

# RENEWABLE ENERGY

## Efforts and Benefits of Mainstreaming Gender in the SADC Renewable Energy Sector



## Renewable Energy Innovations

### INTRODUCTION

It is imperative that the SADC region addresses the need for renewable energy to enable socio-economic growth and sustainable development. Challenges such as climate change and global warming have intensified the need for renewable energies as a more sustainable way of development that can improve livelihoods for the population if the region, especially those that are off-grid.

SADC Member States have instituted renewable energy programmes in recent years in pursuit of energy efficiency and to manage the challenges of the power deficit in the region. Guided by the Southern African Power Pool (SAPP), the region has sought to manage the shortages by focusing on renewable energy to drive socio-economic growth and industrial development. The benefits of renewable energy are many, and have the potential to address the challenges faced by people in areas without access to electricity. Access to renewable energy can promote gender equality, women empowerment, and improve access to water, healthcare, education, and employment among others, as shown in this publication.

Issues of access to energy affect women disproportionately to men. In most of the SADC region, women and girls are largely responsible for household and community activities, including energy provision. This makes women susceptible to time poverty when it comes to development activities, as there are competing demands for time use, concentration and effort. The discourse on access to various forms of energy, inclusive of water, cooking and industrial energy therefore requires the inclusion of marginalised

and vulnerable communities, focusing particularly on the gender disparities. The inclusion of key principles of gender equality and equity is pivotal to successful solutions for strategic socio-economic growth in the sector, which impacts on women and their communities.

As a result, a number of gender and renewable energy innovations have been established with the aim of managing power deficits and making activities more productive for those without access to consistent grid electricity. These innovations have been inspired by the amount of productive time lost by women in pursuit of alternative sources of energy such as firewood for cooking, as well as the physical and mental strain of traveling long distances to fetch water, and the environmental factors such as deforestation that accompany the search for firewood. In addition, there are safety issues that come with seeking firewood in distant, isolated areas, causing women to be susceptible to sexual and gender-based violence and attacks by wild animals.

### RENEWABLE ENERGY INNOVATIONS

In recognition of the advantages that renewable energy has for off-grid populations, particularly women and girls, the Southern African Research and Documentation Centre (SARDC) provided a platform where stakeholders could share experiences and practices on advancing gender equality and women empowerment through renewable energy innovations. The purpose was to encourage the sharing of effective practices for replication or adaptation, and to create conditions that promote improvement in livelihoods through renew-

able energy access. The virtual conference was attended by participants from regional and national organizations from eastern and southern Africa and beyond, as well as individuals whose mandate was to advance the status of women in the energy sector. The innovations were presented as solutions to some of these challenges and to advancing gender equality.

### **Reduction of Harmful Emissions**

The burning of fossil fuels such as coal, oil and gas which produce heat-trapping gases has been a major contributor to the greenhouse gases that cause climate change, now

resulting in severe and frequent storms, flooding, droughts, landslides, destruction of homes and communities. In addition, droughts are stirring destructive sand and dust storms which contribute to the expansion of deserts and reduces land for growing food. Many communities worldwide now face the threat of insufficient supply of water and food due to climate change. In the SADC region, the most of the population relies on agriculture, with men largely engaged in the cash economy while women in rural and peri-urban areas rely on subsistence farming to feed their families.

To reduce the impacts of climate change and support resilience, an innovative method is being implemented in Nepal with the additional aim of creating employment, healthy environments and gender equality.

### **BIOMASS PELLET INDUSTRY: A CLEAN ENERGY SOLUTION**

An organization in Finland, Arbonaut, is implementing a project in Nepal, a country which is vulnerable to climate risk. Arbonaut expects that their biomass pellet project will reduce greenhouse gas emissions and create employment, revenues, good health and wellbeing, and foster gender equality in the local communities in Sarlahi and Mahottari districts of Nepal. More than 90 percent of rural households in Nepal use firewood for cooking, heating and other activities, thus producing CO<sub>2</sub> gas, harmful particles and other gases. The proposed solution of replacing firewood from indoor kitchens with pellets can improve the air quality and decrease the number of respiratory infections, especially to women and children. Arbonaut will establish a biomass pellet factory to produce up to 20,000 tons of pellets annually from renewable biomass. The biomass will be collected from forests, bushes and grasses, and waste by-products of agriculture, sawmills, sugar and plywood factories. A start-of-the-art technology will be used to map available raw materials. Only 50 percent of the available raw materials will be collected to produce pellets leaving a remaining 50 percent on the ground for nutrient cycling, biodiversity and local livelihoods. The produced pellets will reduce, and eventually replace, the use of coal and firewood. The concept mitigates climate change by replacing the use of fossil-fuel energy with biomass energy. The project contributes to the emissions reduction aspiration of Nepal in line with the Nationally Determined Contributions (NDC), by removing the highly flammable biomass from the forests and using advanced forest-fire management systems. The proposed biomass pellet industry is expected to become a viable business after three years in which local people will benefit and have an opportunity to get a 10 percent equity share of the industry as well as employment opportunities. Some 200 women and men are expected to be employed by the industry.



### **Reduction in Deforestation**

The loss of trees and other vegetation can increase the impacts of climate change, desertification and soil erosion, with fewer crops, more flooding, increased greenhouse gases in the atmosphere, and a host of other problems. Deforestation in southern Africa is largely due to the cutting down of trees by farmers, both men and women, and women in search of wood fuels for cooking and other household tasks. The introduction of fuel-efficient cookstoves has been one of the innovations in the renewable energy sector that has the potential to help to reduce deforestation. Fuel efficient cookstoves were designed primarily to improve the efficiency of heat transfer to the cooking pot, thereby saving fuel and reducing pressure on forest resources. Fuel-efficient cookstoves can reduce fuel use by 20–50 percent relative to the three-stone fire. The Centre for Gender and Community Development in Zimbabwe (CGCDZ) is implementing training projects teaching women without access to grid electricity to make fuel-efficient cookstoves in an effort to reduce deforestation and the laborious tasks and time spent in walking long distances to fetch wood.

## FUEL-EFFICIENT COOK STOVES IN ZIMBABWE



CGCDZ has trained women and raised awareness on how to use firewood more efficiently to help to reduce the time spent fetching firewood and the number of trees that are harvested to get firewood. The reduced need for fuel means less time is spent looking for firewood, a task mainly undertaken by women and girls. The reduced time spent on collecting firewood has resulted in women engaging in more livelihood-enhancing activities. For example, the CGCDZ trained 25 women to make fuel efficient stoves and this has resulted in increased income.

## CLEAN COOKING CATALOGUE

The Clean Cooking Catalogue is a global database of cookstoves, fuels, fuel products, and performance data. It includes information on features and specifications, as well as emissions, efficiency and safety, based on laboratory and field-testing. The Catalogue is driven by partner submissions and serves as documentation of innovation in the clean cookstove and fuel sector. Core functions of the Catalogue are to champion the adoption of international clean cookstove standards and to serve as a tool for delivering robust monitoring and evaluation information to key stakeholders, including:

- Consumers, investors, and donors, as a resource for stove assessment and comparison
- Manufacturers, for visibility of their product performance, quality and innovation
- Researchers seeking data for advanced analysis and study
- Testing centres, to distribute results and facilitate collaboration

## Socio-Economic Empowerment

Projects such as harnessing solar power from the sun for food-processing and the drying of vegetables and fruit can save time while increasing efficiency through the use of creative enterprise in packaging and marketing their products. Harnessing water for irrigation through the use of solar-powered boreholes has the added advantage of access to safe and clean drinking water, while enabling women to actively participate in horticultural projects for both local and export markets. With more time available, women are able to share and learn from each other about more efficient ways of capitalising on renewable energy sources for socio-economic development, significantly addressing poverty and wealth creation.

A study conducted by SARDC in September 2018 on the impact of mainstreaming gender in transboundary water management, documented the multiple benefits that energy access can bring to communities, particularly women in rural areas, who generally have inadequate access to modern technologies. The study was conducted in eastern Zimbabwe, in a small community near the border with Mozambique, revealed that without access to electricity, there was no lighting at the local clinic and this had a negative impact on the women who went into labour overnight. Women had to bring their own light sources such as candles, torches and kerosene lamps, which are not a reliable source of illumination. Medication storage was a challenge as the clinic had no access to electricity for refrigeration of drugs which required such storage.

At the local school, it was difficult for teachers to teach their pupils subjects related to Information Communication Technology (ICT), as there was no means of doing practical lessons. It was an additional difficulty for teachers to stay after hours to mark books and prepare for lessons due to the unavailability of reliable light sources. The headmaster of the school noted that the school was understaffed because teachers did not want to be employed at this school due to the unavailability of electricity. People living in the community had limited access to information, as only a few had solar panels to listen to the radio and charge cellphones, community members did not have access to TV and radio broadcasts because of the unavailability of electricity in the community. However, since the Micro-Hydro and Irrigation Scheme was introduced in 2010, the community now has access to electricity.



## CHIPENDEKE MICRO-HYDRO AND IRRIScheme

The micro-hydro scheme draws water from a river in the community which it uses to power the community with electricity. The establishment of the scheme has had many benefits for women which include,

- Water – Water can be pumped for agricultural and other purposes, rather than carrying in buckets.
- Health - Women can now deliver their babies overnight with lighting in the rooms, and the clinic can stock drugs that require refrigeration.
- Education - The Chipendeke Primary School is now connected to electricity and can attract more teachers, reducing the teacher-pupil ratio as well as offering a night-school facility for adults in the community.
- Access to media - Women and children can now watch television as well as use devices such as cellphones which allow access to entertainment and information services.



## CONCLUSION

The contributions and perspectives of women, and sharing of effective practices, are essential in supporting the access and use of renewable energy in this period, during transition to a more sustainable energy system for the benefit of people and their communities (IRENA, 2020). Enabling more women to invest their skills and talents in the renewable energy sector can ad-

vance gender equality and empowerment objectives as well as fulfil the need for skills in the sector. Renewable energy innovations are a key factor in addressing the gender gaps in the renewable energy sector, and more efforts are needed to focus on research and documenting these innovations for learning and sharing, and for replication and adaptation in the context of climate change resilience. ▲

This series of factsheets on *Mainstreaming Gender in the SADC Renewable Energy Sector* is produced by SARDC through a project funded by the Austrian Development Agency. The information is drawn from the related materials of this title. Responsibility for the content of this publication lies entirely with the authors. The information and analysis do not reflect the official opinion of the Austrian Development Agency.  
December 2021



Julius K. Nyerere House  
15 Downie Avenue, Belgravia, Harare, Zimbabwe  
Tel +263 4 791141 Email sardc@sardc.net  
Website www.sardc.net Knowledge for Development

Austrian  
Development Cooperation