DCED

The Donor Committee for Enterprise Development

Redefining Power:
Women-Led Sustainable Energy Solutions

Disclaimer

There is a dominant narrative that portrays women as victims of climate change. This brief is part of a series of examples that challenges this view, portraying women as active agents of change, in the hope of inspiring donors to advance women's economic empowerment to address climate change. Donor Committee for Enterprise Development (DCED) members helped the Canopy Lab team identify the women featured in the briefs as examples of innovation. We thank the women that generously shared their experiences with us.

June 2024

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Introduction

Sustainable energy plays an essential role in the global effort to mitigate the impacts of climate change: transitioning to energy sources such as solar, wind, hydro, and biomass helps reduce greenhouse gas emissions associated with burning fossil fuels across economic sectors. Ensuring access to affordable, reliable, sustainable and modern energy for all is one of the Sustainable Development Goals, and benefits from large financial commitments and investments. However, these **investments** are not inclusive by default: supporting women-led **initiatives** can accelerate the transition towards a decarbonised and inclusive future.

Women play essential roles at all stages of the sustainable energy value chain, ranging from production and distribution, to marketing, sales, and consumption. Their leadership and contribution are essential for achieving inclusive and efficient energy outcomes, but women face barriers to participation due to factors such as inequitable access to information, education, and finance. As the experiences featured in this brief show, supporting women-led solutions in sustainable energy projects can enhance their communities' resilience to climate change and contribute to the decarbonization of industries, while contributing to sustainable, contextually relevant, and inclusive outcomes.

Sustainable Development Goals

The brief highlights the determinants of success and lessons that two women who are promoting sustainable energy solutions shared with the research team. Their experiences can serve as inspiration for the development of support packages to similar women-led initiatives in the energy sector.

TARGETED RECIPIENTS	Ms. Sadiksha Koraila at Sanima Company	Ms. Abidate Abdourahamane Woman entrepreneur
INCLUSION	**HIGH** (Increase of women applying for shares)[1]	**HIGH** (Specific targeting of teaching and supporting women as agents of change)
EMPOWERMENT	**HIGH** (Women enter the workforce and make decisions at community level)	**HIGH** (Gender analysis during design stage allows to intentionally target women)
ENVIRONMENT	**HIGH** (Environmental objectives are met because of project's focus on hydropower)	**HIGH** (Ms. Abdourahamane proved viability of turning waste into energy in Comoros)
SUSTAINABILITY	**MEDIUM** (Behaviour change at some plants)	**MEDIUM** (Ongoing issues in commercial sustainability met with ad hoc solutions)

SIDE NOTE

1 Hydropower companies in Nepal issue **local shares** amongst communities affected by new power plants. This benefit sharing process supports hydropower companies to harness support from communities and raise equity.

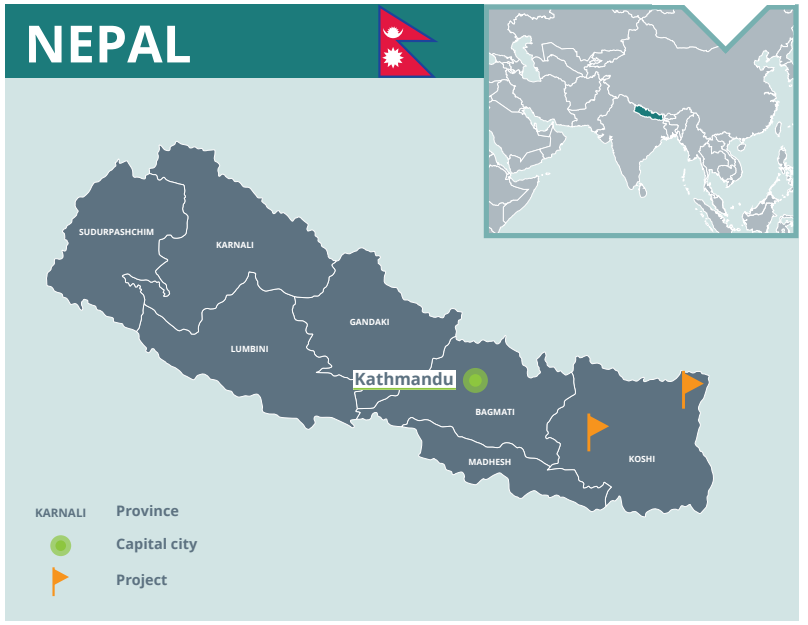
Women and sustainable energy

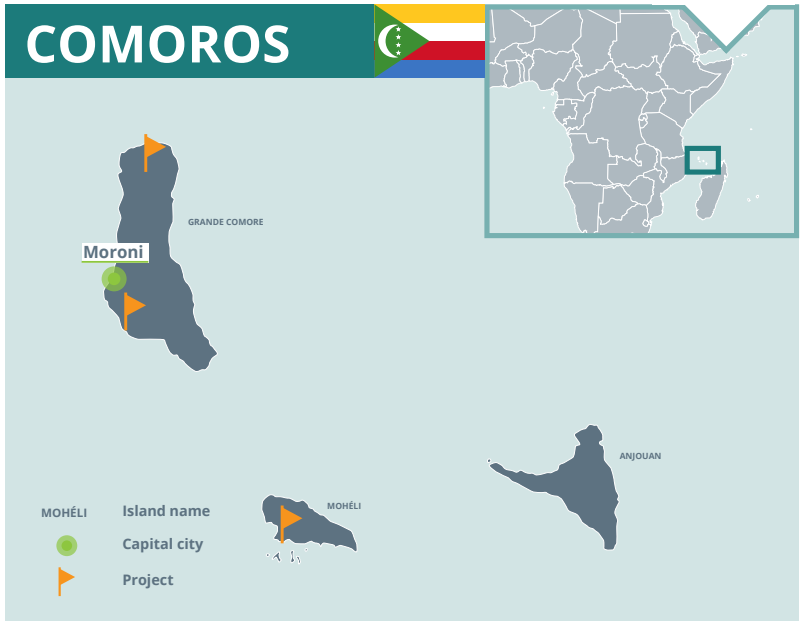
Hydropower Biomass

Carbon-reliant energy systems across the world are embedded into economic systems. Supporting women to play roles in the transition to sustainable energy sources has the potential to not only support individual empowerment, but challenge the political economic, socio-ecological and technological paradigms that have driven unequal energy access across the world to date. Because of their roles within the household, in the workforce and in society, women tend to be disproportionately affected by negative health, economic and societal outcomes derived from reliance on inefficient energy sources. These, compounded with other barriers women face due to their gender (such as limited access to training, education and resources, time limitations due to unpaid care work duties) all contribute to a gender gap in the energy sector.

This brief explores two examples of women-led solutions in the energy sphere, highlighting how have they led to environmental and economic empowerment outcomes.

While working on the same topic, Ms. Sadiksha Koraila from Nepal and Ms. Abidate Abdourahamane from the Comoros are promoting sustainable energy solutions from two different angles and at very different scales:





Through **Powered by Women**[2] initiative, Sanima Hydropower in Nepal received support from the International Finance Corporation (IFC) to increase their number of women employees and their engagement with women at the community level. The team interviewed Ms. Sadiksha Koraila, an Officer at the company.

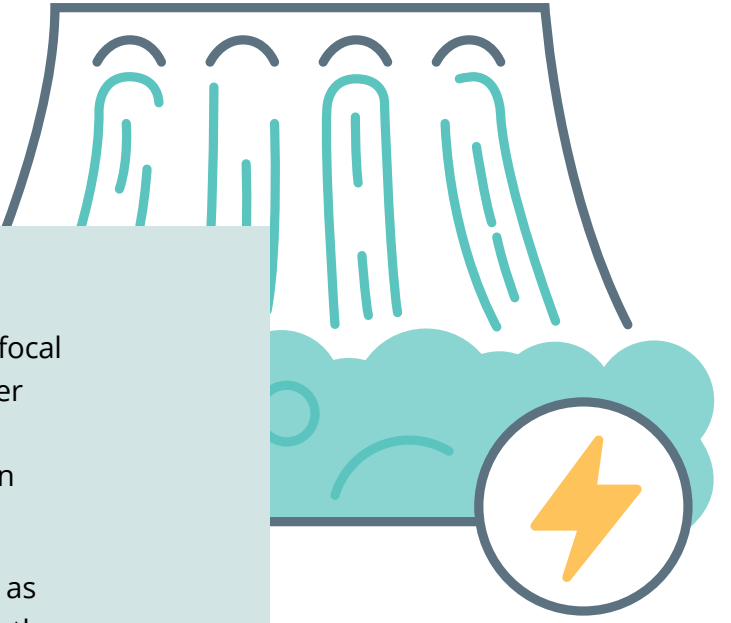
Ms. Abidate Abdourahamane is an entrepreneur who received support **from the United Nations Development Programme (UNDP) Small Grants Programme**[3] to pilot a small-scale biomass facility in the Comoros.

SIDE NOTE

2 "The Powered by Women initiative is an IFC program that helps renewable energy companies build the business case for gender diversity, drawing on global evidence that increasing the proportion of women in leadership and promoting equal opportunity employment leads to improved environmental sustainability, better ESG performance, and responsible corporate choices – and encourages entrepreneurs". **Powered By Women: Driving Sustainability And Innovation Through Gender Diversity in Nepal's Hydropower Sector.** (September 2023)

3 "The Small Grants Programme (SGP), funded by the Global Environment Facility (GEF) and implemented by the United Nations Development Programme (UNDP), supports community-led initiatives that address global environmental issues. SGP empowers local civil society and community-based organizations, including women, indigenous peoples, youth, and persons with disabilities, through a decentralized delivery mechanism at the country level". **Website**, accessed May 2024.

Sanima Hydropower: from Community Engagement to Corporate Empowerment



Sadiksha Koraila, Officer at Sanima Hydro & Engineering Pvt. Ltd. (Sanima) in Nepal

Ms. Sadiksha Koraila is an Officer at Sanima Hydro & Engineering Pvt. Ltd. (Sanima) in Nepal. She joined the company in 2021 and quickly became the focal point for the Powered by Women initiative, which seeks to help hydropower firms in Nepal reap the benefits of gender equality by involving women in leadership, fostering respectful workplaces, supporting women to take on non-traditional roles and involving women as community stakeholders.

According to Ms. Koraila, Sanima primarily committed to engaging women as community stakeholders, though it also made progress on other fronts. As the initiative is over, she shared her view on how Powered by Women changed Sanima's attitude toward women and contributed to the following outcomes.

INCLUSION

Inclusion: more women participate in benefit sharing schemes.

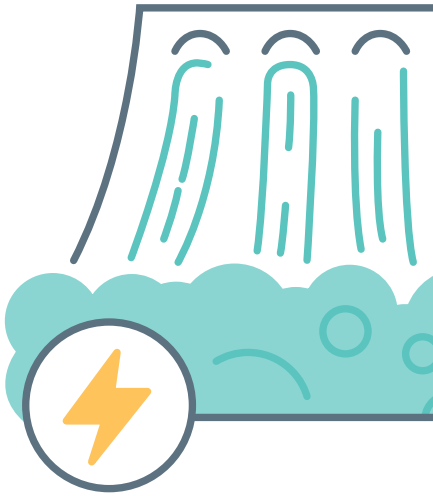
Since the 1990s, hydropower companies in Nepal have issued local shares amongst communities affected by new power plants. This benefit sharing process is regulated and has supported hydropower companies to get support from communities and raise equity. However, traditionally, men have benefitted more from the opportunity than women given differences in access to finance, financial literacy, and information.

Powered by Women support helped Sanima engage with women at several sites – through a combination of staff trainings, orientation sessions, the appointment of a stakeholder engagement officer, the involvement of the environmental team in conducting focus group discussions during site visits, and door to door consultations. As Ms. Koraila explains, "usually people from affected communities do not apply for shares, either because they do not know about it, or they do not know what they are going to get if they apply". The focused effort that Sanima made in raising awareness amongst women resulted in an increase of women that applied for shares during the public offering phases of several projects. For example, in Sanima Middle Tamor, 53%[4] of shareholders are women. Even in sites such as Swet Ganga where women hold 35% of shares, "this represents a substantial increase compared to previous experiences", according to Ms. Koraila.

Design features that contributed to inclusion as an outcome: while Ms. Koraila acknowledges that programme objectives were determined by IFC, she felt that the goals had a level of ambition that drove progress. The IFC team supported Sanima through the co-development of action plans, targets and timelines; and provided several rounds of training that helped decisionmakers at Sanima understand the business case for inclusion.

SIDE NOTE

4 Tentative figures shared by Sanima reflecting post September 2022 data.

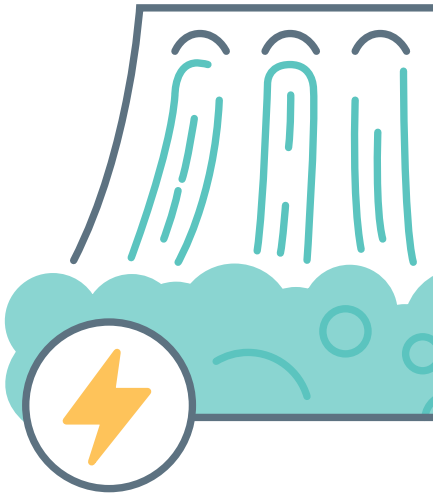


ACCESS

Access: women enter the workforce and make decisions at the community level.

Women's ability to engage in remunerated economic activities is an important determinant of Women's Economic Empowerment (WEE). With Powered by Women's support, Sanima supported three young women from affected areas to obtain work experience through a newly instated internship scheme, and employed a woman identified through a Community Engagement Committee as a civil engineer. At corporate level, Ms. Koraila also observed that "after the initiative, Sanima saw positive reforms in terms of hiring more women in technical roles such as geotechnical and structural engineers – even at senior management level". According to her, this is a result of the awareness raising that took place that helped to change the minds of decision-makers within the company. In terms of increased agency, Sanima organised consultation sessions attended by women only, and ensured that the demands voiced by these Community Engagement Committees trickled up to headquarters and were actioned. For instance, while in mixed gender consultation sessions men take up the floor and request funds towards infrastructure improvements such as new roads, Ms. Koraila explained that "women want trainings for self-empowerment and skills development" – and they would not voice those requests in front of male peers.

Design features that contributed to access as an outcome: rather than imposing hard targets, Powered by Women supported Sanima to understand the business case to increase women's participation in the workforce. This has led to a mentality shift that is likely to be maintained.

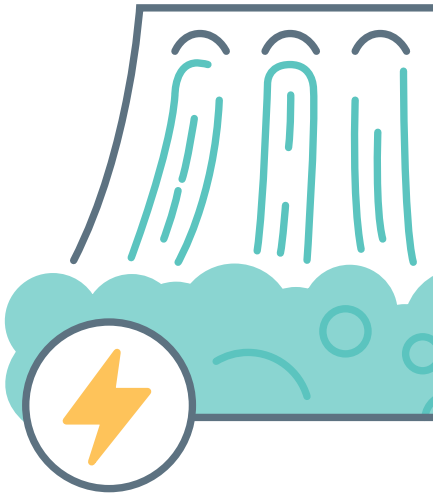


ENVIRONMENT

Environment: clean energy generation at an acceptable environmental cost.

Hydropower projects have an environmental cost, but they are also a source of clean energy and represent an opportunity to support economic growth in a country like Nepal. While hydropower is the largest contributor to its energy mix, Nepal is yet to reach self-sufficiency, as there is a potential to increase hydropower's generation capacity. The hydropower sector in Nepal is dynamic and growing. Ms. Koraila explains that as part of their environmental due diligence, Sanima conducted women-only consultations, including focus group discussions with women from affected areas. By virtue of working in the sector and using due diligence tools and support packages that allow it to work with companies such as Sanima, Powered by Women is supporting environmental objectives.

Design features that contributed to environmental outcomes: **the project's focus on hydropower supports it to achieve environmental outcomes.**



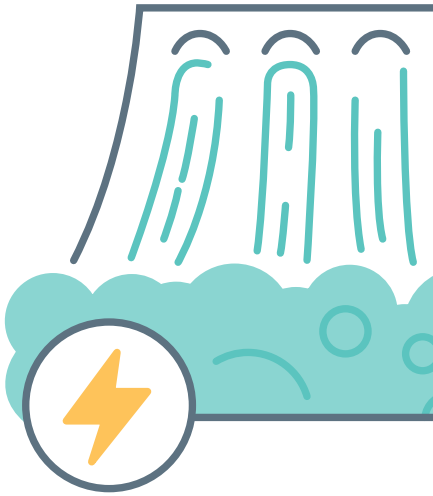
SUSTAINABILITY

Sustainability: behaviour change at corporate level.

Ms. Koraila recognised that the objectives they had set at the beginning of the collaboration with Powered by Women were extremely ambitious: "because our plants are in such remote areas it was far-fetched for us to achieve our goals. But we did as best we could, and it is work in progress". This is an encouraging statement seeing as project support is now finished. Some of the practices that Ms. Koraila sees that Sanima will sustain include hiring more women employees and ensuring that recruitment and human resource practices reflect the company's commitment to equality, anti-discrimination, and gender-based violence prevention.

This is because senior management see the business case of investing in women's empowerment – not only from a diversity perspective, but also as it gives it a competitive edge over the competition.

Design features that contributed to sustainability as an outcome: **IFC did not subsidise investments under this initiative. Rather, it focused on building a business case that Sanima could buy into – through trainings, awareness raising, and support in preparing and following action plans.**



Improving agriculture through biomass in Comoros: Ms. Abidate Abdourahamane

Abidate Abdourahamane, from a family of farmers, degree in biology

Ms. Abidate Abdourahamane comes from a family of farmers, has a degree in biology and at the time she was interviewed, she was finalising a master's degree on the topic of microplastics found in tuna fish in the Comoros. After she observed the effects that the use of chemical fertilisers had on her father's skin, she wanted to find a solution that would turn biomass (a form of waste that remains unmanaged in Comoros) into energy, and waste into natural liquid fertilizer. As she explained, "biomass can be turned into biogas for cooking, electricity and heating". This is why she wanted to pilot biodigesters, which have the added benefit of leaving digestate as a by-product which is an effective organic fertiliser.

After coming in third at a start-up contest organised by OIA Groupe, she got to know about the UNDP's Small Grants Programme initiative which provided her USD 50,000 to pilot the installation of three biodigesters. Since the support ended in 2021, Ms. Abdourahamane has encountered successes and challenges which she shared with the research team.

INCLUSION

Inclusion: Supporting women as agents of change.

Ms. Abdourahamane is not only passionate about valorising waste, but she also supports other women to invest in bio-digester solutions. "I organised a workshop where I taught women how to make small-scale biodigesters they can install at home for which they only need 20L barrels": this low-technology solution helps women understand the benefits and the importance of valorising biomass as a source of both energy for cooking with biogas, and natural fertilizer for their garden. It is not rare for women who receive support to share their knowledge with other women outside of the programme, which makes them great multipliers.

Design features that contributed to inclusion as an outcome: the SGP targets initiatives that contribute to environmental outcomes while enhancing people's livelihoods. This allowed it to support Abidate's initiative.

ACCESS

Access: support from the SGP has allowed Ms. Abdourahamane to expand her professional outlook.

The biodigesters she installed have served as a door opener to establish credibility with organisations such as Women in Marine Science and the Organisation Internationale de la Francophonie. While she is struggling to turn the biodigester model into a commercially viable solution, she has managed to invest in a cow to feed her biodigester and is branching into additional areas of waste valorisation such as plastics and microplastics. One of the biggest barriers she faces is people's fear of the technology, as well as the fact that while investment costs are not excessive, they are still out of reach for the most vulnerable.

Design features that contributed to access as an outcome: SGP grants are awarded based on a thorough gender analysis during the design stage which includes the development of a Gender Action Plan. In combination with community and stakeholder consultations, these lead to the identification of recipients such as Ms. Abdourahamane.

ENVIRONMENT

Environment: decentralised energy solutions.

The pilot that Ms. Abdourahamane ran included installing two 12m^3 biodigesters: one close to a livestock farmer located in a remote area that needed a cold chamber; and another one at a hotel close to the seaside. She also installed a smaller 9m^3 biodigester in her garden to showcase the benefits of turning cow dung into energy. Two out of these three are still running, and she has shown that it is possible to turn waste into energy. While she thinks there are several challenges related to the mentality of Comorians who reject the idea of using waste, she does see some positive progress in terms of awareness: "young people are starting to see the value of waste".

Design features that contributed to environmental outcomes: while anaerobic digestion is a proven technique, its applicability across a range of contexts is constantly being tested. The grant supported Abidate sufficiently for her to prove its viability in Comoros.

SUSTAINABILITY

Sustainability: work in progress.

The biodigester Ms. Abdourahamane and her team installed at the livestock farmers' site is still in operation, but the digester installed for the eco-tourism site discontinued operations during the pandemic. She has favoured performance and longevity from the outset: "if we had gone for plastic materials, the biodigester would have had to be renewed after seven years. That is why we went for built models – they can last up to 40 years if they are well maintained". However, this choice came at an additional cost, and it has been difficult for Ms. Abdourahamane to generate buy-in for biodigesters, as people are afraid of the technology and cannot cover investment costs. Ultimately, she couldn't retain the team she assembled when she first obtained funding from UNDP, and is now figuring out how to make the model commercially sustainable: "I used to have to buy my raw material – cow dung. I even tried a partnership with a hospitality group to recover their waste, but since I had to pay for transportation it was too expensive. I decided to buy a cow, and she's been feeding the biodigester for two years, but I only get 25kg of dung as opposed to the 50kg that I need for it to run at full capacity". Regardless, she is working with a group of young people on a model that would allow for replication at a smaller scale.

Design features that contributed to sustainability as an outcome: Ms. Abdourahamane is a driven entrepreneur. The selection process led to her obtaining a grant that de-risked an innovation in Comoros. Regardless of whether her business scales commercially, she has proven the viability of turning waste into energy and is supporting several initiatives that aim to promote behaviour change, such as waste management for youth. She is also an advocate for involving local government in waste sorting and collecting, which she believes can lead to broader uptake.

Lessons learned for donors and project implementers

Based on the above examples, below are some suggestions for how donors can design a programme that will support WEE and sustainable energy outcomes:

- **Work on sustainable energy sectors where women are underrepresented:** evidence suggests that certain sectors such as photovoltaics employ and reach more women than men. But sectors such as hydropower or bio digestion tend to be male dominated: it is riskier, and therefore harder, for women to blaze the trail in these sectors. Focusing on how to support them may contribute to the additionality of donor support.
- **Determine which type of support is needed:** women have less access to finance than men, which is why many donors seek to support women-led initiatives financially. However, finance may not be the only type of support that is needed – training, networking and advocacy are important too. Women in the sustainable energy sector are part of a broader ecosystem and face barriers that donors are well placed to address.
- **Accept failure and champion adaptation:** sustainable energy innovations may not be immediately adopted by markets that are still reliant on subsidies for fossil fuels, or where attitudes and behaviours are hard to change. Women who initiate these innovations may have access to less capital or networks than men to promote fast-paced adoption or overcome behavioural barriers: donors can see this as an opportunity to build support packages that tackle these.

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Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Registered offices
Bonn and Eschborn, Germany
Friedrich-Ebert-Allee 32 + 36
53113 Bonn

T +49 228 44 60-0
E info@giz.de
I www.giz.de/en

DCED
The Donor Committee for Enterprise Development

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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