



Piloting a Standardized Crediting Framework
for Scaling Up Energy Access Programs

Phase 2 Final Report:
Lessons Learned and Next Steps

Senegal Pilot

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Executive Summary

The Standardized Crediting Framework (SCF) is an initiative by the Carbon Initiative for Development (Ci-Dev) to support the transition of its project pipeline under the Clean Development Mechanism (CDM) to the new regulatory framework of the Paris Agreement, as well as to provide relevant inputs and lessons learned into the ongoing negotiations of Article 6. The SCF provides for a host country-led approach to crediting that simplifies scaling-up and replication of project activities within defined sectors of the economy – starting with energy access – as well as a potential transition to sectoral or sub-sectoral approaches to crediting emission reductions that go beyond the current CDM Programme of Activities (PoA) model.

The SCF concept includes, among other improvements, the following elements:

- **Standardized emission reductions** – more of the parameters for both baseline and project emissions are standardized, to reduce the MRV costs and align the monitoring requirements with the typical business activities. For example, program proponents are mainly required to monitor activity levels (e.g. new connections and consumption), while the conversion of this activity to emission reductions is largely standardized and includes country-specific default factors.
Simplified project cycle – The boundary of the program is determined by tracking all units rather than “including” new components (i.e. as in the CDM PoA process), which eliminates this step in the project cycle. In addition, the SCF builds on earlier proposals for streamlining the project cycle by eliminating the validation step, and rather combining verification of the project design and project performance into a single ex-post third party audit of program performance and compliance with eligibility criteria.
- **Streamlined approaches** – The SCF uses a positive list approach to additionality for various energy access technologies, supported by transparent and objective eligibility criteria. Templates and clear guidance for “listing” (i.e. similar to registration), monitoring and verification reduce the time and costs associated with these steps in the project cycle.
- **National governance** – As a host-country led approach, the SCF has a national “Governing Board” –led by the key climate change ministry – supported by a Technical Committee (i.e. to provide technical advice on the rules) and an Administrator (i.e. for day-to-day implementation of the rules). In implementing the national governance and administrative functions, the SCF pilot established efficient structures to minimize the administrative and financial burdens on national governments, while ensuring transparent decision-making. This was done by building on existing national structures experienced with climate change projects and policies.

To demonstrate proof of the concept, Ci-Dev initiated a *pilot* of this concept in Senegal, that is focused on the national electrification program under the Senegalese Rural Electrification Agency (Agence Sénégalaise d'Électrification Rurale - ASER). This Lessons Learned Note reviews the experience of the completed pilot and draws a comparison between the CDM and the SCF, highlighting the difference in procedures for each step of the pilot phase. This comparison is limited by the fact that the Senegalese rural electrification program had already been developed as a CDM PoA, so much of the program development work was complete, and because the CDM first monitoring and verification phases are still ongoing. Nevertheless,

and time and cost investment so far in the early stages of the project cycle, as well the process of setting up this “country-led” crediting approach, provide important lessons and highlight opportunities.

The SCF pilot has demonstrated the substantial cost and time savings that can be achieved through simplification and streamlining, even just considering the program preparation, validation and registration/listing phase of the project cycle. The CDM process took years longer than the SCF, and even for new programs under the SCF it would be very unlikely the program preparation would take more than six months. In these three phases, the cost savings of USD 180,000 for one program were more than the entire set-up cost of the SCF (i.e. USD 102,000). Even if additional programs require some support for project development, the savings are substantial compared to the CDM. Because the CDM PoA has not started verification yet, it is difficult to compare the monitoring and verification phases of the two schemes. The question for other countries – and even for expansions of the SCF into other sectors in Senegal – would be who pays for this set-up cost. This could potentially be linked to international initiatives support countries in NDC implementation and MRV.

There are cross-cutting lessons from the Senegal pilot that can inform the design and implementation of similar schemes in other countries. While the host country responsibility is much greater for a scheme such as the SCF, so is the engagement of local stakeholders and the potential for country ownership. Greater use of domestic expertise, such as local auditors, can then further reduce costs and build capacity for climate change mitigation in developing countries. Perhaps most importantly, the experience of these early pilot activities can inform the negotiations on the rules for Article 6 from a practical, developing country-focused perspective. Disseminations of the results and lesson from the pilot should therefore be a priority.

Beyond the immediate impact of the SCF pilot, it also has important implications for the implementation of Senegal’s NDC. Senegal is exploring how to use climate finance to leverage private investment and how to create an enabling environment to “crowd-in” private investment toward key NDC investment goals. Innovative climate finance mechanisms and tools are therefore needed for the following:

- Sustaining and expanding the potential for RBCF to support Senegal’s development goals while progressing towards their NDC commitments.
- Developing the institutional capacity for implementing international transfers under the Paris Agreement and engaging in new carbon markets
- Increasing Senegal’s technical capacity for monitoring, reporting and verification and tracking progress towards NDC goals
- Improving coordination across government department and sectors and ensuring strong country ownership of new mechanisms for international cooperation under the Paris Agreement.

The pilot phase of the SCF in Senegal is coming to an end. With this in mind, now is the time for Senegal to consider the next steps and seize further opportunities from a scaled-up SCF. While there are many approaches that could be considered, the following steps capture the key next steps and opportunities for the SCF in Senegal. Expanding the SCF into other sectors could engage new stakeholders and increase carbon market opportunities but will

require investments in methodological development, program management and administrative costs. In choosing new sectors or technology areas, criteria could include:

- Alignment with national development goals
- Mitigation potential and abatement costs
- Capacity of key actors in the sector and their experience with carbon pricing and MRV
- Technology- or sector-specific MRV needs and links between these and tracking NDC progress (i.e. future Biennial Transparency Reports (BTRs))
- Methodological simplicity (e.g. small-scale technologies and technologies without any non-carbon revenues are more likely to be credible as automatically additional).

Preparing a marginal abatement cost curve (MACC) for relevant sectors and technologies would be essential for identifying areas that have significant potential to cost-effectively meet Senegal's sectoral mitigation goals. Without this analysis, it would be difficult to assess the potential impact of new pilot activities and SCF expansion on the overall NDC goals.

At the same time, carbon markets and RBCF are only part of the overall package of financing, so Senegal needs to explore upfront climate finance as well. Both RBCF and carbon markets only provide payments after implementation of the programs. While this can create incentives for implementing higher-cost low-carbon technologies, program development also need access to capital. For low-carbon technologies, concessional financing (e.g. concessional loans and equity) and grants will also be needed to create viable business models.

The SCF will need a sustainable source of financing and institutional capacity. After the SCF Pilot phase, continuity of the governance structure will require sufficient resources to continue their work and further expand the SCF to other sectors. Ensuring sufficient capacity to manage the SCF process beyond the pilot will also require additional trained staff in the Administrator. This also implies the need for a dedicated funding for dedicated staff and experts overseeing crediting programs. Senegal and their partners should explore other financing sources, which might include some form of "share of proceeds" and well as external donor support.

The revision of Senegal's NDC provides a window to align NDC commitments with a coherent strategy for accessing carbon finance under Article 6. With the Paris Rulebook still under negotiation, many countries are still trying to understand how they will use carbon markets, and the use of markets will relate to tracking progress towards their NDC commitments.

Senegal may also start to explore crediting transactions beyond the current CDM-linked agreement. If a scheme such as the SCF were to be recognized under Article 6 of the Paris Agreement, this could pave the way for sales of emission reductions in the 2020-2030 period. Senegal should begin to explore possible future transactional arrangements, in terms of contracting party within Senegal, counterparties outside of Senegal, and what national authorization process would be required to meet the Paris Agreement rules.

The SCF Pilot in Senegal has also provided several useful lessons for thinking about the next generation of results-based climate financing. These include the following:

- Nurture a country-driven process: with a shift under the Paris Agreement towards more bottom-up models of international cooperation comes the opportunity and challenge of

building host-country ownership. Nurturing this ownership can ensure that the next generation of RBCF directly supports NDC implementation, but this will require sustained investments in capacity building.

- Identify the strategic role of climate finance and markets: potential host countries for future crediting mechanisms need to understand the cost of meeting their NDC mitigation goals before they can decide on how and at what price to participate in markets. RBCF could be a bridge between host country actions and future markets (i.e. if RBCF payments do not result in transfers of emission reduction units), by supporting actions that are too expensive for the host country to implement on their own but are necessary to reach their NDC goals.
- Start simple: Particularly for first-time implementers of the SCF, starting with areas (i.e. projects and sectors) that are methodologically simpler will make the process more predictable and credible. This means starting with sectors where there is already in-country experience (e.g. through the CDM or other mechanisms) and where accepted international standards are available.
- Explore links to upfront financing: Financial instruments that specifically address upfront capital requirements are crucial to address mitigation investments for NDC implementation. The next generation of RBCF should explore how to provide packages of linked financing instruments that would include both upfront capital (e.g. equity, concession loans, grants) and results-based payments.

Part 1: Lessons Learned from the Senegal Pilot

1. Introduction

1.1 Background and purpose of this note

The Standardized Crediting Framework (SCF) is an initiative by the Carbon Initiative for Development (Ci-Dev) to support the transition of its project pipeline under the Clean Development Mechanism (CDM) to the new regulatory framework of the Paris Agreement as well as provide relevant inputs and lessons learned into the ongoing negotiations of Article 6. The SCF provides for a host country-led approach to crediting that simplifies scaling-up and replication of project activities within defined sectors of the economy – starting with energy access - as well as a potential transition to sectoral or sub-sectoral approaches to crediting emission reductions that go beyond the current CDM Programme of Activities (PoA) model. Importantly, it gives a role to host country governments and institutions in overseeing and implementing the crediting approach, recognizing the link between crediting and the implementation of NDCs and the relevance of host countries to be able to define crediting modalities suitable to their national and sectoral circumstances. Furthermore, the SCF concept incorporates a simplified approach to the project cycle, baselines and monitoring, which can lower transaction costs and increase flexibility.

To demonstrate proof of the concept, Ci-Dev initiated a *pilot* of this concept in Senegal focused on the national electrification program under the Senegalese Rural Electrification Agency (Agence Sénégalaise d'Électrification Rurale - ASER). The SCF Pilot was a “simulation” (i.e. no units are issued or traded), initially building on the ongoing CDM activities in Senegal and testing arrangements that have minimal incremental costs, so that Senegal could gain experience with potential approaches to carbon and climate finance while the rules for these mechanisms under the Paris Agreement are still being developed.

This Lessons Learned Note reviews the experience of the complete pilot and draws a comparison between the CDM and the SCF, highlighting the difference in procedures for each step of the pilot phase. This comparison is limited by the fact that the Senegalese rural electrification program had already been developed as a CDM PoA, so much of the program development work was complete, and because the CDM's first monitoring and verification phases are still ongoing. Nevertheless, the time and cost savings evident in the early stages of the project cycle, as well the process of setting up this “country-led” crediting approach, provide important lessons and highlight opportunities.

The SCF is becoming an important program in Senegal for engaging with future international carbon markets. Even during the pilot, Senegalese stakeholders have acknowledged the SCF as a key framework for transitioning to and implementing future Article 6.2 cooperative approaches and the Article 6.4 mechanism under the Paris Agreement. Based on this strong long-term vision and commitment, the Minister of Environment and Sustainable Development issued an *arrêté* (i.e. ministerial decree) in November 2018, which gave the SCF formal standing with the Senegalese government. Along with gaining formal standing, the SCF and the pilot program in Senegal have attracted attention in international climate fora and from

other countries involved in the Article 6 negotiations. The SCF pilot has been presented and discussed at several international events during various climate conferences since its development, including at Innovate4Climate (May 2018). The pilot phase of the SCF in Senegal is closing in November 2019, at which point the Senegalese government can decide the future scope of the framework within Senegal. In addition, Ci-Dev can decide whether and how to expand piloting SCF activities in other countries and sectors. This note can contribute to that discussion.

1.2 Elements of the SCF concept

Compared to existing crediting under the CDM, the SCF, among other improvements, includes the following elements:

- **Standardized emission reductions** – more of the parameters for both baseline and project emissions are standardized, to reduce the MRV costs and align the monitoring requirements with the typical business activities. For example, program proponents are mainly required to monitor activity levels (e.g. new connections and consumption), while the conversion of this activity to emission reductions is largely standardized and includes country-specific default factors.
- **Simplified project cycle** – The boundary of the program is determined by tracking all units rather than “including” new components (i.e. as in the CDM PoA process), which eliminates this step in the project cycle. In addition, the SCF builds on earlier proposals for streamlining the project cycle by eliminating the validation step, and rather combining verification of the project design and project performance into a single ex-post third party audit of program performance and compliance with eligibility criteria.
- **Streamlined approaches** – The SCF uses a positive list approach to additionality for various energy access technologies, supported by transparent and objective eligibility criteria. Templates and clear guidance for “listing” (i.e. similar to registration), monitoring and verification reduce the time and costs associated with these steps in the project cycle.
- **National governance** – As a host-country led approach, the SCF has a national “Governing Board” –led by the key climate change ministry – supported by a Technical Committee (i.e. to provide technical advice on the rules) and an Administrator (i.e. for day-to-day implementation of the rules). In implementing the national governance and administrative functions, the SCF pilot established efficient structures to minimize the administrative and financial burdens on national governments, while ensuring transparent decision-making. This was done by building on existing national structures experienced with climate change projects and policies.

Importantly, these features can foster greater host country ownership of new mechanisms, even though host countries will not necessarily have sole discretion to decide on their crediting approach.

The rules and detailed guidance on eligible activities for Article 6 under the Paris Agreement have yet to be developed. The SCF is designed to be instrument neutral, which means that the concept itself could fit under Article 6.2 and/or Article 6.4. Under Article 6.2, the transferring and acquiring countries ultimately agree on a cooperative approach consistent with UNFCCC

guidance, whereas under the Article 6.4 mechanism, the Article 6.4 Supervisory Body would need to approve the SCF components as part of the crediting mechanism rules.

The simple and robust design of the SCF goes hand in hand with the focus on energy access technologies, and methodological approaches based on consumption of energy services (i.e. as opposed to the larger scale supply of these energy sources). By developing the concept of an SCF initially for energy access, and activities that would be considered automatically additional, greater simplification is possible while still ensuring environmental integrity. Similar standardized approaches could be possible in other sectors, although which elements are included would depend on the technical and financial characteristics of the technologies covered (e.g. the potential to create positive lists for additionality assessment).

1.3 The SCF Pilot in Senegal

The SCF Pilot in Senegal started in April 2017 with a “pilot set up” phase, during which a team of international and local consultants worked with the Ministry of Environment & Sustainable Development’s (MEDD) Department of Environment & Classified Establishments (DEEC) and the National Committee on Climate Change (COMNACC) to develop and approve the rules, guidelines and templates for the pilot (see Figure 2). After discussion of different governance options and key methodological issues, these rules – in the form of a “Program Protocol”, methodology, and series of templates – were approved by the Governing Board in July 2017. The governance structures are shown in Figure 1. The rationale for a relatively small Governing Board was to ensure a lean and efficient decision-making structure, while still engaging the key ministries responsible for climate change, energy and investment. Civil society and private sector representatives are included in the Technical Committee, but not in the Governing Board. This was partly to manage a potential conflict of interest (e.g. if an NGO or private company was a potential program developer) and also to ensure an efficient and responsive leadership body.

Figure 1. Senegal SCF Pilot governance

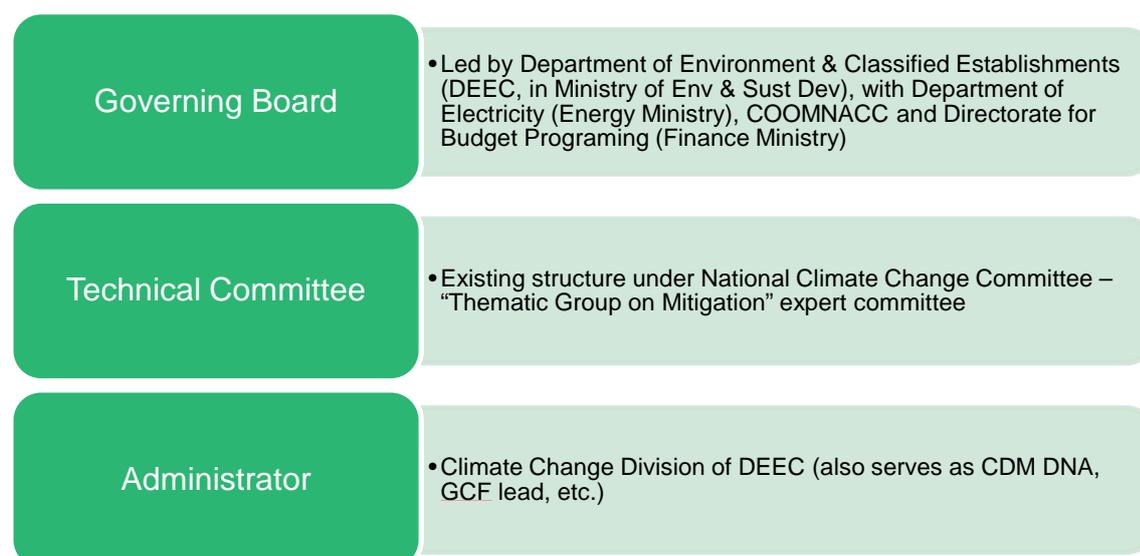
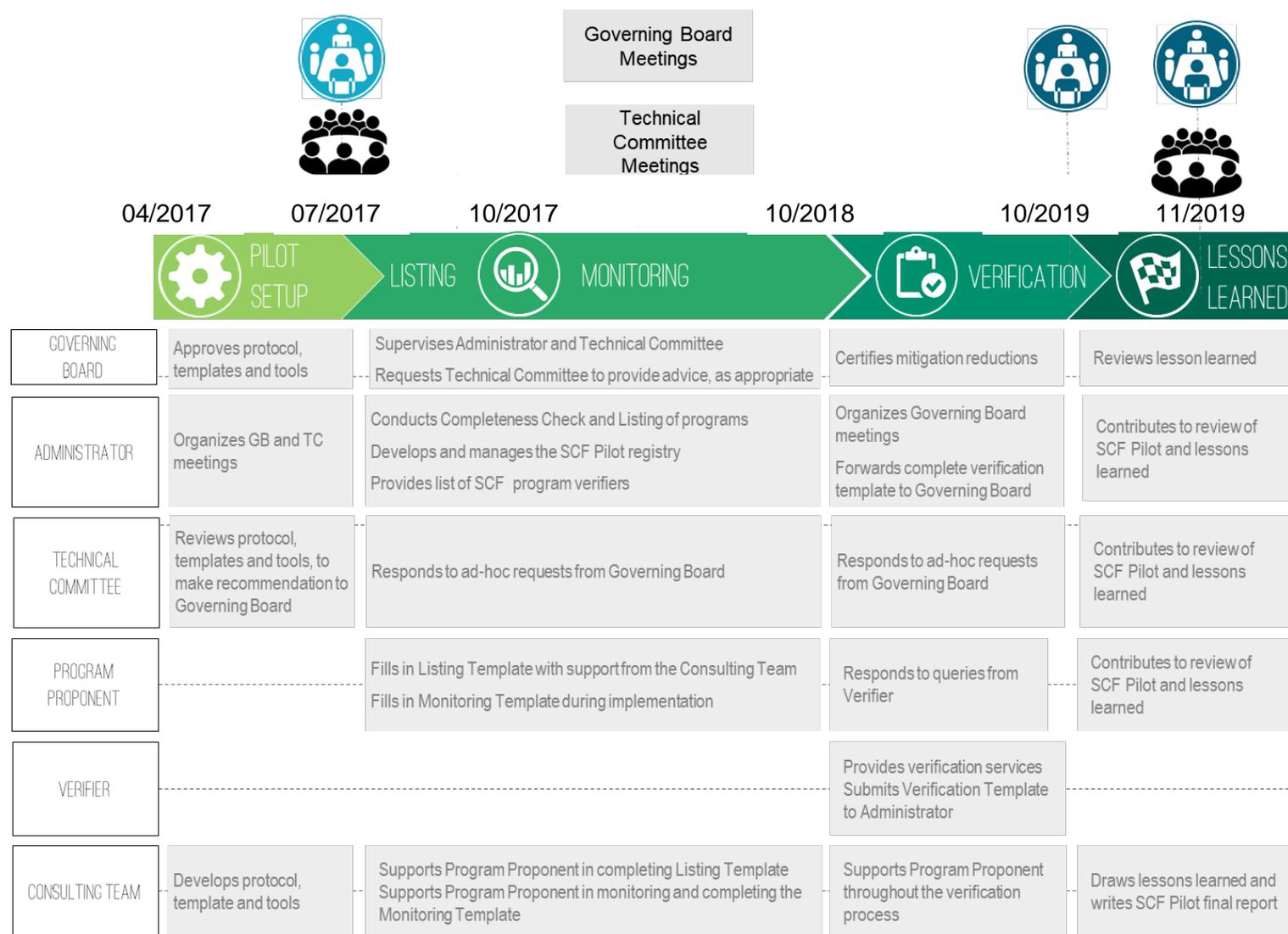


Figure 2. Timeline, roles and responsibilities in the Senegal SCF Pilot



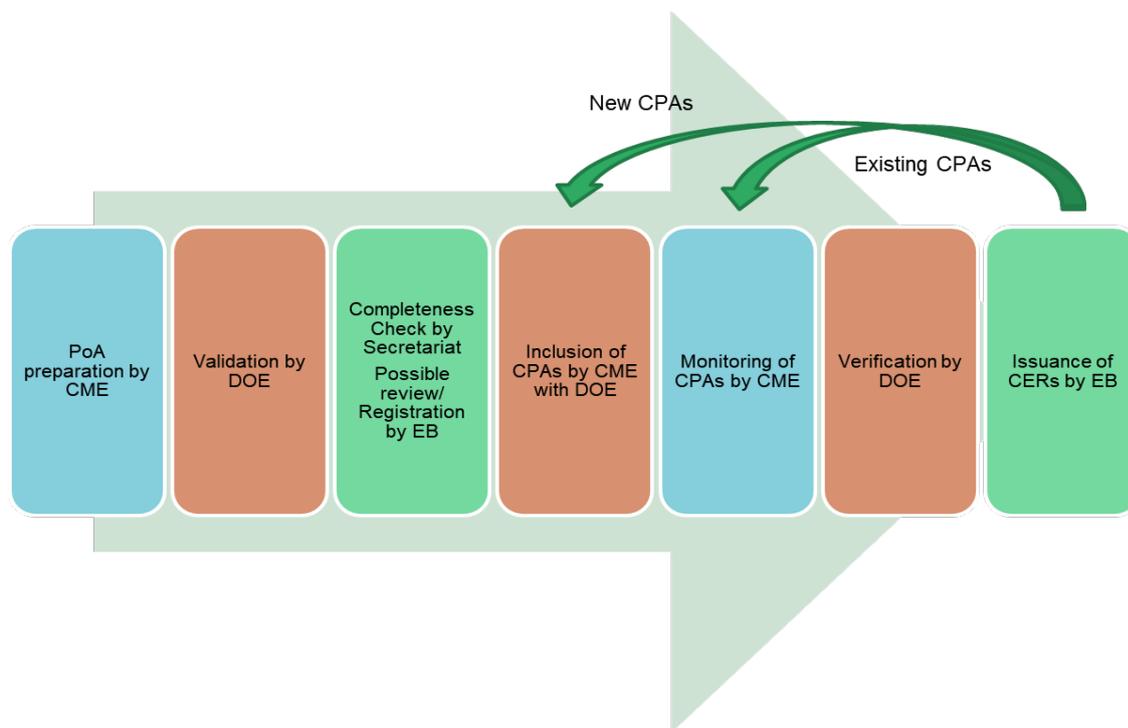
As mentioned, the program used to test the SCF concept in Senegal was the Senegal rural electrification program led by ASER, which was also registered as a CDM PoA in May 2017. For the SCF pilot, the listing of the ASER program was completed in October 2017, following a brief completeness check conducted by the Administrator. The monitoring period finished in March 2018 and included collecting data for the year prior to listing – because program and crediting start date under the SCF may be up to one year prior to the listing date (following a practice similar to many voluntary carbon market standards). Compiling the data analysis and monitoring report, as well as revising some of the SCF calculation tools, took until October 2018. Verification commenced in November 2018 and was completed in October 2019. The delay in starting verification was due to time required for ASER to gather additional data from a key rural electrification concessionaire and also due to refinements to the methodological guidelines and templates (i.e. which required additional review by the Technical Committee). The verification timeline is discussed more below.

The next section begins the analysis of the time requirements and costs of the SCF as a mechanism, and the comparison, where relevant, with the CDM. For the set-up phase, addressed in section 4, there was no comparison with the CDM but rather an assessment.

2. Reduced time and costs for the project cycle

Under the CDM, the project cycle starts with the preparation of the Project Design Document (PDD) and ends with the issuance of Certified Emissions Reductions (CERs), with a repeat of Monitoring, Verification and Issuance for each monitoring period. This is even more elaborate for a CDM Programme of Activities (PoA), because part of the cycle for including new Component Project Activities (CPAs) must be repeated (Figure 3). The SCF project cycle similarly begins with the preparation of a simplified program document and ends with certification of emission reductions (i.e. there is no issuance of credits, although post-2020 this could change as discussed below), but with combined validation and verification to reduce the upfront time and costs. In other words, both the eligibility and performance of the program are verified ex-post at the same time. In addition, the SCF cycle does not require the separate inclusion of CPAs, because the program boundary is defined during each monitoring period based on the scope of all the cumulative households served (Figure 4).

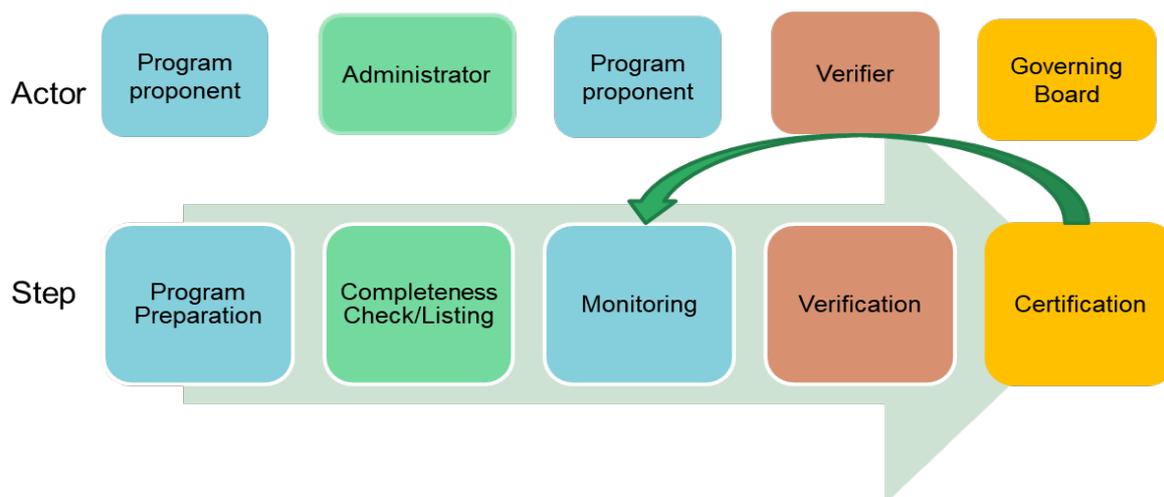
Figure 3. Current project cycle for a CDM Programme of Activities



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Note: PoA = Programme of Activities, CME = Coordinating/Managing Entity, DOE = Designated Operational Entity (auditor), EB = (CDM) Executive Board, CPA = Component Project Activity, CERs = Certified Emission Reductions

Figure 4: SCF project cycle



From a project proponent's perspective, the SCF model provides an opportunity to reduce transaction costs and the time required for the different stages of the project cycle, based not only on the streamlined project cycle but also on the simplified approaches and templates used. These transaction costs include not only the time from program developers, but also expenses for consultants and auditors and even time inputs from the funders (i.e. the World Bank). The following sub-sections compare the SCF Pilot with the CDM in the early phases of

the project cycle, after presenting the costs of setting up the SCF pilot. As mentioned before, it is important to remember that the SCF Pilot builds on an existing CDM PoA, and so much of the groundwork for project development was already done before the pilot. A new program developed for the SCF would necessarily require more effort, but the experience with the ASER program still provides insights into how easy the SCF tools, templates and procedures are to apply.

2.1 Setting up the SCF

Unlike the CDM, where all the rules and governance structures were established at an international level, the SCF concept includes a national governance structure and rules that, while based on international best practices, are tailored to the host country context to allow for greater simplification and streamlining. The set-up phase included the development of a “roadmap” (i.e. summarized in [Figure 2](#)) for the SCF pilot as well as a Program Protocol (i.e. similar to a crediting program standard) that address the technical and governance issues for the SCF in Senegal. The governance scheme was developed together with the Senegalese government agencies as well as the COMNACC. The set-up phase also included two missions to Senegal by the consultants and the World Bank team (first mission only) to meet with the SCF Technical Committee and the proposed Governing Board. The development phase of the Senegal pilot lasted until July 2017, when the Governing Board officially approved the Program Protocol and related templates and guidance documents.

The set-up phase also included developing templates for the Listing Document (i.e. analogous to a Project Design Document under the CDM), Completeness Check, Monitoring Report and Verification Report. Wherever possible, these templates use checklists instead of longer text descriptions. The templates also require the inclusion of supporting documentation when they are submitted. For example, evidence of the technologies included in the program could come from the earlier CDM PoA DD or a similar feasibility study or program document produced for a funder. Where emission reductions are reported, a completed calculation tool should be provided as part of the supporting documentation. The SCF Pilot also provided this tool, in the form of a “Monitoring Calculation Tool” in Microsoft Excel, rather than requiring the program proponent to develop their own tool.

All of the templates were reviewed by the Technical Committee prior to approval. The overall Program Protocol, methodology, listing document template, and monitoring report template (along with guidance for each of these) were all reviewed during the first Technical Committee meeting. The Verification Report Template (and related guidance) and Monitoring Calculation Tool were only completed in January 2018 and were thus reviewed at a second Technical Committee in February 2018. As well, at the meeting, a revision was made to the methodology to include calibration requirements. As possible revision of the baseline emissions factor was also discussed, but the Technical Committee agreed to keep the original baseline emissions factor, as they felt the underlying data was more representative. A third Technical Committee meeting was held during July 2017 to discuss an additional monitoring option for average household electricity consumption. This revision was needed because the monitoring data on average consumption reported by the rural electrification concessionaires is not segregated by the date of the households’ connection to the grid. The Technical Committee approved the revision to the methodology, based on the agreement that it was reasonable to include an option for “average of metered electricity consumption for a

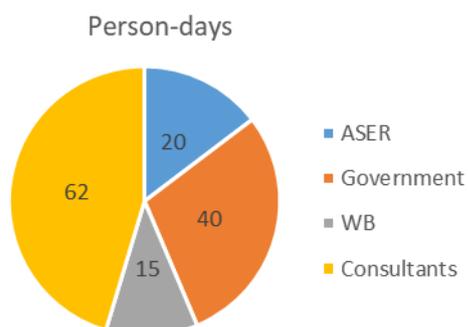
similar representative population to the program” (i.e. the total connected population in the concession area, including those connected prior to the start date of the SCF pilot program).

The time inputs for the set-up phase from different stakeholders are presented in Figure 5, while the main activities, duration and costs of this phase are shown in Table 1. This was a one-time cost for the pilot scheme, however, rather than an ongoing cost associated with the project cycle of the SCF. A more detailed analysis of the time and costs for the Senegalese governance bodies (i.e. Governing Board, Administrator and Technical Committee) is presented in Section 6 of this report.

Table 1: Principal activities, time and costs for SCF setup

SCF	Duration & Cost
<ul style="list-style-type: none"> Development, review and approval of two documents: <ul style="list-style-type: none"> SCF pilot roadmap Program Protocol and related annexes (e.g. templates, guidance) Development of governance scheme with Senegalese government and COMNACC Two missions to Senegal, Multiple meetings of the Technical Committee and Governing Board Preparation of ministerial decrees 	<ul style="list-style-type: none"> Duration of the set-up phase: 3.2 months Total cost (including time from government, World Bank, consultants and program developers): \$104,000

Figure 5. Person-days for SCF pilot setup



2.2 Program preparation

To support the Senegalese rural electrification program, ASER started exploring the CDM as an option as early as 2011 and submitted a prior consideration notification to the UNFCCC to that effect. In doing so, a draft PoA Design Document (DD) was prepared and submitted with a proposed new small-scale CDM methodology for rural electrification (eventually becoming AMS I.L and AMS III.BB). The program preparation phase lasted from September 2011 until September 2016, with significant time investment by many parties and consulting costs. This means that, under the CDM, the program preparation phase took almost six years, with at least two years of focused effort. Of course, as with most programs, this was not due entirely to the complexity of the CDM rules but also to the time developing the program business

model and – perhaps most importantly – the search for a potential buyer. For potential CDM programs in the early 2010s it did not make sense to develop program at risk without any buyer involvement because of falling CER prices and the limited “spot market” for CERs. For ASER to negotiate a purchase agreement with Ci-Dev required not only demonstrating the potential for emission reductions but also creating a viable business model that linked carbon revenue to the implementation of the rural electrification program and resulting emission reductions. Only once ASER had some confidence in a buyer did it make sense to pursue program development in earnest. This also means that the costs of program preparation included not only ASER staff time, but also time from consultants supporting ASER, time from World Bank staff and consultant support to the World Bank.

Under the SCF on the other hand, the program template is standardized and simplified into a “Listing Document”, which is prepared based on a template (i.e. similar to the CDM PDD forms but much shorter). As discussed earlier, the listing document contains a checklist to be filled by the project proponent with clearly defined eligibility criteria for technologies. In addition, the program proponent must submit supporting documentation. The presence of this support documentation is checked as part of the Administrator’s completeness check prior to listing. The simplified format and content of the listing document means that the time and effort required to collect data and documentation upfront is reduced significantly. As mentioned earlier, in the case of ASER, the listing document could be easily prepared from the existing draft CDM documentation, although ASER, the consultants and the Administrator all felt that the listing process would still be much faster and less time intensive than the CDM even with an entirely new program. Table 2 illustrates the differences in program preparation requirements, duration and cost of those activities, while Figure 6 demonstrates the significant time savings under the SCF.

One aspect that needs to be considered for when the pilot phase comes to an end is how new program proponents, without any previous CDM program documentation, will navigate this process. The simplified templates and rules will undoubtedly make the process far less costly and time consuming, but the details ideally need to be tested with new proponents after the pilot. In addition, the SCF might need to provide guidance on what type of supporting documentation is needed, and how typical feasibility studies and similar documents could be used for the SCF process.

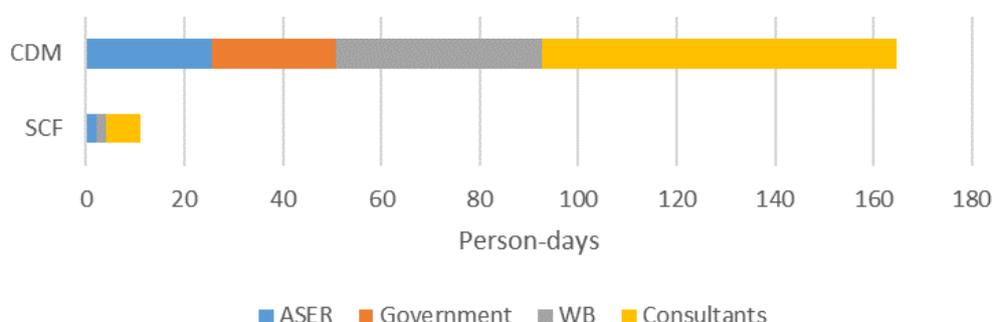
Table 2: Program Preparation activities, duration & costs

CDM	SCF	Benefits
<ul style="list-style-type: none"> Comprehensive project description, application of baseline and monitoring methodology PDD prepared by external consultant with inputs from project participant and Ci-Dev 	<ul style="list-style-type: none"> Checklist approach No narrative part, minimal drafting effort Data collection much less time consuming but this was partly because of data collected for CDM PoA 	<ul style="list-style-type: none"> Reduced consulting input required Reduced time spent by project proponent on drafting the PDD
Total duration	Total duration	Reduced process time
68,7 months	2,9 months	~ 66 months of overall duration
Total costs	Total Costs	Cost savings
\$145,000	\$11,000	~\$135,000

Table 3: National Letter of Approval (LoA) activities

CDM	SCF	Benefits
<ul style="list-style-type: none"> Issuance of LoA by the host country's DNA to confirm that activity is voluntary and contributes to the sustainable development In Senegal: Assessment by five experts of COMNACC followed by meeting, paid for by project proponent 	<ul style="list-style-type: none"> Not needed, because SCF is a national process, with oversight from national government before any emission reductions are certified 	<ul style="list-style-type: none"> Eliminate time and costs for applying for the LoA

Figure 6. Person-days for program preparation (including Letter of Approval)



2.3 Validation

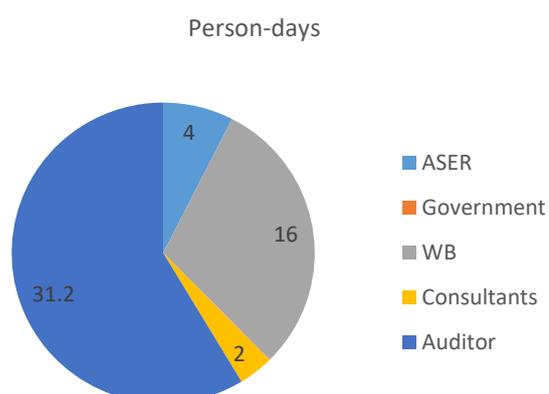
The validation process under the CDM is conducted by an accredited third party called the Designated Operational Entity (DOE). For the Senegalese electrification program under the CDM, ASER submitted documents to the DOE (i.e. AENOR) to start the validation in September 2016, which included a site visit conducted in December 2016. The DOE submitted a Request for Registration for the ASER electrification program in October 2017, marking the end of the validation phase. The activities, duration and costs of the CDM validation phase are shown in Table 4, while the person-days are shown in Figure 7.

The SCF does not include the validation process as a separate step in its project cycle, therefore no time or costs are calculated.

Table 4: Validation activities and duration

CDM	SCF	Benefits
<ul style="list-style-type: none"> Independent evaluation of PoA and supporting documentation by the DOE against the requirements of the CDM 	<ul style="list-style-type: none"> No separate step – validation is combined with verification 	Costs and time savings related to: <ul style="list-style-type: none"> hiring DOE validation site visit responding to validation comments
Total duration	Total duration	Reduced process time
13,2 months	N/A	~ 14 months
Total costs	Total costs	Savings
\$49,000	0	\$49,000

Figure 7. Person-days for CDM validation (no costs for SCF)



2.4 Completeness check and registration/listing

Under the CDM, once the DOE has completed its validation report, it submits a request for project registration. The UNFCCC Secretariat undertakes a “completeness check” of all documentation provided before the request for registration can be forwarded to the CDM Executive Board, which can often take three to six months. The ASER electrification PoA was submitted for registration the first time in October 2017, after which the Secretariat requested certain changes to be made more than one month later. The documentation was resubmitted in December 2017, and the completeness check came to an end in April 2018. Because there were no requests for review, the PoA was registered one month later (17 May 2018). The process therefore lasted approximately seven months.

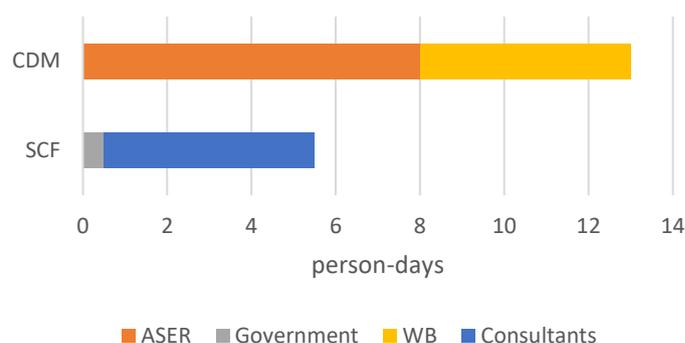
The SCF on the other hand, uses a simplified listing process, whereby the SCF administrator checks the completeness of the Listing Document, registers the activity in its database and provides a notification to the project proponent. ASER submitted their program documentation on October 1, 2017 and received a letter confirming the listing on November 3, 2017. This required a few days of input from the consulting team, ASER, and the Administrator, which was also largely due to the listing process being performed for the first time. The consultant time required for future completeness checks could be lower. Table 5 presents the activities, duration and costs of the registration/listing phase, while Figure 8 shows the person-days.

One important difference between the SCF and the CDM is the starting date for the crediting period. For the CDM, the crediting period for each CPA within a PoA occurs only after the PoA has been registered and the CPA has been included. The registration date for the CDM PoAs is the date when their complete request for registration was submitted. The SCF, on the other hand, allows the crediting period to start up to one year prior to the listing date, so the time required for program development and listing do not reduce the potential emission reductions attributed to the program. Combined with the elimination of the validation step, which can take one to two years for the CDM, this means that an SCF program might have a crediting period starting two to three years earlier than under the CDM model.

Table 5: Registration/Listing activities, duration and costs

CDM	SCF	Benefits
<ul style="list-style-type: none"> Validation report submitted by DOE to CDM Executive Board with request for registration Completeness check by secretariat and possible revisions if project fails completeness check Assessment by Secretariat Assessment by Executive Board (Registration & Issuance Team) If review requested, project undergoes review Payment of registration fee 	<ul style="list-style-type: none"> Completeness check by the SCF administrator Entry into the SCF database and notification to the project proponent No fees required 	<ul style="list-style-type: none"> Significant savings in process time No direct costs involved in listing for the SCF (i.e. no registration fees), although this could change after the pilot.
Total duration	Total duration	Reduced process time
7.1 months	1.1 months	~ 6 months
Total cost	Total cost	Savings
\$8,000	\$7,900	\$0

Figure 8. Person-days for registration/listing



2.5 Monitoring

With the registration of the ASER CDM PoA, CDM monitoring activities only began in mid-2018 and so are currently ongoing. Monitoring for the SCF pilot began in October 2017 and the monitoring period ended in March 2018, even though historical data from October 2016 (i.e. the start of the program and crediting period) was also be collected. Monitoring data collection and analysis for the SCF pilot took an additional six months after the end of the monitoring period (i.e. until October 2018), for the following reasons:

- Not all the rural electrification concessionaires report to ASER their results by household/customer. Some report only the number of connections per village. Because

the monitoring approach requires household-level data, only the two Comasel concessions could be included in the first round of monitoring. ASER has requested the other concessionaires to start to prepare household-level monitoring data for submission, and this could potentially be used for future monitoring periods. This will most likely require additional capacity building and training for those concessionaires.

- Comasel reports electricity consumption for the *total* number of connections within their two concessions, which includes some households that were connected prior to the start of the crediting period and monitoring period (i.e. before 01/10/2016). Approximately 20% of the connections were from before the start of the monitoring period. There is no reason, however, why the average consumption from this larger group should be different than the consumption in the group connected after October 2016. This issue was therefore taken up by the SCF Technical Committee in their third meeting, where they discussed and approved a change in the monitoring section of the methodology so that the larger dataset could be used.
- ASER then had to request consumption data from months within the monitoring period, because Comasel originally provided on consumption data only for April and May 2018.
- Finally, during this time the consulting team made improvements in the Monitoring Calculation Tool to make it more user-friendly and transparent.

The simplification of the SCF monitoring process involved several important elements:

- While all individual connections must have a unique identifier, date of connection, and service level recorded, the SCF does not require a sample survey of households to determine the share of operational connections as long as the households have meters. All of the Comasel concessions have metered households, so this data was more complete than a sample survey would have been, in any case.
- For share of operational connections across grid and mini-grid consumers, the SCF includes a monitoring option for “Representative data from utility or other official sources”, which could save significant time and effort for this parameter compared to the CDM. For the Comasel concessions, for example, the database for households includes whether every meter is operational, so this parameter can be extracted directly from the full database. Alternatively, the calculations can be based just on those household that have operational meters. The meter status is updated in the database at least every month.
- For average consumption, the SCF includes a monitoring option for “Average of metered electricity consumption for a similar representative population to the program,” which could save significant time and effort for this parameter. This meant that the SCF pilot could use the Comasel average consumption data from their full database, without having to extract only the consumption from the households covered by the SCF pilot program, which would have been time consuming.
- The SCF pilot does not have multiple CPAs and there is no cost and time investment for inclusion.
- Where sample surveys are used for consumption, the survey size is fixed, so no time and costs are required (often from consultants) to accurately determine and justify sample size. This has not yet been tested, since other monitoring approaches were used for the Comasel concessions.

Nevertheless, both the SCF and the CDM will require the development and maintenance of a database of all consumers connected under the program. This information flow from rural

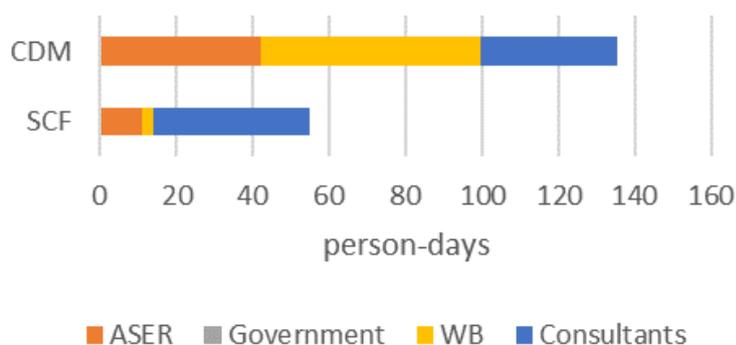
electrification concessionaires to ASER is more robust in some concessions than others, as discussed above, so more investment will be needed in monitoring systems (including possible online applications to facilitate this data collection and analysis).

Table 6 presents the monitoring activities for the CDM and SCF. The person-days and costs for the SCF are included here and in Figure 9, but those for the CDM are not yet known as the CDM monitoring period is not yet complete. The estimates for the CDM include the time spent to date – already more than twice the cost of the SCF - while the monitoring activities are expected to continue until early 2020, before verification starts in March 2020.

Table 6: Monitoring activities

CDM	SCF	Time/Cost Savings
<ul style="list-style-type: none"> Project participant responsible for monitoring key parameters according to approved methodology Preparation of CDM monitoring report 	<ul style="list-style-type: none"> Project proponent to collect data according to SCF monitoring report, with fewer monitoring parameters and more options for measurement Filling in of SCF monitoring report and calculation tool 	<ul style="list-style-type: none"> Potential for reduced effort for data collection because of greater flexibility in the methodology under SCF
Total duration	Total duration	Reduced process time
First monitoring period: ¹ 12 months (expected), plus additional time to prepare monitoring report.	First monitoring period: six months, plus another six months to finalize data collection, methodology changes and monitoring report	Not applicable – monitoring period is set at the discretion of the project proponent following cost-benefit considerations
Cost and time input	Cost and time input	
Process still underway, with estimated costs of \$114,000 and more than 130 person-days to date	55 person-days \$51,000	

Figure 9. Person-days for monitoring (only time-to-date for CDM)



Note: the CDM monitoring activities are still ongoing until February or March 2020.

¹ Note that in this case the length of the monitoring period is decided by project proponents.

2.6 Verification

For the verification process under the CDM, a new DOE (i.e. different from the one conducting validation) verifies the monitoring report, conducts an on-site assessment, and finally drafts the verification report. While the time required for verification under the CDM is quite project-specific, the timeframe for verification is at least three months and could be much longer. The average time across all CDM projects from the end of the monitoring period to issuance of CERs is typically six to eight months, considering that the Monitoring Report must be uploaded one month before the site visit and the actual site visit by the DOE could be three months after the start of verification, not to mention the many rounds of queries that may be required.

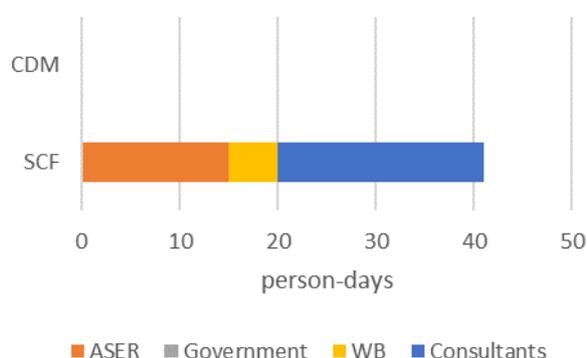
While the verification phase for the first SCF pilot took almost one year, this was largely due to the fact that this is the first time such a verification had even been commissioned. While the auditors had to familiarize themselves with the new SCF verification guidance and report template, the consultant team had to reply to queries on the SCF rules as well as on the monitoring report themselves. Overall, the time needed for verification was not due to the SCF rules – which are clearer and simpler than the CDM – but because of the complexities related to data collection and the monitoring process. As questions from Comasel concerning data could not be entirely answered by ASER, the consulting team and ASER staff made multiple visits to the Comasel offices outside of Dakar to clarify the database contents and how to interpret this data for the SCF. This indicates that more thorough engagement with data collection agencies (i.e. in addition to the coordinating entity) is needed very early on in the monitoring and verification process.

In addition, while the SCF pilot used an internationally accredited DOE, in the long run, significant cost saving potential could be unlocked through the accreditation and training of local auditors. This process was initiated in the SCF pilot by including several local auditing firms in some verification meetings and asking the DOE to conduct a verification training day for these firms. Fully developing this potential would, of course, require additional investment in training and developing a local accreditation scheme. Another benefit of this process in the SCF pilot was that the DOE provided useful feedback on some of the SCF guidelines and tools.

Table 7: Verification activities and duration

The CDM	The SCF	Benefits
<ul style="list-style-type: none"> DOE verifies monitoring report, certifies reported emission reductions and drafts verification report 	<ul style="list-style-type: none"> Auditor (initially DOE but could be local auditor in the future) verifies emission reductions reported in the SCF monitoring report 	<ul style="list-style-type: none"> Potential for lower costs due to simplification of process and more straightforward verification guidance Potential for cost savings in future if local auditors become accredited
Total duration	Total duration	Reduced process time
Not known because CDM verification has not started	12 months	
Cost and time input	Cost and time input	
Not yet known – process to start in March 2020	59 person-days \$47,000 including auditor cost	

Figure 10. Person-days for verification



2.7 Certification and issuance

The final step of the project cycle for both the CDM and the SCF is the certification and issuance process. Under the CDM, the DOE submits the verification report with a request for issuance to the CDM Executive Board. The issuance step includes a completeness check by the Secretariat, and an assessment or screening by both the Secretariat and the Executive Board and potential review of the issuance (if requested by a Party or three members of the Board).

For the SCF, the Administrator checks the completeness of the documentation and verification opinion from the verifier before emission reductions can be certified. The SCF pilot however, does not issue tradeable units because it is still a simulation of a crediting standard. The Governing Board merely certifies emission reductions during the pilot phase, which it did on 31 October 2019. In addition, the consultants reviewed the verification report, rather than the Administrator doing this. The Final Verification Report was provided to the Secretariat, Governing Board members, and Technical Committee members (who were

invited by the GB to participate in the meeting). The Governing Board suggested that, in the future, it would be useful to have all of the Verification documentation (e.g. monitoring report, spreadsheets, all supporting documentation, final verification report) circulated to the Technical Committee and Governing Board prior to the certification meeting, so that these groups all understand the process.

In the long run, however, there may be a possibility that the SCF issues tradeable units under Article 6 of the Paris Agreement and/or authorizes unit transfers. This would be a more complex process as it includes several components that will have to be considered, such as how issuance of SCF credits would relate to the Senegalese NDC pledge, the infrastructure needed for so issuance and tracking, and the financial and technical capacity required for issuance.

Table 8: Certification and issuance

CDM	SCF	Benefits
<ul style="list-style-type: none"> DOE submits verification report with request for issuance to CDM Executive Board Payment of issuance fees (Senegal is exempt as a Less Developed Country) 	<ul style="list-style-type: none"> SCF administrator checks verification report SCF Governing Board certifies emission reductions No issuance involved during pilot 	<ul style="list-style-type: none"> Time savings relate to the process for certification Time and costs are reduced with the Administrator and Governing board working together to certify emission reductions
Total duration	Total duration	Reduced process time
Not known since verification has not started	1 month (certification only)	This will not be known until early 2020 or 2021 based on the CDM project cycle.

2.8 Project cycle risk

The analysis above shows that the SCF project cycle is likely to provide a quicker and less time-consuming process for program proponents to verify, and potentially monetize, emission reductions. In addition, another aspect not captured in this comparison but of utmost relevance for program proponents is the element of risk. With the clear and transparent instructions of the SCF listing document, the program proponent faces much lower risks from the crediting scheme, as long as the program is implemented according to the SCF guidelines. CDM validation and registration, on the other hand, are often difficult, with many projects rejected, and carry significant policy risks for potential program developers. Even the validation of the ASER PoA under the CDM has taken far longer than expected, which means the program must wait longer to receive any revenue from CER sales.

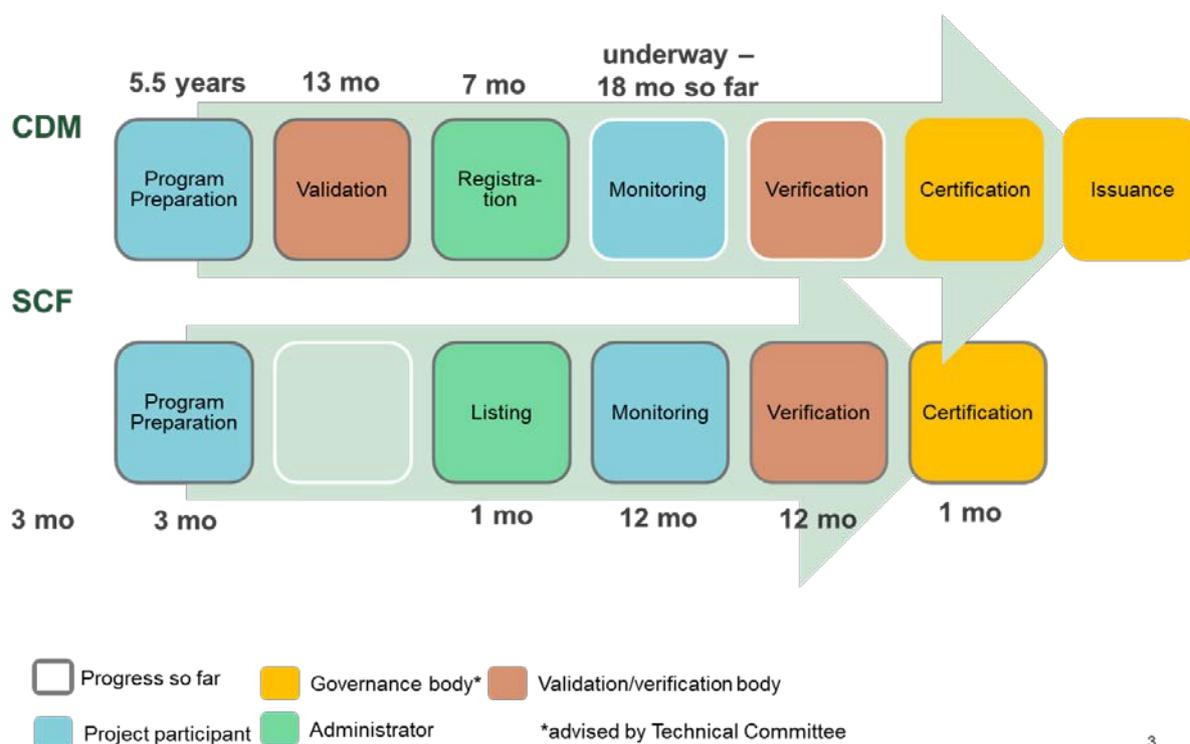
Another risk for when the pilot comes to an end is the fact that the pilot phase is supported by Ci-Dev and documentation and data was already available for this particular project through the CDM. This means that, for a new project, stakeholders will have to consider the added time and costs for collecting new data and creating documentation as well as finding different means of financing beyond Ci-Dev or international stakeholders. As more experience is gained with the SCF concept, more local stakeholders will be able to navigate the system, but in the short to medium term, technical support from consultants and financial support from donors will likely be necessary. At the same, if this support is used to develop a system that

is more transparent and objective than traditional crediting schemes, this will reduce the barriers and transaction costs for all future participants.

2.9 Summary of project cycle comparison

The SCF pilot has demonstrated the substantial cost and time savings that can be achieved through simplification and streamlining, even just considering the program preparation, validation and registration/listing phase of the project cycle. The CDM process took years longer than the SCF, and even for new programs under the SCF it would be very unlikely the program preparation would take more than six months. In these three phases, the cost savings of USD 180,000 for one program were more than the entire set-up cost of the SCF (USD 100,000). Even if additional programs require some support for project development, the savings are substantial compared to the CDM. Because the CDM PoA has not started verification yet, it is difficult to compare the monitoring and verification phases of the two schemes, but the CDM process has already cost more than double the SCF process and the former is still ongoing. The question for other countries – and even for expansions of the SCF into other sectors in Senegal – would be who pays for this set-up cost. This could potentially be linked to international initiatives support countries in NDC implementation and MRV.

Figure 11. Process time for CDM and SCF to date



3. Increased responsibility for governance

Under the SCF, the host country government takes charge of the administration and governance of the mechanism, providing it with greater control and responsibility. This, however, also comes with higher expenses in terms of time and costs. The time and costs for

the governance bodies can be distinguished by two stages: the set-up phase of the SCF on the one hand and, on the other, the routine tasks taken on during the pilot phase and thereafter. The time and costs for both are outlined in more detail below, for each of the three governance structures: the Governing Board, the Administrator and the Technical Committee.

Moreover, while the project proponent under the SCF does not have to shoulder the cost of applying baseline and monitoring methodologies and in some instances developing them, this task is shifted to the SCF institutions, similar to the Standardized Baseline process of the CDM. In addition, the host country assumes roles that, under the CDM, are filled by the UNFCCC secretariat and the CDM Executive Board.

The governance structure in place is also key for the country’s readiness for Article 6.2 (cooperative approaches) as well as the Article 6.4 global mechanism.

3.1 SCF Governing Board

The Governing Board is comprised of the Department of Environment & Classified Establishments (DEEC) in the Ministry of Environment & Sustainable Development (MEDD), the Directorate of Electricity (DE) in the Ministry of Energy and Renewable Energy Development (MEDER), and the Directorate General for Finances (DGF) in the Ministry of Economy, Finance, and Planning (MEFP). The Governing Board takes on the role of the CDM Executive Board in terms of certifying emission reductions and overseeing the rules, procedures and bodies of the SCF pilot. These rules and regulations outlined by the Governing Board is carried out by the Administrator and Technical Committee.

A Governing Board meeting was held during the set-up phase of the SCF pilot, where the Board made various decisions including the launch of the pilot itself, the approval of the SCF Program Protocol, integrating the Ministry of Finance as part of the Board, as well as the establishment of an arrêté (i.e. ministerial directive) prepared by the Ministry of Environment and Sustainable Development. The Governing Board also instructed the Administrator to set up the COMNACC website to host the SCF pilot documentations, which will then be administered and updated regularly. Finally, the Governing Board met in October 2019 to certify the emission reductions on the basis of the Verification Report.

Table 9: Governing Board

Tasks	Time
<ul style="list-style-type: none"> • Introductory meeting • Kick-off meeting with Governing Board for SCF piloting • Final meeting to certify emission reductions 	<ul style="list-style-type: none"> • One-hour meeting for two people • Two-hour meeting for five people • Two-hour meeting for five people

3.2 SCF Administrator

The DEEC Climate Change Division is the Administrator, taking charge of the listing process as well as organizing the Technical Committee and its workshops. During the listing phase of the SCF, the Administrator performed the completeness check of the Listing Document, registering the activity in its database and providing a notification to ASER.

Under the CDM, the DNA issued the Letter of Approval, but in most cases, the DNA was no longer involved or did not receive information regarding the status of the project or portfolio.

The administrator also was kept informed during the monitoring and verification process and participated in a workshop in July 2018 to review the progress of the pilot. The Secretariat should continue to stay involved in the process and projects to receive information after the listing occurs. The elaboration of the arrêté was also kick-started during this time and required exchanges and understanding between the Governing Board and the Technical Committee.

As part of the program cycle under the SCF pilot, the Administrator receives the listing requests and verification reports. In addition, the regular tasks of the Administrator consist of authorizing the project proponent under the SCF pilot to select the auditor from an approved list of auditors provided. Preparing the Technical Committee and Governing Board meetings and preparing meeting reports. It also includes presenting the SCF in Senegal in international climate conferences and meetings (e.g. the Africa Carbon Forum and the DNA Forum) as well as administrating and disseminating SCF pilot documentation through the COMNACC website.

While the Administrator managed to perform its tasks and organize the Technical Committee successfully, there is further need and potential for capacity building in the long run if the SCF is expanded. Having the SCF pilot supported by Ci-Dev and based on CDM documentation has aided the process, but the Administrator may need to take on more of these responsibilities after the pilot phase.

Table 10: Administrator tasks and time required

Tasks	Approximate Time Required
<ul style="list-style-type: none"> Kick-off capacity building workshop 	<ul style="list-style-type: none"> Six-hour workshop for five people
<ul style="list-style-type: none"> Completeness check of the Listing Document 	<ul style="list-style-type: none"> Four hours for one person
<ul style="list-style-type: none"> Arrêté draft proposal 	<ul style="list-style-type: none"> Seven person-days
<ul style="list-style-type: none"> Arrêté validation and submission to the authority of the Minister 	<ul style="list-style-type: none"> Approximately three months (duration)
<ul style="list-style-type: none"> Preparation of meetings of the technical and steering committee (two Governing Board meeting, four Technical Committee meetings) 	<ul style="list-style-type: none"> Fourteen hours for one person
<ul style="list-style-type: none"> Participation in Technical Committee meetings 	<ul style="list-style-type: none"> Fifteen hours for two people
<ul style="list-style-type: none"> Preparation of five meeting reports 	<ul style="list-style-type: none"> Twelve hours for one person
<ul style="list-style-type: none"> Hosting and administration of SCF pilot documents on the COMNACC website, including updates 	<ul style="list-style-type: none"> Three hours for one person
<ul style="list-style-type: none"> Presentation of the SCF in international meetings on climate change 	Not included as SCF time

3.3 SCF Technical Committee

A sub-committee of the COMNACC, the Thematic Group on Mitigation (GTA), serves as the Technical Committee of the SCF in Senegal and includes stakeholders with relevant expertise in the climate and energy fields. The work of the Technical Committee allows for methodologies to be contextualized and enables the link between the SCF and Senegal's NDC process. As discussed in section 4, during the set-up phase of the SCF pilot, the Technical Committee reviewed all of the rules, templates and tools, including the methodology and any guidance documents to explain how to use the templates. The Committee also requested a manual to explain how to use the Monitoring Calculation Tool, which the consultants provided. Moreover, Technical Committee members participated in outreach and capacity building events. There was some confusion over the fact that the Technical Committee did not have a formal role in the project cycle. This purpose of this approach to involve the TC in development of the rules, but to ensure a streamline process for project listing, verification and certification once these rules were agreed. The TC has called upon to review the emission reduction performance of the program because a professional third-party auditor had already been hired to do this. At the same time, it was useful during the pilot to have the TC present in the GB meeting for certification, so that this group of experts could see how the rules had been applied and how the guidance and tools might need to be revised in the future.

Table 10: Technical Committee tasks and time required

Tasks	Approximate Time Required
<ul style="list-style-type: none"> Technical Committee meetings and decisions at set-up gathering (3 meetings: July 2017, February 2018, July 2018) 	<ul style="list-style-type: none"> 15 hours for ten people
<ul style="list-style-type: none"> Prepare and present initial set of rules to Governing Board 	<ul style="list-style-type: none"> Four hours for one person
<ul style="list-style-type: none"> Participation in GB meeting for certification 	<ul style="list-style-type: none"> Three and a half hours for five people

4. Developing institutional capacity and ownership

4.1 Ensuring capacity through dedicated administrator staff

Ensuring sufficient capacity to manage the SCF process beyond the pilot will require additional trained staff in the Administrator. This also implies the need for a dedicated funding for dedicated staff and experts overseeing crediting programs. The Administrator, for example, covers a wide range of tasks under the SCF, whose timing and time investment may be beyond the current availability of staff. A position for a dedicated SCF coordinator within the Administrator may be needed, with appropriate training to facilitate the administrative tasks and also ensure that the Administrator can provide leadership from government.

4.2 Increasing the role of local auditors

One aim of the SCF for the verification phase should be to engage and train local auditors that could verify mitigation activities. Working with international DOEs has been a major bottleneck in the CDM process, especially for Africa, as it is very costly, and the number of qualified staff is limited. While the SCF pilot was unable to solely rely on local auditors due to both time and budget constraints, the DOE for verification provided some capacity building – both a workshop and “on-the-job training” – for selected local firms. These could form the basis of an auditor-training program in a future phase of the SCF, which would need additional donor support.

4.3 Ensuring financial sustainability of the SCF

Currently the pilot in Senegal is supported by Ci-Dev, which has covered most of the development and implementation costs. It is already clear, however, that further resources are needed for capacity building efforts to ensure that stakeholders can be not only successful in following through with the pilot, but also able to expand their efforts to other programs, if Senegal decides to do so.

Unlike the CDM, where project proponents pay for the assessment by COMNACC and for the functioning of the CDM institution through the “share of proceeds”, project proponents currently do not provide fees to the SCF institutions. The pilot has not yet established other financial schemes that could provide further support for the operational management of the scheme, such as the collection of fees from project proponents. While during the pilot phase this alternative financial scheme is not crucial, once the pilot comes to an end further financial strategies need to be established for activities to be self-sustaining in the long run and not solely reliant on external support.

4.4 Authorizing the transfer of emission reductions generated by the SCF

Senegal must decide how transfers of Internationally Traded Mitigation Outcomes (ITMOs) under the Paris Agreement will be authorized after 2020. The SCF process and institutions could form the starting point for a more formal authorization system. While the SCF pilot governance structures currently do not have the authority to issue tradeable units, this may be possible after the rules for Article 6 of the Paris Agreement are finalized. The SCF governance framework could provide the basis of national decisions on ITMO transfers under Article 6. Such a role would require increased engagement of the Governing Board in the future, in terms of issuance and authorization, as well as the need for a registry system for emission reductions. The detailed responsibilities and requirements will only be known following the international agreement on the Article 6 rules.

5. Improving data collection and involving all MRV stakeholders

Many of the challenges during the monitoring and verification phases occurred because not all of the stakeholders involved in the MRV system fully understood what was being asked of them. Setting up the MRV process for a pilot should involve not only extensive discussions with the program proponent but should also include discussions (ideally face to face) with any

other stakeholders that will collect data or maintain databases. There should be clear agreements among all stakeholders on who is involved in data collection, as well as the content, timing, data quality, backup documentation, among others. This could be formalized in MOUs with key partners where necessary but should primarily build on the capacity building undertaken as part of the pilot.

At a technical level, the pilot faced delays during verification because of the need to clarify data collection methods, the content and structure of databases managed by outside entities (i.e. the concessionaires, and not ASER as the program proponent), and the time required to visit the concessions to have questions answered by the DOE. Having the data collection and database management staff be on board earlier in the process, would have reduced these delays and improved the quality of the data analysis outputs.

6. Streamlining the pilot development process

The first SCF pilot also provides important lessons on process – particularly how to use each stage of the process to prepare stakeholders for future steps and how to create momentum in the planning and implementation of the pilot. A critical element of setting up an SCF pilot to set clear expectations, particularly for the government, at the earliest stages of engagement. For example, before the first mission to a new host country it is critical to gather information on their climate governance structure and establish which entities can fill which roles. Additionally, starting to discuss possible simplifications of methodologies can already set the stage for how the SCF can be applied within this new country context. This can also reduce the program set up time, by clarifying expectations for the host country government.

Once these aspects have been clarified and expectations have been set, the first mission can then be used to present a draft Program Protocol, methodologies, templates, timelines and roadmaps (i.e. instead of presenting these only during a second mission). In addition, this meeting could already be used to agree on the SCF governance structure in the country along with receiving approval for technical aspects such as a website. Visiting the program proponent early on to see what data is collected, documented and archived is also vital to know in the early stages, to reduce the risks of problems with monitoring and verification later on in the process.

Developing efficient and simple rules and templates requires substantial and ongoing interaction with program proponents. Engaging with project proponent early on to test MRV system and tools would be useful, such as starting immediately after listing filling in some data in the calculation tools. This is true not only for the detailed rules for monitoring in the methodology but also for the Monitoring Calculation Tool. An iterative process of working with the program proponents to update the tools will create a simpler and more sustainable MRV system.

Finally, bringing Technical Committee members on board early in the process, providing periodic updates, convening meetings to discuss potential improvements in the rules, and inviting them to the Governing Board certification meeting (and possibly other meetings) as observers would all build capacity, ensure that the project cycle flows smoothly, and make it easier to assess future programs and methodologies.

7. Engaging stakeholders

7.1 Increasing stakeholder engagement

Increasing engagement with local technical experts early in the process, and keeping them on board, is an important element of success. Although the Technical Committee met several times during the pilot phase, other stakeholder groups would have benefited from more regular updates to enhance the level of knowledge sharing and training.

Increasing stakeholder engagement could take several forms. A more active role for the Technical Committee, for instance, in the development and review of methodologies and guidance will be essential for SCF over the longer term. While the methodological work and rules development was completed by the consultants during the pilot phase, national experts in the Technical Committee should increasingly play this role, especially in terms of providing relevant input on the development of additional methodologies, templates and sectoral monitoring default factors. International experts can support this process, but it should become more locally driven. In addition, as suggested by the Governing Board, the Technical Committee should receive all of the verification documentation prior to the Governing Board certification, where they will attend as observers. This does not mean that the TC would play a different role in the project cycle – as discussed above, developing a streamlined system means using this technical expertise in rule development rather than the application of the rules (i.e. which is done by the Administrator). It does mean, however, that more TC capacity is needed to prepare new methodologies and guidance based on local expertise.

Beyond technical expertise, maintaining momentum for the SCF requires ongoing engagement with a wider group of stakeholders, including civil society, other potential project developers and relevant government agencies that may not be directly involved. While the SCF pilot did include a number of workshops and meetings, one possible option for future programs could be increasing frequency of these and/or to provide regular inputs to other ongoing processes such as the COMNACC meetings. This would enable the COMNACC to increase its communication with both the Administrator and the Technical Committee, as well as local actors such as potential auditors. The consultant would provide this additional communication to ensure that all stakeholders know, for example, where programs are in the project cycle, who is in charge, and what challenges in the SCF need to be addressed.

7.2 Maintaining communication and outreach tools

Keeping stakeholders on the SCF also requires an easily accessible web presence, where all documentation, rules and updates are available to the public. While the COMNACC website could potentially serve this purpose, it has been offline for much of the duration of the pilot phase. If this will continue, then the SCF portal should be moved to another, more reliable website. To ensure transparency, this site should carry all of the rules, templates, meeting minutes and program-related documents (e.g. listing documents, verification reports) for all SCF programs.

8. Developing an accreditation standard

Engaging local verifiers in the future would also require developing an accreditation standard for the SCF in Senegal. The SCF pilot currently draws on entities that have already secured accreditation under other standards (e.g. CDM, VCS, JI), reducing transaction costs as well as the burden on the Governing Board to establish an accreditation system. A future accreditation standard for the SCF could build upon the CDM accreditation framework, but while looking carefully for opportunities to simplify and streamline the process. This would require additional external funding support but could yield significant cost savings in the long run. The challenge for a national accreditation process, beyond the costs and technical issues involved, is the credibility of the system within international trading. If each country has an entirely independent accreditation system, it may be difficult for potential buyer countries to just the quality of the verification process and the resulting emission reductions. While sub-national crediting schemes such as the Climate Action Reserve have their own accreditation system, the units from these schemes cannot be used in other and voluntary international schemes such as the Verified Carbon Standard.

9. Addressing technical and methodological issues

9.1 Improving data collection processes

Robust and accurate data collection is essential for all crediting schemes. The challenge of designing a system is to balance the cost of data collection with the need for accuracy. For post-2020 crediting, this involves ensuring that the system is sufficiently conservative and that transfers of units would not weaken progress towards the goals of the Paris Agreement. While ASER already had contractual relationships with the concessionaires that collect the primary data on electrification, the format and content of this reporting did not necessarily meet all of the SCF requirements. For example, some concessionaires report only the number of connections per village during each month, not the details of each connection. While the former is sufficient for ASER's overall reporting on electrification progress, it does not provide the level of detail needed for a crediting scheme. A solution to this would be to review all of the data collection systems of the program proponent earlier in the pilot, when the rules and templates were being developed – either so that the templates could be adapted or so that additional data requests could be initiated early in the program cycle. These additional requests could form part of revised contracts with these actors and could be integrated into better IT/data management systems to support data collection.

9.2 Addressing technical issues and methodologies

Another lesson from the SCF pilot is that new technical issues inevitably emerge not only during the set-up phase but also during program listing and monitoring. This is a learning process, testing out new approaches and technical solutions, and so will require iterative improvements during implementation. In the original roadmap for the SCF pilot, only two meetings of the Technical Committee were included – one to review and approve the rules, templates and methodology, and a second one to review lessons learned. After the formal launch of the pilot in July 2017, however, it became clear that there were additional

methodological issues that needed revision. These included the baseline emission factor in the methodology, the quality control procedures during monitoring, and the monitoring options for electricity consumption.² Two additional Technical Committee meetings were needed to resolve these issues, which also deepened the understanding of the committee members. In retrospect, the Technical Committee's role could have been better planned from the start, to anticipate the need for additional meetings and also to adopt a more formal procedure for substantive and editorial rule changes.

10. Conclusions on lessons

The SCF is one of the first pilot programs internationally piloting potential carbon crediting under the Paris Agreement, and provides an option for existing CDM PoAs to transition to this new framework. The SCF pilot is also an attempt to build on the lessons from the CDM and incorporate many of the proposals for simplification and streamlining into the next generation of crediting mechanisms, as well as to build the domestic institutional framework for crediting under the Paris Agreement. The Senegal pilot on rural electrification has demonstrated that, even when considering the time and cost to set-up a new scheme, significant savings are possible compared to the typical CDM process. While the host country responsibility is much greater for a scheme such as the SCF, so is the engagement of local stakeholders and the potential for country ownership. Greater use of domestic expertise, such as local auditors, can then further reduce costs and build capacity for climate change mitigation in developing countries. Perhaps most importantly, the experience of these early pilot activities can inform the negotiations on the rules for Article 6 from a practical, developing country-focused perspective. Dissemination of the lessons from the pilot should therefore be a priority. At the same time, the SCF pilot is only the starting point. The Senegal experience highlights the additional capacity building and stakeholder engagement that will need support for new crediting mechanisms to be successful in the long run. Building institutions and expertise is a long-term process and one that needs dedicated financial support – national and international – for skills development, technical capacity and administration. Not only can the expansion of the SCF within Senegal contribute to building essential capacity for mitigation, but additional pilots – covering other countries, sectors, and technologies – can support the evolution of the global carbon market and the functioning of the Paris Agreement.

Part II. What next for the SCF?

11. Role of the SCF to support NDC implementation

The SCF is an important strategy for ensuring mitigation activities in the rural electrification sector can continue to earn much-needed carbon revenue post-2020. The rural electrification program is currently supported by both the ASER rural electrification CDM PoA as well as a

² One technical issue that was not resolved was how to incorporate energy efficiency increases (e.g. efficient appliances and lighting)– and the emission reductions that arise from those, as opposed to from electrification – into the monitoring methodology.

CDM PoA for energy efficient lighting (i.e. which includes ensuring the newly electrified homes have high efficiency lighting). The rural electrification PoA has a signed Emission Reduction Purchase Agreement (ERPA) that lasts until 2024 (i.e. covers emission reductions achieved until the end of 2024). The Paris Agreement rules for crediting under Article 6 are still under negotiation, however, and so far, there are no provisions to continue the CDM after the end of 2020. This part explains some of the ways in which the SCF model can support NDC implementation, even more broadly than just for rural electrification.

First, the SCF provides a **framework within which results-based payments can continue** to support the roll out of the ASER rural electrification program (i.e. whether or not the program can generate tradable units under the Paris Agreement), and could be extended to mitigation programs in other sectors as well (see section 4). This is particularly important to the success of the rural electrification program because the carbon revenue is being used to support a voucher scheme to reduce the costs of new rural households connecting to the grid. Prior to this, one of the main barriers to uptake of electricity by newly electrified communities was the connection cost. The carbon revenue from the CDM PoA, and in the future from the SCF, will subsidize these connections. Testing of the connection voucher scheme has demonstrated a dramatic uptake in connections and increased community-level electricity consumption.

More broadly, the SCF pilot provides a model for how other mitigation programs in other sectors might access future carbon markets. In this context, the SCF has demonstrated the substantial cost and time savings that can be achieved through simplification and streamlining, even just considering the program preparation, validation and registration/listing phases of the project cycle. These lessons can be applied in other sectors and technologies, as elaborated in section 4.

Secondly, the SCF procedures and institutions could form the starting point for the **institutional capacity to implement crediting under the Paris Agreement and support NDC implementation more broadly**. The SCF program cycle in the pilot does not include any step for issuance or authorization of transfers, because the rules for how this system will work post-2020 have not yet been agreed. While the SCF Pilot currently does not have the authority to issue tradeable units, however, this may be possible in the future. The SCF governance framework could provide the basis for national decisions on internationally traded mitigation outcome (ITMO) transfers under Article 6. Such a role would require increased engagement of the SCF Governing Board in the future, in terms of issuance and authorization, as well as the need for a corresponding registry system for emission reductions. These questions should be revisited after the Paris Rulebook is finalized. The institutional capacity and coordination being developed is not only important for crediting programs, but for supporting the cross-sectoral approach to climate governance that is needed across Senegal's economy and government.

Expanding the SCF to other technologies and sectors could also **increase Senegal's technical capacity** for engaging with international climate finance and carbon markets. Increasing engagement with local technical experts early in the process, and keeping them on board, is an important element of success. Increasing technical stakeholder engagement could take several forms. A more active role for the Technical Committee, for instance, will be essential for the SCF over the longer term. While the methodological work and rules development was completed by the consultants during the pilot phase, national experts in the

Technical Committee should increasingly play this role in the long run, especially in terms of providing relevant input on the development of additional methodologies, templates and sectoral monitoring default factors. This could also include the development of an accreditation standard and local auditing firms with carbon market expertise. International experts can support this process, but by shifting to a more locally-driven process, the SCF can support the development of the technical capacity necessary for a range of climate policy instruments for NDC implementation. Similarly, the pilot has started to build capacity for local verifiers, by providing introductory training and involving them in the first verification. Further training will be needed, as well as developing a local accreditation standard against which potential auditors can be certified. Having strong local technical institutions and clear processes for engaging with expert input builds the transparency, credibility and robustness of the system, all of which are required to incentivize participation from both the private sector and international climate finance providers.

Related to this, both the set up and implementation of the SCF can **strengthen Senegal's country management capacity and ownership** of mitigation programs, as well as promote **better coordination of climate and energy policy development**. Because the SCF is anchored in domestic institutions and engages both technical experts and decision makers across a range of fields, the process strengthens the capacity for coordination in implementing NDC mitigation strategies. The emerging governance structure under the SCF can help in developing institutional linkages and mainstreaming climate policy into other sectors. This is essential not only for successful climate policy (e.g. carbon taxation) but also for ensuring synergies and avoiding conflicts between climate policy and existing sectoral policies. Expanding the SCF to other sectors (e.g. agriculture, waste, forestry) would also bring those policy makers and experts together in closer collaboration with the institutions leading climate policy (e.g. DEEC and the MEDD).

The SCF **contribution to Senegal's Monitoring, Reporting and Verification (MRV) capacity** can enhance **tracking progress towards NDC goals**, as well as increased ambition in future NDC cycles. According to policy makers in Senegal, one of the main reasons certain sectors are left out of the current NDC is the lack of data and MRV capacity to both set targets and track progress. This lack of data and capacity discourages setting ambitious targets, because it is difficult for policy makers to judge how realistic or costly those targets could be. Senegal does not currently have a comprehensive MRV system to demonstrate progress toward energy sector emission reduction goals in their NDC. Without the detailed rules for Paris Agreement crediting, it is difficult to know what requirements Senegal will eventually have to meet once they submit their NDC. However, a robust system for measuring future emission reductions in this sub-sector could certainly support tracking progress at the sectoral and national level. If the SCF were expanded to cover more of the energy sector, of course, then the MRV systems in the SCF would provide a more comprehensive coverage that could support tracking progress towards sectoral NDC goals. Developing simplified but robust approaches to estimating emission reductions, as well as in-country capacity to verify those reductions, could form the basis of a more comprehensive MRV system.

To summarize, the SCF has the potential to work for rural electrification in Senegal because of specific policy, institutional and technical characteristics of the sector. There are as follows:

- **Senegal’s clear policy goals for rural electrification, as well as detailed operational plans, provide a framework for the SCF.** Government’s commitment to the Universal Access goals and National Rural Electrification Emergency Program ensure that the implementation of mitigation and development activities in this sector will happen quickly and efficiently. The operational and monitoring frameworks needed to achieve these policy goals are directly supported by the SCF through a simple but robust MRV system.
- **The lead agency has adequate capacity and skills to implement carbon market and climate finance programs.** ASER’s staff are already engaged in managing large programs, distributing donor funding, and conducting monitoring & evaluation. In addition, ASER staff play a central role in climate policy: the Director of Studies & Information Systems for ASER is also the Chair of COMNACC. In terms of monitoring progress toward NDC implementation, ASER’s comprehensive database on the villages and numbers of households that have been electrified supports tracking the action commitments mentioned in the INDC.
- **Focusing on technologies for which automatic additionality can be clearly established enhances the credibility of the SCF.** The SCF Pilot in Senegal primarily focuses on small scale technologies (e.g. solar lanterns, solar home systems, solar mini-grids) that, under the CDM, qualify as automatically additional. Even for grid electrification, there are strong arguments in LDCs for automatic additionality, given the slow progress on access in many of the poorest countries. This greatly simplifies the methodological approach for estimating emission reductions, because the most complex aspect of most CDM methodologies is additionality testing.
- **Senegal’s rural electrification sector has a clear investment plan and has been able to access international commercial and public finance, although there is still a significant gap.** As mentioned earlier, the Senegal has a clear investment plan for meeting the PNUER and universal energy access goals. The success of securing international financing through public-private partnerships for the rural electrification concessionaires is major step in the overall financing goal. The SCF opens the possibility of leveraging more carbon market revenue and climate finance to achieve the development goals.

12. Possible next steps for Senegal and the SCF

The pilot phase of the SCF in Senegal is coming to an end. With this in mind, now is the time for Senegal to consider the next steps and seize further opportunities from a scaled-up SCF. The following steps would support Senegal in taking advantage of the opportunities from the SCF.

Expanding the SCF into other sectors could engage new stakeholders and increase carbon market opportunities but will require investments in methodological development. Understanding the opportunities for mitigation and sustainable development impacts is important in prioritizing future expansions of the SCF concept. In choosing new sectors or technology areas, criteria could include:

- Alignment with national development goals
- Mitigation potential and abatement costs

- Capacity of key actors in the sector and their experience with carbon pricing and MRV
- Technology- or sector-specific MRV needs and links between these and tracking NDC progress (i.e. future Biennial Transparency Reports)
- Methodological simplicity (e.g. small-scale technologies and technologies without any non-carbon revenues are more likely to be credible as automatically additional).

Preparing a marginal abatement cost curve (MACC) for relevant sectors and technologies would be essential for identifying areas that have significant potential to cost-effectively meet Senegal's sectoral mitigation goals. Without this analysis, it would be difficult to assess the potential impact of new pilot activities and SCF expansion on the overall NDC goals. This analysis could be embedded in a Low Emission Development Strategy (LEDS), which could encompass not only Senegal's mitigation opportunities and future NDC commitments, but also the role that carbon finance could play in realizing those long-term goals more cost-effectively.

Even within the energy sector, there will be both different technological options and different potential program lead agencies. For example, the Energy Efficiency Agency (AEME) could lead efforts on industrial and building energy efficiency, while renewable power generation programs could include both Senelec (the national utility) and Independent Power Producers (IPPs). Other actors could be identified beyond the energy sector, such as in the waste sector. Applying the SCF concept to other similar small-scale energy access technologies (e.g. improved cookstoves, biogas digesters) would have similar benefits. What could be more challenging is large-scale power generation investments – renewable or otherwise – where, particularly in emerging markets, justifying the additionality of these projects is more difficult and controversial.

One specific example of the evolution of the SCF could be a biogas program led by the National Biogas Programme (PNB). A concept note for this program as part of a post-2020 crediting pilot has already been developed and is under discussion with the Klik Foundation in Switzerland. The program would establish market conditions for the deployment of more than 60,000 biogas digesters by 2030. To use the SCF institutional infrastructure to facilitate the development of this program as a possible international crediting transaction, a methodological approach for biogas could be developed within the SCF, applying the same ideas of streamlining and simplifying MRV that were applied to rural electrification. By doing this, the SCF could potentially reduce transaction costs and promote compliance with potential rules and guidance under the Article 6 mechanisms.

At the same time, carbon markets and RBCF are only part of the overall package of financing, so Senegal needs to explore upfront climate finance as well. Both RBCF and carbon markets only provide payments after the implementation of mitigation programs. While this can create incentives for implementing higher-cost low-carbon technologies, program development also need access to capital. For low-carbon technologies, concessional financing (e.g. concessional loans and equity) and grants will also be needed to create viable business models. These concessional sources can be used to reduce the risk of investments in the sector and therefore leverage private, commercial financing for low-carbon technologies. While the availability of climate finance is increasing, Senegal will need a strategy to identify the right sources to support specific programs under the SCF.

The SCF will need a sustainable source of financing and institutional capacity. After the SCF Pilot phase, continuity of the governance structure - Governing Board, Technical Committee and Administrator – will require sufficient resources to continue their work and further expand the SCF to other sectors. Strengthening institutional capacities through enhanced funding is key, for the governance bodies to continue to appropriately assess the potential of other sectors, sensitize stakeholders, develop new SCF methodologies and oversee the listing and verification of projects. Ensuring sufficient capacity to manage the SCF process beyond the pilot will also require additional trained staff in the Administrator.

This implies the need for a dedicated funding for staff and experts overseeing crediting programs. The Administrator, for example, covers a wide range of tasks under the SCF whose timing and staffing needs may be beyond the current availability of the unit. A position for a dedicated SCF coordinator within the Administrator may be needed, with appropriate training to facilitate both the administrative tasks and so that the Administrator can provide leadership from government. To support all these activities, Senegal and their partners should explore other financing sources, which might include some form of “share of proceeds” and well as external donor support.

The revision of Senegal’s NDC provides a window to align NDC commitments with a coherent strategy for accessing carbon finance under Article 6. With the Paris Rulebook still under negotiation, many countries are still trying to understand how they will use carbon markets, and the use of markets will relate to tracking progress towards their NDC commitments. Because of the requirement for “corresponding adjustments” for any transferred credits under the Paris Agreement, Senegal would not be able to use any of these emission reductions to meet their own NDC mitigation goals. Emission reductions generated by cooperative programs that are not transferred, however, will still be shown as part of Senegal’s NDC achievement.

Senegal could also start to explore crediting transactions beyond the current CDM-linked agreement. The contract between Ci-Dev and ASER covers emission reductions up to the end of 2024. If a scheme such as the SCF were to be recognized under Article 6 of the Paris Agreement, this could pave the way for sales of emission reductions beyond 2024 as well. Senegal should begin to explore possible future transactional arrangements, in terms of a contracting party within Senegal, counterparties outside of Senegal, and what national authorization process would be required to meet the Paris Agreement rules.

13. Supporting the next generation of results-based climate financing

The SCF Pilot in Senegal has also provided useful lessons for thinking about the next generation of results-based climate financing. These include the following:

- **Nurture a country-driven process:** with a shift under the Paris Agreement towards more bottom-up models of international cooperation comes the opportunity and challenge of building host-country ownership. Nurturing this ownership can ensure that the next generation of RBCF directly supports NDC implementation, but this will require sustained investments in capacity building. While new schemes should build upon existing

institutional and technical infrastructure, there will still be need for developing new methodological, administrative and MRV implementation capacity at the country level. Knowledge sharing among countries developing new RBCF schemes can support the development of best practices and increase effectiveness and efficiency.

- **Identify the strategic role of climate finance and markets as part of a long-term low emission development strategy:** potential host countries for future crediting mechanisms need to understand the cost of meeting their NDC mitigation goals before they can decide on how and at what price to participate in markets. They also need to understand how markets fit into a longer-term strategy, and how cooperation in the current NDC cycle could allow for higher ambition in future NDC cycles. RBCF could be a bridge between host country actions and future markets (i.e. if RBCF payments do not result in transfers of emission reduction units), by supporting actions that are too expensive for the host country to implement on their own but are necessary to reach their NDC goals. The challenge is that few countries have enough detailed analysis of the cost and potential of emission reduction interventions across their NDC sectors to be able to make these strategic decisions, nor do they have a long-term strategy for realizing these mitigation opportunities. Supporting potential host countries to develop a comprehensive analysis of mitigation options as part of a LEDS would not only help to identify high priority areas for climate finance and carbon markets but would also inform discussions on a fair and equitable price for emission reductions that might be transferred in the future, as well as increasing the ambition of future NDC goals.
- **Start simple:** Particularly for first-time implementers of the SCF, starting with areas (i.e. projects and sectors) that are methodologically simpler will make the process more predictable and credible. This means starting with sectors where there is already in-country experience (e.g. through the CDM or other mechanisms) and where accepted international standards are available. Choosing technologies that are considered automatically additional under existing carbon market standards also simplifies the start-up process for the SCF. Selecting technologies and sectors that feature prominently in the NDC will ensure a strong link between national climate policy and the SCF or similar innovative finance mechanisms.
- **Explore links to upfront financing:** by design, an RBCF scheme will not provide upfront financing, or at least will be skewed towards performance-based payments. At the same time, a key barrier to mitigation interventions is often the lack of access to affordable capital. As one solution, more of the payments could be shifted to an earlier point of time in the project life. This could accelerate the investments while still maintaining operational incentives. However, financial instruments that specifically address upfront capital requirements are crucial to address mitigation investments for NDC implementation. The next generation of RBCF should explore how to provide packages of linked financing instruments that would include both upfront capital (e.g. equity, concession loans, grants) and results-based payments.