

Annual Report 2018

2017/2018 (2074/ 2075 BS)



**Centre for Rural Technology, Nepal
(CRT/N)**

Towards action for development.....since

1989



Created awareness among 5,000,000 through mass awareness, local campaigns and use of various media



Installed 30 hydraulic ramp pump



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



3, 10, 000 ICS (Mud and Metallic) were installed and distributed



Entrepreneurship opportunities created for 2800 Women entrepreneurs





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.

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 livelihood

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.

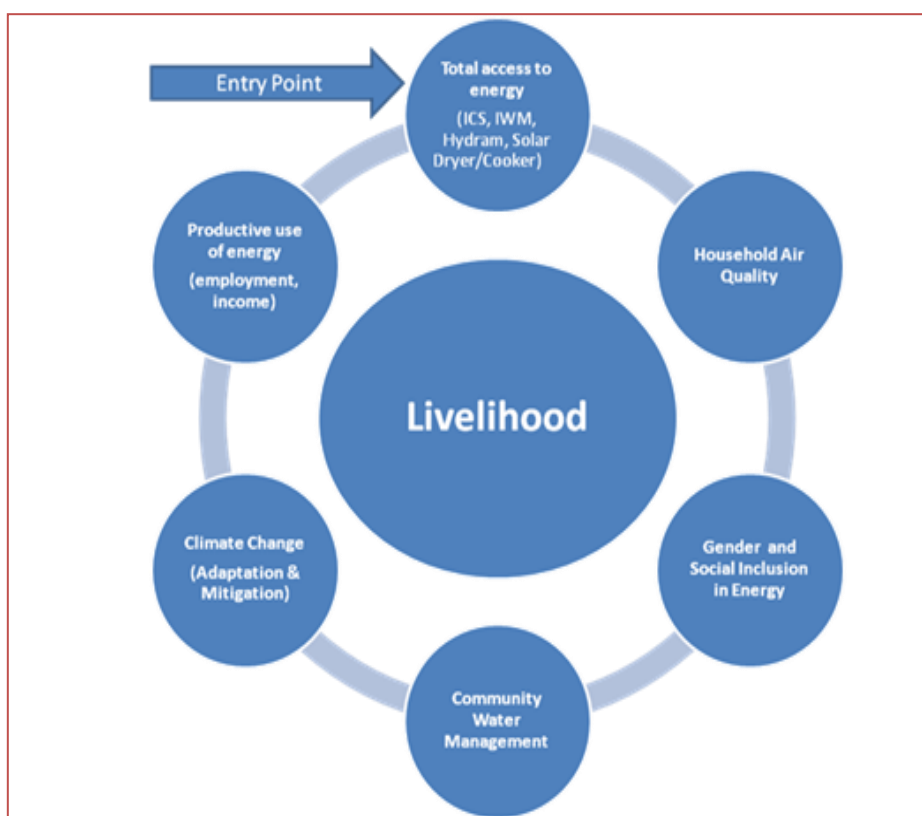
About Centre for Rural Technology, Nepal (CRT/N)

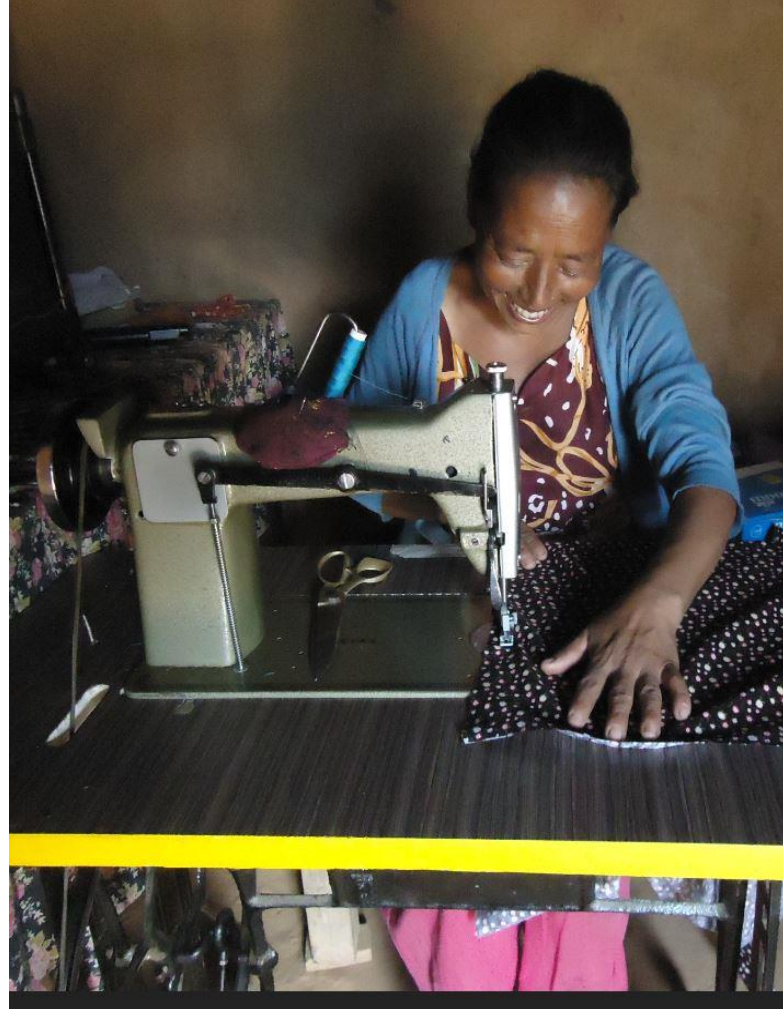
Centre for Rural Technology, Nepal (CRT/N) is a professional non-governmental organization engaged in developing and promoting appropriate rural technologies effective in meeting the basic needs and improving livelihood of rural people. Established in August 1989 under the Company Act, CRT/N has been 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.

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





Chair's Statement



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. Till now 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 3,10,000 ICS (Mud and Metallic), built 9000 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

Foreword



Mr. Ganesh Ram Shrestha, ED

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 supports 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, 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.





Our Programme Highlights

WEE Nepal Programme (September 2014-March 2018)

Achievements

Energy Access Component

- 292 women sold or installed 36,257 ICS benefitting 181,345 Consumers.
- 119 Users and 6 Vendors received total loan amount of 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 of 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%
- (Client Satisfaction Survey, REWNET Report, 2016)

CRT/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 development and implementation of the project. 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 women 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 women entrepreneurship initiatives, the CREE has established a Women Entrepreneurship Development Fund setting aside a small amount from its own resources. Establishment of the Fund has encouraged women entrepreneurs to deposit some of the savings in the Fund on monthly basis. The women entrepreneurs will benefit from the Fund in terms of receiving small loans at nominal interest rate. In an area where no financial institution exists, the Fund provides easy access to finance to the women entrepreneurs.

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



Energy: Empowering Women Uplifting Lives (Advocacy Project)

Baseline Assessment of 130 CSOs

From the baseline assessment of 130 CSOs the following findings were made:

- 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 was 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's 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 recognised 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.

Development of curriculum on RE 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 program at the local level and the national level at large.



The general objective of the curriculum development

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:

- Identifying the scope of renewable energy
- Identification and promotion of renewable energy which are locally available
- Able to know the importance and uses of renewable energy
- Creating awareness about renewable energy
- To know about that fact that energy will support in income generating activities
- To enhance the livelihood of people through renewable energy
- To taught about the advantage and disadvantage of renewable energy
- To adopt locally available energy

स्थानीय पाठ्यक्रम

नवीकरणीय ऊर्जा

१. आवश्यकता पहिचान

प्रस्तुत नवीकरणीय ऊर्जा विषय (क्षेत्र कक्षा १-५ को स्थानीय आवश्यकतालाई मध्यनजर गर्दै यो पाठ्यक्रम निर्देशिका बमोजिम सामाजिक अध्ययन विषयको २० % स्थानीय आवश्यकतालाई मध्यनजर गर्दै यो पाठ्यक्रम तयार पारिएको हो ।

मानिस समाजिक प्राणी हो । ऊ समाजविना बाँच्न सक्दैन, त्यसैले उसलाई सामाजिकीकरणको साथसाथै उच्च जीवन स्तरको लागि आफ्नो समाजमा उपलब्ध हुने स्रोत र साधनको उचित पहिचान गरी अधिकतम फाइदा लिनु आवश्यक छ, त्यसैले उपलब्ध प्राकृतिक स्रोत र साधनको उचित प्रयोग गरी नवीकरणीय ऊर्जाको परिचय, महत्त्व, फाइदा र प्रयोग गरी स्थानीय आवश्यकतालाई परिपूर्ति गर्न कालिा बालबालिकाको प्रतिभा उजागर गरी समाज विकासमा अग्रसर बनाउने र स्थानीय आवश्यकताको बारेमा छलफल बहस र पहिचान गर्न मद्दत मिल्ने देखिन्छ । हाम्रो देश नेपाल प्राकृतिक रूपमा धनी देश भए तापनि विजुलीको अत्याधिक लोडसेडिङ, स्थानीय स्तरमा प्रयोग गर्न सकिने नवीकरणीय ऊर्जाको ज्ञान नहुँदा परम्परागत रूपमा नै कार्य गर्दा जीवनस्तर उकास्न कठिनाई भएको देखिन्छ अतएव कक्षा १-५ सम्म पाठ्यक्रम विकास केन्द्रद्वारा स्वीकृत निर्देशिका बमोजिम ऊर्जाको क्षेत्रको पहिचान र प्रयोग गर्न एवं विद्युतीय उपकरणको प्रयोग गर्न यस पाठ्यक्रमले स्थानीय आवश्यकता परिपूर्ति गर्न सहयोग मिल्ने आशा गरिन्छ ।

२. साधारण उद्देश्य

प्राथमिक तह (१-५) उत्तीर्ण गरेका विद्यार्थीहरूले निम्न कार्य गर्न सक्षम हुने छन् :

१. स्थानीय तहमा उपलब्ध हुने नवीकरणीय ऊर्जाका स्रोतहरू पहिचान, प्रयोग र प्रवर्द्धन गर्न सक्ने छन् ।

३. विशिष्ट उद्देश्य

नवीकरणीय ऊर्जाको क्षेत्र पहिचान गर्न,
स्थानीय तहमा पाइने नवीकरणीय ऊर्जाका स्रोतहरू पहिचान र खोजी गर्न,
नवीकरणीय ऊर्जाका महत्त्व र प्रयोगबारे बताउनु,
नवीकरणीय ऊर्जाको परिचय, ज्ञान र जनचेतना फैलाउनु,
ऊर्जाले आर्थिक उपादेयतामा मद्दत गर्ने कुरा पुष्टि गर्न,
ऊर्जाको फाइदाबाट जीवनस्तर उकास्न,
नवीकरणीय ऊर्जाको फाइदा र बेफाइदाबारे बताउनु,
स्थानीय ऊर्जालाई नमुनाको रूपमा स्वीकार्न ।

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. Conducting sensitization program 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. We mobilised the press during events such as the national workshop on Gender and Energy and the training on gender and energy. We 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 program

The Advocacy project collaborated with the “Golden 1000 days program” 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 program “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 a women focused microfinance program (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 outreached 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 Rs.12000 to Rs. 50,000 at an interest between 12-15 percent interests. Twelve of these had above 90 percent repayment rate. The total outstanding loan was between 25000 to 100,000 NRs. an average of four defaulters.

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 are conducting Gender and Energy Research Programme focusing on the political economy of energy sector dynamics from January 2015 to December 2018. The research 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 the macro-level, where the formulation of energy policies and programmes by central governments take place. 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 practice.

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/VDC members
- Held focus group discussions with business groups/mother's groups/energy users groups/farmers' groups

- Held interviews with SHGs/PRI/SCGs/ village and ward leaders/small business groups

Green Inclusive Energy (GIE) Project, Nepal

LOCAL GOVERNMENT HAS INTEGRATED GIE IN THE ANNUAL PLANNING



CRTN under GIE project have conducted Lobby & Advocacy (L&A) activities of the local government in Sindhuli, Dhading, Kavre, Lalitpur districts. This included meetings with: the Environment and Energy department of the District Co-ordination Council, the Ministry of Federal Affairs and Local Development (MoFALD), local elected bodies, stakeholders of the National Environment Friendly Local Governance Program, 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, has signed a commitment to integrate GIE in their plan. In doing so, the municipalities committed to work closely with CRTN and NEFEJ to promote clean cookstoves in their respective districts.

ALLIANCES WITH MEDIA GROUPS ESTABLISHED TO REGULARLY COVER AND RAISE PUBLIC AWARENESS ON GIE ISSUES



The GiE project 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 5 million people focusing on clean cooking, lighting solutions, and energy for productive use and the role of women as RE entrepreneurs.

The Nepal Federation of Environment 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. The result of this has been the Radio Sagarmatha has 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 listener's feedback indicates that the radio drama "Juneli" has received positive feedback from the listeners of Radio Sagarmatha.

CONSUMER PLATFORMS CONTRIBUTE TO BETTER TRANSPARENCY ON GiE POLICIES AND PRACTICE



The GiE project 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 Entity) is important to enable CREEs to function in an inclusive way. NACEUN as the national federation of all CREEs, has thus conducted trainings for the executive committee of the CREEs in three districts in Tanahu, Nawalparasi and Gorkha in December 2017. The trainings focused on T&A principles, gender concepts, leadership skills, information sharing and public reporting methods. As a result, in September 2017, three Community Rural Electricity Entities (CREEs) from three districts (Tanahu, Nawalparasi and Gorkha) in Nepal revised their bylaws to include mandatory 30% female participation in their executive committee and in the public meetings and to report on budget spent on gender related activities and 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.

FACILITATE PRIVATE SECTOR ENGAGEMENT IN ENERGY ACCESS POLICY DIALOGUE WITH THE GON



As the advocacy body for the private sector, Renewable Energy Confederation of Nepal (RECON) lobbied key decision scion makers from AEPC and the Ministry of Population and Environment through meetings and in discussion forums to amended 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, want 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 NACEAU 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 Analysing 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.

1.1. ENHANCED CAPACITY OF THE CONSORTIUM TO ENGAGE IN GiE L&A and TA ACTIVITIES

CRTN has led the capacity assessment of the GiE project consortium partners and the development of a capacity development action plan to implement that project successfully. The “5 Capabilities (5C) approach” was adopted, using the following methodology: a) consortium partners completed a self-assessment questionnaire to identify capacity needs b) a consultant reviewed the questionnaires and conducted follow-up interviews with the consortium partners to elaborate on the capacity needs identified c) the consultant conducted a SWOT analysis and visualised the capacity needs in a spider diagram d) a workshop was held to review and discuss the analysis, agree on the strategic options to address the consortium partners’ weakness and build on their strengths, and prioritise these into an action plan.

- A participatory and interactive workshop on Gender Equality and Social Inclusion
- Training and on the job mentoring on advocacy and skills of lobbying
- Outcome Harvesting training session (may be combined with ToC training)
- Hands on capacity building through real time use of theory of change, learning agenda and outcome harvesting
- A awareness training-workshop on Transparency and Accountability
- Communication strategy
- PMSD training

ENHANCE KNOWLEDGE AND SKILL IN THE HEALTH SECTOR ON THE LINK BETWEEN HAP AND HUMAN HEALTH

The GiE project identified the trainings of trainers (ToTs) that its consortium partner Indoor Air Pollution and Health Forum Nepal (IAPHF-Nepal) provides 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 interlinkages between HAP, clean cooking solutions and health. IAPH Nepal thus invited the Director and key technical



staff from to attend ToTs held in Kathmandu. IAPH Nepal also invited to the ToT, key officials from the Alternative Energy Promotion Centre (AEPCC), the government nodal agency for RE, as resource persons to explain the importance of clean cooking solutions from the perspective of another government agency. The ToTs were followed up by several regular in-person and telephone meetings with DoHS, IAPHF-Nepal and CRT/N from August to December 2017. As a consequence, the DoHS has formally recognized HAP and clean cooking solutions as important issues to take up in its work in the health sector, in particular by changing its training curricular to include the issues as a standard topic in the training of government health workers and in the communication protocol used by health workers in their interaction with mothers and their children during their extension visits to local communities. It is expected that this will result in a change of behaviour of women and men to adopt and use clean cooking solutions.

"Advocating for upscaling for local climate solutions as Eco Village Development as a mean to strengthen pro-poor climate agenda in South Asia" (Spetmeber 2017-June 2018)

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. The two challenges of poverty and climate change can be addressed with one set of solutions, as we in the EVD project are doing with the locally-based eco-village development concept and solutions.

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

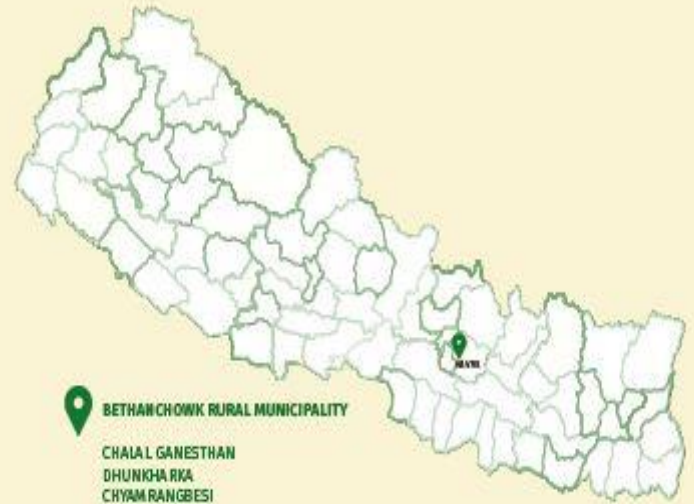
Sushila Shrestha, resident of Bethanchok-2 has been practicing vermi composting at her house after she got training organized by CRT/N under EVD project. She was happy to learn this process and informed that the household waste is now not gone waste but transformed into a valuable substance that she called "black gold." The manure from vermi 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



BETHANCHOWK RURAL MUNICIPALITY
CHALAL GANESTHAN
DHUNGKHARKA
CHYAMRANGBESI



Improved Water Mill



Hydraulic Ram Pump



Portable Improved Cook Stove



Solar Home System

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 Chyamrangbesi.



Plastic Tunnel
(Off Season Vegetable Farming)



Waste Water Management and Micro Irrigation



Fish Pond



Cow-shed Management



Biogas Repairing and Maintenance



Bio-composting



Rain Water Harvesting



Plantation of Hi-value Trees and Fruits

“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 programme 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 has worked in seven districts: Kavre, Sindhuli, Khotang, Udayapur, Makawanpur, Dhading and Nawalparasi.



Constructed Intake and Canals IWME



Installed Turbines and related accessories



Constructed Power House of IWME





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 enterprise 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

RTKC Activities during 2017-18



142

under Hood Performance and
Emission Monitoring Test



72

Field Emission Measurement



2

IAP Measurement



60

Seasonal Kitchen Performance
Tests



476 + 199

User Perception Surveys



54

User Acceptance Tests

During 2017-18, RTKC Nepal in partnership with multiple national and international organization for conducting abovementioned lab and field based research and emission measurement. RTKC Nepal has been providing its lab testing service to clients as well as researcher. The ratio of the under hood Laboratory Emissions Monitoring System (LEMS) test on research to client is 4:10 for the year.

RTKC Nepal also concluded two ongoing research projects during the period:

- Product Development and Labeling of Clean Cookstoves and Standardized Biomass Fuels for Nepali Market

The WB funded project had a vision to promote adoption and market of clean cookstoves and clean biomass fuel by introducing product branding and labeling in Nepal. Initial perception mapping survey amongst 476 households and additional validation survey amongst 199 households were completed. Based upon the requirement of the region conformed by the perception survey, 7 different cookstove models were assessed for acceptance in 54 households of four different regions of Nepal.

- Field studies to provide black and organic emissions performance metrics of liquid/gas fuels during uncontrolled usage in households

Three seasonal kitchen performance tests along with 79 on site Emission Monitoring of cookstoves were completed.





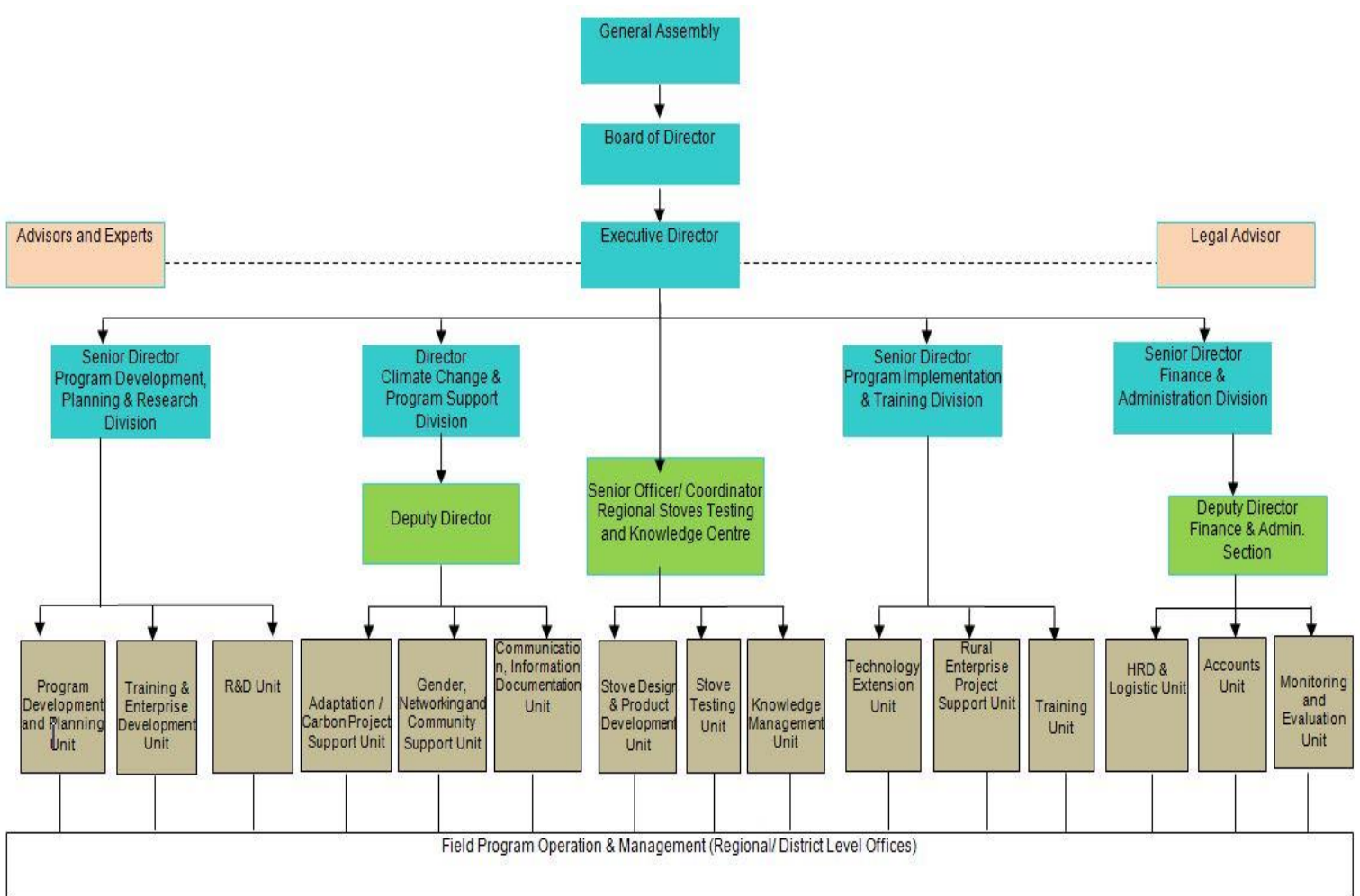
Vertical Farming: A new way to grow food



Technology Information: A technology that utilizes energy from water flowing from a certain height and pumps a fraction of the flow to greater heights.
Benefits: Drinking Water and Sanitation, Micro Irrigation, Cattle Rearing, Fishery



➤ Organizational Structure



➤ Board of Director

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. 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. Nanda Ram Baidya, Member

Mr. Nanda Ram Baidya worked in Agricultural Development Bank, Nepal for 32 years in various capacities from Officer to Deputy General Manager. He was the first General Manager (Chief Executive Officer) of Biogas and Agricultural Equipment Development Company (a sister concern of ADB/N) from 1979 to 1984. He is the Treasurer and the Founder Member of CRT/N since its inception to 2016. He is one of the founder members of Centre for Self-help Development (CSD) and Chairman of Governing Board of CSD from 1996 to 2004. Besides, he is the Founder Promoter of

Swabalamban Laghu Bitta Bikas Bank Limited (*Swabalamban Micro Finance Development Bank Limited*). He had served as Chairman of Swabalamban Laghu Bitta Bikas Bank for 10 years. He holds Master's Degree in Commerce (M. Com) from Tribhuvan University, Nepal (T.U.), Kirtipur, Kathmandu.



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. 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. 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.

➤ 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, Programme Officer
13. Ms. Kaushila Rai, Senior Programme Assistant
14. Ms. Cheeja Adhikari, Senior Technician
15. Mr. Farsha Prasad 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

➤ CRT/N'S Working Districts

SN	Project name	Working area
1.	WEE- Nepal	Khotang, Udayapur, Sindhuli, Kavrepalanchok, Lalitpur, Dhading districts
2.	Energy: Empowering women Uplifting Lives.	Dhading, Kavrepalchowk, Lalitpur, Udayapur, Sindhuli, Khotang
3.	Energia: Gender and Research Programme	Kailali, Rupendehi, Kavreplanchowk and Dhading
4.	Green and Inclusive Energy Project (GIE)	Throughout Nepal
5.	EVD Project	Kavrepalanchwok
6.	IWM E Project	Sindhuli, Makawanpur, Dhading, Kavre, Khotang and Nawalparasi.
7.	RTKC	Kathmandu

➤ Awards and Recognition

- ❖ Certificate for Promoting Energy based Livelihoods and Entrepreneurship for Rural Women through JFPR Grant 9158: Improving Gender – Inclusive Access to Clean and Renewable Energy in Bhutan, Nepal and Srilanka April, 2016.
- ❖ Honored for Special Contribution to Biomass Energy Support Programme Award from Alternative Energy Sector Assistance Programme, July 2012;
- ❖ 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);
- ❖ Green Energy Letter of National Felicitation 2001 (Green Energy Mission), Nepal;
- ❖ CRT/N Project Registered at Expo 2000 Hannover, Germany.

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