



Piloting a Standardized Crediting
Framework for Scaling Up Energy
Access Programs

Senegal Pilot

Lessons Learned Note



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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 under the Paris Agreement. The SCF provides for a host country-led approach to carbon 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 would include, among other improvements, the following elements:

- **Standardized emission reductions.** More of the parameters for both baseline and project emissions would be standardized, to reduce the measurement, reporting, and verification (MRV) costs and align monitoring requirements with typical business activities. For example, program proponents would mainly be required to monitor activity levels (for example, new connections and consumption), while the conversion of this activity to emission reductions would be largely standardized and include country-specific default factors.
- **Simplified project cycle.** The boundary of the program would be determined by tracking all units rather than ‘including’ new components (that is, as in the CDM PoA process), which would eliminate this step in the project cycle. In addition, the SCF would build on earlier proposals for streamlining the project cycle by eliminating the validation step and 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 would develop a positive list approach to additionality for various energy access technologies, supported by transparent and objective eligibility criteria. Templates and clear guidance for ‘listing’ (similar to registration), monitoring, and verification would also reduce the time and costs associated with these steps in the project cycle.
- **National governance.** As a host country-led approach, the SCF would have a national ‘Governing Board’—most likely led by the key climate change ministry—supported by a Technical Committee (to provide technical advice on the rules) and an Administrator (for day-to-day implementation of the rules). In implementing the national governance and administrative functions, the SCF would establish efficient structures to minimize the administrative and financial burdens on national governments while ensuring transparent decision making. This would be done by building on existing national structures experienced in climate change projects and policies.

To demonstrate the proof of 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 pilot so far 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 the CDM first monitoring and verification phases are still ongoing. Nevertheless, time and cost investment so far in the early stages of the project cycle, as well as the process of setting up the '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 phases of the project cycle. The CDM process took years longer than the SCF, and even for new programs under the SCF, it is unlikely the program preparation would take more than six months. In these three phases, the cost savings of US\$180,000 for one program were more than the entire setup cost of the SCF (that is, US\$102,000). Even if additional programs require some support for project development, the savings are substantial compared to the CDM. The question for other countries—and even for expansions of the SCF into other sectors in Senegal—would be who pays for this setup cost. This could potentially be linked to international initiatives to support countries in nationally determined contribution (NDC) implementation and MRV.

The pilot phase of the SCF in Senegal is set to finish in the first quarter of 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 the piloting of SCF activities in other countries and sectors. With this in mind, 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 important, 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 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 climate change mitigation, but additional pilots—covering other countries, sectors, and technologies—can support the evolution of the global carbon market and the implementation of the Paris Agreement.

1. Introduction

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 under the Paris Agreement. 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 nationally determined contributions (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 the proof of 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 is a 'simulation' (that is, 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 can 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 pilot so far 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 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 the country-led crediting approach, provide important lessons and highlight opportunities.

2. The SCF concept

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

- **Standardized emission reductions.** More of the parameters for both baseline and project emissions would be standardized, to reduce the measurement, reporting, and verification (MRV) costs and align the monitoring requirements with the typical business activities. For example, program proponents would mainly be required to monitor activity

levels (for example, new connections and consumption), while the conversion of this activity to emission reductions would be largely standardized and include country-specific default factors.

- **Simplified project cycle.** The boundary of the program would be determined by tracking all units rather than including new components (that is, as in the CDM PoA process), which would eliminate this step in the project cycle. In addition, the SCF would build 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 would develop a positive list approach to additionality for various energy access technologies, supported by transparent and objective eligibility criteria. Templates and clear guidance for 'listing' (similar to registration), monitoring, and verification would also reduce the time and costs associated with these steps in the project cycle.
- **National governance.** As a host country-led approach, the SCF would have a national 'Governing Board'—most likely led by the key climate change ministry—supported by a Technical Committee (to provide technical advice on the rules) and an Administrator (for day-to-day implementation of the rules). In implementing the national governance and administrative functions, the SCF would establish efficient structures to minimize the administrative and financial burdens on national governments while ensuring transparent decision making. This would be done by building on existing national structures experienced with climate change projects and policies.

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

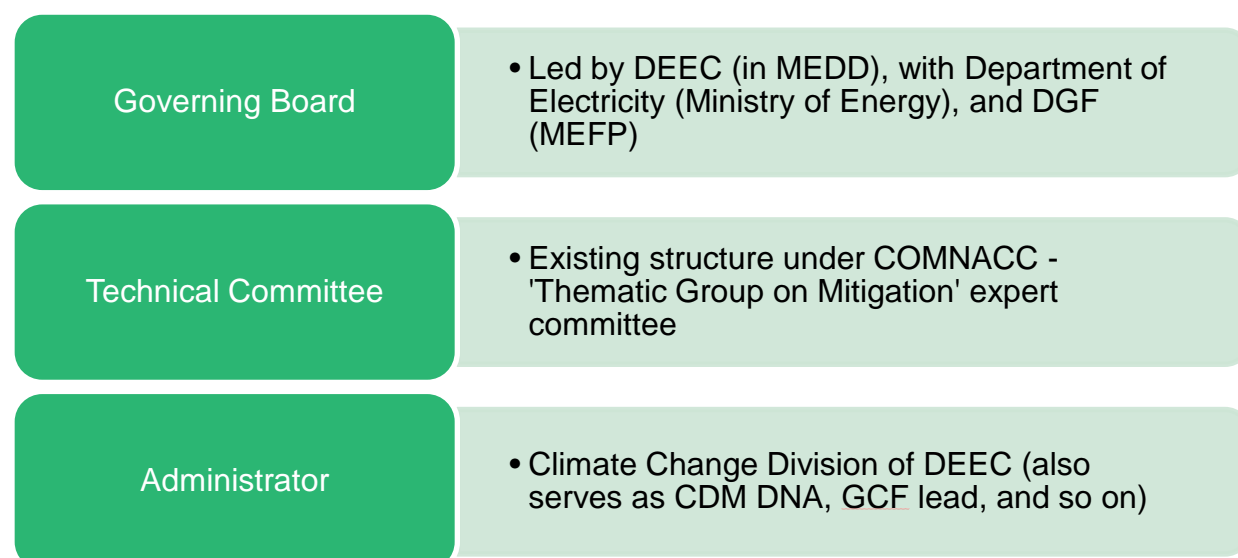
The rules and detailed guidance on eligible activities for Article 6 under the Paris Agreement are yet to be developed. The SCF is designed to be instrument neutral, which means that the concept itself could fit under Article 6.2 and/or Article 6.4. Under Article 6.2, the transferring and acquiring countries ultimately agree on a cooperative approach consistent with the United Nations Framework Convention on Climate Change (UNFCCC) guidance, whereas under the Article 6.4 mechanism, the Supervisory Body would need to approve the SCF components as part of the crediting mechanism rules.

The proposed 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 (as opposed to the large-scale supply of these energy sources). By developing the concept of an SCF initially for energy access, and additional activities that would be considered automatically, 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 (for example, the potential to create positive lists for additionality).

3. The SCF pilot in Senegal

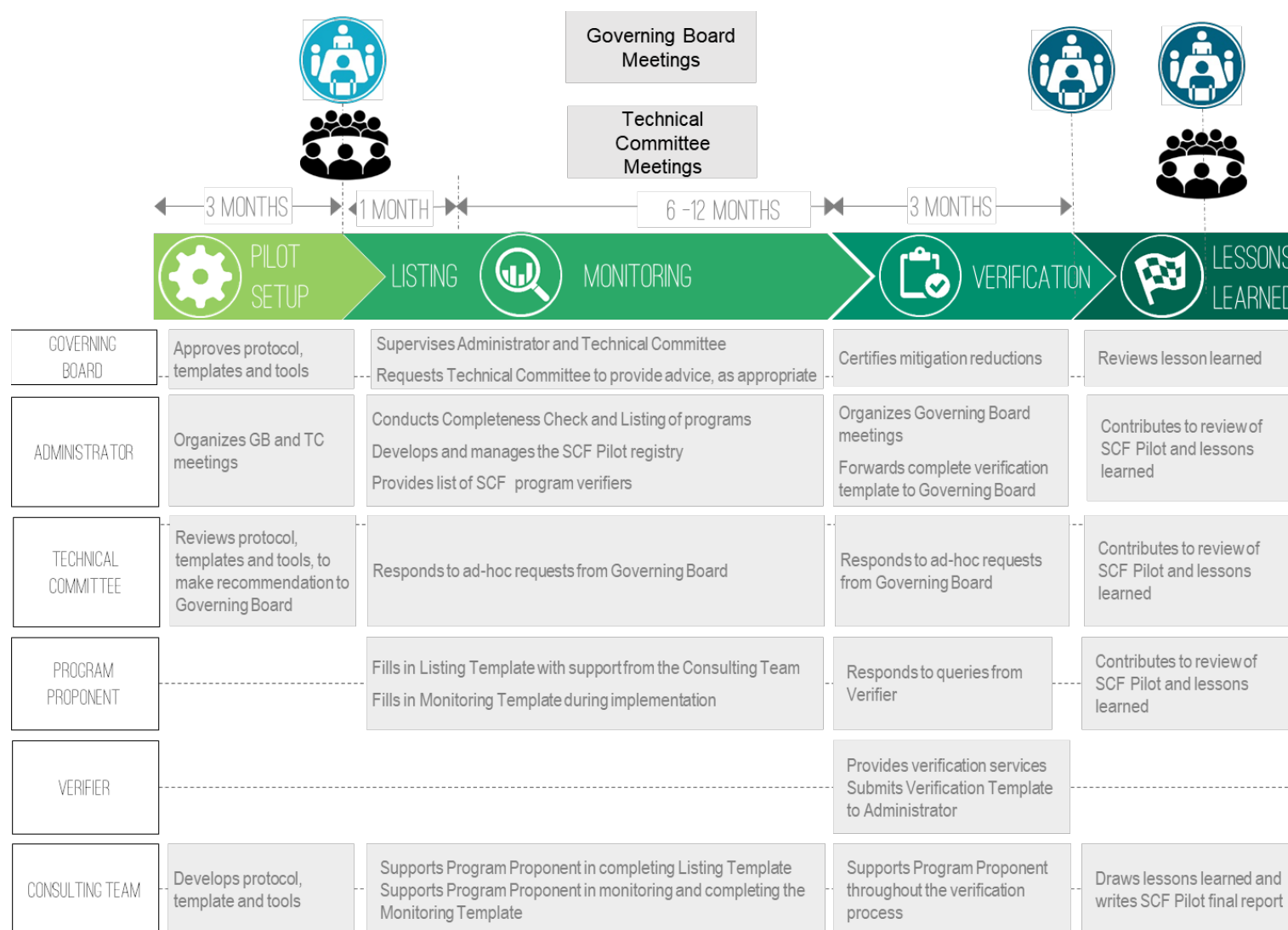
The SCF pilot in Senegal started in April 2017 with a ‘pilot set up’ phase, during which a team of international and local consultants worked with the Department of Environment and Classified Establishments (DEEC) under the Ministry of Environment and Sustainable Development (MEDD) and the National Committee 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 (for example, if a nongovernmental organization [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



Note: DGF = Directorate General for Finances; DNA = Designated National Authority; GCF = Green Climate Fund; MEFP = Ministry of Economy, Finance, and Planning.

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



Note: GB = Governing Board; TC = Technical Committee.

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. Monitoring was conducted up to March 2018 and included collecting data for the year before listing—because the program and crediting start date under the SCF may be up to one year before the listing date (following a practice similar to many voluntary carbon market standards). Verification commenced in November 2018 and is under way (as of December 2018). 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 (which required additional review by the Technical Committee).

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

4. 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 setup phase included the development of a ‘roadmap’ (summarized in [Figure 2](#)) for the SCF pilot as well as a Program Protocol (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 COMNACC. The setup 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 setup phase also included developing templates for the Listing Document (analogous to a Project Design Document [PDD] 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 Design Document (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 its own tool.

All the templates were reviewed by the Technical Committee before approval. The overall Program Protocol, methodology, listing document template, and monitoring report template (along

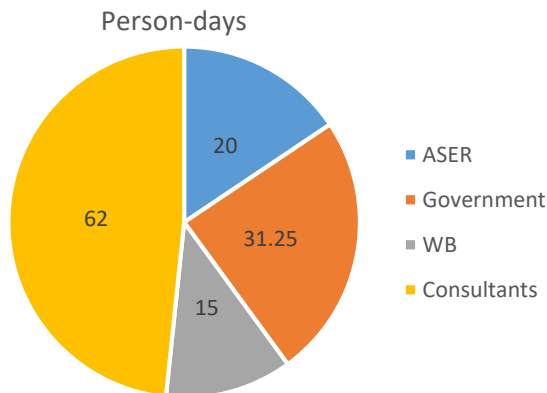
with guidance for each of these) were all reviewed during the first Technical Committee meeting. The Verification Report Template (and related guidance) and Monitoring Calculation Tool were only completed in January 2018 and were thus reviewed at a second Technical Committee meeting in February 2018. In addition, at the meeting, a revision was made to the methodology to include calibration requirements. A possible revision of the baseline emissions factor was also discussed, but the Technical Committee agreed to keep the original baseline emissions factor, as it felt the underlying data were 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 are 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' (that is, the total connected population in the concession area, including those connected before the start date of the SCF pilot program).

The time inputs for the setup phase from different stakeholders are presented in [Figure 3](#), 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 (that is, the 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 and 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 (for example, 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 setup phase: 3.2 months • Total cost (including time from government, World Bank, consultants, and program developers): US\$102,000

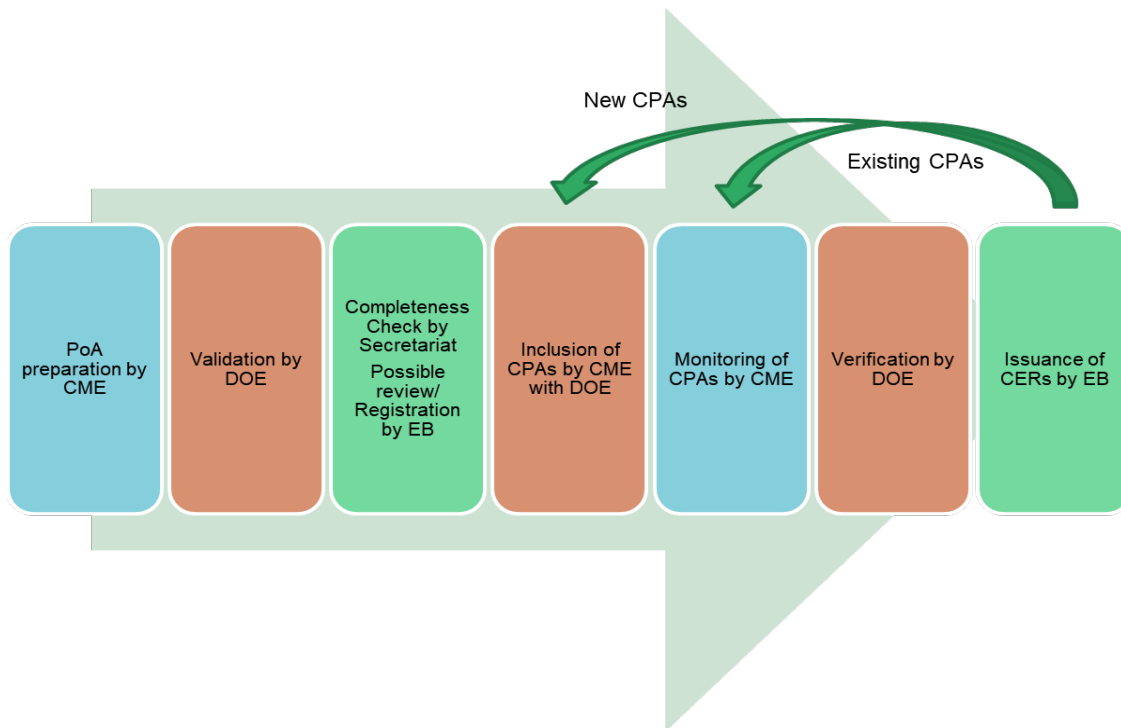
Figure 3. Person-days for SCF pilot setup



5. Comparative time and costs for the project cycle

Under the CDM, the project cycle includes seven steps that are needed to fully implement an activity, starting with the preparation of the PDD and ending 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 PoA, because part of the cycle for including new Component Project Activities (CPAs) must be repeated (Figure 4). The SCF project cycle similarly begins with the preparation of a simplified program document and ends with certification of emission reductions (that is, there is no issuance of credits, although post-2020, this could change as discussed in the subsequent paragraphs) but with combined validation and verification to reduce the up-front 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 5).

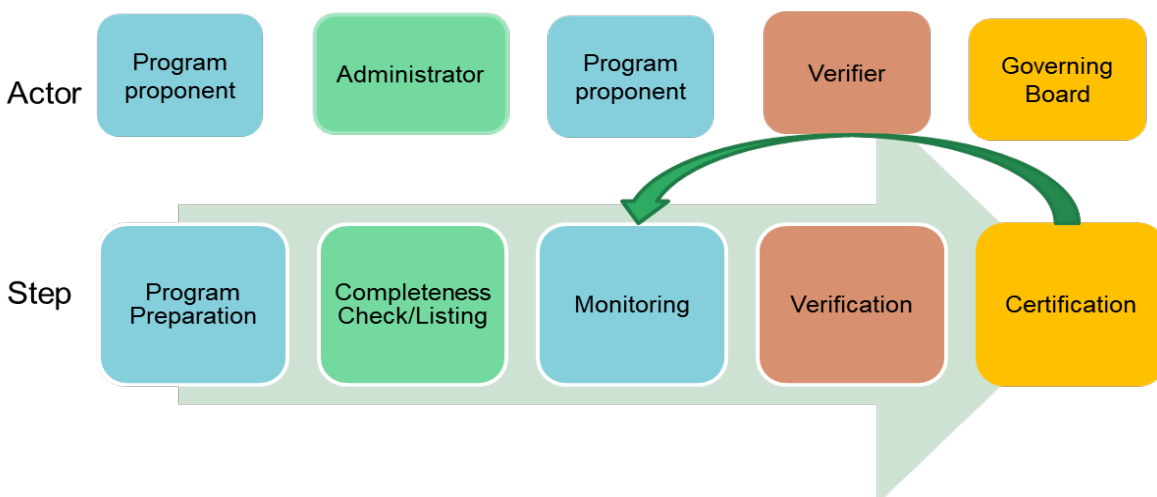
Figure 4. Current project cycle for a CDM PoA



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Note: CME = Coordinating/Managing Entity; DOE = Designated Operational Entity (auditor); EB = Executive Board (CDM).

Figure 5. 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 (that is, the World Bank). The

following subsections compare the SCF pilot with the CDM in the early phases of the project cycle. As mentioned earlier, it is important to remember that the SCF pilot builds on an existing CDM PoA, and much of the ground work 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.

5.1 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 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 a 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 (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 before listing. The simplified format and content of the listing document mean that the time and effort required to collect data and documentation up front 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 ends 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.

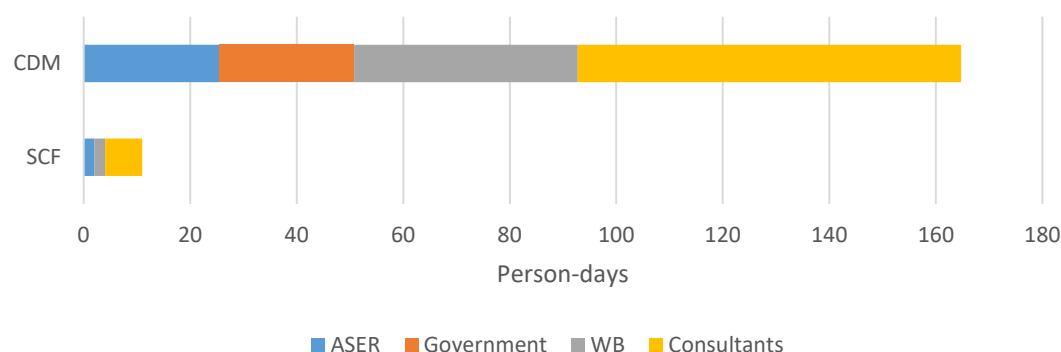
Table 2. Program Preparation activities, duration, and costs

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 and 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
US\$145,000	US\$15,000	US\$130,000

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 the activity is voluntary and contributes to sustainable development In Senegal: Assessment by five experts of COMNACC followed by a meeting, paid for by project proponent 	<ul style="list-style-type: none"> Not needed, because SCF is a national process, with oversight from the 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 LoA)



5.2 Validation

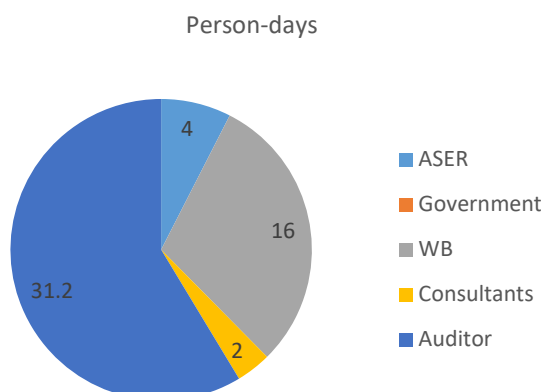
The validation process under the CDM is conducted by an accredited third party called the Designated Operational Entity (DOE). For the Senegalese electrification program under the CDM, ASER submitted documents to the DOE (that is, the Spanish Association for Standardization and Certification [AENOR]) to start the validation in September 2016, which included a site visit 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	Cost savings
US\$49,000	US\$0	US\$49,000

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



5.3 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 EB, 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 ended in April 2018. Because there were no requests for review, the PoA was registered one month later (May 17, 2018). The process therefore lasted approximately seven months.

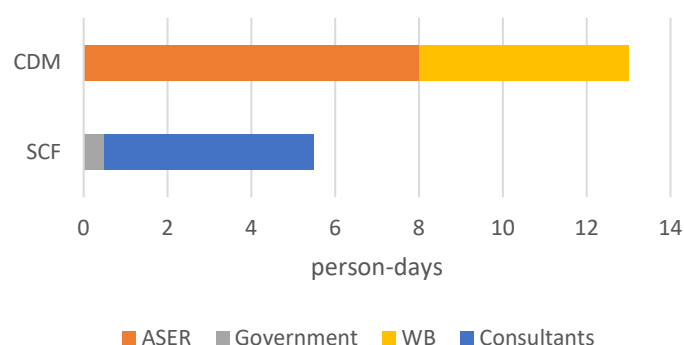
The SCF, on the other hand, uses a simplified listing process, whereby the SCF Administrator checks the completeness of the Listing Document, registers the activity in its database, and provides a notification to the project proponent. ASER submitted its program documentation on October 1, 2017, and received a letter confirming the listing on November 3, 2017. This required only 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. 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 before the listing date, so the time required for program development and listing does 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 EB with request for registration • Completeness check by Secretariat and possible revisions if project fails completeness check • Assessment by Secretariat • Assessment by EB (Registration and 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 time and cost savings, as well as savings in process time • No direct costs involved in listing for the SCF (that is, 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	Cost savings
US\$8,000	US\$5,400	US\$2,600

Figure 8. Person-days for registration/listing



5.4 Monitoring

With the registration of the ASER CDM PoA, CDM monitoring activities began only 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 (that is, the start of the program and crediting period) were also being collected. Monitoring data collection

and analysis for the SCF pilot took an additional six months after the end of the monitoring period, 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 preparing household-level monitoring data for submission, and this could potentially be used for future monitoring periods.
- Comasel reports electricity consumption for the total number of connections within their two concessions, which include some households that were connected before the start of the crediting period and monitoring period (that is, before January 10, 2016). Approximately 20 percent of the connections were from before the start of the monitoring period. This issue was taken up by the Technical Committee in its third meeting, where it discussed and approved a change in the monitoring section of the methodology.
- ASER then had to request consumption data from months within the monitoring period, because Comasel originally provided 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.

While under the SCF some of the data collection is similar to the CDM, significant cost savings are expected for the following reasons:

- 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 if the households have meters.
- 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 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.
- 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.

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 earlier, 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 for the CDM will not be known during the period of the SCF pilot because of the late start of the CDM monitoring period (that is, monitoring will finish only in mid-2019).

Table 6. Monitoring activities

CDM	SCF	Benefits
<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 template, with fewer monitoring parameters and more options for measurement Filling in of SCF monitoring template 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

5.5 Verification

For the verification process under the CDM, a new DOE (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 time frame for verification is at least three months. However, the average time across all CDM projects from the end of the monitoring period to the 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.

The verification phase for the SCF is likely to be less costly as well as less time consuming, due to the simplification of monitoring under the framework. The clear verification guidance and verification report template can also potentially lower the fees charged by auditors and reduce the process time. The SCF pilot will hire an internationally accredited DOE. In the long run, however, a significant cost-saving potential could be unlocked through the accreditation and training of local auditors, although this requires substantial up-front investment in training and developing a local accreditation scheme. As part of this process, the verifier for the SCF will therefore, as part of its contract, also provide capacity building for local firms identified by the SCF Administrator, as part of developing a pipeline of future potential local auditors.

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

Table 7. Verification activities and duration

CDM	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 template. 	<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
This will be known only in late 2019 due to the delay in the CDM PoA project cycle.	Expected to be less than six months	This will be known only in late 2019.

5.6 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 EB. The issuance step includes a completeness check by the Secretariat and an assessment or screening by both the Secretariat and the EB and potential review of the issuance (if requested by a party or three members of the EB).

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 at this stage because it is still a simulation of a crediting standard. The Governing Board merely certifies emission reductions during the pilot phase.

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 transfers of unit. This would be a 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 such 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 EB • 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
This will be known only in early 2020 due to the delay in the CDM PoA project cycle.	Expected to be less than two months (certification only)	This may not be known until early 2020 based on the CDM project cycle.

5.7 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.

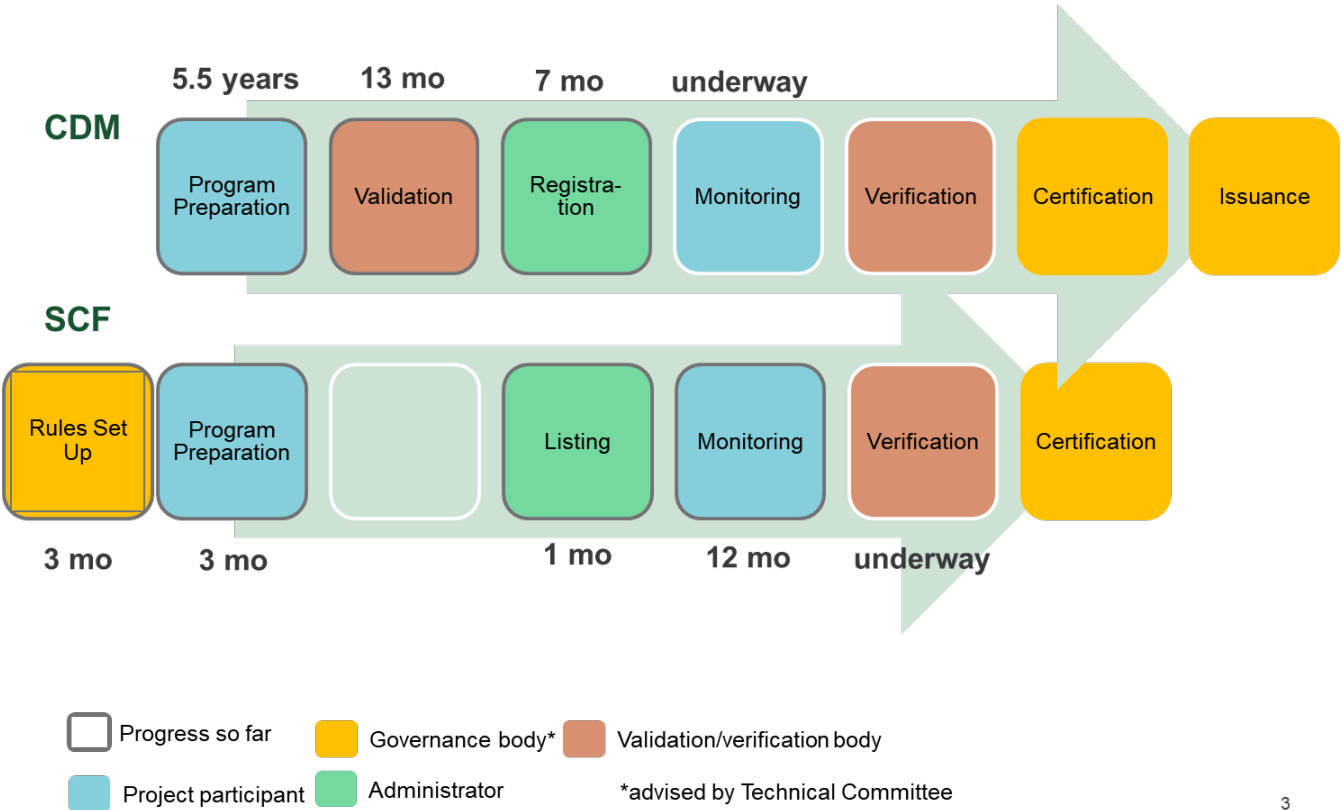
Another risk for when the pilot ends is the fact that the pilot phase is supported by Ci-Dev, and documentation and data were already available for this particular project through the CDM. This means that, for a new project, stakeholders will have to consider the added time and costs for collecting new 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.

5.8 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 US\$180,000 for one

program were more than the entire setup cost of the SCF (US\$102,000). Even if additional programs require some support for project development, the savings are substantial compared to the CDM. The question for other countries—and even for expansions of the SCF into other sectors in Senegal—would be who pays for this setup cost. This could potentially be linked to international initiatives to support countries in NDC implementation and MRV.

Figure 9. Process time for CDM and SCF to date



6. 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 setup phase of the SCF on the one hand and, on the other hand, the routine tasks taken on during the pilot phase and thereafter. The time and costs for both are outlined in more detail in the following paragraphs, 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 EB.

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

6.1 The SCF Governing Board

The Governing Board comprises the DEEC in the MEDD, the Directorate of Electricity (DE) in the Ministry of Energy and Renewable Energy Development (MEDER), and the DGF in the MEFP. The Governing Board takes on the role of the CDM EB 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 are carried out by the Administrator and Technical Committee.

A Governing Board meeting was held during the setup phase of the SCF pilot, where the Governing Board made various decisions including the launch of the pilot itself, the approval of the SCF Program Protocol, integrating the MEFP as part of the Board, as well as the establishment of an *arrêté* (ministerial directive) prepared by the MEDD. 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.

Table 9. Governing Board

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

6.2 The SCF Administrator

The DEEC Climate Change Division assumes the role of the Administrator, taking charge of the listing process as well as organizing the Technical Committee and its workshops. During the setup 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 LoA, but in most cases, the DNA was no longer involved or did not receive information regarding the status of the project or portfolio. Going forward with the SCF, it is key that the Secretariat continues to stay involved in the process and projects to receive information after the listing occurs. This is to minimize any issues or roadblocks in the future. 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.

During the lifetime of the SCF program, the Administrator receives the listing requests, verification reports, and requests for certification. 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. The tasks also include presenting the Senegal SCF in international climate conferences and meetings (that is, the African Carbon Forum (ACF) and the DNA Forum, and so on) as well as administrating and disseminating SCF pilot documentations through the COMNACC website.

While the Administrator has managed to perform its tasks and organize the Technical Committee successfully thus far, there is further need and potential for capacity building in the long run. Having the SCF pilot supported by Ci-Dev and based on CDM documentation has aided the process, yet an internal disbursement of duties after the pilot phase could reduce time as well as streamline the process.

Table 10. Administrator

Tasks	Time
• Kick-off capacity-building workshop	• Six-hour workshop for five people
• Completeness check of the Listing Document	• Two to three days
• <i>Arrêté</i> draft proposal	• Seven days
• <i>Arrêté</i> validation and submission to the authority of the minister	• Approximately three months
• Preparation of meetings of the Technical and Steering Committee (one Governing Board meeting, four Technical Committee meetings)	• 10 hours for one person
• Preparation of four meeting reports	• 100 hours for one person
• Hosting and administration of SCF pilot documents on the COMNACC website	• Two hours for one person
• Presentation of the SCF in international meetings on climate change	—

6.3 The SCF Technical Committee

A subcommittee of 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 setup phase of the SCF pilot, the Technical Committee reviewed all the rules, templates, and tools, including the methodology and any guidance documents to explain how to use the templates. The Technical Committee also requests a manual to explain how to use the Monitoring Calculation Tool. Moreover, Technical Committee members participated in outreach and capacity-building events.

Table 10. Technical Committee

Tasks	Time
<ul style="list-style-type: none"> • Technical Committee meetings and decisions at setup gathering (3 meetings) • Prepare and present initial set of rules to Governing Board 	<ul style="list-style-type: none"> • 15 hours for eight people • Four hours for one person

7. Additional lessons learned

The SCF is becoming an important program for engaging with future carbon markets in Senegal. Even during the pilot, the SCF has been acknowledged by Senegalese stakeholders 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, Senegal is currently preparing an *arrêté* (ministerial decree), which will give 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 forums 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 Innovate4Climate (May 2018).

The pilot phase of the SCF in Senegal is set to finish in the first quarter of 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. With this in mind, there are cross-cutting lessons from the Senegal pilot that can inform the design and implementation of similar schemes in other countries.

7.1 Increasing stakeholder engagement and national ownership

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, will be essential for SCF over the longer term. While the methodological work and rules development were 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 of default factors. International experts can support this process, but it should become more locally driven.

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 the frequency of these and/or providing regular inputs to other ongoing processes such as the COMNACC meetings. This would enable 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 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.

7.3 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 continues, then the SCF portal should be moved to another, more reliable website. To ensure transparency, this site should carry all the rules, templates, meeting minutes, and program-related documents (for example, listing documents and verification reports) for all SCF programs.

7.4 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 was tasked with providing 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.

7.5 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 (for example, CDM, Verified Carbon Standard [VCS], and Joint Implementation [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 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.

7.6 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 currently does 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 corresponding registry system for emission reductions. These questions can only be answered following the international agreement on the Paris rulebook.

7.7 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 transfers of units would not weaken progress toward 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 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 information technology (IT)/data management systems to support data collection.

7.8 Addressing technical issues and methodologies

Another lesson from the SCF pilot is that new technical issues inevitably emerge not only during the setup 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 road map 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.

7.9 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 not only be successful in following through with the pilot but also can 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 reliant on external support.

8. Conclusions

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 important, 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

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

and 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 climate change 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.