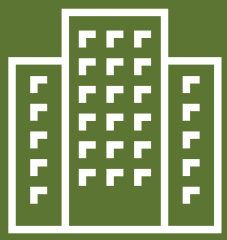
GREEN CLIMATE FUND | Simplified Approval Process

SIMPLIFIED APPROVAL PROCESS (SAP) TECHNICAL GUIDELINES

Cities and Climate Change



INTRODUCTION

DEFINITION

Traditionally, cities are defined as large human settlements, with no one standardized definition applied internationally. Frequently, national governments have criteria they use to define urban areas. These criteria can vary to include aspects such as administrative boundaries, living conditions or population density. Another approach is what is termed "urban agglomeration", which considers the extent of an urban area, or sometimes, that of a built-up area, to identify a city's boundaries.

Under the simplified approval process (SAP) scheme, secondary cities will be defined as those with a population of 1 to 3 million people. Therefore, cities need to have a minimum population of 1 million in order to apply for projects and need to carefully consider the economic viability of such projects.

RELEVANCE TO CLIMATE CHANGE

Over the next few decades, it is estimated that more than two-thirds of the global population will reside in cities[1], and that most of this population surge, almost 90 per cent, will occur in Asia and Africa. Since much of this urbanization is yet to take place, this global phenomenon offers both opportunities and challenges in relation to the global response to climate change. It is estimated that although urban areas contribute about 80 per cent of global gross domestic product, they also account for anywhere between 71 percent and 76 percent of greenhouse gas (GHG) emissions[2] as a result of global final energy use.

Human settlements are becoming increasingly vulnerable to the adverse impacts of climate change. This could be the result of an increase in the frequency and intensity of weather events, extreme temperatures or sea-level rise. Therefore, emphasis needs to be placed on the need to integrate climate-resilient urban infrastructure and planning into urban development. According to scientific research, these trends are expected to grow unless actions are taken to

1. *United Nations Department of Economic and Social Affairs (UN DESA). 2014. World Urbanization Prospects: The 2014 Revision, Highlights. New York: UN DESA.*

2. *Seto KC, Dhakal S, Bigio A, Blanco H, Delgado GC, Dewar D, Huang L, Inaba A, et al. 2014. Chapter 12 - Human settlements, infrastructure and spatial planning. In: Climate Change 2014: Mitigation of Climate Change. IPCC Working Group III Contribution to AR5. Cambridge, Massachusetts: Cambridge University Press.*

ensure that cities can mitigate against and adapt to the expected adverse impacts of climate change while at the same time enhancing productivity, continuing to build resilience to it and reducing carbon intensity. In addressing these challenges from a climate perspective, research has shown that cities can generate economic benefits, address traditional market failures, such as urban sprawl and congestion, and reduce negative externalities, such as pollution and GHG emissions.

In the discourse on urbanization and climate change, secondary cities are of growing importance. Globally, the majority of urbanization is taking place in Africa and Asia, in such secondary cities.[3] These new and expanding urban hubs are increasingly serving as the new engines of growth, and support systems to the capital cities and mega cities, as the latter reach saturation point. In the future, the opportunity to combat climate change will lie in these secondary cities, where the path dependency of traditional urbanization can shift away from carbon-intensive infrastructure to low-carbon development.

APPROACH

KEY AREAS / COMPONENTS

For cities, there needs to be an integrated cross-sectoral approach to addressing the challenges. This is because cities do not operate in isolation but serve as the focal point of all sectors. A technical paper of the United Nations Framework Convention on Climate Change (UNFCCC) secretariat referring to mitigation activities in urban areas states the following, "through strong mitigation actions aimed at low-carbon, climate resilient development at the local level across the key sectors such as buildings, transport and waste, cities in aggregate could reduce their GHG emissions in these core sectors by an estimated 24 percent by 2030 and by 47 percent by 2050)".[4]

For GCF, projects dealing with cities and climate change will be considered under the sectors listed below. It is important to note that potential projects can be cross-sectoral in nature, with the impacts and paradigm shift clearly stated for each of the sectors being considered. A brief description of each sector is provided below. These descriptions are meant to serve as a guide, and it is important to note that projects do not have to be limited to these examples.[5]

a. **Decarbonization of the energy sector:** can achieve both mitigation and adaptation by promoting renewable energy sources in the electric grid mix; deploy centralized and distributed renewable energy such as rooftop solar or appliance standards;[6]

b. **Improving energy efficiency in building stocks:** reduction of energy use in urban buildings (municipal, residential and commercial) through energy-efficiency standards in new buildings, installing or upgrading heating ventilation and air conditioning (HVAC), and water heating technologies, retrofitting old building envelopes; improving lighting and auto appliances, including regulatory measures, such as building codes;

c. **Mobility and transport:** land-use and mobility patterns need to have an integrated approach to reduce emissions. This means cities need to ensure better access to a range of attractive, affordable and low-carbon mobility options;[7]

3. GCF, Discussion paper on cities and climate change (2018), available upon request.

4. Erickson P and Tempest K. 2014. Advancing Climate Ambition: How City-Scale Actions Can Contribute to Global Climate Goals. Working Paper No 2014-06. Davis, California: Stockholm Environment Institute. U.S. Center.

5. GCF is currently in the process of developing sectoral guidelines which will be used as a further road map for sector-related thinking from a GCF perspective. It is expected that these guidelines will be available to the public by the third quarter of 2019.

6. For further information on the energy efficiency sector, refer to the SAP guidelines for that sector.

7. For further information on the transport sector, refer to the SAP guidelines for that sector.

d. **Urban form:** urban planning and design of cities to focus on walkability and flow of human traffic to achieve compact cities. For SAP projects, this would be limited to urban planning, land use and zoning, and transportation plans;

e. **Adaptation to climate change:** improve adaptation capacities of cities, including climate-resilient urban infrastructure; use of green rooftops to reduce heat island effects, and small-scale ecosystem-based adaptation projects at the city level;

f. **Materials and material flow:** integrate circular economy into urban planning to achieve increased mitigation through designing systems that keep products, components and materials at their highest value, and that minimize the amount of raw materials input into the production system;

g. **Improving waste management:** reduction of upstream waste, promotion of recycling, composting and material recovery to reduce emissions from the waste sector;[8] proper disposal of organic waste to prevent emissions from escaping into the atmosphere;[9] and

h. **Urban water and sanitation:**[10] sea-level rise and extreme weather events can lead to flooding in urban areas, but cities need to develop water infrastructure resilient to such events. Sanitation too is vulnerable to the effects of climate change as a result of flooding and the destruction of sanitation facilities.

PARADIGM SHIFT POTENTIAL

In developing low-emission and climate resilient development pathways, urban areas can have a high impact potential in both adaptation and mitigation projects as they are cross-sectoral in nature. Urban areas are complex in nature and require holistic and long-term solutions and investments to achieve a paradigm shift. In achieving these solutions, projects need to be designed in an integrated manner that combines strategic planning, policy reform, technical assistance and capacity-building components.

Cities need to shift away from traditional carbon-intensive urbanization towards transformative changes, which could potentially be achieved through the following transformations:

a. Recognizing and strengthening cities as key areas of climate transformation through sectoral interventions (infrastructure development, energy, water and sanitation, waste management and mobility);

b. Integrate climate focused planning of urban areas into political and institutional mechanisms; and

c. Improve adaptability to climate change through leapfrogging development with the help of technological and institutional changes.

The above-mentioned changes could, therefore, be regarded as design features for urban development in transition.

8. According to the GHG protocol for the waste sector, emissions from the sector are considered to be primarily methane, carbon dioxide and nitrous oxide.

9. However, only those waste management project applications with a category C environmental safeguards and resettlement categorization will be considered under the SAP format; most waste projects are automatically disqualified due to riskier safeguard categorization.

10. For further information on the water sector, refer to the SAP guidelines for that sector.

IMPACT MEASUREMENT

The project proponent should clearly indicate the expected **impact** of the intervention in both qualitative and quantitative terms. Note that the primary interest of GCF is in the impact that the project will generate. Hence, it is important that projects align with GCF priorities to ensure that a strong and persuasive case is presented.

It is recommended that the proponent refers to GCF's performance measurement frameworks and adopt the language therein when describing the impact of any project.[11] The document contains a list of indicators used by GCF to assess the expected benefits of the project. A table with **fund-level impacts** and **project/programme-level outcomes** with indicators relevant to potential urban projects is presented below.

Note that a vague and qualitative description, such as "reduced emissions from cities", will not suffice. There needs to be a granular elaboration with quantitative estimates, wherever possible.

11. *Annex VIII to document GCF/B.08/45 (annex VIII to decision B.08/07).*

Table 1: Fund-level impacts, outcomes and indicators related to the urban efficiency sector

EXPECTED RESULTS	INDICATORS	NOTES
Fund-level Impacts		
Reduced emissions from buildings, cities, industries and appliances	Tonnes of carbon dioxide equivalent (tCO_2eq) reduced or avoided as a result of GCF-funded projects/programmes	Buildings: Informed by MDB/IFI GHG accounting harmonization work on energy efficiency Cities: Informed by the Global Protocol for Community-Scale Greenhouse Gas Emissions and by the Cities Alliance (currently being developed) Industries: Informed by MDB/IFI GHG accounting harmonization work on energy efficiency Appliances: Informed by MDB/IFI GHG accounting harmonization work on energy efficiency, where applicable. Can also draw upon the GEF's GHG accounting for standards and labelling: CLASP's/LBNL Policy Analysis Modeling System Sex-disaggregation is to be researched for each sector and included, where possible
Project/Programme Outcomes		
Strengthened institutional and regulatory systems for low-emission planning and development	Institutional and regulatory systems that improve incentives for low-emission planning and development and their effective implementation	Details on this indicator are to be determined. Although this can be informed by GEF Indicator 5, the World Bank's RISE work, and BNEF Climatescope work, consideration will be made to avoid country- and sector-level requirements for this indicator. Consideration should be given to what can be measured at different levels (city, regional, etc.) and what changes can be tied to the work of GCF, either in an attribution or contribution sense
	Number and level of effective coordination mechanisms	Seeks to measure evidence of measures taken to promote coordination and synergy at the regional and international levels, including between and among relevant agencies and with regard to other multilateral environmental agreements
Increased number of small, medium, and large low-emission power suppliers	Proportion of low-emission power supply in a jurisdiction or market	To be determined by recipient countries Disaggregated by size of supplier
	Number of households, and individuals (males and females) with improved access to low-emission energy sources	Informed by CIF SPREP 2 Disaggregated by sex Disaggregated by urban and rural To be informed by SE4All Assumes that it will not be possible to measure improved access from large-grid systems; therefore, the data will be linked to off-grid access (e.g. solar panels) and mini-grid systems
	Megawatts of low-emission energy capacity installed, generated and/or rehabilitated as a result of GCF support	Informed by CIF, CTF and SPREP indicators
Lower energy intensity of buildings, cities, industries and appliances	Energy intensity/improved efficiency of buildings, cities, industries and appliances as a result of GCF support	Informed by MDB/IFI GHG accounting harmonization work on energy efficiency; can also be informed by IEA and SE4All Global Tracking Framework, where relevant Will need to be calculated sector-by-sector; different methodologies apply to buildings, cities, industries and appliances

Abbreviations: BNEF = Bloomberg New Energy Finance, CIF = Climate Investment Funds, CLASP = Collaborative Labelling and Appliance Standards Programme, CTF = Clean Technology Fund, GEF = Global Environment Facility, GHG = greenhouse gas, IFI = international financial institution, IEA = International Energy Agency, LBNL = Lawrence Berkeley National Laboratory, MDB = multilateral development bank, SE4All = Sustainable Energy for All, RISE = Readiness for Investment in Sustainable Energy, SPREP = South Pacific Regional Environment Programme.

INDICATIVE SIMPLIFIED APPROVAL PROCESS ACTIVITY MATRIX FOR URBAN EFFICIENCY[12]

12. These activities may not be eligible under the SAP under certain conditions. Accredited entities will need to screen their projects to determine if they are low risk and therefore eligible for consideration under SAP. Factors such as the scale of operations may increase the risk level.

SAP-ABLE EXAMPLES

Reduced emissions through increased access to low emission urban infrastructure

SECTOR	SAMPLE SAP-ABLE ACTIVITY	SAMPLE INDICATOR	NOTES
Energy efficiency	Street lighting	Number of bulbs changed in street lights from incandescent to light emitting diode (LED) lighting	Management of discarded incandescent bulbs should be in place
	Regulatory changes to set appliance standards	Energy efficiency standard setting for a specific number of appliances, policy adopted as formal legislation	
Waste Management	Proper waste management system set up to allow for closed aerobic digestion of organic waste	Amount of methane generated Kilograms of organic waste decomposed	Household level only. Municipal and/or centralized waste management system that will result to air emission, effluent discharge, solid waste generation, land acquisition and occupational health and safety risks and impacts may not be SAP-able
Urban Planning	Revision of urban/municipal plans with capacity-building components to plan for compact cities, non-motorized transportation and better public transport	Percentage increase in green space Percentage increase in the number of people walking Percentage increase in public transport routes	

It is important to note that this list is not an exhaustive one, rather it presents examples of activities that could be considered when designing a project under the SAP programme.

NON SAP-ABLE EXAMPLES

SECTOR	SAMPLE NON-SAP-ABLE ACTIVITY	NOTES
Housing	Construction of new housing	Such a project would include construction activity, which would not comply with the ESS standards for SAP
Roads	Construction of new roads	Such a project would include construction activity, which would not comply with the ESS standards for SAP
Transport	Construction of bus rapid transport system	Such a project would include construction activity, which would not comply with the ESS standards for SAP

Abbreviations: ESS = environmental and social safeguards, SAP = simplified approval process.

PROJECT SCENARIOS

PROJECT SCENARIO 1

CONTEXT

Municipal governments are responsible for providing street lighting, but the electricity consumption for street lights is usually very high. The city government decided to achieve energy efficiency in its electricity usage. Therefore, to reduce energy consumption and consequently the city's electricity bills, the city government retrofitted street lights using incandescent bulbs with light emitting diode (LED) bulbs.

PROJECT ACTIVITIES:

- **Implementation:** The implementation of the project included the retrofitting of existing street lights to change their bulbs from incandescent bulbs to LED bulbs. A total of 500,000 bulbs were changed in the city under this project.
- **Capacity Building:** As part of this project, training for city officials, urban planners and city engineers was undertaken to teach them about energy efficiency and planning for energy efficiency as a component of urban planning. The purpose of this training exercise was to make the relevant officials and engineers aware of low-carbon, energy-efficient options for a publicly provided service, such as street lighting, so that in the future these officials can plan and implement such projects at scale.

IMPACT POTENTIAL

- **Beneficiaries:** The population of the whole town benefited from the change as streets that previously did not have adequate light now had light sources that worked longer and more efficiently and as a result provided security to the city's inhabitants. The municipal corporation has also benefited from savings in electricity consumption and as a co-benefit, the savings in energy costs for the city.
- **Social impact:** The project aims to positively influence the long-term behaviour of the city municipality and to some extent that of the area's citizens, through enhanced safety with better lighting.
- **Future impact:** This project could be scaled up in the future to change more bulbs in the city and in other cities of a similar size, or larger.

PROJECT SCENARIO 2

CONTEXT

Major urban centres in developing countries are expanding thus creating what is known as satellite cities or adjunct cities, which pre-existed the expanding urban centers but now cater to the needs of the larger metropolis, and as time passes become cities in their own right. As these cities are 'being built', it gives the city planners the ability to incorporate different elements into their plans to address climate change. One such element is cooling.

Most modern cities in the tropical zone require cooling to provide comfort to the people either living in new dwellings or working in new office spaces. The traditional means of providing cooling would be to install cooling plants in each building or provide individual cooling units per floor or apartment. But given the density of users and need for effective cooling new solutions can be brought forward.

A city in South-East Asia is planning a multi-use expansion, located in a 1 km² area, which consists of two 25-storey office/residential towers, a shopping mall, a museum with a 650-seat auditorium, a plaza and a park as well as a dedicated service hub for a telecom company that operates 24/7. Therefore, instead of opting for individual cooling systems the project is planning to build a district cooling system that provides cooling to all users in the new area from a central cooling plant.

PROJECT ACTIVITIES:

- Design of a district cooling plant and revenue collection system:a full design of the cooling system with pipe layout is needed, including the user load analysis and load factors. The cooling services will be provided as a mini 'utility', thus, a proper revenue collection system needs to be designed while considering the type of user, load profiles, demand utilization, cooling requirements etc.;
- Installation of the district cooling system: based on the design and user patterns, a cooling system (machines, piping, air handling unit, etc.) needs to be procured and installed, with control systems at both the plant as well as user areas; and
- Cooling system management system: a proper management system for the cooling system is needed. As mentioned earlier this will be a utility service, thus the developer will have to view it as such. Therefore, capacity-building of cooling plant personnel as well as a developer is needed for day-to-day operation, maintenance and emergencies, revenue collections and disputes, among others.

IMPACT POTENTIAL

- **Direct benefit:**
  - A district cooling system can have the potential to save anywhere from 7 to 10 percent of the energy demand for cooling systems even based on highest efficiency levels for individual systems;
  - The total size of the system will be large enough so that the cooling system can run on natural refrigerants like ammonia/carbon dioxide instead of hydrochlorofluorocarbon (HFC) or chlorofluorocarbon-based refrigerants. HFCs have a global warming potential ranging from 3,000 to 12,000 times more than carbon dioxide;
  - Removes additional heating or heat Islands as all heat extracted from the cooled spaces is transferred at a central location; and
  - The project will also have a better financial return due to economies of scale as well as ease of installation of cooling the system.
- **Social impact:** the removal of heat islands allows people to enjoy the plaza or parks at ambient condition without the addition of hot air from many condenser units.
- **Future impact:** based on the new development and cooling density of the planned development, this sort of system can be replicated in multiple new cities.

PROJECT SCENARIO 3

CONTEXT

As cities urbanize and the urban population grows, the amount of waste generated is increasing at an exponential rate. In order to reduce the greenhouse gas (GHG) emissions from the waste sector, a city with a population of 1.5 million people has revised its municipal waste collection system focusing on collection and transport, to improve collection efficiency and reduce GHG emissions. This project takes an approach that places the concept of integrated waste management at the core, thus, including a varied set of activities as part of the project.

PROJECT ACTIVITIES:

- **Capacity Building:** Waste collection in this city is a municipal responsibility. Since this is a pilot project, the municipal officials, waste collectors and workers in the waste facilities will need to be trained on developing an integrated waste collection and management system before implementing it. This training aimed to achieve two outcomes, the first was to have the relevant officials finalize the implementation plan for this project and the second was to provide technical training so as to be able to achieve the planned outcomes.
- **Integrated waste management:** This pilot project initiated waste segregation at the household level in the pilot area, which included the distribution of waste bins, collection of segregated waste, transfer of the waste, processing of organic waste and setting up basic composting facilities at the collection centre. If the project is successful in the future, as part of the scaling up process a small-scale bio-methane unit can be established.

IMPACT POTENTIAL

- **Beneficiaries:** Clean benefits drawn from the reduction of GHG emissions from open air decomposition of organic waste; the reduction of GHG emissions from transportation of waste; the citizens of the city who now have better access to waste collection services; the municipal government for whom efficient collection systems result in cost savings; the informal waste pickers who were hired by the municipal government and trained on safe waste collection methods.
- **Social impact:** To positively influence the long-term behavior of the citizens.
- **Future impact:** This project was piloted in a neighborhood of the city and can be scaled up to the rest of the city for other waste collection routes and replicated in other cities.

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