



EMPOWERING **WOMEN** FOR **SUSTAINABLE** ENERGY SOLUTIONS TO ADDRESS **CLIMATE CHANGE**

Experiences from UN Women and
UNDP-UNEP PEI Africa

Working Paper



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Resilient nations.*

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This working paper is a joint product of UN Women Regional Office for Eastern and Southern Africa (ESARO) and the United Nations Development Programme–United Nations Environment Programme Poverty-Environment Initiative (UNDP-UNEP PEI) Africa.

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The team of authors who contributed to the preparation of this working paper was led by Asa Torkelsson, UN Women, and comprised Flavia Ciribello, UN Women; and Moa Westman, UNDP-UNEP PEI.

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EXECUTIVE SUMMARY

Renewable, clean energy and gender equality are preconditions for sustainable development and for tackling climate change, as envisioned by the Sustainable Development Agenda 2030. Women's knowledge, empowerment and collective action are central to finding and building more environmentally sustainable pathways to manage our environment; adapt to climate change; and secure access to sustainable energy.

It is clear that gender, environment and climate change are cross-cutting issues that need to be addressed simultaneously to achieve sustainable development goals and to address existing inequalities. Although positive changes are emerging, several challenges remain to integrating gender issues more comprehensively into climate and energy policies in Africa, and to linking such policies more closely to programming and budgeting to ensure implementation of those activities.

Africa has enormous potential for clean energy, given its ample resources of hydro, solar, wind and geothermal power. However, current highly centralized energy systems often benefit the rich and bypass the poor. On the other hand, decentralized renewable energy systems offer a great opportunity for women's empowerment. As these are deployed at the local level, women are more likely to participate in related decision-making and be involved in the energy value chain.

In spite of noticeable progress in incorporating gender in climate policy-related frameworks and action plans in the ESA region, implementation of such policies remains a challenge at the country level. Country-

specific data and strengthened capacities – along with sufficient budget allocations – are crucial to accelerating policy implementation. More efforts are needed in designing and implementing gender-sensitive climate policies and programmes that also look at energy issues. Simultaneously addressing gender, environment and climate change by strengthening policy coordination, programmatic partnerships, research, capacities and knowledge sharing can advance sustainable development, combat climate change and address inequalities.

Given energy's critical role in enabling sustainable development, efforts towards sustainable energy delivery must be intensified and accelerated at the local, national and regional levels. A number of small-scale solutions that simultaneously increase women's opportunities and enhance sustainability have recently been implemented by UNDP-UNEP PEI and UN Women and their partners as they have sought to inform processes aimed at making climate and environment policies more gender sensitive and bringing women to a clean energy path and including them in climate-resilient initiatives. The most promising of these concrete project solutions at the local level should be up-scaled. They should also be combined with actions at the political level and linked with national policy processes, in order to initiate structural reforms.

Partnerships like that between UNDP-UNEP PEI and UN Women ESARO should be further strengthened to support the integration of gender, environment and climate-linked concerns in policies, budgets and programs and strengthening capacities for the implementation of such policies.

Investing in women's access to renewable energy and climate-smart technologies will catalyse women's wider empowerment, accelerate women's economic advancement, and – as a result – leverage wider social and environmental impacts. Women are the primary energy managers in households and communities and can be powerful actors for change in the transition to sustainable energy and economic development. Women should hence be empowered to play a leadership role in promoting and benefiting from sustainable energy for economic empowerment and climate resilience. Indeed, if energy and climate planning and policy development is gender inclusive and responsive, if investment barriers are removed and equal opportunities created for women's entrepreneurship and decent employment in the decentralized renewable energy and climate sector, and if women's productive use of renewable energy and essential energy services are promoted, women will play a leadership role in promoting decentralized renewable energy access and better contribute to local and national sustainable economic and social development.

The experiences documented in this paper provide an overview of lessons learned which can help address bottlenecks and inform the way forward for gender-responsive

climate, energy and environment policies and programmes. These can be summarized as follows:

- Women need to be involved in decision making and play a leadership role in promoting decentralized renewable energy access; they also need to benefit from renewable energy for economic empowerment.
- Apply a cross-sectoral approach to gender, climate and energy policy and programming.
- Promote women's productive use of renewable energy, and reduce women's time dedicated to unpaid care and domestic work.
- Target policy processes and build capacity to mainstream gender, climate and energy in an integrated manner.
- Remove investment barriers and create equal opportunities for women's entrepreneurship and decent employment and access to technologies.
- Influence budget processes to fund the implementation of gender-sensitive energy and climate solutions.

CONTEXT

Renewable, clean energy and gender equality are preconditions for sustainable development and for tackling climate change, as envisioned by the Sustainable Development Agenda 2030. Women’s knowledge, empowerment and collective action (Sustainable Development Goal 5) are central to finding and building more environmentally sustainable pathways to manage natural resources in a more equitable and sustainable way (Sustainable Development Goal 15); adapt to climate change (Sustainable Development Goal 13); and secure energy services (Sustainable Development Goal 7) (UN Women, 2014).

Climate change affects everyone, but those who depend upon natural resources such as land, water and forests for their livelihoods and energy needs are relatively more affected by climatic changes and environmental degradation (UNDP-UNEP PEI, 2015). In Africa – and particularly rural Africa – women perform key functions in meeting household and community energy needs. They are typically responsible for providing household lighting, heating and cooking, but rarely have access to modern energy resources; this hinders their economic empowerment. The burden of women’s work (mostly unpaid) is becoming even more challenging by the effects of climate change and deforestation. For example, women now need to take longer trips to collect firewood, frequently under insecure conditions (UN DESA, 2010).

Given their different relationships with, responsibilities for and reliance on natural resources, women and men have different skills, experiences and knowledge that could help inform climate change, energy and environment-related policymaking. Further,

women can make substantial contributions as both producers and consumers in the transition to sustainable energy and a more equitable economic development path in Africa. Unfortunately, the climate and energy sector has not sufficiently recognized the pervasive gender gaps in access to resources, technical knowledge, economic opportunities and financial services, nor taken women’s needs into adequate account. Gender-responsive national climate change and energy policies are needed to address these gaps, and so are inclusive climate-resilient initiatives and programming.

The objective of this paper is to identify effective ways to integrate and mainstream gender equality into climate, energy and environment-related policies and programmes, learning from experiences on the ground in the Eastern and Southern Africa (ESA) region; and then propose ideas for further work and research. Throughout, women are viewed not only as victims of climate change but as active agents for sustainable development.

The paper particularly draws on the experiences of the UN Women ESA Regional Office (ESARO) and the United Nations Development Programme–United Nations Environment Programme Poverty–Environment Initiative (UNDP-UNEP PEI) in the region; its scope is thus primarily limited to the practical experiences of UNDP-UNEP PEI Africa in working with finance and planning ministries, and UN Women ESARO’s programmatic experiences in gender. Secondary data, drawn from a review of some 60 publications and reports, are used to describe the documented broad linkages between gender and climate change policies

and practical solutions for renewable energy. The paper is structured as follows:

- **Section 2** explores issues surrounding the relationship between women and energy in light of climatic variations – in particular, the challenges women face daily and how these challenges can potentially become transformative opportunities for them, with a multiplier effect on society and the environment.
- **Section 3** provides an overview of the current state of gender integration in climate change-related policies and frameworks, highlighting challenges, progress and lessons learned. Gender-sensitive climate policies can be a crucial avenue for enhancing women’s access to sustainable energy.

- **Section 4** showcases concrete examples from UN Women and UNDP-UNEP PEI of how climate, gender and energy issues can be addressed simultaneously.

- **Section 5** provides an overview of the lessons learned from this paper which can help address bottlenecks and inform the way forward for gender-responsive climate, energy and environment policies and programmes.

The paper concludes with ideas on the way forward and topics for further research to enhance gender mainstreaming into climate change policymaking and programming in the ESA region.

CLIMATE CHANGE, ENERGY AND WOMEN

The poorest and most vulnerable populations and nations are the most affected by climate change (Steiner, 2014). Exemplifying this assertion, Africa – although its contribution to climate change is less than that of the world’s other regions – is experiencing more severe and more damaging effects of climate change (Africa Progress Panel, 2015). The dilemma posed by our current approach to energy and development is particularly clear in Africa: renewable, clean energy is needed for a sustainable future; but access to modern energy services remains limited. Given energy’s critical role in enabling sustainable development, efforts towards sustainable energy delivery must be intensified and accelerated at the local, national and regional levels (UNDP, 2015).

One out of every five people worldwide has no access to electricity (Report of the Secretary-General, 2012), and over 600 million people in Africa do not have access to modern and clean energy sources. Energy combustion is mostly inefficient and toxic; about 600,000 people in Africa die each year as a result of household air pollution (Africa Progress Panel, 2015)¹. Dependence on firewood and

¹ Levels of health risk depend on three main factors: the type of fuel used for cooking, ventilation and the differentiated amounts of time spent indoors and near the fire by women and men (UN DESA, 2010). The level of indoor smoke pollution is highest when solid fuels are used, as compared to electricity, gas and liquid fuels such as kerosene and liquid petroleum gas. Among solid fuels, biomass fuels – such as animal dung, crop residues and wood – produce the highest levels of pollutants, followed by coal and charcoal (UN DESA, 2010).

biomass for household energy is a major contributor to environmental degradation and climate change as it exacerbates air pollution in general, as well as deforestation, land degradation and desertification.

Africa has enormous potential for clean energy, given its ample resources of hydro, solar, wind and geothermal power. However, current highly centralized energy systems often benefit the rich and bypass the poor; they are underpowered, inefficient and unequal (Africa Progress Panel, 2015). Since women are more likely than men to live in the poorest households in 41 out of 75 countries (UN Women, 2015b), the benefits of centralized energy systems are less likely to accrue to women.

Decentralized renewable energy systems offer a great opportunity for women’s empowerment.

On the other hand, decentralized renewable energy systems offer a great opportunity for women’s empowerment. As these are deployed at the local level, women are more likely to participate in related decision-making and be involved in the energy value chain (Smith, 2000, cited in IRENA, 2014).

Impact of limited energy access on women’s lives

Rural women perform key functions in meeting household and community energy needs, as women are commonly responsible for providing lighting, heating and cooking in

Drought Disaster Resilience and Sustainability Initiative

Advancing desertification, land degradation, global warming and climate change have all accentuated the problem of reliable energy for women as the traditional sources of firewood and charcoal continue to diminish – creating and intensifying conditions of chronic vulnerability, such as persistent food insecurity and huge economic losses, in the Horn of Africa (www.resilience.igad.int/). Bringing together eight countries of the region - Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda – the Intergovernmental Authority on Development Drought Disaster Resilience and Sustainability Initiative (IDDRSI) was established to address the region's recurrent droughts and unpredictable rainfall patterns with support from UN Women ESARO and UNDP.

One of the objectives of the IDDRSI is to mainstream gender in drought-resilience programmes and to build and strengthen partnerships throughout the region around gender and resilience. To extend these efforts, a Gender Working Group has been established with UN Women's support for operationalization and strengthening. In 2016, UN Women, in collaboration with the Intergovernmental Authority on Development and other partners, will organize a Sharefair to promote regional learning, focusing on gender and resilience.

households; they rarely access modern energy resources in accomplishing these tasks (Danielsen, 2012). Most households in Africa still rely on biomass – such as wood, coal and agricultural waste – to meet their energy needs². The absence of modern energy

² Fuelwood and charcoal represent 50–90 per cent of all energy use and 60–80 per cent of total wood consumption (ESMAP, 2012). About 68 per cent of all households in Kenya depend primarily on firewood to cook food (ICRAF and SEI, 2014). When power is available, it is usually used only for smaller electrical gadgets and lighting, and it does not substitute for biomass (Carlsson, 2007, cited in GTZ, 2010). In 21 of 38 countries with available data in Sub-Saharan Africa, over 90 per cent of households still cook with solid fuels,

services has economic, social, health and security-related impacts on women's lives. Women's responsibility in collecting firewood is often exhausting as well as physically challenging. In some countries, women spend at least one day each week travelling long distances to the forest carrying heavy loads of firewood on their backs or heads – risking spinal, head and leg injuries (ICRAF and SEI, 2014).

This task is made more challenging by the effects of climate change and deforestation, as women now need to take longer trips to collect firewood, frequently under insecure conditions (UN DESA, 2010). For example, as a result of deforestation in Uganda, the average distance typically walked by women and children in collecting firewood increased between 1992 and 2000 from 0.06 km to 0.9 km (UN DESA, 2010). Collecting firewood from remote and isolated areas also exacerbates women's vulnerability to exposure to sexual violence (UN Women Watch, 2009).

Similarly, in the United Republic of Tanzania, severe and recurrent droughts in the past few years have triggered a devastating power crisis as electricity generation in most of the hydropower stations has been declining.

With [the] escalating impacts of...climate change in the energy sector, dependence o[n] biomass as [a] source of energy is increasing. This has widened the gender gap... [by putting the burden on women to fetch firewood for domestic use] thus undermining the initiative for [the] realization of gender equality. (Government of Tanzania, 2012)

In this way, climate change contributes to widening gender gaps.

particularly in rural areas (UN DESA, 2010). In Ethiopia, for instance, 96 per cent of households use biomass fuels for cooking (SEI, 2015).

Increased time spent on firewood collection leaves women with less time to engage in employment, productive work, or educational or livelihood activities; it also limits their opportunities to engage in social and political interaction outside the household (cf. Danielsen, 2012). And the additional time required to collect firewood and water as a result of climate change has been found to cause girls to drop out of school (Sengendo, n.d) or be forced into early marriage (CARE, 2015).

Since women spend more time indoors and more time near the fire while cooking, they are more affected by the pollutants released during biomass combustion (UN DESA, 2010). Worldwide, 85 per cent of the estimated 2 million annual deaths attributed to indoor air pollution are women and children dying of cancer, acute respiratory infections and lung disease (UN Women and UNIDO, 2013)³.

Energy access and public services

Modern energy is required for public services, and its lack or inadequacy may particularly

affect women. For example, according to a World Health Organization (WHO) survey undertaken in 11 Sub-Saharan African countries, about a quarter of health centres had no electricity, and less than one-third had reliable electricity (UN Women and UNIDO, 2013). These deficiencies affect their ability to respond effectively – especially to maternal and childbirth emergencies. In 2010, an estimated 287,000 women died of complications from pregnancy and childbirth; many of these deaths could have been averted with the provision of minimal lighting and operating services⁴. In rural and peri-urban medical clinics, providing basic access to electricity, combined with basic medical equipment, can be crucial in saving the lives of many women. For instance, in Uganda, only 6 per cent of rural health facilities, and 16 per cent of all health facilities, are currently connected to grid energy (UN Women, 2015c). Noted a midwife participant in a July 2015 high-level consultation workshop organized by UN Women Uganda, “We used to help women deliver in very poor lighting conditions. We could use light from our phones, holding it in our mouths and at the same time giving instructions to the woman to deliver while all hands were engaged in supporting other areas of delivery. For sure, energy is important in a health facility.”

³ In addition, a report by the Food and Agriculture Organization of the United Nations (2013) demonstrated a linkage between disease and nutrition, since infections associated with wood smoke exposure significantly increase nutrient requirements (e.g. Vitamin A) in women and children who are less well nourished and more likely to develop infections after exposure to wood smoke.

⁴ www.se4all.org.

INTEGRATION OF GENDER IN CLIMATE POLICIES AND PROGRAMMING

Gender, environment and climate change are cross-cutting issues that need to be addressed jointly to achieve sustainable development goals and to address existing inequalities (UNDP-UNEP PEI, 2015). The case for gender-sensitive climate change policies addressing adaptation, mitigation, technology and financing gaps has been broadly recognized by a number of actors. Gender-sensitive climate policies can be a crucial avenue for enhancing women's access to sustainable energy. Further, gender-sensitive climate policies can direct resources towards investments in mitigation and adaptation solutions such as clean, renewable and efficient household energy sources and production, with a triple bottom-line impact on climate, energy access, and gender equality and women's empowerment (GGCA, WEDO and ENERGIA, n.d.; GGCA and UNDP, 2011).

Some progress has been made in terms of making international climate frameworks more gender responsive. Conducive national frameworks are essential for the adoption of gender-sensitive climate policies, as is supporting long-term national capacity for mainstreaming cross-cutting issues related to the links between gender, energy and climate. The December 2015 21st Conference of the Parties (COP 21) of the United Nations Framework Convention on Climate Change (UNFCCC) presents an opportunity to review current efforts, experiences, challenges and lessons learned – and to identify opportunities and ways forward – in furthering gender integration into climate change policies as an

avenue to support women's increased access to energy.

Gender integration in global climate frameworks

Gender references have been integrated to some extent in global climate frameworks. The 2010 UNFCCC Cancun Agreement was the first global policy on climate change that included references to gender across critical areas of negotiation including adaptation, mitigation and technology followed in 2011 by the UNFCCC COP Durban outcome document (IUCN, 2012). At UNFCCC COP 20 in 2014, the Lima Work Programme on Gender was initiated. It established a two-year work programme for promoting gender-responsive climate policies and the effective implementation of such policies.

Within the framework of the Sustainable Development Agenda, Goal 13 includes a specific target that makes reference to raising capacity for effective climate change-related planning and management including focusing on women, youth and local and marginalized communities.

International climate and development frameworks set the parameters for national climate change policies and actions; hence, the level of gender integration in these frameworks is likely to be reflected in national policies and action plans.

National climate change policies and action plans: ESA case studies

In line with international frameworks, countries in the ESA region have over the past decade worked towards more gender-responsive national climate policies through the preparation of gender and climate change action plans and guidelines, and the integration of gender into national climate change-related policies. The cases of Mozambique, Tanzania and Uganda highlighted here illustrate the progress in and challenges of integrating gender into national climate change policies. These, along with many other experiences in the region in integrating gender into climate change frameworks⁵, can inform the way forward beyond UNFCCC COP 21.

MOZAMBIQUE: CUTTING ACROSS SECTORS WITH GENDER, CLIMATE AND ENERGY

Experience. In 2010, Mozambique's Ministry for Coordination of Environmental Affairs, with support from UN Women and IUCN, developed a national gender and climate change strategy. On adopting the strategy, the ministry highlighted that gender and climate are cross-cutting issues requiring a cross-sectoral response (Perch and Byrd, 2014). The strategy brought women's concerns into the national policy debate and established a precedent that all climate change projects needed to incorporate gender considerations. The principles of the strategy were further applied when designing climate investment projects, as five of seven proposed projects

included gender as a key theme (IUCN, 2012; Perch and Byrd, 2014).

Challenges and lessons learned. Despite these positive outcomes, the strategy was developed quickly and with limited consultation; moreover, it was not developed as part of national climate change or broader national development planning processes (IUCN, 2012). The result was a stand-alone policy with limited budget allocations that has largely been unimplemented (IUCN, 2012). Recognizing its shortcomings, Mozambique re-engaged with IUCN and developed a climate change and gender action plan in 2013 to complement the 2010 strategy (Aguilar, Owren and Granat, 2013). The action plan includes a specific section on energy. It highlights women's role as energy providers and how this role is becoming increasingly cumbersome due to climate change and environmental degradation. It suggests that the

promotion of renewable energies that help deter GHG [greenhouse gas] emissions could provide an interesting approach for promoting women's economic participation in climate action. Promotion of these technologies will help reduce the pressure on electrical supply, as well as improve health and environmental conditions, especially for women. (Aguilar, Owren and Granat, 2013)

In parallel, significant progress was made in furthering the mainstreaming of poverty, gender and environment-linked issues under the lead of the Ministry of Planning and Development (now the Ministry of Economy and Finance). Through its partnership with UN Women, the ministry has developed gender-responsive planning tools; in 2011, it adopted a matrix for cross-cutting issues including environment and gender with support from UNDP-UNEP PEI and the Danish International Development Agency (Danida). The matrix now serves as an important tool in ensuring that sector plans – including that of the energy

⁵ Although national adaptation programmes of action (NAPAs) and nationally appropriate mitigation actions (NAMAs) also document some useful experiences in gender mainstreaming into climate frameworks, these were not reviewed in the context of this working paper.

sector – include objectives aimed at promoting environmental sustainability and gender equality. Application of the matrix has been realized through ministry leadership as well through the establishment of environmental and gender focal points in various sectors and line ministries such as planning and finance.

TANZANIA: NATIONAL LEADERSHIP FOR CLIMATE, GENDER AND ENERGY NEXUS

Experience. Learning from Mozambique’s experiences, in 2011–2012, Tanzania developed a national climate change and gender action plan, also with support from IUCN. The action plan was developed within the framework of broader national climate change strategies and national communications to the UNFCCC and identified priority entry points for gender and climate–linked issues within the national policy context (IUCN, 2012).

Challenges and lessons learned. The extent to which the action plan was based on substantive cross-sectoral in-country consultations is uncertain, nor is it clear if the plan has been officially adopted. However, in 2012, the Ministry of Community Development, Gender and Children built on the action plan by issuing national guidelines for mainstreaming gender into climate change adaptation–related policies, strategies and budgets. These guidelines highlight the importance of conducive macro-level policies for gender and climate–linked mainstreaming and the crucial role of line ministries such as the Vice President’s Office and the Ministry of Finance in financing implementation (Government of Tanzania, 2012). The guidelines include various sector-specific chapters including one on energy. This approach highlights how the impacts of climate change on the energy sector have triggered a power crisis and increased dependence on biomass – which has in turn widened the gender gap by burdening women with the added responsibility of fetching firewood for domestic use.

Relatedly, in 2014, the Vice President’s Office adopted national guidelines for mainstreaming gender into environment (Government of Tanzania, 2014). The aim of these guidelines is to further gender equality through gender-responsive national environmental policies including climate policy, laws, strategies, plans and budgets.

Currently, UN Women and UNDP-UNEP PEI are working together to support the Government of Tanzania in developing more gender and environment-related data, including indicators to inform the formulation of the country’s next five-year development plan.

UGANDA: ADDRESSING GENDER, CLIMATE AND DEFORESTATION

Experience. Uganda made positive efforts to integrate gender into its 2012 national climate change policy in line with the East African Community Climate Change Policy (Acosta et al., 2015). Further, Uganda has included gender considerations in its planning process for reducing emissions from deforestation and forest degradation (REDD+), highlighting the impact of deforestation and firewood scarcity on the lives of women and children (IUCN, 2012). By so doing, the country has linked the issues of climate mitigation, access to energy sources and gender.

Challenges and lessons learned. A review carried out by the Consultative Group for International Agricultural Research (CGIAR) Consortium of International Agricultural Research Centers notes challenges in terms of integration of gender into Uganda’s climate policies and frameworks. For example, the terms “gender” and “women” are often used interchangeably, and there is limited recognition of additional socio-economic, cultural and other factors that may affect women’s and men’s actions and vulnerability vis-à-vis climate change. More details would be needed for policies to address structural

constraints, such as poor decision-making power, low literacy rates, heavy labour burden related to – for example – the collection of firewood for energy, and women’s weak ownership of and control over resources (Acosta et al., 2015). Climate policies in Uganda – and elsewhere – would also need to consider the impact of gender-based power dynamics on women’s agency to address the root causes of the interface between gender and climate change.

PLANNED NATIONAL CLIMATE EFFORTS BEYOND COP 21 IN THE ESA REGION

In preparation for COP 21 in Paris, all Parties to the UNFCCC were invited to communicate their Intended Nationally Determined Contributions (INDCs). These contributions outline planned national efforts towards low emissions and climate-resilient development beyond COP 21 and complement existing national climate policies, action plans and legislation. A total of 147 Parties, including 18 countries from the ESA region⁶, had submitted their INDCs as of October 2015.

The UNFCCC INDC synthesis report (2015) notes that a few Parties referred to the need to respect human rights and gender equality and to involve vulnerable communities and to consider gender issues and vulnerabilities in the planning and implementation of climate and adaptation actions. While the report states that “the consideration of gender issues is seen by many Parties as imperative in establishing an enabling environment for adaptation”, only six ESA countries include references to gender (Eritrea, Kenya, Lesotho, Malawi, Mauritius and Uganda) or to women (Ethiopia, Lesotho, Malawi, Mauritius, Zambia

⁶ Botswana, Ethiopia, Eritrea, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Rwanda, Seychelles, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

and Uganda) in their INDCs. And of these countries, only two (Lesotho and Malawi) have made significant attempts to integrate gender aspects in their INDCs.

- Lesotho has included a section that identifies gendered climate impacts and highlights in particular the role of and impact on women, girls and boys. It emphasizes how climate change will increase the workload of women and how climate change adaptation interventions thus need to include measures to reduce women’s workload.
- Malawi’s INDC has a separate section on gender which notes that gender is a cross-cutting issue that needs to be mainstreamed in all sectors and which recognizes the specific role of women.

It should be noted that other parts of a country’s climate change policy framework may significantly reflect gender issues even if these are not reflected in the INDC; this appears to be the case for Mozambique, Tanzania and Uganda.

LESSONS LEARNED FROM THE ESA EXPERIENCES

These country experiences indicate that ensuring that climate and gender-linked issues are integral parts of national policies and planning tools can stimulate the development of gender-responsive climate change policies and plans and the integration of such objectives across sector plans and budgets. Gender and climate change action plans, which tend to be separate from the normal policy process, can be important in catalysing the mainstreaming of gender into national climate change frameworks. However, an action plan is only a “long-term placeholder for the moment in time when policy and planning opportunities emerge” (IUCN, 2012) – in this case, for the

integration of gender into national climate policy frameworks.

Unfortunately, climate change policies often simplify gender relations, agency and vulnerability – with the outcome that few policies demonstrate a realistic and viable commitment to addressing gender and climate change.

While support from development partners can be critical, country governments should lead the development of national action plans and guidelines that aim to address the gender-climate nexus within the national context. These plans and guidelines are more likely to spark meaningful action when there has been a high degree of broad country stakeholder involvement and ownership in their development (UNDP-UNEP PEI, 2015). Tanzania is a good example of a country where engagement was not limited to the environment and gender ministries, but also was mobilized in other sectors such as energy, planning and finance as well as the Office of

the President and Vice President – a significant indication of commitment. Strengthening national capacities to design and implement gender-responsive environment and climate, and environment and energy policies is essential.

Opportunities to accelerate policy implementation

In spite of the noticeable progress in incorporating gender in climate policy-related frameworks and action plans in the ESA region, implementation of such policies remains a challenge at the country level (Pelter and Capraro, 2015). Country-specific data and strengthened capacities – along with sufficient budget allocations – are crucially needed to accelerate policy implementation. More efforts are needed in designing and implementing gender-sensitive climate policies and programmes that also look at energy issues⁷. This sub-section identifies some opportunities to enhance policy implementation and describes actions taken by UN Women ESARO and UNDP-UNEP PEI along these lines.

Cost of the gender gap in agricultural productivity

Women comprise a large proportion of the agricultural labour force in Sub-Saharan Africa, ranging from 30 to 80 per cent (FAO, 2011). A recent report prepared jointly by UN Women, UNDP-UNEP PEI and the World Bank (2015) provides a unique quantification of the costs of the gender gap in terms of lost growth opportunities and an estimate of what societies, economies and communities would gain if the gender gap in the agriculture sector was addressed. The gender gap costs Malawi USD 100 million, Tanzania USD 105 million and Uganda USD 67 million every year. Closing the gender gap could lift as many as 238,000 people out of poverty in Malawi, 119,000 people in Uganda, and approximately 80,000 people in Tanzania every year. The findings of the report are striking and send a strong signal to policymakers in Africa as well as to development partners that closing the gender gap is smart economics.

DEVELOP GENDER-DISAGGREGATED CLIMATE-RELATED DATA

To enable climate policies to address structural constraints, more country-specific gender, climate, energy and environment-related data are needed at the national and local levels. Such integrated data demonstrate the added value for integrating gender into climate and energy frameworks. In the context of both the 2015 Sustainable Development Goal

⁷ In addition, few women worldwide hold decision-making positions in the environment and climate sectors. This circumstance may have an impact on the way in which gender issues are addressed – or not addressed. For example, in a study covering 881 environment-related sector ministries from 193 countries, only 12 per cent of the ministers were women (IUCN, EGI and UN Women, 2015).

and UNFCCC negotiations, calls have been made for more integrated and disaggregated data and evidence to ensure that different stakeholder needs are reflected in policies across sectors.

Despite the many publications and guidelines making the case for gender-sensitive climate frameworks, few have focused on the business case. Recognizing the need to demonstrate the added value of addressing gender and environment-linked issues more broadly, UN Women ESARO, UNDP-UNEP PEI and the World Bank commissioned a report in 2015 to cost the gender gap in agricultural productivity. A changing climate means that there is a shrinking window of opportunity for action, and it is imperative that climate smart approaches to agriculture help close the gender gap and promote women's empowerment, economic development and societal resilience to shocks. Similar reports exploring the economic and social costs of gender gaps in relation to climate and energy are needed.

In Africa, UN Women is actively engaged with several partners in filling the gender gap in agriculture while addressing climate change. Notably, UN Women projects in Kenya, Liberia, Malawi, Mozambique, Senegal and Uganda aim to meet the needs of women and strengthen their empowerment through climate-resilient agriculture.

STRENGTHEN CAPACITIES

Designing and accelerating the implementation of gender-sensitive climate and environment-related policies including energy requires strengthened capacities of institutions, stakeholders and coordination mechanisms that can link policies to budgets and implementation (UN Women, 2014; UNDP-UNEP PEI, 2015). For example, officials tasked with implementing climate and environmental-related policies and plans including energy need a good

Approaches to capacity building

UNDP-UNEP PEI Mali (n.d.) commissioned and finalized a study on the integration of gender into work concerning the poverty-environment nexus. The study highlighted the fact that, unlike in other areas of development work such as health and education, the natural resource sector in Mali does not have targeted objectives and budgets allocated to gender – even though the 2012–2017 Development Plan highlights gender in all its main chapters. It further noted that there is a low level of understanding of gender and human rights issues among natural resource development officials in Mali and that the inclusion of gender indicators in the planning as well as monitoring and evaluation frameworks for UNDP-UNEP PEI and other initiatives in the sector are lacking. The study concluded that UNDP-UNEP PEI can work as an institutional entry point to better integrate gender issues in poverty-environment related work.

To support capacity-building initiatives, UNDP-UNEP PEI and UN Women ESARO organized joint trainings using the UNDP's Gender Economic Policy Management Initiative training programme. The trainings focused on integration of environment-gender linkages into policies and plans by bringing together government officials from ministries of environment, finance and planning, and gender in the ESA region (2014) and in West Africa (2015) together with the African Institute for Economic Development and Planning.

Since the trainings, around half of the participants have used the knowledge gained to influence the design of programmes and/or policy and budget processes in their country. One participant from Tanzania summed up the lessons learned, noting that “The training has shown how gender and natural capital are crucial variables for economic development [and] has demonstrated that the mainstreaming of both gender- and environment-related issues requires a systematic approach... most importantly, the training has provided me with the tools to further this work in my country.”

understanding of gender and environment-linked issues in order to integrate gender into sector policies and plans. Conversely, gender ministries need to be equipped to integrate sustainability aspects into their

Gender-responsive environment budgeting in Rwanda

In Rwanda, poverty, gender, environment and climate change issues were successfully integrated in the country's national economic development and poverty reduction strategy. To ensure implementation, the Ministry of Finance and Economic Planning – supported by Rwanda's Environment Management Authority (REMA) and UNDP-UNEP PEI – included an annex on environment and climate change budgeting in the annual budget call circular. It also adopted a national programme for gender-responsive budgeting supported by the Ministry of Gender and Family Promotion, UN Women and UNDP. These efforts, along with support provided to REMA and women's civil society groups to track adherence to budget guidelines and advocate for increased allocations, have contributed to a 26.3 per cent jump in Rwanda's agricultural budget from 2009 to 2011 (<http://www.unwomen.org/en/what-we-do/economic-empowerment/macroeconomics-policies-and-social-protection>), and an increase in Rwanda's average expenditure on environment and climate change from 0.4 per cent of annual gross domestic product (GDP) (2005–2008) to 2.5 per cent of annual GDP (2008–2012). The country also established a national environment and climate change fund (FONERWA) in 2012 with support from UNDP-UNEP PEI; the fund was later operationalized with funding from the U.K. Department for International Development (DFID). One project funding criterion is impact on gender and youth, and FONERWA's output indicators include number of people with improved access to clean energy disaggregated by gender and percentage of projects demonstrating transparent community participation, and gender equality and equity in the design and implementation phases (Government of Rwanda, 2012). Currently funded projects involve water-harvesting structures with the potential of reducing women's workloads.

work. In Uganda, capacity constraints, little knowledge of how to implement cross-cutting issues and lack of budget were reported to inhibit implementation of gender and climate-linked objectives included in sector and district policies (Acosta et al., 2015). Moreover, a study carried out in Mali noted a lower level of understanding

of gender issues among environment and natural resource officials compared to other sectors such as health or education.

ENSURE SUFFICIENT BUDGET ALLOCATIONS AND EXPENDITURES

One common challenge when it comes to cross-cutting issues such as gender and climate is that they are not given priority or sufficient budget allocations in national, sectoral (e.g. energy) or district policies and budget frameworks – resulting in limited implementation (Jones et al., 2015; UNDP-UNEP PEI 2015). Influencing the national budget guidelines that inform national and sector budgeting to include poverty-environment or gender and climate-linked priorities is thus essential (UNDP-UNEP PEI, 2015).

Tools UN Women and UNDP-UNEP PEI have successfully used to influence national budget processes towards being more gender responsive and promoting sustainability include the development of sound economic arguments; capacity building; gender-responsive budgeting; and expenditure reviews on climate, environment and gender. A central strategy towards ensuring implementation of these guidelines and budget expenditures entails long-term capacity building for people inside and outside the government with roles at various stages of the budget cycle⁸. Supporting champion agencies and women's civil society groups to advocate for and monitor actual expenditures on gender, environment and climate change is useful not only in tracking adherence to budget guidelines but also in advocating for increased budget allocations. Several innovative financing mechanisms for climate are also being piloted in Africa and are further discussed in the next section.

⁸ <http://www.unwomen.org/en/what-we-do/governance-and-national-planning/engaging-in-public-sector-reform>.

ON-THE-GROUND EXPERIENCE

This section summarizes a number of small-scale solutions that simultaneously increase women’s opportunities and enhance sustainability. These stem from recent experiences by UNDP-UNEP PEI and UN Women and their partners as they have sought to inform processes aimed at making climate and environment policies more gender sensitive and bringing women to a clean energy path and including them in climate-resilient initiatives.

Up-scaling project on energy-efficient stoves and briquettes in Malawi

Demonstrates how pilot projects can be improved through documentation of lessons learned and up-scaled by ensuring close linkages with government processes

To motivate policymakers to design policies and programmes promoting inclusive sustainable energy, Malawi’s Ministry of Energy, supported by UNDP-UNEP PEI, piloted a project on the production, marketing and distribution of energy-efficient stoves and briquettes in four districts (UNDP-UNEP PEI, 2014a). The pilot’s objective was threefold: to enhance access to cleaner energy, to promote women’s entrepreneurship and income opportunities from selling energy-efficient stoves, and to motivate policymakers to take action. The introduction of the stoves and briquettes eased the rate of deforestation and has provided cleaner technology for energy production, thereby reducing impacts on climate. The stoves uses high-density briquettes that produces less smoke and are energy efficient; this in turn reduces related health problems and is safer than an open

fire. Women and children no longer have to spend as much time in search of firewood, freeing up time for other economic activities and reducing the risk of sexual assault while in the forest.

A key challenge highlighted by one of the project beneficiaries is finding markets for the briquettes. To this end, training on marketing and distribution of briquettes and energy-efficient stoves should be intensified. Similar projects would also benefit from having a clear monitoring and evaluation plan to follow up on progress and identify and address challenges in a timely manner. The pilot projects were designed and implemented in close collaboration with local communities, civil society and the private sector; this multi-stakeholder approach was critical to project success.

Building on the lessons learned from the pilot projects, the Government of Malawi launched a similar initiative in another district with a target of producing 2 million stoves under a national cookstove initiative funded by Irish Aid for USD 400,000. In 2015, the Government of Malawi developed a cookstoves “roadmap” with the objective of further catalysing sustained uptake of cleaner cookstoves in the country as an environmentally sustainable option for improving energy provision.

Up-scaling innovative technologies for rural women in Eastern and Southern Africa

Demonstrates how women’s access to innovations can result in increased agricultural productivity, food security, and climate change mitigation; and improve women’s welfare

Through the African Women in Technology (AWIT) initiative, UN Women is establishing a global alliance to promote up-scaling of rural technologies for women⁹. AWIT's focus on rural technology to enable women to fulfil their potential, become more resilient and contribute to agricultural productivity represents a new and innovative approach for gender-sensitive development. The initiative expands on the Sharefair on Rural Women's Technologies held in October 2014 in Nairobi. The Sharefair demonstrated that countless small-scale innovations are being implemented in the ESA region which need to be shared, incubated and taken to scale. Consequently, in May 2015 the Bellagio Technology Promotion Group was established under AWIT auspices to broker innovative partnerships that yield impact. Through research and development, the Group puts technology provision at the forefront, and seeks to develop data evidence and affordable financial solutions tailored to women's needs.

AWIT's ultimate goal is for women to have access to farming tools and equipment that boost agricultural yield, income and food security; mitigate climate change; and eliminate food waste, while decreasing women's labour and time and empowering them economically. The initiative will result in a much larger menu of technology options rural women can draw on, accelerating their ability to cope with future resilience threats. At the same time, it is expected that the industrial and financial sectors will recognize rural women as a market sector and re-engineer supply accordingly, resolving current supply bottlenecks and contributing to a sustained transformation. Policy dialogue undertaken as part of the initiative will promote a conducive environment for enhancing women's access to technologies, which will incentivize private sector investments.

⁹ www.empowerwomen.org/cop/awit.

The Edutainment initiative encourages rural technology scale-up from a different perspective. As a collaboration between UN Women ESARO and the Kenya Country Office, the Food and Agriculture Organization of the United Nations, and the International Fund for Agricultural Development, the initiative produces and broadcasts educational TV shows targeting about 6 million viewers in Kenya, Tanzania and Uganda. It addresses issues such as post-harvest losses, women's land rights, and women's economic empowerment through an effective and innovative knowledge transfer methodology.

Exhibition on renewable energy technologies and innovations in South Africa

Underscores the role innovative renewable energy technologies may play in enhancing women's opportunities

Coinciding with the South African International Renewable Energy Conference, in October 2015, the UN Women South Africa Multi Country Office, in partnership with the Department of Energy and the United Nations Industrial Development Organization, hosted an exhibition of 11 renewable energy technologies. The exhibition was reviewed by an independent panel of experts who looked at technologies with the aim of supporting their incubation and scale-up. All the technologies showcased have been piloted and proven on the ground and potentially have a social impact on women. They include technologies that are labour saving, contribute to the safety and health of women and their communities, provide enterprise and economic empowerment, and are owned primarily by women. Examples of technologies showcased are a solar-powered drier to preserve fruit and vegetables and their nutrients; a sun oven built for household use that can be used to cook anything, using

only sunlight; and solar-powered appliances including televisions, radios, phone chargers and water heaters provided by the Kheis Municipality project to its community to change the life of 500 households. The panel also looked at technologies considered to be more responsive to the needs of women in rural and peri-urban settings, where women are disproportionately and negatively affected by limited access to clean and affordable energy.

The exhibition enabled women entrepreneurs to interact with key leaders in the renewable energy sector, such as local municipalities and the Department of Small Business and South Africa National Energy Institute (SANEDI), and provided them with opportunities for raising awareness of their innovations and further development and scale-up. A policy dialogue facilitated by UN Women showcased some renewable energy technologies and innovations that are win-win solutions for the environment and women's lives and economic empowerment. As a follow-up to this initiative, a number of consultations between the exhibitors and the various stakeholders have been undertaken to understand in depth how these technologies work and how they can be scaled up. UN Women and key partners will provide the required technical support for moving forward.

Rural Women Light Up Africa initiative in Tanzania

Demonstrates how empowered women can bring sustainable development solutions to local communities

The Tanzania Country Office of UN Women is contributing to tackling climate change by empowering women in the area of renewable energy. Rural Women Light Up Africa is built on a partnership with the Barefoot College in

India¹⁰, where African rural women are trained to install and maintain solar energy panels. After six months, the trainees graduate as Barefoot Solar engineers. They then return to their villages to electrify households with solar lighting units and assume responsibility for their repair and maintenance for a period of five years.

The initiative trains mature women to be capable and confident solar engineers and to fill a critical need for reliable energy in African villages. Six women in Tanzania have installed solar technologies, providing energy to 460 households. These women have not only brought electricity to their communities for the first time, but have introduced a renewable and sustainable source of energy that can be maintained and replicated in other communities. Continuation of the initiative is based on market forces and participants' capacity to maintain and install equipment beyond their own villages; this has already occurred in Mtwara. In Zanzibar, a regional training centre was opened in August 2015; it is currently training its first group of 11 solar engineers to further up-scale the technology.

A side effect of the lighting project is an increase in women's voice and independence. The solar engineers and other women members of the village solar energy committees are now active participants in village meetings and strong role models for their peers, their daughters and other young girls. The men recognize that women can have skills, earn money and be productive community members – a recognition that opens the door for women to pursue other income-generating activities as well.

¹⁰Barefoot College has also been supported and piloted by UNDP in various parts of Africa and Asia since 2008.

Consulting with women on design of sustainable solutions in Rwanda

Demonstrates how women's involvement in design and implementation can empower them to take the lead in community development

Women's involvement in the design of sustainable energy solutions—as well as their distribution and marketing—can help ensure that these solutions are tailored to women's needs and used by other women; failure to include women in the cookstove design process resulted in the initial failure of many programmes (Foley and Moss, 1983, and Manibog, 1984, cited in IRENA, 2014). Involving women in technology design can also improve technology uptake. The Stockholm Environment Institute's Behaviour and Choice Initiative aims to develop a framework for understanding how individuals and households make decisions and choices related to the purchase and sustained use of new technologies and services. The initiative has looked at the areas of household energy (improved cookstoves) and sustainable sanitation as initial focus areas, but the method can also be used to understand behaviour and decision-making related to the uptake of other technologies as well (e.g. technology for smallholder agriculture).

To reverse environmental degradation, a village in northern Rwanda, Rubaya, has—under the leadership of a woman-led cooperative—adopted a range of environmentally sustainable approaches and technologies, including biogas as a source for energy and rainwater harvesting and terracing. This adoption has not only halted soil erosion and deforestation but also reduced the time women spend on water and firewood collection and increased the social and economic benefits from their use of natural resources. The cooperative's leader noted that since the start of the “green village”

project, “we are getting more crops, yields are bigger and we live in better houses” (UNDP-UNEP PEI, 2014c).

The green village project was led by the Government of Rwanda with support from UNDP-UNEP PEI Africa (UNDP-UNEP PEI, 2014b). Key to its success has been its focus on building local capacity to manage and further efforts. The female-led cooperative has been successfully managing the initiative since 2010, demonstrating the project's sustainability and highlighting how community members – and in particular women – have been empowered to take the lead on local sustainable development planning.

The project has influenced Rwanda's Economic Development and Poverty Reduction Strategy to include aspects of environmental sustainability for poverty reduction and economic development. The Ministry of Local Government has requested that all districts establish at least one green village based on best practices and has, with support from UNDP-UNEP PEI, developed a toolkit for how this can be done. Rwanda's 30 district development plans now include objectives linked to establishing green villages or piloting green technologies. The model was replicated in another village, Muyebe, in the southern province; another three districts have, with UNDP-UNEP PEI support, applied for and accessed financing from Rwanda's national environment and climate change fund (FONERWA) to establish green villages.

A key lesson learned is the importance of linking project solutions, best practices and lessons learned with the national policy and budget process in order to ensure replicability.

Women's Access to Climate Finance

Implementation of climate change adaptation and mitigation solutions is often funded by international climate change finance sources. Unfortunately, international climate financing has often lacked a gender perspective. The result has been a focus on large-scale energy infrastructure and industrial efficiency programmes rather than on small-scale mitigation and adaptation interventions such as clean, renewable and efficient household energy sources and production with strong linkages to gender equality and women's empowerment (GGCA, WEDO and ENERGIA, n.d.; GGCA and UNDP, 2011).

Climate change finance mechanisms often have complex application processes and significant upfront costs, making benefit

sharing and access by women's grassroots and civil society organizations difficult (GGCA and UNDP, 2011). Progress is being made on these issues. Several international climate finance frameworks – such as the Clean Technology Fund under the Climate Investment Funds, the Special Climate Change Fund and the Green Climate Fund – now include gender priorities and have adopted gender policy and action plans (Green Climate Fund, 2015). In particular, the gender plan implies actions in the following six priority areas: governance and institutional structure; operational guidelines; capacity building; output, outcomes, impacts and paradigm-shift objectives used for monitoring, reporting and evaluation; resource allocation and budgeting; and knowledge generation and communication (Green Climate Fund, 2015).

LESSONS LEARNED

As the primary energy managers in households and communities in developing countries, women can be powerful agents of change in the transition to sustainable energy and a reduced carbon footprint. But gender-responsive policies are needed to enable this transition. Also needed to accelerate the implementation of gender-responsive, environmentally sustainable policy are better data, strengthened capacities and sufficient budget allocations for gender-environment mainstreaming. The lessons learned from UNDP-UNEP PEI Africa, UN Women and this review can help address bottlenecks and inform the way forward.

Women need to be involved in decision-making and play a leadership role in promoting decentralized renewable energy access; they also need to benefit from renewable energy for economic empowerment. Decentralized renewable energy systems offer a great opportunity for women to participate in decision-making, as these are deployed at the local level where women are more likely to be involved in energy procurement, design, installation, maintenance and consumption (Smith, 2000, cited in IRENA, 2014). To enhance women's participation in the renewable energy sector, they will need access to adequate education and training opportunities that will enable them to develop their skills and be empowered to seize on opportunities in the sector. Indeed, investments in capacity development are needed to realize such transformations in women's lives: from their being considered end users to key movers and managers (Bill and Melinda Gates Foundation, 2013)

Apply a cross-sectoral approach to gender, climate and energy programming

and policy. Gender should continue to be mainstreamed in environment and climate sector ministries, and environment should continue to be mainstreamed in gender ministries. But beyond this, ministries of finance and planning must be convinced to mainstream climate and gender-linked issues into national development and budget processes. To achieve this goal requires a thorough understanding of these processes and of the actors involved, which is the approach advocated by UNDP-UNEP PEI (UNDP-UNEP PEI, 2015).

Promote women's productive use of renewable energy, and reduce women's time dedicated to unpaid care and domestic work. While the case has been made for gender-climate mainstreaming, the language and evidence used have not convinced national policymakers and finance ministers to take action. Country-specific integrated evidence that demonstrates the poverty reduction benefits and cost of inaction in holistically addressing poverty, gender and environment-linked issues is instrumental in influencing national development plans to become more gender and climate responsive. To this end, more and better data related to renewable energy employment and women's unpaid work must be collected in order to legitimize more effective development investments targeting gender equality and women's empowerment in the energy sector. Appropriate data will highlight the leading role women play in most developing countries.

Target policy processes and build capacity to mainstream gender, climate and energy in an integrated manner. Once concrete evidence of a given gender gap or gender-related impact is available, it can

be used to engage with national policy-makers to mainstream gender, climate and energy-linked objectives into five-year national development plans; this inclusion in turn provides a framework for sector and district-level policymaking. It is also critical to support long-term national capacity for the mainstreaming of cross-cutting issues related to the links between gender, energy and climate.

Catalyze climate finance for women's equal access to sustainable technologies and entrepreneurship opportunities.

The technologies developed to benefit rural women's energy needs should be up-scaled and improved. This will require the involvement of a wide set of stakeholders – as currently promoted under the UN Women's AWIT initiative – and a better understanding both of what works and of the bottlenecks in up-scaling. These technologies not only take into account the current roles and responsibilities women fulfil within and outside their households, but also the transformative impact of technology adoption in fundamentally shifting the role of women within and outside their households (UN Women, 2015a). The private sector can play an important role in supporting and up-scaling such technologies.

Women's entrepreneurship in the green economy and access to climate finance must also be promoted and encouraged. Women are not only consumers, but also producers, of energy; in this context, they play a crucial

role in supporting the growth of the green economy and in reaping its benefits. To fully capitalize on women's potential in the green economy, investments need to be made in women-owned enterprises that use sustainable practices along the supply chain. Climate finance initiatives could support such efforts. Women's traditional roles – and their valuable indigenous knowledge, contributions and skills – contribute to adaptation and mitigation efforts, enabling them to help devise effective responses in unlocking Africa's energy potential and building the basis for a climate-resilient, low-carbon future.

Influence budget processes to fund the implementation of gender-sensitive energy and climate solutions.

Once environment, climate, poverty and gender concerns are included and linked in national policy and cross-sector planning processes, sufficient budget allocations for implementing these objectives need to be ensured. Economic arguments, capacity building, gender-responsive budgeting and expenditure reviews on climate, environment and gender are all important tools used by UN Women and UNDP-UNEP PEI to influence national budget processes to be more gender responsive and promote sustainability. And regardless of whether international or national climate change funding sources are involved, it is critical that a gender perspective be explicitly included in the design and implementation mechanisms of these funding frameworks.

WAY FORWARD

Investing in women's access to renewable energy and climate-smart technologies will catalyse women's wider empowerment, accelerate women's economic advancement, and – as a result – leverage wider social and environmental impacts. Women are the primary energy managers in households and communities and can be powerful actors for change in the transition to sustainable energy and economic development. Women should hence be empowered to play a leadership role in promoting and benefiting from sustainable energy for economic empowerment and climate resilience. Indeed, if energy and climate planning and policy development is gender inclusive and responsive, if investment barriers are removed and equal opportunities created for women's entrepreneurship and decent employment in the decentralized renewable energy and climate sector, and if women's productive use of renewable energy and essential energy services are promoted, women will play a leadership role in promoting decentralized renewable energy access and better contribute to local and national sustainable economic and social development.

Several challenges remain to integrating gender issues more comprehensively into climate and energy policies in Africa, and to linking such policies more closely to programming and budgeting to ensure implementation of those activities. In this regard, consolidated guidelines on gender-responsive budgeting related to environmental policies and programmes are needed.

In addition to climate change policy analysis, it would be useful to explore the extent to which energy policies at the country level are climate

and gender responsive – and consequently, to monitor the progress made and the challenges remaining to be addressed.

A new narrative that clearly depicts women as integral parties in and agents of change in forwarding climate responses must be promulgated. Country-specific evidence demonstrating the cost of inaction and the poverty reduction benefits of more gender-responsive climate and environment frameworks can inform the development of such a narrative. For example, it would be useful to analyse the cost of women's unpaid work in relation to meeting energy needs or the health-related costs of carrying firewood and of the pollutants inhaled during biomass combustion. Another area for further exploration is the association between climate change – and the concomitant scarcity of natural resources, including the forests and water necessary for meeting household needs, including energy needs – and girls' school drop-out rates.

Concrete, promising project solutions at the local level should be combined with actions at the political level and linked with national policy processes, with the aim of initiating structural reforms. Given Africa's recurrent shocks and stresses – caused by climate variability, disease and natural disaster – that create conditions of chronic vulnerability, such as persistent food insecurity, it would be useful to explore strategies to address post-harvest losses and to investigate the role of clean energy in building and strengthening the resilience of women living in complex ecological systems.

Concerted action at all levels, including significant policy measures and legal reforms, as well as initiatives by the private sector and civil society, is urgently needed. Also, women's groups should be strengthened with regard to claiming their rights and their active involvement in these processes. Success will also depend on the active participation of men and boys in promoting gender equality and women's rights – for example, as in the UN Women HeForShe Campaign (<http://www.heforshe.org/>). Joint development programmes that imply collective action and collaborative efforts will provide different

stakeholders with the opportunity to engage with each other and work together more effectively.

Partnerships are essential in this regard. UNDP-UNEP PEI Africa and UN Women ESARO will continue working closely together, informed by research, to support the integration of gender and climate-linked concerns in policies, budgets and programmes and to strengthen capacities for the implementation of such policies.

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The **Poverty-Environment Initiative** (PEI) of the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) supports country-led efforts to mainstream poverty-environment linkages into national development planning and budgeting. PEI provides financial and technical assistance to government partners to set up institutional and capacity-strengthening programs and carry out activities to address the particular poverty-environment context. PEI is funded by the governments of Norway, Spain, Sweden, the United Kingdom, and the European Union and with core funding of UNDP and UNEP.

