



# **RENEWABLE ENERGY PROGRAM**

**IN POOR RURAL COMMUNITIES IN GEORGIA,  
MOLDOVA AND BOSNIA AND HERZEGOVINA**

March 1 – December 31, 2020

Implemented by:

Rural Communities Development Agency in Georgia

ACT Ormax in Moldova

Regional Development Service in Bosnia and Herzegovina

## PROGRAM SUMMARY

CWS Europe, in conjunction with local partners, is committed to helping people in rural areas access sustainable energy. We primarily accomplish this by utilizing Renewable Energy Technologies that enable farmers, internally displaced persons, returned refugees, eco-migrants and other vulnerable groups to overcome poverty and build sustainable livelihoods.

This program provides training and resources for families and communities to utilize renewable energy resources and to develop cooperatives and social enterprises. As a result, families can decrease their traditional energy consumption and improve their livelihoods. CWS prioritizes participation of women in decision-making processes through women-led cooperatives that improve social infrastructure and support women's skills and abilities to engage in income-generating agricultural production and processing. The promotion of women-led cooperatives was a result of CWS encouraging its prioritization to partners, first in Georgia and then replicating similar actions in Moldova and Bosnia and Herzegovina. The need for learning inspired us to connect our partner organizations and enable knowledge sharing and exchange of good practices.

The project started on 1 March 2020 and ended on 31 December 2020. CWS was a co-funder of the project, alongside Week of Compassion.

The main project objectives are:

- Promoting and securing renewable, eco-friendly sources of energy for population in need;
- Developing livelihoods and addressing economic needs of rural population;
- Empowering marginalized rural women through establishment of cooperatives based on RET; and
- Assessing the impact of the project and sharing knowledge and good practices nationally and regionally.



## PEOPLE SERVED

A total of 2,701 participated in this program during the entire project, including 1,319 children  
About 54% of program participants were female.

## PROGRESS TOWARDS PROGRAM OBJECTIVES

Indicator	Progress to date
<b># of photovoltaic panels installed (at least 10)</b>	16 photovoltaic panels
<b># of mobile solar panels distributed (at least 20)</b>	24 mobile solar panels
<b># of solar water heaters installed (at least 10)</b>	19 solar water heaters
<b># of people trained in use of RET (at least 50)</b>	190 people
<b># of people trained in livelihood related activities (at least 70, out of those more than 50% women)</b>	106 people (72% are women – 77 out 106)
<b>Inventory of available energy resources completed at least one community in Georgia</b>	Completed in two communities (Magrani and Dusheti)
<b># of people that took part in awareness raising activities (at least 50)</b>	110 people (65 women and 45 men)
<b>At least 20 women employed by the cooperative in Georgia</b>	27 women directly employed by the Kheta cooperative in Georgia
<b>At least 300 women engaged in cooperative activities in Georgia – directly or indirectly</b>	450 women
<b>At least 20 women trained in cultivation of medicinal and aromatic herbs and management of a cooperative</b>	29 women
<b>Plan for placement of wild and medicinal and aromatic herbs for cooperative in BiH developed</b>	Plan developed.
<b># of people that report savings in their household budgets due to RET (at least 20% of beneficiaries)</b>	282 people from three countries (all who received some of the technologies this year reported saving )

## CORONAVIRUS UPDATE

All three partners have continued to work despite the COVID-19 pandemic. Since March 2020, a variety of measures have been introduced in all three countries including states of emergency, curfews, bans on public gatherings and travel restrictions. Moldova revoked its initial state of emergency on May 15. Georgia followed on May 23, and Bosnia revoked its state of natural disaster on May 29. Other restrictions focused on physical distancing, mandatory mask wearing and ban on group public gathering remained in place with different modalities. At the moment, State of Public Health Emergency is effective in Moldova until February 15, 2021. In public places, including outdoors, it is mandatory to wear a face mask. Bars and restaurants are closed from 10 pm until 7 am, and people older than 63 have restriction of movement. It is not allowed to gather more than 50 people outdoors or indoors. Georgia started re-lifting some restrictions introduced again in November 2020, but the night curfew is still in place (9 pm – 5 am). Bosnia still prescribes mandatory face masks, ban on gatherings of more than 30 people indoors and outdoors and a curfew (11 pm – 5 am).

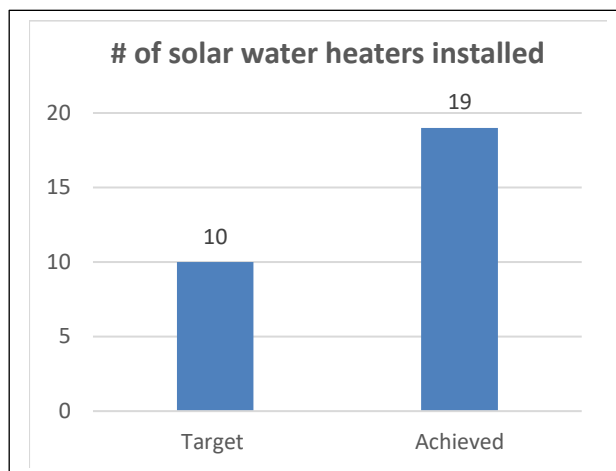
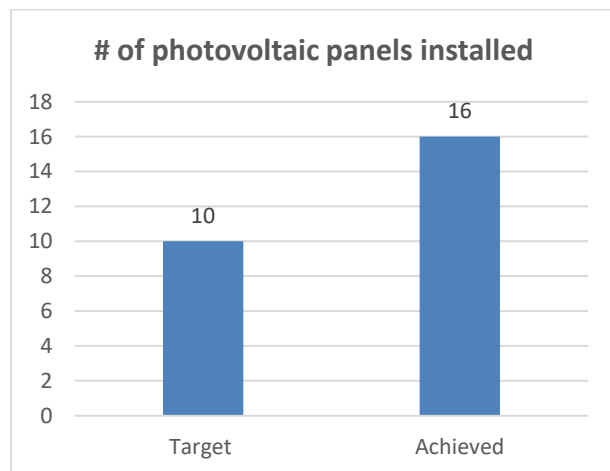
None of the partners experienced major disruptions in implementation of the project, while just a small portion of activities such as trainings, some seminars and awareness raising initiatives took place later than originally envisaged due to governments' restrictions and recommendations on physical distancing or increase in Covid-19 cases in targeted regions.

The staff was in full capacity and, where possible, present in the field. They were taking precautionary measures, and those who were meeting with program participants did so individually in order to minimize the risk of infection and followed the governments' guidelines.



## PROGRAM RESULTS

### Objective 1 - Promoting and securing renewable, eco-friendly sources of energy for population in need



The program planned to install 10 photovoltaic panels, by the end of the project a total of 16 panels had been installed representing a 160% of the target. The program also planned to install 10 solar water heaters, and by the end of the program the total number of solar water heaters installed was 19 representing a 190% of the target.

Two replicable sustainable, low-carbon footprint model farms were developed in Magrani and Mulakhi communities in Georgia. Each of the two participating families (18 people) were provided with solar water heaters, wastewater filters, solar pumps, fuel-efficient stoves, solar hybrid dryers for fruits and vegetables, animal manure platforms, and grey water filters, which were constructed in RCDA's centers with participation of the beneficiary families and support from local authorities. Despite the limitations imposed by COVID-19, the project team managed to travel to demonstration areas and successfully organized transportation and installation of the equipment. The solar water heater decreases energy consumption by 25%<sup>1</sup>, while the briquette machine can totally replace the use of firewood with briquettes made of agricultural residue. Furthermore, fuel efficient stoves decrease the consumption of firewood by 60% and solar dryers can replace conventional fuel for drying crops. Solar pumps provide water for irrigation of kitchen gardens during droughts, and animal manure platform and grey water filter prevent pollution of the nearby environment, drinking water supply systems, and rivers. In Georgia the technologies reduce, on average, CO2 emissions by 18 to 20 metric tons per farm annually.

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<sup>1</sup> The average household electric usage that goes to heating water is 25%. Switching to solar, therefore, cuts energy consumption by 25%



In Moldova, eight solar water heaters were constructed and delivered to eight families in Baroncea village, resulting in improved sanitation and access to hot water for 31 people. All families reported that beside enjoying greater comfort in their daily lives they also decreased their energy costs, thus making savings of at least 20% in their household budgets. A positive outcome for the environment is achieved through reduction of CO<sub>2</sub> emissions – it is expected that after one year the eight solar water heaters will reduce CO<sub>2</sub> emissions by about 3.6 metric tons. Forty-five children and 20 employees in kindergartens in Ochiul Alb village can now use hot water thanks to two solar water heaters provided through the program. Now children can wash their hands with hot water, and kitchen and cleaning staff don't need to heat water on stoves anymore. Besides overall contribution to the well-being and health of children, two solar water heaters should reduce

emissions of CO<sub>2</sub> by 900 kg per year. A pair of solar water heaters was also installed in a local canoe club that provides free trainings for poor children (39 children and 3 staff) from vulnerable families. These heaters were originally intended for two families from Baroncea village who dropped out of the program.<sup>2</sup>

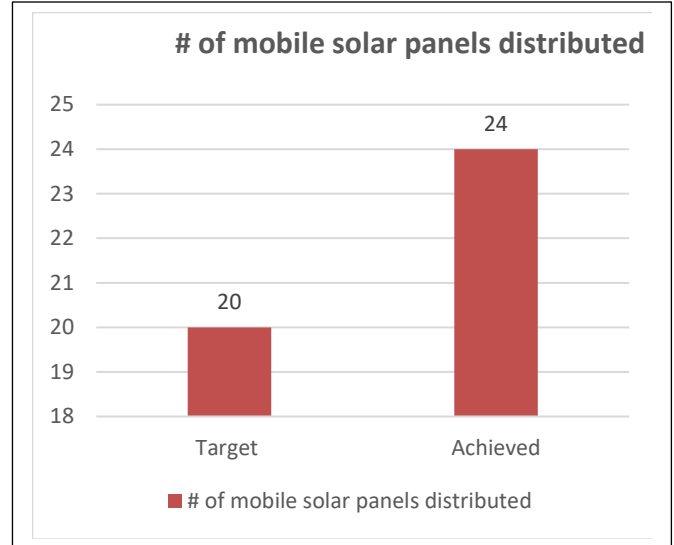
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<sup>2</sup> Two families who were originally selected for the program informed CWS local partner Ormax that they won't participate in the program anymore due to expedited immigration to Russian Federation, saying the reasons behind their move to another country were the pandemic and deepened economic crisis in Moldova.



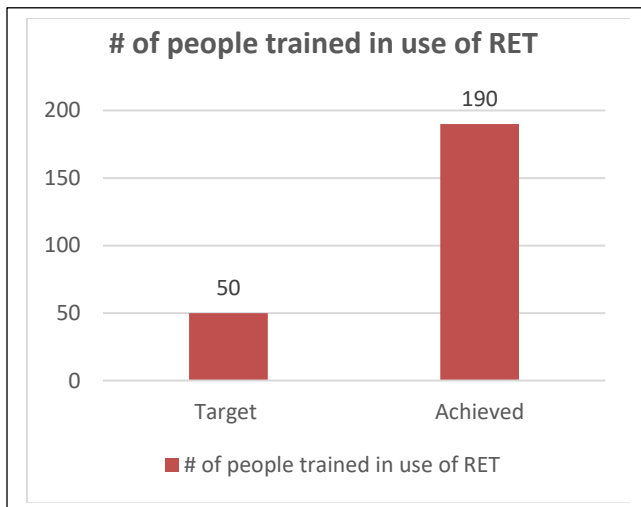
In Bosnia and Herzegovina 16 families from Sanski Most, Kljuc, Bosanski Petrovac, Bihac and Drvar municipalities received photovoltaic solar panels. These panels provide electricity for people who lived without electricity, some as long as 20 years, ever since they returned to their homes after refuge in Serbia or other parts of Bosnia and Hercegovina. Prior to installation of the panels the team completed all preparation work - connection of each household to a water source (including digging of trenches, water installation in houses, primary toilet equipment purchases and installation, purchase and installation of a water pump) and repair of electrical system in houses. The installed panels ensured that each house gets 5 kW of electricity and 120 liters of hot water per day. Now, 52 people (23 female and 29 male) from these families can use kitchen appliances such as refrigerators, have light and be able to watch television. A representative from each family was trained how to run and maintain the system, and even resolve minor issues with the equipment that might occur.





For the first time the project introduced mobile solar panels distributed to 24 families (75 people – 43 male and 32 female) who live remotely and work in agriculture and farming. In Herzegovina region, 20 families from Morina village received the mobile panels, while another 4 mobile panels were given to families living in remote villages around Drvar. This is an innovative model of solar panels – made in smaller dimensions, partially portable and can easily be uninstalled during winter when these families usually leave their houses and cottages due to very harsh weather conditions before returning again in early spring. Each user now has about 400 W of electricity per day, and can use lights, radio, TV and refrigerator, which has radically changed their lives and made doing their jobs less difficult.

## Objective 2 - Developing livelihoods and addressing economic needs of rural population



Energy Needs Assessments in two communities of Magrani and Mulakhi took place at the beginning of the COVID-19 outbreak with active participation of local residents. Due to travel restrictions, the project team was not able to lead the assessments. Instead, the local population

provided all required information following the guidance of RCDA. The purpose of the assessment is to track energy spending by households and define what interventions are required to support the communities in decreasing energy expenditures.

Inventory of renewable energy resources in two communities of Magrani and Dusheti was organized with the aim of identifying existing renewable energy resources such as biomass, forest residues, water resources and availability of solar energy based on solar irradiation map. The inventory provided opportunities to start developing communities' Renewable Energy Action Plans and providing opportunities to community members to initiate small businesses based on these resources.

The training on construction and maintenance of cool storage facility based on solar energy had 30 participants (15 men and 15 women) who acquired necessary skills for construction and maintenance of cool storage facility.

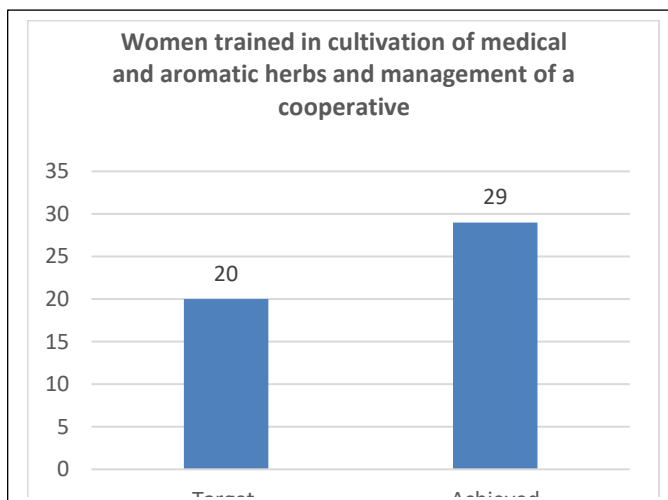
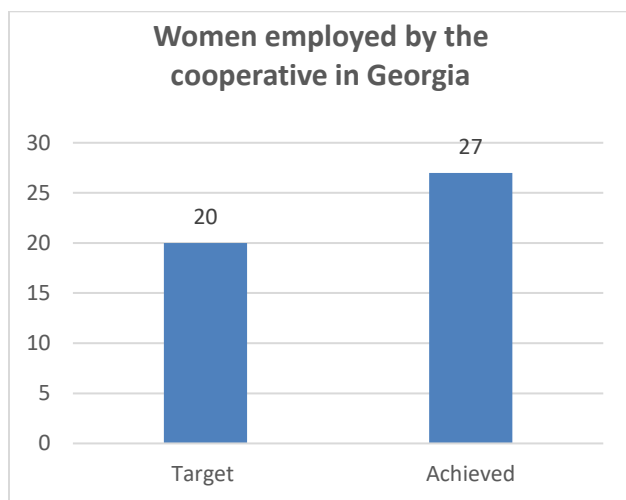
The program seminar on fruits, vegetables and herbs drying technologies gathered 30 people (10 men and 20 women) who are now able to share and transfer the knowledge they gained with other interested members of their community.

The program seminar addressing fruit and other crop storing technologies hosted 20 residents (7 men and 13 women) from Kheta, Torsa, and Pirvelimaisi communities who received knowledge in assembling and handling the crops to minimize losses.

All trainings and seminars were organized following official recommendations for prevention of the virus spread. Whenever weather allowed, the trainings were organized outside. When inside, each participant had their temperature checked, received disinfection spray and masks. The participants were seated at a distance of 1.5-2 meters from each other. It should be noted that the beneficiaries were eager to take part in the trainings and meetings once the strict restrictions were lifted in May 2020.

In Moldova, renewable energy technologies were presented to people through three trainings that gathered 120 people who learned about energy efficiency and how to use the technologies. It is interesting to note that one of the trainings was focused on young boys and girls (age 12 to 16) from the Drochia region who wanted to learn more on how RETs work and how they could contribute to improved livelihoods of their families. The first training took place at the very start of the program, before the coronavirus outbreak, while the other two were organized once the situation improved in Moldova. All epidemiological guidelines and preventive measures were respected during the trainings (mask wearing, disinfection, physical distancing among participants).

### Objective 3 - Empowering marginalized rural women through establishment of cooperatives based on RET



A women’s cooperative in the Kheta community in Georgia was supported under the previously implemented CWS project, in which 17 women from the community were hired. In this cycle, the cooperative was further developed with the provision of a 32 square meter solar powered cool storage facility with capacity to store 12 tons of crops, fully operational since November 2020.

Members of the cooperative (15 people) were trained in marketing and branding techniques of dried and stored products and developing linkages with potential buyers and partners. As a result of the training, members compiled a list of potential buyers for their dried and stored products and contacted some of them directly. The cooperative made preliminary agreements and signed memorandums of intentions with those buyers. They include two local companies from Georgia and one Russian company that has a retail network all across the former Soviet Union.

By the end of 2020 around 350 kg of sweet peppers, 2,200 kg of tangerines, and 2,400 kg of kiwis produced by cooperative members in their own orchards were stored in this facility. This

resulted in additional income of 650 GEL (approx. 210 USD) per member – a substantial increase in their households’ budgets during the economic stagnation caused by the Covid-19 pandemic. Fruit dried by the cooperative using solar powered dryers included about 350 kg of persimmons, 240 kg of apples, 300 kg of plums, and 120 kg of figs. The sales of dried fruit brought an additional 560 GEL (approx. 180 USD) to each member of the cooperative. Dried fruit was predominantly sold to companies oriented for export or directly on local farmers’ markets in nearby towns of Kutaisi and Zugdidi. Future financial projections and economic performance of the womens’ cooperative are positive. The facility showcases how the use of renewable energy can support local, decentralized energy and food production and contribute to improved livelihoods, especially important given the disruption pandemics and other disasters can cause. The cool storage facility combined with the solar drying system is an excellent opportunity for local poor households to decrease the loss of crops and gain additional income and stimulate further expansion of local production. The established enterprise can be viewed as a model of community based, community owned enterprise that utilizes renewable energy resources for the production process and showcases the transition from conventional economy to an environmentally sustainable economy.



In Bosnia and Herzegovina, the project supported women who were already gathered in a dairy cooperative in Bosanski Petrovac region, to upgrade existing and launch new commercial activities that will provide economic stability for their families. Women expressed interest to learn more about cultivation and processing of

medicinal and aromatic herbs (MAH) in order to expand their production, as they see great potential in this niche. Their aim is to increase areas planted with medicinal and aromatic herbs, as well as to create additional value by processing harvested plants in solar dryers. Group activities such as trainings took place later than originally planned due to an increase in Covid-19 cases in Bosanski Petrovac area. When the situation improved the project team held the trainings but in a different form – through one-on-one trainings/visits, in order to ensure safety of everyone involved as the November timing required them to be held indoors. In total, 41



participants (29 women and 12 men)<sup>3</sup> from 12 families took part in the following trainings: *Collection of wild plants, Cultivation of Different MAH Cultures, Farm / Estate Management Training, and Co-operative and Cooperative Principles Training*. Particularly important was the training on farm and estate management where beneficiaries gained basic knowledge of planning, management of a farm or an estate, and the basics of finance. Farm management is important for connecting women with local and national markets, with other producers, and represents a pre-condition for applying to funding calls supporting this type of activity. As a result of the trainings, beneficiaries developed a plan for planting chamomile, buckwheat, and mint in 2021. Furthermore, they set milestones for the next five years that include planting and drying various herbs and inclusion of more interested families in this initiative.

The strengthening of women's capacities in this project cycle was concluded with expert visits to each of the 12 women and their families, providing them with additional advice on planting herbs and farming.

#### **Objective 4 - Assessing impact of the project, sharing knowledge and good practices nationally and regionally**

Awareness raising seminars in two communities of Magrani and Mulakhi were conducted prior to the coronavirus outbreak in Georgia. The aim was to create understanding of local people, government representatives and local authorities on linkages between sustainable energy, environmental protection, and sustainable development and ensure support of local authorities in utilization of RET resources. Sixty people took part in the meetings (32 men and 28 women).

Following the loosening of epidemiological measures during the summer months technology demonstration days were organized in these two communities, gathering 40 attendees who learned about the benefits of technologies based on renewable resources. The team scheduled an exposure visit of 10 representatives from Mulakhi community to a women-led cooperative in Kheta. They learned how to decrease crop loss and improve livelihoods through an RET based cooperative. Visitors had an opportunity not only to see the drying and cooling facility, but also to talk to women from the cooperative who shared their experience from involvement in the project.

The radio program "Atinati" in Georgia broadcast a program about the technologies and benefits to rural communities in order to expose the wider public to the project. According to estimates provided by the radio approximately 7,000 people were reached through this activity.

In Moldova, release of the Ecotehnologia bulletin no.8 was interrupted due to Covid-19.<sup>4</sup> This edition is bi-lingual (English and Romanian) and focused on the methods of preparation and adaptation to climate change and poverty reduction through use of RETs. The bulletin reflects the accomplishments of the project and will be distributed to all ministries and relevant agencies, funding organizations, local public administrations, town halls, local, national and

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<sup>3</sup> Majority of participants were younger members of households who showed interest in developing family businesses and engaging with cooperatives.

<sup>4</sup> The consultant working on finalizing the bulletin has been hospitalized due to Covid-19 infection. This unfortunate event caused the delay of publishing the newest edition of the newsletter.

international NGOs, farmers, and local public electronically through social networks, email lists and other means. Once the Ecotehnologia bulletin no.8 is completed, CWS and Ormax will share it with the donor, if requested.



## ANALYSIS OF PROGRESS

The vulnerabilities of the target communities were increased due to the pandemic. Continuing the project was therefore a necessity for CWS, local partners, and target communities suffering from the economic crisis and now under a new threat to their health. To do this the project rearranged the activities in a way that didn't affect the project implementation and all the planned components of the project have been delivered and milestones met.

In Georgia, a Rapid Beneficiary Survey<sup>5</sup> on COVID-19 was undertaken by Khamiskuri Water Sanitation and RCDA to find out how the people in target communities are protecting themselves from the virus that helped to identify priority areas of interventions and modify project activities.

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<sup>5</sup> Most of surveyed people are aware of COVID-19 pandemic and impacts. People know how to follow sanitary and hygienic norms. Some complained of lack of availability of safe drinking water. Questions were asked about possibilities for training them on organizing water and sanitation facilities. In general, it could be concluded that people are respecting the rules of protection from COVID-19 pandemic.

Field activities considered risky were postponed<sup>6</sup> or modified<sup>7</sup>, while mobilization of local partner networks and use of digital tools made it possible to quickly and comprehensively convey



information on prevention and awareness-raising and continue project activities while respecting state's response plan. Postponed activities were successfully implemented later than originally planned, but with no negative effects on results.

Moldova saw similar restrictions as Georgia. Initially, trainings were planned for spring months, but were moved to summer because of prohibition of public gatherings during that time. Procurement of materials and equipment needed for construction and installation of solar water heaters was affected by the pandemic and related measures imposed by Moldovan government – majority of shops were closed during couple of initial months of the project, but the team managed to make orders in advance and procure the goods as soon as the shops re-opened. The only activity that could not be completed by 31 December was release of the Ecotechnologia bulletin.

Rural areas of Bosnia and Herzegovina were less affected by the COVID-19 pandemic than the rest of the country, resulting in almost uninterrupted implementation of activities. The beneficiaries who received the panels live remotely facing lesser risk of infection, with all preparatory work mostly done outdoors, so it was easy to comply with physical distancing. The trainings aimed at developing capacities of women from a local cooperative were postponed due to rise in Covid-19 cases in small town of Bosanski Petrovac, and then adjusted to take place individually (only one family per training) in households of each participant. Although that approach required more effort and resources from the project team, the targets were met and initial conclusion was that beneficiaries gained a lot through these trainings due to individualized approach. The trainer had the opportunity to assess the potential of the family (skills, infrastructure and resources) and beneficiaries felt more relaxed to ask questions and clarify some uncertainties.

In all three places, adjustments were made: purchasing necessary equipment and materials in advance, communicating with beneficiaries via phone and digital technologies, and meeting individually wherever possible.

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<sup>6</sup> RET demonstration days; Exposure visit of 10 representatives from Magrani and Mulakhi communities to Women's cooperative in Kheta

<sup>7</sup> Energy Need Assessment

## MONITORING AND EVALUATION

Due to Covid-19 travel restrictions and closure of borders that lasted throughout entire duration of the project, CWS staff was not able to conduct its regular field and monitoring visits. In regular circumstances, the visits would include meetings with program participants, visits to project sites and discussions with local partners on challenges in implementation and ways to further develop and strengthen the program. In response to this limitation, CWS maintained weekly contact with local partners who provided updates on program implementation and Covid-19 situation in their respective countries and communities.

At the start of the project in Georgia, a participatory needs assessment and baseline study were conducted which enabled the project team to assess the potential for economic benefits and scaling up, and self-reliance and self-organizational capacities of the community members involved. Baseline information was prepared on employment, incomes, agricultural production, gender, and existing renewable energy resources. This inventory of renewable energy resources in the communities was an important prerequisite for defining the existing renewable energy resources and based on this, CWS local partner RCDA, in close cooperation with local authorities, has started working on community development plans that ensure sustainable use of natural resources and new business and income generation opportunities for local people.

An Energy Needs Assessment with the purpose of tracking energy spending by households was undertaken to define what interventions are required to support the communities in decreasing energy expenditures and develop sustainable small-scale businesses based on RER (Renewable Energy Resources). Among findings is that average household firewood consumption is 11.5 cubic meters/year. Fuel efficient stoves can reduce this by 4 cubic meters.

From the beginning of the project, target groups fully participated in the design and implementation as well as in monitoring and evaluation processes. This guarantees project ownership to the greatest possible extent. The sense of ownership was the sound basis for community contributions to the project activities.

Initially, Moldovan partner ACT Ormax assessed potential beneficiaries and those who could meet certain criteria were selected to participate in the project. The criteria included interest in the project, commitment to active participation in trainings, sharing knowledge and gained skills with other members of the community, managing the equipment according to instructions, and being willing to contribute their own material resources into project – for example, in construction material needed for preparatory work. The project team conducted two monitoring visits to families who expressed satisfaction with the project and gratitude to donors. Families who received the solar water heaters reported not only improvement in their overall well-being (enjoying good sanitation and access to hot water), but also savings in their household budgets. Prior to installation of solar water heaters a family would usually spend between 50 and 60 USD on electricity per month, while now they spend 10 USD for electricity during summer and 20 USD during winter.

In Bosnia and Herzegovina data was collected from all 40 families receiving photovoltaic systems (regular and mobile) through a survey. Our local partner collected data on monthly



revenues of beneficiaries and monthly costs that are a direct consequence of the lack of electricity. The monthly incomes of these families ranged from around 150 USD/month to 300 USD/month. After the installation of the panels families reported significant savings of approx. 90 USD/month (no need to buy candles, able to store food in the fridge, etc).

## LESSONS LEARNED

The project is based on previous activities and experience of CWS and its local partners in Eastern Europe that are focused on enhancing access of rural households to clean affordable energy, mitigate climate change impacts, build the resilience of communities, provide employment and income generation opportunities, and improve livelihoods in general.

In May 2018, CWS organized a meeting of its RET partners to support shared learning and exchange of ideas. This was an excellent opportunity for our partners from Moldova and Bosnia and Herzegovina to get familiar with technologies produced by RCDA from locally available materials at much lower costs. This was especially useful for the Bosnian partner, RDS, that uses industrially built photovoltaic systems, which are much more expensive. After the visit, the team in Bosnia partnered with a local organization, Centre for Development and Support from Tuzla, that trained six local craftsmen and laborers, now part of RDS's team, to construct solar panels, solar warm water collectors, and solar fruit dryers locally. The technologies were successfully piloted in last year's project cycle in kindergartens.

This led to development of an experimental mobile photovoltaic system that can power basic needs such as lights, TV and radio. This is an important milestone for our local partner because it is the first such panel locally produced. An improved and more durable version of this panel was installed in 24 houses in remote village of Morina in Herzegovina region and around Drvar as well. What seems like a viable approach for further development of the project is combining mobile solar panels with livelihood activities such as support for modernization of agriculture production and enhancement of people's skills.

The model farms in Georgia are demonstration prototypes of future Resilient Smart villages that can be replicated in other areas. They provide opportunities for improved livelihoods and improved skills of local communities to mitigate and adapt to negative impacts of climate change, and this is direction that has great potential based on previous experience of the local partners.

As part of the CWS initiative to learn more about how climate and migration are related, RCDA – the local Georgian partner, will conduct research in communities where we already implement RET program. The goal of that research is to improve CWS's planning for climate change adaptation and risk reduction, and to help us identify new ways in which we might contribute to the dignity and safety of people who are migrating due to impact of climate change.

## Success Stories

### Moldova

*Clopotel* is a kindergarten in Ochiul Alb village in northern Moldova. Like many other kindergartens in the country, Clopotel could not afford to use electricity or gas to heat the water, which meant that children and staff simply didn't have access to hot water. Kitchen staffers had to heat water on stoves every time they had to do the dishes. "It made me sad to observe that," said Lilia Cebotari, the kindergarten's director. Local authorities didn't have resources to help her solve this issue, leaving her to find the solution on her own. Over time, Lilia learned about the positive experiences of other kindergartens in the region that took part in CWS and Ormax RET project. She also connected with CWS's local partner in Moldova, Ormax, and attended one of their seminars dealing with renewable energy technologies. After hearing about the benefits of solar water heaters, she knew that this technology is the right one for her kindergarten.

In 2020, Clopotel was selected as the recipient of two solar water heaters, which were installed on the roof of the kindergarten. Prior to installation, the kindergarten's employees--in joint effort with local authorities--managed to repair the kitchen and boiler room where part of installation was supposed to be located.

Now, children are using hot water to wash their hands and faces, which is very important to have during the pandemic, and the staff doesn't need to heat the water anymore when doing the dishes or cleaning. The kindergarten is already making some savings because they are using less electricity, but also contributes to the environment.

"We are all extremely proud that we managed to bring hot water, comfort and good sanitation to the kindergarten in our village. Children and my staff are much happier because now, working conditions are so improved," concluded Lilia.



## Georgia

People, particularly women, living in remote rural communities in the Samegrelo Zemo-Svaneti region of Georgia are facing serious difficulties in accessing jobs, income and energy sources. The lack of access to energy resources has a negative impact on livelihoods in local communities and impairs their capacity for further development. Women and children bear the main burden of problems caused by energy poverty. Many of them are unable to find enough firewood or biomass they need for heating of their houses or cooking. Due to high prices the households cannot afford heating or cooking using gas or electricity.

“Among many other problems in sustaining livelihoods the main problem for our family is trying to get fuel to heat the house and cook meals, to sell the fruits and vegetables, to get some inputs to sustain the livelihoods It is very hard to haul heavy firewood every day and travel big distances with such a load. I often get a pain in my knees and my back. In addition, expenses for gas and electricity comprises some 30% of our scarce incomes,” says Tamar Chumburidze, the head of the women’s cooperative in Kheta.

“I live in the village of Kheta in the western part of Georgia. I am a mother of three and have two grandchildren. We all live together and our main source of income is a small plot of land where we grow [bay] laurel trees, vegetables and fruits for sale. Three years ago, my husband passed away and the whole burden of sustaining our livelihoods was left on me and the children. The incomes we make is hardly enough to meet the ends and cover basic needs” –Tamar continued her story.

“Thanks to the project we became well aware that if need to change our lives we need to do it ourselves, so with the support of the program and together with my neighbors, we initiated women’s cooperative in our community and organizing drying and cool storage facility for storing and drying fruits and vegetables that we cultivate at our small plots of lands”.

Tamar said, “The cooperative provides jobs to over 30 women and young people and involves over 300 people that have the opportunity to sell their products locally. Each cooperative member in 2020 gained GEL 650, which is a substantial money during the economic hardship period caused by COVID-19 pandemic. Me and my neighbors know that the Christmas and New Year will be happy for us and our families as we’ll have enough fuel for heating and cooking, but also we’ll be able to afford presents for our children and family.”

Tamar finished her story, ***“The members of cooperative, including me, are confident that our cooperative will bring better quality of life and create sound foundation for the future in our village.”***

## Bosnia and Herzegovina

Morine is a hut settlement high in the mountains of the Herzegovina region in Bosnia-Herzegovina. For centuries, people in this area have been practicing a nomadic lifestyle and are well-known for cattle breeding and producing cheese.

The roughly 20 families in Morine are dedicated to preserving their tradition of cattle breeding far from industrialized farms. But in order to make this happen, they face a lot of sacrifice and hardship. A family would usually spend around nine months each year



in the huts that don't have electricity because the area is remote and quite far from the grid. People retreat to towns only in the winter, when the weather is too severe to stay in Morine.

The Brenjos are one of the families in Morine. The family consists of parents Miodrag and Radivojka and their three children: Dejan (17), Aneta (13) and Vladan (5). The Brenjos earn their living by breeding cows and sheep and producing a special type of cheese, which they sell in Sarajevo and western Herzegovina. As part of the CWS-supported Renewable Energy Technologies program, the Brenjo family received a mobile solar panel, which enables them to access electricity. Mobile solar panels are an innovative model of solar panels, since they are smaller and are partially portable. Most importantly, they can be uninstalled in the winter when the families leave their huts and cottages in the Morine settlement due to the harsh winter conditions.

Radivojka said that their everyday life became better once they received the mobile solar panel: "Now, I can plug in the fridge and preserve milk inside. We are even considering buying some smaller size specialized fridge for milk to ease the production."

For Miodrag, the most important benefit is having electricity in the evening. "It's so hard, especially when it gets dark so early. We were restricted from so many things. Now we can listen to the radio. We'll try to get a TV next year, as well," he explained. This would finally allow 5-year-old Vladan to watch cartoons like other children do. "The most important thing is that our life became less challenging. It is much easier to perform our job now. We can even plan to introduce some new things in our work, which was not possible before."

"A big thank you to all of those who helped not only my family, but all families in this settlement," he added.