**THE GEF SMALL GRANTS PROGRAMME**

**CLIMATE CHANGE - LOW CARBON ENERGY ACCESS CO-BENEFITS STRATEGIC INITIATIVE**

**TECHNICAL GUIDANCE NOTE**

**BAVKGROUND AND RATIONALE**

Unmitigated climate change presents significant risks for humanity, threatening the livelihoods of millions, while poorest and most vulnerable are likely to suffer the most and lose development gains of recent decades. Interconnected challenges of overcoming poverty and managing climate change were described as “the two defining challenges of this century”[[1]](#footnote-1).

Emissions of greenhouse gases (GHGs) continue to rise to dangerous levels with observations recently exceeding 400 ppm for the first time in the last 65 million years[[2]](#footnote-2). The impacts are already observed globally including global surface temperature exceeding pre-industrial levels by 1.5°C -2°C, unprecedented rate of ocean warming and acidification, decline of glaciers and changes in water cycle.[[3]](#footnote-3) Latest observations also indicate irreversible retreat of West Antarctic ice sheet leading to much higher and rapid sea level rise already this century[[4]](#footnote-4).

While the science proving human influence on climate is unequivocal, the efforts to reduce GHG emissions are clearly insufficient. While parties of UNFCCC are working on a new legal instrument to reduce GHG emissions, which is expected to be implemented in 2020, with current policies and pledges, the world is on a path to 3-40C degrees temperature increase within this century. Experts predict that such unprecedented change would significantly impacts critical ecosystem services, food production and water availability and could possibly cause extinctions of 40-70% of assessed species [[5]](#footnote-5).

The emissions of GHGs are directly resulting from critical economic activities, such as industry, agriculture and access to energy. With recent wave of industrialization, the emissions continue to grow in industrial countries as well as in newly industrialized rapidly growing developing countries. As the new global agreement is being negotiated, the timing is critical for helping the countries to prepare an array of options aiming to decarbonize development and transition to low carbon economy, reducing emissions while still satisfying global demand for energy services and reducing poverty.

The current global public funding to address climate change is approximately $10 billion per year, while it is estimated that $260 billion to $370 billion a year would need to be spent over the next two decades to stabilize the GHG concentrations and limit the temperature increase to 20C with most of the funds coming from the private sector and public finance playing a catalytic role[[6]](#footnote-6). It is important to note, however, that with the recent promising technological developments and reduction of the costs of renewables, the transition to low-carbon economy should not be considered as a burden, rather it’s likely to foster innovation and lead to a rise in living standards. For example, innovation has driven rapid cost reductions in solar energy making it competitive in 80 countries[[7]](#footnote-7). There is also increasing recognition that many of the measures and policies to mitigate climate change by reducing greenhouse gas emissions have multiple economic co-benefits, beyond avoided climate change impacts, that have not been formally accounted for[[8]](#footnote-8). These co-benefits include reduction of air pollution, economic effects of energy access, biodiversity conservation etc. In fact, the Global Commission on the Economy and Climate estimated that more than 50% (possibly up to 90%) of the reductions in annual greenhouse gas emissions required by 2030 for a pathway consistent with the 2°C warming limit could be achieved through measures that (taking into account co-benefits) are in the direct interests of the countries concerned even if the climate benefits of such investments are not taken into account[[9]](#footnote-9).

This new emphasis on reduction of mitigation costs through innovation with associated innovation-led economic growth and co-benefits rejects the traditional assumption that mitigating climate change is a costly burden that is antithetical to development. Rather, it highlights the potential for more integrated and mutually reinforcing approaches to climate, growth and development. For example, zero-emissions distributed solar photovoltaic systems and clean cook-stoves could provide access to safe, non-polluting energy services for the billion people who lack access to an electricity grid and the three billion who rely on the direct burning of biomass for cooking and heating[[10]](#footnote-10). Latest research shows that providing universal energy access (i.e. clean, reliable, and affordable energy services for cooking, heating, lighting, communications, and productive uses) is not only compatible with, but necessary for the long term climate protection[[11]](#footnote-11). It is estimated that 55% of the capital expenditure aiming to achieve universal energy access and reduce emissions at the same time, would need to go toward off-grid solutions such as small, stand-alone renewable energy technologies (including solar PV for lighting and clean drinking water, and micro-hydro or biomass generation) and 10% - toward providing modern cooking fuels[[12]](#footnote-12). Experts also point out deep synergies between renewable energy and energy efficiency and agree that energy efficiency is vital for doubling global share of renewables.[[13]](#footnote-13)

In this context SGP is well positioned to provide versatile, flexible bottom-up community solutions targeted towards specific demand sectors that link energy to productive uses and development priorities such as agriculture, youth employment, enterprise and industry, mining, fishing, women empowerment, health, education, environment, water and community services. Such solutions can then be scaled up through facilitating adoption of new technologies, building enabling policy and institutional frameworks, including at the community level, as well as the identification and dissemination of best practices and advocacy.

With SGP’s work in the climate change focal area, over 4,000 projects (historically 33% on renewable energy and 27% on energy efficiency) are available to show innovative community low-carbon technologies that are adapted to local conditions and significantly contributing to provision of sustainable energy services and reduction of harmful GHG emissions while generating other co-benefits such as improved resilience and livelihoods. SGP emphasized catalytic investment focusing on support and commercialization of innovative projects including various technologies such as (i) biogas; (ii) biofuel as alternative to diesel or kerosene; (iii) solar energy for water heating and electricity; and (iv) hydro energy such as micro-hydro and watermills. Energy efficiency was supported widely in both rural and urban communities. In cities, SGP supported communities in their efforts to use energy efficient appliances and build energy efficient housing. In rural areas, the focus was on reducing the use of firewood by promoting efficient cooking technologies. While small in scale, these successful pilot initiatives can be integrated and scaled up within larger national and international frameworks such as NAMAs (Nationally Appropriate Mitigation Actions), LEDS (Low Emission Development Strategies), Sustainable Energy for All (SE4ALL), as well as in the new initiatives taking shape with potential support from the Green Climate Fund and other funders.

**OBJECTIVES**

In OP6 SGP will focus on providing bottom-up energy solutions that are low-cost and provide high potential for carbon emissions reductions including small hydro, bioenergy systems from waste and efficient stoves. Such solutions aligned with national country strategies (e.g., NAMAs, energy access policies etc.) are a crucial part of the “decarbonization”, while addressing energy service needs of rural, urban and remote communities and entrepreneurs, who cannot be served by the central grid in case of electricity or centralized distribution systems in case of cooking and heating fuels. The interventions are expected to contribute to satisfying global demand for energy services for people without access to electricity and those that still rely on traditional biomass for cooking.

Such bottom-up energy solutions will also use integrated approach going beyond energy sector aiming at increasing climate resilience, reducing poverty, enhancing gender equality and achieving the sustainable development goals. SGP is multifocal in nature and is uniquely positioned to promote synergy across the various GEF focal areas and corresponding conventions, according to GEF -6 programming directions, which emphasize that “coordination of clean energy policies with relevant policies in other areas, such as agriculture, rural development, health, poverty eradication, gender equality and women’s empowerment, and energy security, have the potential to generate synergistic co-benefits at the local, national, and global levels.”[[14]](#footnote-14) This integrated approach is also consistent with UNDP focus on poverty reduction and inclusive sustainable development.

These solutions would be easily replicable in similar countries and SGP will facilitate knowledge exchanges between communities potentially including programmatic regional initiatives to achieve greater impact. Such efforts will contribute to GEF climate change objectives, which include “support for energy access initiatives at the local level, including demonstrations and piloting of renewable options”[[15]](#footnote-15). SGP will also align its efforts with global initiative Sustainable Energy for All (SE4ALL) to facilitate mainstreaming and scaling up. SGP is well positioned to meet the goals of “Sustainable Energy for All” as SGP’s work with CSOs is consistent with SE4ALL’s strategy emphasizing the ability of CSOs to directly assist the poor.[[16]](#footnote-16)

SGP will also attempt to identify, describe, measure, and quantify the co-benefits of the interventions, to the extent possible. This is one of the priorities identified for the academic research in the fields related to climate change, which would help to better understand the nature of transition to low carbon economy and the relationship between climate action, poverty and inequality[[17]](#footnote-17). Moreover, recent study has shown that small scale mitigation initiatives, similar to SGP interventions, focusing on energy access produce additional socio–economic, health and environmental co-benefits worth millions of dollars[[18]](#footnote-18). In OP6 SGP will work more closely with academic institutions, including in researching co-benefits, which could potentially guide and inform scaling up and policy development.

**STRATEGIC Approach**

SGP will focus on high impact low cost emission reduction opportunities, “low hanging fruits” of climate change mitigation supported by emerging scientific evidence such as measures reducing black carbon, a potent short-lived climate pollutant, which is estimated to reduce the warming expected by 2050 by up to 0.5° C, while also resulting in significant health benefits[[19]](#footnote-19). SGP can potentially contribute to a large proportion of carbon emission reduction, which for improved cook stoves alone, is estimated at 1 Gt CO2 per year globally based on 1 to 3 tons of CO2e per stove[[20]](#footnote-20). Such interventions will also reduce future emissions as they will prevent poor communities from achieving energy access with fossil fuels, deforestation and in other unsustainable ways jeopardizing their livelihoods and contributing to the global environmental problems.

These interventions will not be considered in isolation, rather they will also be part of integrated solutions going beyond energy sector and producing co-benefits such as increasing resilience, reducing poverty, improving livelihoods. Focus on resilience is essential, since sustainable emissions reductions can only be achieved, while addressing existing and already significant impacts of climate change as well as providing other environmental and social benefits, as already recognized by experts and funders[[21]](#footnote-21).

Most SGP projects are already contributing to multiple global benefits and focal areas. For example, in most documented SGP interventions renewable rural electrification increases adaptive capacity and provides co-benefits by reducing poverty, improving livelihoods and stimulating economic development. Another example is the promotion of cleaner, energy-efficient stoves to households and institutions resulting in multiple benefits in addition to GHG mitigation, such as reduced deforestation, improved carbon sequestration and climate resilience (reduced vulnerability to landslides, droughts etc.) as well as health benefits. SGP is also a critical partner enabling communities and grass roots organizations to join national and regional dialogues on climate change, where they can voice concerns, join larger scale initiatives and pass their invaluable local and indigenous knowledge. This role will be father emphasized in OP6 with the focus on Grantmaker+.

In OP6 SGP will support innovative technologies and approaches with initial financing and then encourage wider deployment and scaling up. SGP will focus on capacity building, knowledge management and systematization, putting in place enabling frameworks and mechanisms at the community level and will partner with national and global initiatives to insure that innovations are implemented based on programmatic approach creating larger impacts. This approach will address a major barrier to investments and financing for energy access - an absence of adequate information sharing and understanding regarding the alternative and sustainable solutions available. Continuing the efforts started in OP5, in OP6 SGP will also focus on building partnerships with larger initiatives in order to scale up successful innovations to national and global level.

The strategic approach in Climate Change area can be summarized in the following themes:

* Catalytic financing for community technologies (small hydro, solar, biomass, bioenergy, efficient stoves, etc.) with the focus on innovation and scaling up.
* Integrated approach aiming at increasing climate resilience, reducing poverty, enhancing gender equality and achieving the Sustainable Development Goals (SDGs).
* Capacity development efforts enabling the community to develop and use innovative technologies.
* Knowledge management and systematization aimed at facilitating the exchanges between the communities to achieve greater impact.

**INDICATIVE ACTIVITIES**

During the operational phases I-V, SGP built a broad portfolio of differentiated mitigation solutions tailored to different socio-economic conditions in line with countries’ development priorities. These innovative interventions implemented by grassroots and civil society organizations play a catalytic role reducing barriers and creating conditions for scaling up of successful solutions. Based on the work accomplished in the past operational phases, a number of countries are already well positioned to take a lead in climate change focal area and associated strategic initiatives. It is expected that low carbon community energy access solutions will be successfully deployed in 50 countries with alignment and integration of these approaches within larger frameworks such as SE4ALL initiated in at least 12 countries, as well as in relevant initiatives of the Green Climate Fund and national programs.

Renewable technology demonstrations are still important in OP6, particularly in the new countries, new geographic areas and among new stakeholders, where critical mass and awareness of low carbon solutions is still being built. The examples of successful demonstrations include renewable energy solutions implemented in communities, schools and churches in **Caribbean SIDS (Trinidad and Tobago, Bahamas, Antigua and Barbuda)**, **Eritrea, Kazakhstan, Tunisia** and other countries. These demonstrations helped to initiate partnerships with other funders, governments and utilities, creating conditions for scaling up and inclusion of renewables in energy supply and influencing elaboration of national laws and strategies. Some demonstrations targeted new stakeholders, such as people with disabilities in **Kenya**.

In OP6 SGP will continue to practice participatory approach and focus on the technology solutions supporting productive activities and responding to community needs. There are multiple examples. Hybrid wind and solar energy production and distribution system for a rural community with participatory management and solar PV irrigation system was developed in **Cape Verde**. In **Cuba** multiple technologies including micro-hydro, solar and wind were deployed in remote communities and innovative local biodigestor technology for pig farms was developed and transferred to grantee partners. In **Dominican Republic** 35 off-grid community-managed micro hydro systems were established with SGP support and 20 more are under implementation. In **Armenia** innovative solar driers and greenhouses were developed and in **Albania** biomass byproduct of olive oil production was used for greenhouse heating. Most interventions already use integrated approach for example combining renewable energy applications with reforestation and vulnerability mapping (**Cameroon)**. Participatory community financing mechanisms ensure sustainability of these projects and are key to SGP approach.

Many countries already conduct basic accounting of co-benefits, beyond just reducing emissions. In OP6 this would be done more systematically and rigorously in select lead countries, while others are still requested to provide at least basic estimates. The co-benefits appear very significant. For example, 33% reduction of energy costs for families with solar and wind rural electrification and 92% decrease of water bills and income increase by up to USD 17,180/year with solar pumping are reported in **Cape Verde.** Many countries, including **Kenya**, **Comores**, **Cameroun** report health benefits for women and children after introduction of improved stoves. Women and children also have more time available for productive activities as renewable energy provides lighting and reduces the need for wood collection. These benefits can be more accurately estimated and quantified. In **Niger** solar electrification made possible provision of vaccination and other medical assistance to women and infants. In **Dominican Republic**, in additon to economic benefits for the families, more than 7,000 ha of forest and watersheds were conserved as a result of initial demonstration and wide replication of community micro hydro. In **Albania** the use of biomass reduced by 50% the costs of heating municipal buildings and in **Armenia** orphanages and other organizations serving low income people reduced gas and electricity consumption by over 65%, saving over USD 5,000 annually.

In some countries, where a critical mass of successful demonstrations already exists, SGP is moving farther focusing on systematization and scaling up. In **Kenya**, **Dominican Republic**, **Jordan, Morocco, Armenia** and other countries SGP interventions were successfully replicated with additional funds secured from other partners. Other countries are developing innovative models in collaboration with private sector, for example, community producers feeding in energy to electric utilities and jointly investing savings (**Saint Lucia**, **Bahamas**). Some countries such as **Cape Verde**, **Dominican Republic**, **Kazakhstan** and others are using SGP demonstrations to inform and influence national renewable energy plans, energy policies and other legislation. The emphasis on scaling up and demonstrating impacts will be stronger in OP6. It’s advised that all proposed projects and interventions consider these aspects from the beginning in a strategic manner and document them more systematically.

While SGP will be building extensively on past experience in OP6, some new concepts are introduced. Considering that many countries will utilize landscape approach to focus efforts and increase impacts, climate change/energy access interventions would also be largely focused in selected landscapes. In these cases landscape selection criteria should also include relevant considerations for climate change interventions. The synergies and coordination with other SGP projects will also be more important within the landscape and will need to be considered in advance. All SGP programs will be required to collect some data on co-benefits and social impact for each project. The lead countries, however, will be allocated additional resources to capture social impact and other co-benefits and conduct in-depth accounting in selected initiatives.

**POTENTIAL PARTNERSHIPS**

In addition to the deployment, development and transfer of innovative low-carbon technologies, SGP strategy emphasized building partnerships to mobilize resources for scaling up the pilot initiatives by focusing on advocacy efforts at local and national levels to influence policy in line with the priorities of the countries. External partnerships will be complimentary to SGP OP6 strategy, strategically aligned with GEF climate change objectives, which include “support for energy access initiatives at the local level” and UNDP Strategic Plan including overarching sustainable development goals.

In OP5 and earlier operational phases SGP innovative initiatives were scaled up by the World Bank, Regional Development Banks, bilateral agencies, governments and GEF full size projects. In some countries GEF SGP interventions have achieved scale as well as political and economic impact when widely replicated at the country level. In OP6 SGP will build on this work and also will partner with national initiatives such as NAMAs, LEDS, energy access policies etc., as well as international such as Sustainable Energy for All and Green Climate Fund as these initiatives are taking shape. SGP is especially well positioned to meet the goals of Sustainable Energy for All to facilitate national and global replication as SGP’s work with CSOs is consistent with SE4ALL’s strategy emphasizing the ability of CSOs to directly assist the poor[[22]](#footnote-22). These larger initiatives will provide a platform for scaling up SGP work as well as possible co-financing and joint efforts in national and global planning and policy advocacy. SGP will also encourage strong partnerships with the private sector to commercialize successful projects with the aim to shift renewable energy projects from pilot innovations to the mainstream.

In the face of current unprecedented technological change, private sector is gradually seeing renewable energy as an opportunity to lead in and benefit from the new industrial revolution. In 2015 IKEA pledged unprecedented one billion euros to invest in measures to combat climate change including clean energy generation, which the world’s biggest furniture retailer sees as “good for customers, good for the climate”[[23]](#footnote-23). Earlier, top European companies urged governments to act on slashing greenhouse gas emissions to net zero well before 2100, saying that going green can bring profits rather than costs[[24]](#footnote-24). Recently thirteen of the largest US companies launched the American Business Act on Climate Pledge promising to cut emissions and voicing support for climate action[[25]](#footnote-25). These global developments are likely to encourage private sector in countries outside of US and Europe to consider investing in promising clean energy initiatives.

**Outcomes, indicators AND RESULTS Measurement**

For impact measurement in OP5 and before SGP relied on quantitative indicators including number and type of renewable energy installations as well as number and type of beneficiaries/households. In OP6 these basic indicators are still needed and required for all projects. However, in OP6 some changes are proposed to the approach to measuring global benefits. In OP6 the strategy was to measure CO2 reductions for every project as accurately as possible. However, this approach did not work well in practice. Given the nature and size of SGP projects, the results often appear too small, while any credible measurement effort was too technical for community grantees and needed costly expert services. Additionally, the methodologies applied in different countries varied widely preventing effective tracking across the global portfolio. In OP6 measurement of emissions reductions is optional and should only be done for select projects, where such measurement is warranted.

In OP6 the country programs will be required to track sustainable development impact indicators including measuringresilience, ecosystem effects, income, health, etc. However, given the relative complexity of these tasks, full in depth accounting at project, landscape or country program level will be possible only in select lead countries, while all country programs will be required to collect basic data and provide qualitative descriptions. Some country programs are already successfully capturing sustainable development indicators and quantifying co-benefits. In OP6 these efforts will be undertaken more systematically in lead countries using proven methodologies allowing comparison and quantification.

**Table 1. SGP OP6 GLOBAL RESULTS FRAMEWORK**

| **Project Objective: To support the creation of global environmental benefits and the safeguarding of the global environment through community and local solutions that complement and add value to national and global level action** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Component** | **Outcome** | **Indicators** | **Target** | **Verification Means** | **Assumptions** |
| *Low Carbon Energy Access Co-benefits* | 3.1 Low carbon community energy access solutions successfully deployed in 50 countries with alignment and integration of these approaches within larger frameworks such as SE4ALL initiated in at least 12 countries | Number of typologies of community-oriented, locally adapted energy access solutions with successful demonstrations for scaling up and replication  Number of communities achieving energy access with locally adapted community solutions, with co-benefits estimated and valued. | At least 10 typologies of innovative solutions demonstrated and documented  At least 5,000 households achieving energy access  Co-benefits such as resilience, ecosystem effects, income, health and others rigorously estimated in 12 lead countries. | ACR  AMR, global database, country reports, global database  Special country studies | SE4ALL continues to develop and provide opportunities for integration |

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