germany. She has been awarded US-AEP Fellowship by Asia Foundation in USA. She remained Board Member of CRT/N since 2002 and also served as a Board Member of Mahila Sahayogi Bachat Tatha Rin Sahakari Sanstha Ltd. Besides, she is the president of Trans-Himalayan Environment and Livelihood Programme (T-HELP). She is also the member of Federation of Women Entrepreneurs Association (FWEAN). She has about 100 research publications (includes both national and international publication).

Mr. Ganesh Ram Shrestha, Member Secretary
Mr. Ganesh Ram Shrestha is a founder member of the Centre for Rural Technology, Nepal (CRT/N) established in August, 1989. He is also serving as Executive Director. Under his leadership, CRT/N is widely known for its pioneering efforts in the development and promotion of the renewable energy and appropriate technologies such as improved cookstoves, improved water mill and other rural technologies vital for enhancing rural livelihoods and sustainable development. Under his leadership, CRT/N has developed successful partnership with national institutions and strategic cooperation and collaboration with key international agencies. He has been instrumental in mobilizing technical and financial resources. He has contributed towards the planning and managing successful programmes and projects through his carrier. Mr. Shrestha has pursued Post Graduate Diploma in Rural and Agricultural Project Planning from Institute of Social Studies (ISS), the Hague, the Netherlands and Bachelor’s Degree in Agricultural Engineering from Israel Institute of Technology from Haifa, Israel. He has also been granted an Overseas Fellow of the Economic Development Institute (EDI) of the World Bank.

Mr. Hari Gopal Gorkhali, Treasurer
Mr. Hari Gopal Gorkhali holds Bachelor’s Degree in Agriculture (B.Sc.Ag.). He is the Chairman at Rural Energy and Technology Service Center (RETSC). He worked for more than 34 years in the Agricultural Development Bank, Nepal in various capacities such as General Manager (CEO), Deputy General Manager (Deputy CEO), Regional Manager, etc. He has 26 years of experiences in renewable energy sector with key experiences on guiding in promotion and development of various Renewable Energy Technologies such as Improved Cookstove (ICS), Improved Water Mill Technology (IWM), Briquette Technologies and Hydraulic Ram Pump for the benefit of rural communities.
Mr. Lumin Kumar Shrestha, Member
Mr. Lumin Kumar Shrestha holds M.Sc. Degree in Agriculture Economics from University College of Wales, UK. He is one of the founder members of CRT/N. He holds about three decades of experiences in various rural and appropriate technologies during his tenure at CRT/N. He also had experiences of agricultural financing while working in various capacities in the Agricultural Development Bank, Nepal for 20 years.

Mr. Birjung Prajapati, Member
Mr. Birjung Prajapati worked in National Trading Limited for 21 years in various capacities from Officer to Division Chief. He also worked in Agricultural Tools Factory, Birgunj as Senior Production Engineer for 12 years. He has served as Board Member of CRT/N since 2002 to date. He has pursued Bachelor of Science in Agricultural Engineering (Machine Option) Degree from Technion, Israel Institute of Technology, Haifa, Israel.

Mr. Damodar Karki, Member
Mr. Damodar Karki worked in CRT/N from February 16, 1992 to April 1, 2014. He started his job as Technical Officer and upgraded to Senior Officer in 1995. Currently, he is contributing as Board Member of CRT/N. Under his supervision and coordination CRT/N has conducted demonstration activities on various renewable energy technologies such as Improved Cookstoves, Improved Water Mill, Solar Cookers/Dryers, Hydraulic Ram Pump etc. promoted by CRT/N.
Women comprise more than half of the Nepal’s population, and their full inclusion is vital to ensure sustainable energy for all. Climate change and energy poverty have a disproportionate effect on women, and one of the most effective ways to ensure that renewable energy policies and practices consider the gendered impacts of energy to make aware and empower women.
Awards and Recognition


- Improved Water Mill Programme was selected as a final nominee for Energy Globe Award 2010;

- The Ashden Awards for Sustainable Energy 2007 to ‘Improved Water Mill Support Programme’ (Ashden Trust for Sustainable Energy, UK);

- Recognition as ‘Women in Energy and Water Management Project’ as best practice by Wuppertal Institute for Climate, Environment and Energy (WISION), Germany in 2004. The Project was implemented by CRT/N with support from UNEP/ICIMOD during 2002-2004;

- Consolation Ashden Awards for Renewable Energy 2002 (Ashden Trust for Sustainable Energy, UK);


- CRT/N Project Registered at Expo 2000 Hannover, Germany.

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Email: info@crtnepal.org
Web: www.crtnepal.org