# 8th Roundtable on Financing Water, focused on Climate Action in partnership with the U.S. Government

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## Session 4: Climate resilient investments in water security: Contributing to women's empowerment and environmental justice

Background Paper

## Introduction

Climate change heavily affects the water cycle through increasing frequency and severity of floods and droughts, increasing rainfall variability, reduced snowpack and other changes, depending on the region. These climate-related impacts on the water cycle particularly affect low-income groups (IPCC, 2021[1]; IPCC, 2018[2]). As women account for the majority of the world's poor, they often face higher risk and greater burdens from climate-related events (OECD, 2021[3]). Due to social and cultural norms and low integration in decision making processes, in many cases they also have limited possibilities to adapt to the risks posed by a changing climate (OECD, 2021[3]). Similarly, indigenous communities and other low-income groups, such as small-scale farmers, are often highly dependent on natural resources, including water resources, and are therefore disproportionately vulnerable to changes in the water cycle with limited financial means to cope and recover from the impacts of water stress (IPCC, 2014[4]). The disproportionate burden posed by climate change on low-income groups, coupled with their limited possibilities to adapt and restricted integration in decision-making processes, raises the issue of environmental justice, further defined in Box 1.

Strategic investments in water security which specifically target the needs of vulnerable groups can strengthen their resilience to climate change and yield additional benefits, such as income generation, poverty reduction and women's empowerment. For example, investments in sanitation services for women can reduce GHG emissions from untreated wastewater discharge (mitigation benefits) while simultaneously increasing health and hygiene by reducing the transmission of diseases, and protecting women from gender-based violence and discomfort resulting from open defecation.

Women and indigenous groups can be powerful agents in sustainable and climate-resilient water management due to their roles as household managers, farmers and consumers, as well as to their extensive knowledge about natural resources (OECD, 2021[3]; UNESCO and UN-Water, 2020[5]; Fauconnier et al., 2018[6]). Access to finance has long been recognized as a major barrier to improving climate-resilient water security. Strategic investment, such as microfinance or investment in empowerment and capacity building for vulnerable groups can strengthen these groups' capacity to act and adapt, and thus be a lever for efficient and sustainable water-related climate solutions, and simultaneously addressing environmental justice issues.

This paper explores practical examples of how improved access to finance and better targeting of existing financing flows to benefit vulnerable groups can contribute to water security and resilience, while promoting broader policy and societal goals of environmental justice, women's empowerment and poverty reduction. It highlights inspiring examples and innovative approaches to improving access to and better targeting of finance for water security and climate action.

## Questions for discussion

(1) How can environmental justice and gender considerations be effectively addressed in water-related investment that contributes to climate action? What are the main barriers and opportunities?

(2) Can you share innovative financing mechanisms that successfully align water security and climate objectives with those of environmental justice and women's' empowerment?

## Climate change - a heavy burden for low-income groups

The impacts of climate change mainly affect communities with fewer economic resources (IPCC, 2018[2]; IPCC, 2014[4]), including women, in developing and advanced economies alike (OECD, 2021[3]). Disproportionate burdens arise from higher exposure and vulnerability to climate-induced hazards, which often result from economic inequalities, as well as from other social, cultural and political aspects. Some developing countries are heavily affected by both the consequences of climate change and severe socio-economic challenges, such as poverty and strong gender inequalities. Several of the channels through which the water-related impacts of climate change disproportionately impact low-income groups are discussed in the following section.

### *Natural disasters, including floods and droughts*

Low-income communities, including women, are more vulnerable to severe environmental and water-related hazards due to their greater dependency on natural resources for their livelihoods, low quality dwellings in higher risk locations, social patterns and their economic disadvantage, which reduces their ability to cope, adapt and recover (UN Women, 2018[7]; OECD, 2021[3]; UNEP, 2011[8]). Urban flooding in the US, for example, disproportionally impacts minorities and low-income residents and African American neighbourhoods have been harmed more severely by flooding events. In Houston, the poorest residents are most likely to live on the lowest-lying lands, and are thus more exposed to flood risk (Frank, 2020[9]). In 2018, globally, women accounted for 75% of all displaced persons due to natural hazards such as droughts and floods (UNHCR, 2019[10]). Conversely, women have limited possibility to relocate during drought events and are more likely to stay behind in drought affected regions, looking after families, while men are more mobile (OECD, 2021[3]).

After natural disasters, women often carry the role of primary caretakers for those effected, including children, the injured and the elderly, significantly increasing women's material and emotional workload and increasing their time spent on unpaid domestic labour (WHO, 2020[11]; Juran and Trivedi, 2015[12]). Disruptions in energy and water supply also disproportionately affect women, who often carry the task of providing safe water for their families and ensuring domestic hygiene and sanitation (Mitusov, 2020[13]). After the 2017 Hurricane Maria in Puerto Rico, for example, the disruption of modern water infrastructure left many households without basic services and women carried most of the burden of managing their families' water needs and maintaining the household without water and power, including the improvisation of WASH services (Oxfam, 2018[14]). Water supply disruption after natural hazards is not only a challenge in developing countries but also impacts households in more developed economies. In Germany, for example, several communities in Rhineland-Palatinate were deprived of safe drinking water supply and electricity in their households for several weeks in the aftermath of the severe flooding event in July 2021 (Rheinland-Pfalz, 2021[15]).

In times of crises, gender inequalities and traditional gender roles tend to be reinforced, perpetuated and increased (UN, 2014[16]). The COVID pandemic has exemplified this well-documented issue. In the European Union, for example, women spent an average of 85 hours of unpaid labour per week for childcare

and housework during lockdown, compared to 51 hours spent on the same tasks by men (European Commission, 2021[17]).

### *Water supply, sanitation and hygiene*

Disrupted or insufficient WASH services in general affect women disproportionately, who are the primary responsible for water management, food supply and care tasks in many parts of the world (OECD, 2021[3]; Mitusov, 2020[13]). For example, women are responsible for water collection in 80% of the households without water access on their premises. In 25 sub-Saharan African countries, women and children spend 10 million hours collecting water on a single day, often to the detriment of education or paid work (UN Environment, 2016[18]). The time spent on water gathering is estimated to translate into USD 24 billion of lost economic opportunities each year (Hutton and Varughese, 2016[19]). Limited water availability due to climate change is thus increasing the burden for underserved communities, and particularly women.

The lack of sanitation and clean water also affects women more severely: In low-income countries, they are more exposed to the transmission of diseases, such as diarrhoea due to their role in domestic tasks, including disposing of dirty water and human waste (WHO and UNICEF, 2017[20]). Climate change is projected to increase the number of deaths due to diseases, with for example 48 000 additional climate-related deaths due to diarrhoea between 2030 and 2050 (WHO, 2018[21]). Further, the lack or disaster-related disruption or destruction of private sanitation services and toilets, exposes women to gender-based violence. The lack of sanitation facilities at schools lowers school attendance of girls, particularly during menstruation and thus impacts their education negatively (OECD, 2021[3]).

### *Dependency on water resources and farming*

Low-income communities, including male and female small-scale farmers, and indigenous groups are highly dependent on natural resources, including water, for their livelihoods and are thus disproportionately impacted by climate-induced water variability and ecosystem degradation. In Canada's Northern region, for instance, climate change is causing significant food security concerns of up to 50% in First Nations communities (Human Rights Watch, 2020[22]). Climate change and water availability has a crucial impact on agricultural production, with about 80% of farmland in Asia and Africa being managed by small-scale farmers, who provide around 80% of the two continents' food supply (FAO, 2016[23]). The agricultural sector is increasingly feminised, in Africa, for example, about 70% of small-scale farmers are women (FAO, 2016[23]; OECD, 2021[3]), who often have limited rights to inherit, access and use land resources as well as limited access to financial means for investment in equipment and irrigation. When compared to men, in many parts of the developing world, women farmers yield smaller production by 20-30% (FAO, 2020[24]). Furthermore, due to limited rights and landownership, lack of access to financial means and limited integration in decision-making processes, women have limited possibilities to engage in decisions related to water management and agricultural practices and thus to adapt to climate change and environmental damage brought upon them (OECD, 2019[25]).

The consequences of climate change will also be carried disproportionately by younger generations, who will live the increasing intensity of climate impacts in coming decades. Further, climate-induced water stress, such as water scarcity, is likely to limit the creation of decent jobs, with about three out of four jobs in the global workforce depending on water (WWAP, 2016[26]). This could disproportionately impact youth, estimated to be three times as likely as adults do be unemployed (ILO, 2019[27]).

In summary, the disproportionate impacts of climate change for various population groups raise issues on environmental and climate justice as well as gender inequality. Box 1 defines the terms of environmental and climate justice and puts them in a climate policy context.

### Box 1. Definitions: Environmental justice, climate justice and the Paris Agreement

**Environmental justice**

Environmental justice broadly refers to fair and inclusive engagement in the development, implementation and enforcement of environmental legislation at national and international levels. It implies access to environment-related goods such as clean water and energy, or safe urban areas, and protection from negative environmental pressures such as air and water pollution or deforestation (distributional justice). It also translates into equal access to the decision-making process of environmental policies (procedural justice). However, there is no internationally accepted definition and it has been argued that environmental justice should also achieve a healthy environment for all (substantive justice).

The global community recognised environmental justice as a basic right in the 1992 Rio Declaration on Environment and Development and in the 1998 Aarhus Convention.

**Climate justice**

Climate justice is a term used for framing global warming as an ethical and political issue, rather than one that is purely environmental or physical in nature. This is done by relating the effects of climate change to concepts of justice, particularly environmental justice and social justice and by examining issues such as equality, human rights, collective rights, and the historical responsibilities for climate.

**Climate justice and the Paris Agreement**

The Paris Agreement makes references to climate justice by stating that "adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate".

Sources: (Brulle and Pellow, 2006[28]; Bell, 2016[29]; OECD, 2021[3]), (UNEP, n.d.[30]), (UN, 2015[31])

## Vulnerable groups as powerful agents for water security and climate action

Low-income groups, including women and indigenous people, carry a heavier burden regarding climate change impacts, but they can also be powerful agents for climate action. Specifically targeting the needs of vulnerable groups can render climate action more successful and efficient and can have positive impacts on livelihoods, poverty reduction, women's empowerment and environmental justice.

The role of women in water resource management is internationally recognised for nearly three decades, with the UN stating that "women play a central part in the provision, management and safeguarding of water", which makes them powerful agents to strengthen water security in the context of climate change. A World Bank evaluation highlighted that water projects were six to seven times more effective when women were involved compared to projects where they were not (UNICEF, 2018[32]). Evidence shows that the involvement of women in water resource development and management can lead to effective and more sustainable solutions to water problems and ensure that infrastructure developments yield maximum social economy and environmental results (Global Water Partnership, n.d.[33])

Further, due to their roles in domestic labour and agriculture, women can be important actors in driving more sustainable water use. Surveys from around the world show that women tend to be more sustainable consumers and more sensitive to ecological concerns and engage in water and energy savings initiatives at the household levels (OECD, 2021[3]). Specifically supporting women in these endeavours can thus bring multiple benefits for climate action, water security and women's empowerment. One example initiative is a loan program targeting woman-headed community organisations in Jordan which offers finance for water saving household measures. Recipients repay the funds with an e-wallet technology which will recycle the funds back into future community investments (Mercy Corps, 2020[34]). As household managers, consumers, farmers and producers, women are powerful stakeholders in implementing low-carbon pathways, such as through water and energy savings or low carbon farming practices (Schalatek, 2020[35]).

Further, women and indigenous communities have extensive knowledge about water resources and related ecosystems, as well as expertise in adaptation (Fauconnier et al., 2018[6]; OECD, 2021[3]). For example, in Central Asia, women have been managing irrigated and rain fed farms without male support and have accumulated considerable knowledge on water resources, including quality and reliability and storage methods (Mitusov, 2020[13]). In Bhutan, women's knowledge on channelling the water from a river as supplementary water source during water shortage was essential for climate resilience planning (Sen, 2018[36]). In many parts of the world, a great source of knowledge and expertise from women in local communities and indigenous groups is left untapped, undermining water management's overall efficiency and curbing economic growth. Therefore, the inclusion indigenous communities and women can be essential for effective water management and is key to the success of water resources development under climate change. Similarly, indigenous groups have extensive knowledge of nature-based solutions which could enhance resilience and adaptation, while delivering additional benefits such as biodiversity and production of plant based medicine or food products.

It has also been shown that women are more likely to support policies related to good and affordable insurance (UNDP and University of Oxford, 2021[37]), which makes them important agents in the context of financing adaptation and protection against the impacts of climate-induced water-related hazards, such as floods.

Vulnerable groups can also be important actors in driving change through awareness raising, the generation of scientific data and policy engagement. The non-profit organisation WE ACT for Environmental Justice based in Harlem, Manhattan, for example, was founded in 1988 to mobilise community opposition to the city's operation of the North River Sewage Treatment Plant to ensure environmental health for low-income communities and people of colour. Since then, the organisation is active in shaping environmental policy. Through research partnerships with Columbia University, they contribute to the generation of scientific data and shape policies on the city and state level, including helping to pass the country Safe School Water Act in 2016 and the NYC's Environmental Justice Study Bill and Environmental Justice Policy Bill in 2017 (WE ACT, n.d.[38]).

## Aligning finance for water security, climate action and environmental justice

Strategically linking water security, climate change and social considerations, such as gender equality and poverty reduction, offers opportunities to maximise positive benefits on a variety of policy goals, such as the SDGs and climate justice.

The following Table 1highlights examples of how strategic investments in water security can be drivers for climate action, social inclusion, poverty reduction and women's empowerment.

## Table 1. Multiple benefits of targeted investment in water security

| Investments in water security | Climate benefits | Social benefits for women, indigenous, vulnerable groups |
|---|---|---|
| Investments in sanitation services and wastewater treatment | • Reduction of GHG emissions from untreated water | • Improved health and hygiene, reduction of diseases<br>• Reduction of gender-based violence<br>• Improved access to education for girls |
| Investment in water supply (for households and agriculture) | • Adaptation and resilience in light of water scarcity, shortages and drought<br>• Mitigation (e.g. through investments in solar powered irrigation systems or energy savings through efficiency improvements in water supply) | • Reduction of hours spent collecting water, which can be used for other paid labour or education, women's empowerment, income generation, poverty reduction,<br>• Reduction of gender-based violence<br>• Increased agricultural productivity, food security, increased income, which can be used for further investments to build resilience against future shocks |
| Investments in ecosystem conservation such as wetlands | • Mitigation: carbon storage<br>• Adaptation: nature-based solutions for flood protection, water quality improvement and other water-related risks | • Conservation of livelihoods for communities strongly relying on natural resources<br>• Income generation for local communities (e.g. carbon credits, eco-tourism) |
| Investment in flood protection (specifically targeting most exposed and vulnerable) | • Adaptation to increased occurrence of extreme events | • Protection of loss of lives and livelihoods for persons with limited means to recover, 'poverty prevention'<br>• Prevention of disruptions (social infrastructure, such as water and electricity supply and consequences) |
| Insurance mechanisms to cope with water-related risks (floods, droughts) | • Adaptation and improved resilience to the impact of disasters | • Reduction of the negative financial impacts of water-related disasters on households, farms, SMEs and local communities; improvement of their capacity to recover |

Source: Author

Table 1 and the previous discussion on vulnerable groups as powerful agents illustrate the opportunities that arise from including social and gender dimensions in climate and water finance considerations. International experience from development programmes indicates that increasing the gender-responsiveness of public climate change funding, for example, is an opportunity to improve the effectiveness and efficiency as well as the sustainability of investments (Schalatek, 2020[35]). Neglecting gender issues and the root causes of vulnerability in climate projects could exacerbate the existing inequities and could lead to less effective climate outcomes (Atmadja et al., 2020[39]). Equitable climate and water finance can catalyse the transition to a zero carbon and climate-resilient development while simultaneously promoting the achievement of the SDGs, particularly SDG 1 (poverty reduction), SDG 5 (gender equality), SDG 6 (safe water) and SDG 13 (climate action) (UNDP, 2016[40]; OECD, 2021[3]).

Over the past few years, many climate funds integrated gender considerations to their lending conditions. The Green Climate Fund, for instance, has adopted a dedicated Gender Policy, updated in 2019. Despite these developments, a progress report details that only about 55% of projects under the Global Environmental Facility, one of the two operating entities of the UNFCCC financial mechanism, reported on gender (GEF, 2020[41]). When looking at bilateral official development assistance (ODA), 46% of the financing flows dedicated to the water sector has a focus on gender equality, for agricultural and rural development-related ODA even 67%. However, according the latest OECD 2017 figures, only 1.9% of all ODA actually reaches women's organisations (OECD, 2021[3]).

In terms of access to finance, vulnerable groups, such as small-scale farmers, indigenous and women still face major challenges. Access to finance allows them to invest in climate smart water-related solutions for their business and farms, build resilience and save for the future, ensuring them against shocks. Women face access barriers due to social norms and discriminatory rules and laws. 9 in 10 countries in the world currently have at least one law impeding women's economic opportunities, including access to credit (World Bank Group, 2015[42]). Women may also face disadvantages from accessing adequate finance for innovation and start ups and, in seven EU states, are 1.5 times more likely to be denied financing to start a business (Halabisky, 2018[43]).

In order to align financing flows for water security, climate action and other social objectives such as women's empowerment and environmental justice, existing financing flows need to be better targeted and innovative financing schemes can be used to address the specific challenges and maximise co-benefits. For example, project budgets could not only be directed towards infrastructure, but also to the social dimension of water management, notably empowerment, capacity strengthening and local ownership building (Bouman-Dentener, 2015[44]). Approaches like green credit lines for women entrepreneurs or the facilitation of collaboration with accredited implementing agencies could be deployed. Ensuring that the concessionality of public funding is passed to vulnerable groups as beneficiaries with result measurement frameworks could further help achieving greater impact (Schalatek, 2020[35]). IUCN and partners, for example, developed a toolkit to better integrate gender considerations in coastal resource management programmes in South and Southeast Asia, including their Mangroves for the Future Programme (Mangroves for the Future, 2019[45]). Targeted small grants for low-income groups, such as small-scale farmers, could improve financial inclusion and incentivise water-related investments to build resilience against climate change. Microcredits can enable entrepreneurship via access to capital and is even more effective for poverty reduction when disbursed to women (water.org, 2020[46]). Small grants can also be deployed as means of encouraging women and vulnerable groups to actively participate in water user associations, and it has been shown that women's engagement in such organisations renders water use an added value benefitting the entire community (Begishbek, 2020[47]).

The following section highlights examples of innovative financing mechanisms for water-related investments, which also benefit climate action and social goals, such as women's empowerment, poverty reduction and environmental justice.

## Innovative financing mechanisms

Financing mechanisms can range from private impact investments, microcredits to local entrepreneurs, gender-differentiated grant schemes, targeted financial and structural support from philanthropy and dedicated climate funds, among others. This section aims to provide select illustrations.

### *Private impact investment*

#### *Attracting private capital through Social Impact Incentives – Women entrepreneurs in the water business in Senegal*

Aqua for All, a Dutch NGO, together with their partner Roots of Impact support enterprises in the WASH sector to maximise their social impact and to mobilise private and public investment. Their support takes the form of outcome-based premiums for WASH enterprises that are gender-inclusive and target vulnerable and low-income groups. These so called Social Impact Incentives (SIINC) improve the risk return profile of high impact enterprises and thus increase their attractiveness for private investors. Eligible enterprises are required to raise repayable investments of at least EUR 500 000, which can potentially be complemented by additional public or philanthropic funding. The outcome-based payments are linked to quantifiable indicators such as the percentage of decrease in communities' diseases related to poor sanitation or reduced hours spent by women on collecting water. Making payments contingent on indicators which reflect the situation of women or of health and hygiene, can help to bundle and maximise the positive impacts of water-related impacts for women and communities' resilience (Aqua for All and Root of Impacts, 2020[48]).

One intervention example is the Water Kiosk model in Senegal, a country in which droughts, desertification and polluted water sources contribute to water scarcity for a population with 20% of the people lacking access to safe water – a burden disproportionately carried by women (Aqua for All, 2021[49]).

Aqua for All co-financed the Water Kiosk franchise model by the social enterprise Oshun Senegal in 2019. Local female microentrepreneurs manage local safe water enterprises (Water Kiosks) which provide safe drinking water at affordable prices to households and monitors water supply and quality over a connected remote application. As part of the model, Oshun Senegal provides training and business support for women entrepreneurs to run and expand their microenterprises. Oshun Senegal installed 71 water kiosks in peri-urban areas servicing 82 000 people. In addition to securing safe drinking water to the population and reducing their vulnerability to climate change and variable water availability, the project created business opportunities and increased income for many women. In 2021, Aqua for All granted Oshun Senegal EUR 250 000 to scale up its operations, as well as another EUR 146 000 grant to co-fund a pilot in Burkina Faso to replicate the Senegalese model. (Aqua for All, 2021[49])

#### *Microfinance to tackle the global water and climate crisis*

Water.org established the impact investment manager WaterEquity with an exclusive focus on tackling the "global water and climate crisis" (WaterEquity, 2021[50]). WaterEquity raises funds for enterprises expanding water and sanitation services to low-income communities and for financial institutions to offer small, affordable loans to low-income consumers to install water connections and sanitation facilities within the household.

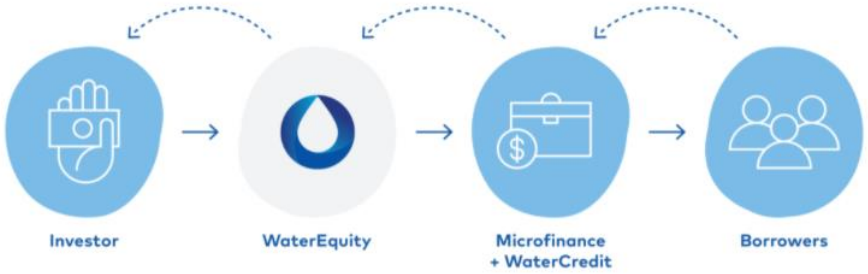
By investing in improving water and sanitation infrastructure, they can contribute to climate mitigation efforts by reducing energy use in the water sector. Investments in sanitation facilities at the household level reduce the discharge of untreated waste water – which contributes to GHG reduction.

WaterEquity identifies low risk/ high return investment opportunities and builds a diversified portfolio and thus offers private lending opportunities with attractive returns, moderate credit risk and verifiable social

impact, with a global repayment rate of 99%. Since 2016, WaterEquity funds have deployed more than USD 100 million in capital for water supply and sanitation projects and have disbursed USD 385 000 of microloans to low-income consumers, with an average loan size of USD 253 (WaterEquity, 2020[51]).

The microloans are predominantly used by women who account for 94% of the individuals directly supported by WaterEquity investments (WaterEquity, 2020[51]). One example is WaterEquity's lending to the financial institution Annapurna Finance Ltd in India, which provides microloans to end clients to purchase and install household water or sanitation solutions, which can be paid back in weekly or monthly instalments. Women benefit from reduced time dedicated to sanitation and water collection, which they can allocate to jobs and thus income creation (WaterEquity, 2021[50]). Figure 1 shows the financing structure of WaterEquity funds.

### Figure 1. Financing structure of WaterEquity asset manager




Source: (water.org, 2021[52])

### *Gender-differentiated grant scheme for solar pumped irrigation*

Solar-pumped irrigation systems are an effective solution to strengthen resilience to drought and water scarcity and ensure food and income security in rural areas. In contexts where solar pumps replace diesel fuelled systems, such investments additionally contribute to GHG emission reduction. In the Terai region in Nepal, farmers could apply for a grant cum loan project for the installation of solar pumping sets, with the grant covering 60% of the costs and a loan to farmers for the remaining 40%. Shifting from diesel to solar pumps has yielded cost savings for farmers of 80 000 NRP (USD 680) over one year. Further it allowed for an increase in the cropped area by about 30%. To particularly address female farmers, the financing scheme included a component to improve irrigation access for women: female farmers received a greater grant of 70% on the condition that the land on which the solar pump is installed, is transferred to the women. In a region where women's land ownership was traditionally low, 75% of the applications came from women – highlighting that gender-differentiated grant schemes can spark more equitable access to land, natural resources, including water, for women (Paul-Bousset, 2017[53]). The implementation of technologies, such as solar powered drip irrigation does not only provide water and food security in the context of climate change, but can also increase agricultural yields and income for female farmers, and can reduce time spend on water collection – as for example seen in a solar powered drip irrigation project in Benin (Burney et al., 2010[54]).

### *Revolving fund for water management in Tanzania*

The Women Fund Tanzania (WFT) is an institutional support mechanism for local women civil society groups, providing financial means and support for their development and actions through five core programmes: 1) grant making, 2) capacity strengthening 3) resource mobilisation, 4) strategic alliance building and 5) institutional development. WFT supported the Tegeme Women Group, promoting water

and sanitation provision at community level with funding from the Women for Water Partnership. The Group has initiated local partnerships with relevant stakeholders, such as the village leadership and water users association, stipulating priorities for water access by different users at different moments, location and providing affordable water for hospitals and schools. The community has also established an agreement on tariffs and a system for sustainable management of water installations. The participatory approach and stakeholder partnerships have led to a local saving mechanism and revolving fund that provide women and other members of the community with means for water system maintenance and collateral for economic investments in the future. The provision of water for the five village schools has led to an extra four hours per week of teaching and education as well as the possibility to plant vegetables that improves the nutrition of pupils and their families. Further, water supply to the local hospital reduced the amount of time nurses devoted to fetching water (Bouman-Dentener, 2015[44]).

### *UNFCCC's Green Climate Fund: Grant for resilience and livelihoods of indigenous wetlands communities in Peru*

The Green Climate Fund finances a USD 9.1 million 'cross-cutting' climate project for indigenous communities in the Province of Datem del Marañón in Peru, which delivers both adaptation and mitigation benefits. The project facilitates sustainable land-use planning and management of the region's wetlands and the inclusion of indigenous people in decision making processes. The mitigation aspect of the project consists of the enhancement of resilience and conservation of 343 000 ha of peatlands and forests as well as the avoided deforestation of 4 800ha of palm swamps and forests over a 10-year period – with the swamps of Datem del Marañón being a carbon stock of an estimated 3.8 billion tonnes of GHG. The measures also render the forest more resilient to increasing droughts, floods and heatwaves – securing the livelihood of indigenous wetland communities (Green Climate Fund, n.d.[55]).

Further, the project entrusts indigenous communities with the management of resources and aims at empowering women in decision-making processes. The largest share of the fund supports commercial bio-businesses for non-timber products, including for business plans, marketing and management and equipment and the development of solar energy for operations, thus strengthening sustainable economic activities in the region. The project entered the implementation phase in 2017 and has a lifespan of 10 years and is expected to avoid 2.6 million tonnes of carbon and benefit over 20 400 people. 69% of total costs stem from GCF grant finance, supplemented by two co-financing grants (Green Climate Fund, n.d.[55]).

### *Hydropower project, jointly-owned by Canadian First Nation Community*

The Dokis First Nation in Canada launched a hydropower project to produce renewable energy and generate income for future generations. Under the First Nations Land Management Act, the Dokis First Nation Community in Ontario created their own land code enabling them to manage their own lands, resources and environment without needed approval and supervision of the Government of Canada. The community launched the Okikendawt Hydro Project as a commercial venture jointly-owned by energy company Hydromega and Dokis First Nation. The 10 megawatt facility sells 100% of its power to the Ontario Power Authority over 40 years through a feed-in-tariff power purchase agreement (Krackle, 2015[56]), generating USD 4 million in revenue per year. Dokis First Nations uses a large proportion of the revenues to pay back the debt taken for the project, while also saving a proportion in a trust fund, allocating the interest earned for infrastructure, health, education and cultural initiatives in the community. In addition to generating renewable energy, the project provides additional revenues, employment and training to the First Nation community. Indigenous communities are increasingly joining the growing clean energy economy in Canada, summing up to more than 300 indigenous clean energy projects in more than 190 communities across Canada. (Ireland, 2016[57])

### *The US Justice40 Initiative - targeted loans and grants for disadvantaged communities*

Under Biden's US presidency, the White House Environmental Justice Advisory Council was established to help increase the Federal Government's efforts to address environmental injustice (EPA, 2021[58]). The so-called Justice40 Initiative aims to ensure effective cooperation between federal agencies, states and local communities and offers funding and support to improve climate resilience for disadvantaged communities. The programme includes a Flood Mitigation Assistance Program, which provides grant funding to states, local communities, tribes and territories to reduce or eliminate risk of repetitive flood damage to buildings insured by the National Flood Insurance Program (Young, Mallory and McCarthy, 2021[59]). Another program is the Rural Energy for America Program, which provides guaranteed loan financing and grant funding to agricultural producers and rural small businesses for renewable energy systems, including hydropower, or for energy efficiency improvements. Loan guarantees are given on loans of up to 75% of total project costs for up to 40 years and grants for up to 25% of total project costs to a maximum of USD 500 000 (USDA, 2021[60]). The Justice40 Initiative aims to support the objective to deliver at least 40% of the overall benefits from federal investments in climate and clean energy to disadvantaged communities (Young, Mallory and McCarthy, 2021[59]).

### *Private company investment for water supply for refugees in Gaza*

In Gaza, saline intrusion and poor hygienic practices limit drinkable water supply, causing high levels of diarrheal diseases. The Coca Cola Foundation partnered with Mercy Corps in 2015 who launched the Empowering Sustainable Communities programme in collaboration with local government, civil society and private sector partners to provide sustainable access to safe drinking water and employment opportunities to young men and women. The project included the construction of a desalination plant in La Maghazo Refugee camp, producing 35 million litres if drinking water annually, benefiting 24 000 people. Water access was rendered free of charge, compared to previously USD 7-8 spent per month per family. The Coca Cola company opened its first bottling plant in Gaza in 2016, creating 120 direct jobs and support livelihoods of 1 200 households across its value chain (Mercy Corps, 2019[61]).

## Concluding remarks

A variety of examples exist which showcase that targeted investments in water security can help address climate change through adaptation and mitigation and at the same time foster environmental justice and women's empowerment. Strategic investments that incorporate the needs of vulnerable groups and integrate them as powerful agents can render water-related investments more effective and sustainable. Establishing social and gender-related criteria for financing mechanisms, including for dedicated climate funding or green bonds, can be a lever to scale up these efforts. Innovative financing instruments which incorporate a gender and social perspective play an important role for maximising co-benefits for a variety of policy goals, including water security, poverty reduction, gender equality, climate action and environmental justice.

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