EXTERNAL EVALUATION OF THE CLIMATE AND CLEAN AIR PROGRAM IN LATIN AMERICAN CITIES (CALAC+)

February 2, 2021

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CALAC+
Programa Clima y Aire limpio en Ciudades de América Latina

Ingeniería con valor ambiental

The Climate and Clean Air Program in Latin American Cities (CALAC +) is a project developed by the Swiss Agency for Development and Cooperation (SDC) and implemented by Swisscontact.

The scope of the evaluation of the CALAC + Program only considered the 2018-2020 period, any activity subsequently carried out by the program is beyond the scope of this external evaluation and will require an additional study for its evaluation.

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ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
CAD	Computer Assisted Design (Diseño Asistido por Computadora)
CALAC+	Programa Clima y Aire Limpio en Ciudades de América Latina Plus
CCAC	Climate and Clean Air Coalition
CDMX	Ciudad de México
CND	Contribuciones Nacionalmente Determinadas
CONPES	Consejo Nacional de Política Económica y Social
COSUDE	Agencia Suiza para el Desarrollo y la Cooperación
COVID19	Coronavirus Disease 2019
C40	Grupo de Liderazgo Climático
DAC	Comité de Asistencia para el Desarrollo (DAC)
DPF	Diesel Particle Filter (Filtro de Partículas Diésel)
GEI	Gases de Efecto Invernadero
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNV	Gas Natural Vehicular
HEBASH	Herramienta para evaluación de Beneficios Ambientales y en Salud Humana derivados de cambios en la calidad del aire
HEMAQ	Herramienta para análisis del Impacto Económico y Ambiental de la Migración hacia Normas de Emisiones para Maquinaria Off Road
HETRANS	Herramienta para análisis del Impacto Económico y Ambiental asociada a la Migración hacia Normas de Emisiones Euro VI, Vehículos Eléctricos y Etiquetado Vehicular
Euro VI	Vehículos Eléctricos y Etiquetado Vehicular
ICCT	International Council of Clean Transportation
INECC	Instituto Nacional de Ecología y Cambio Climático
LEDS LAC	Plataforma Regional LEDS Latinoamérica y el Caribe
MinAmbiente	Ministerio del Ambiente y Desarrollo Sostenible (Colombia)
MINAM	Ministerio del Ambiente (Perú)
MinTransporte	Ministerio de Transporte (Colombia)
MMA	Ministerio del Medio Ambiente (Chile)
MOP	Ministerio de Obras Públicas (Chile)
OCDE	Organización para la Cooperación y el Desarrollo Económicos (OCDE)
ODS	Objetivos de Desarrollo Sostenible
OMS	Organización Mundial de la Salud
ONU	Organización de las Naciones Unidas
OPS	Organización Panamericana de la Salud
PMX	Sistema de adquisición de datos
RTP	Red de Transporte de Pasajeros (México)
SARS-CoV-2	Severe acute respiratory síndrome (síndrome respiratorio agudo severo por Coronavirus 2)
SOR	Remuneración Orientada a Servicios (Service Oriented Remuneration)
SEDEMA	Secretaría del Medio Ambiente de la Ciudad de México
SEMARNAT	Secretaría de Medio Ambiente y Recursos Naturales (México)
SEMOVI	Secretaría de Movilidad de la Ciudad de México
SOBSE	Secretaría de Obras y Servicios de la Ciudad de México
TdR	Términos de Referencia
UNEP	United Nations Environmental Program

EXECUTIVE SUMMARY

This report corresponds to the external evaluation of the CALAC + Climate and Clean Air Program in Latin American Cities, financed by the Swiss Agency for Development and Cooperation (SDC) and implemented by Swisscontact. The evaluation was carried out during the period from September 12, 2020 to January 15, 2021. The evaluation included the Program's interventions in four capital cities of great relevance for the Latin American region: Lima, Santiago, Bogotá and Mexico City, in which the following three components were focused on for the improvement of air quality in the region and the reduction of black carbon emissions as a short-lived climate pollutant:

1. ***Soot-free and low carbon emissions buses***
2. ***Public policy incubator for off-road machinery***
3. ***Global network of knowledge management***

The evaluation methodology was carried out in four sequential activities. The first consisted of the preparation of the project work plan, the integration of the database and the analysis of information generated by the CALAC + Program in its Phase 1 and the protocol of interviews to be carried out with the relevant participants in the project. The second included the evaluation questionnaire that was used in the interviews with the main participants involved in the program, both the CALAC + team and the officials of the national counterparts of each of the target cities. In a third activity, the documentation and evidence of results and impacts of the program were monitored, as well as the evaluation of interventions in each city through the evaluation grids. Finally, this final report was compiled, and is complemented with infographics and support presentations for communication based on the findings obtained from the evaluation, highlighting the actions and activities of greatest relevance in the CALAC + Program.

It is important to note that the CALAC + Program began in 2018 and its completion was scheduled for February 2021. However, due to the pandemic caused by the SARS-CoV-2 virus, some scheduled activities had to be canceled, postponed or adapted, so at the time of the evaluation of results, the SDC is still reviewing the extension of the first phase of the CALAC + Program to extend it until July 2021. Depending on the results of this evaluation, it is considered an extension will allow the completion of the first phase of CALAC + in the course of 2021. In this way, this current evaluation may be refined after considering the results that can be achieved with the extension of the program. In this regard, it is considered that the weightings presented on effectiveness and efficiency can improve, if the extension of the first phase is approved.

The methodology used for the external evaluation of CALA + was carried out based on OECD performance criteria that include the following headings: effectiveness, efficiency, relevance, coherence, impact, sustainability, and as an added value the gender approach. The main results obtained in each case are listed below:

Efficiency

1. According to the exercise of resources reported up to the first semester of 2020, a general sub-exercise was presented, leaving 43.87% of the remaining budget to be used. It should be noted that the exercise of assigned resources cannot be conclusively evaluated because the extension of the current phase to the first half of 2021 will be crucial to exercise a large part of the remaining budget to be used.

2. Derived from the fact that the contribution of the program is mainly aimed at strengthening decision-making with technical support and supporting the generation of public policy guidelines in each country, cost-benefit analysis becomes a fundamental tool in this regard. The CALAC + team has developed indicators that reflect scenarios for reducing CO2 and black carbon emissions that may contribute to properly estimate and document the climate and public health benefits in the programs to be implemented by 2025 and 2030. The application of tools promoted by the program will allow greater clarity in the cost-benefit calculation and support the strategic decisions necessary for the full implementation of the emission reduction programs, even with a consistent and comparable estimate of the Net Present Value (NPV) of the programs reduction of emissions. Based on the economic estimates that support the current decontamination programs supported by CALAC +, the NPV of the combined interventions of the four cities exceeds 20 billion dollars, which reflects the magnitude and importance of the measures proposed for the reduction of emissions in off-road vehicles and machinery and the high social profitability that its implementation represents.

3. Th e tools for the analysis of the Economic and Environmental Impact of the Migration towards Emission Standards for Off Road Machinery (HEMAQ), and for the analysis of the Economic and Environmental Impact associated with the Migration towards Euro VI Emission Standards, Electric Vehicles and CALAC + Vehicle Labeling (HETRANS), generate relevant data for cost-benefit analysis, leading to correct decision-making.

Efficacy

4. Peru reports considerable benefits presenting significant progress in the introduction of new topics and capacity development, therefore, the continuity of CALAC + is essential to develop public policies both on migration to Euro VI buses and off machinery.

5. At the time of the evaluation, in Chile some of the activities were still in the final stages of development, and some others were postponed; however, the counterpart stated that it was satisfied with the technical support provided. Chile has been crucial as a generator and provider of information and experiences to the other target countries through the activities of the component of the Global Knowledge Management Network.

6. Colombia presents lags in activities and products proposed by the program, however, it has benefited predominantly from the actions carried out around the Incubator component of urban policies for off road machinery, which will be contemplated in the new national regulation of mobile sources.

7. Mexico presents a considerable lag in the activities and expected products, which was present even before the COVID-19 pandemic. However, the activities of the soot-free and low-carbon bus component carried out in 2019 considerably increased the technical capabilities of the administrative and technical staff of Mexico City. The activities proposed by the program for 2020 were not attractive for the local government due to lack of budget for their execution, therefore, in the future, this factor should take into consideration in Mexico City.

8. The evaluation presented cannot be considered conclusive, since there are still activities and products to be completed. Due to the different contexts that each target city presents, the results obtained in this evaluation are very varied, since they are specific activities and products based on the public agendas of local governments.

Pertinence

9. The focus of the program on actions that achieve the reduction of PMX, black carbon and GHG emissions is considered adequate because they are aligned with the national policies of the target countries. As these are countries that have different national contexts, in some cases there were disagreements in technical approaches to address the different issues, which could be resolved during the program implementation stage.

Coherence

10. For all the countries, the actions of the program were coherent with respect to the context presented by each target city, this was because the CALAC + Program has been adequately aligned with the guidelines established by each of the cities in terms of reducing emissions.

11. The internal coherence of the actions of the CALAC + Program with respect to the measures and actions established by the SDC regarding emissions is satisfactory, therefore, the continuity of the program in a Second Phase is appropriate.

12. The external coherence of CALAC + with respect to other interventions presented problems of duplication of efforts in some cases but these were corrected as there was an increase in the interaction of CALAC + with the other initiatives involved in reducing emissions.

Impact

13. The impact of the program for each of the target cities has been variable and for now limited, mainly due to specific activities and products pending completion, In addition, the impact of some activities carried out will be reflected in the medium or long term such as the development of new regulations from which the products made by CALAC + will serve as the basis.

14. There are products prepared by the program that have a great capacity to generate impact, among which the inventories and methodological guides for off-road machinery, tools for cost-benefit analysis and health impacts stand out. Likewise, the activities carried out to strengthen capacities result in impacts that indirectly influence the improvement of air quality in the region. Taking into account the training, documents, information and data generated from the possible development of public policies appropriate to the reality of each country, it is considered, the impact will be reflected in the medium term and will be directly proportional to the involvement of CALAC + in said processes.

Sustainability

15. The sustainability of the actions in favor of reducing PMX, black carbon and GHG emissions is ensured due to the interest in the continued improvement of air quality of the national counterparts because it is part of the public agendas of the target countries.

16. A major challenge for the sustainability of actions to improve air quality in the target cities is dependent upon access to financial resources; it will always be useful and necessary to manage additional financial support to facilitate the actions of local governments in the matter of air quality.

Gender Equity

17. The implementers of CALAC + have recognized that a specific gender perspective has not been integrated that is manifested in the activities of the CALAC + Program intervention with respect to all components. They highlight that the capacity-building activities related to component 3 used criteria of equal opportunities.

18. It is relevant to contribute to breaking certain cultural patterns that have maintained a differential valuation between female and male gender, and even discrimination or subordination because of identity, this can be done through implementing processes that guarantee the adoption of the approach of gender at the level of organizational culture.

19. It is suggested to strengthen the capacities within the implementing team to integrate this approach as a concept and practice within the regular and transversal work of the intervention.

Recommendations

20. It is necessary to provide all facilities for the successful completion of the first phase of CALAC +, in order to apply the resources and capacities necessary to achieve the objectives projected by the program. The extension of phase one until July 2021 will allow the completion of activities postponed due to the pandemic, but which are still relevant. This will also permit a deeper impact of the program in the four cities and countries, especially in relation to the exchange of technical experience and capacity development.

21. To maintain high levels of relevance and coherence of the program's actions with respect to local governments, it is necessary to align future activities with the national and / or city Decontamination Plans to avoid discordant approaches between CALAC + and the national counterparts. It is relevant to continue with the process of programming activities within the framework of the implementation plans and adjust the agendas to the political situation of each country in order to streamline and articulate them with the greatest coherence and sustainability to the official programs of national and local agencies who are responsible for the implementation of emission reduction measures.

22. Due to the fact that regulatory changes in Latin America are processes that take more than one or two years, even after they are technically well supported, it is pertinent to have interventions with a greater length of time to be able to demonstrate the final impact of the actions carried out by the program, in conjunction with national counterparts. The logical framework and roadmap methodologies have shown their usefulness to specify the annual programs at the regional and local level, so they can be updated and even formalized under the memorandums of understanding to agreements that must be signed with institutional participants in each city. In this regard, the governance model of the program may be updated to establish binding agendas with the national counterparts of each country, derived from the plans approved by the steering committee.

23. Regarding the component of the global knowledge management network, it is suggested to advance in the search for synergies with other cooperations, institutions, ministries, and even with the private sector. This being in order to design joint work agendas when conditions allow it. In this way, the stages of planning activities and identifying needs will be optimized. In this context, the current and future collaboration with the Climate and Clean Air Coalition (CCAC) stands out, with which there are already links and tools of common use that should be strengthened for the benefit of a larger community of cities and countries interested in the issues addressed by CALAC +.

24. For a second phase of CALAC + it is important to incorporate other cities of the target countries into the program without departing from the approaches already addressed, considering five general aspects: perseverance and maintainance, alliance, publicizing, replication, zero emissions and urban transition / energetic.

25. For a second phase of CALAC +, in terms of agreements and conventions with national counterparts to establish a more dynamic collaborative scheme between the program and counterparts, it is recommended to establish simplified mechanisms to formalize collaboration, based on the experience obtained in the interactions of the first phase of CALAC +. In order to expedite these agreements, the participation of the coordinators by country will be essential to facilitate the management of the processes by attending to requirements and reaching the final approval of the agreements.

1. PROJECT SUMMARY AND BACKGROUND

The Climate and Clean Air Program in Latin American Cities (CALAC +) pursues the vision of healthier and more sustainable cities that promote and implement measures to reduce emissions of short-lived climate pollutants (such as black carbon), atmospheric gases, and greenhouse gases (GHG), by promoting the use of soot-free and low-carbon urban buses and off-road machinery. CALAC+ began activities in March 2018 and plans to continue in operation until July 2021, it plans to contribute to four of the seventeen United Nations Sustainable Development Goals (SDC) through its activities: Health, Clean Energy, Sustainable Cities and Climate Action.

For the Swiss Agency for Development and Cooperation (COSUDE), the work of CALAC+ means continuing a long history in the region, with interventions in Bogotá and Santiago de Chile between 2012-2015, helping to improve air quality and fight against climate change, as well as being able to share the Swiss experience in developing innovative solutions and implementing successful public policies. The three components of the CALAC+ Program are the following:

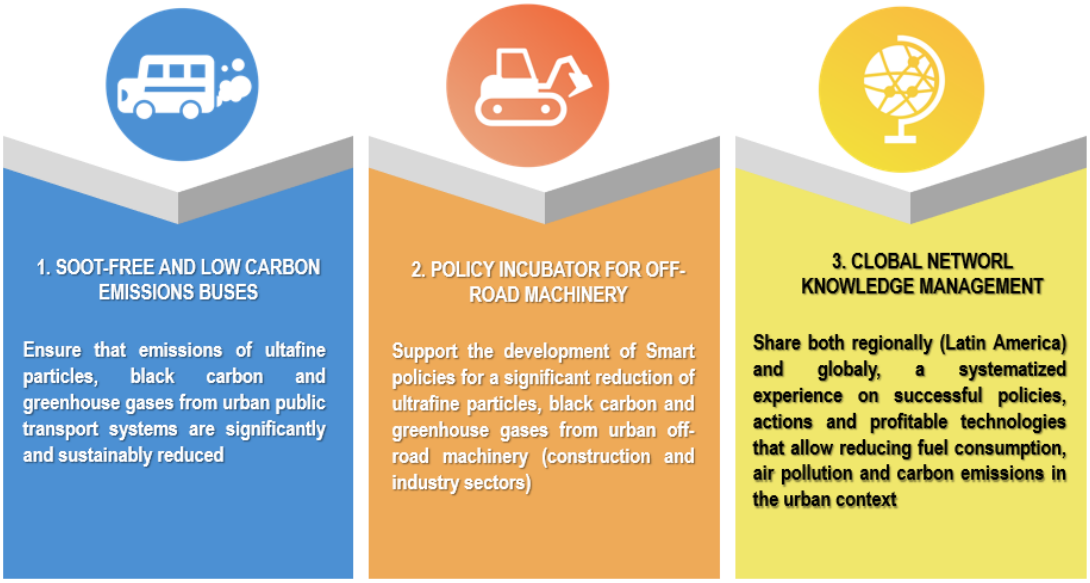

Chart 1.- Summary of the components of the CALAC+ Program

The evaluation was carried out according to the evaluation criteria of the OECD and the DAC, which are the following: efficiency, effectiveness, coherence, impact, relevance, sustainability and as an added value gender equity.

2. OBJECTIVES

The evaluation of the CALAC + Program has the following objectives:

- Evaluate the Climate and Clean Air Program in Latin American Cities (CALAC +), through the methodology of the Organization for Economic Cooperation and Development (OECD) and the Development Assistance Committee (DAC), which is based on the criteria of effectiveness, efficiency, coherence, relevance, impact, sustainability, and a gender perspective.

- Establish the viability and relevance of starting a Phase 2 of the program, either generally or specifically for one or more countries of the program, according to the results obtained from the documentary analysis, interviews, and follow-up results.

3. PROGRAM EFFICIENCY

3.1 Use of the Program's financial resources.

The evaluation of the use of resources is focused on the management of the resources destined for the CALAC + Program per semester, with which there is a broad financial panorama of the allocation and execution of these resources, which allows knowledge of their (resources) administration. The financial planning and execution is reflected through documents titled "Service Oriented Remuneration (SOR)" and the "Semiannual Financial Reports".

According to the financial planning carried out, an amount of **CHF 2,365,000.00** was assigned to the program for the period from March 2018 to December 2020. After consideration, these financial resources were distributed in the following areas:

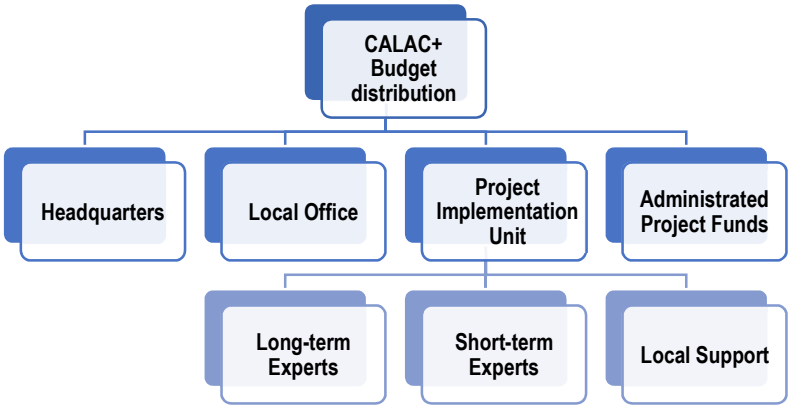

Chart 2.- Financial distribution items of the CALAC+ Program

3.2 Cost-benefit of the CALAC+ Program

The CALAC + program has given rise to various interventions whose specific benefits underlie the implementation of programs and actions to reduce emissions of particles from mobile sources. The program's contribution is mainly aimed at strengthening informed decision-making and supporting the generation of public policy guidelines in each country. For this reason, a cost-benefit analysis for the exclusive impacts of the CALAC + Program is not evident, but rather its collaboration to understand the environmental and social implications of public investment in pollution reduction actions.

As mentioned in the previous section, the project currently presents some lags in field activities due to the COVID-19 pandemic, which makes it difficult to recognize the objectives and final results of phase 1. Even so, the collaboration provided by the program in the preparation of policies and actions stands out, as well as in making decisions related to the reduction of fine particles in both vehicles and off road machinery. In this regard, and according to the attached evaluation grids, it should be noted that unsatisfactory grades can improve as activities and products are completed. Although there are differences in the level of development of the information on costs and benefits between the four participating cities, the program has contributed significantly to having current and systematic data regarding the cost-benefit balance of investments and projects related to particle control of black carbon and GHG, both in mobile sources and off road machinery.

The tools provided, as well as the workshops to manage the use and application of HEMAQ and HETRANS have made it possible to specify the estimation of the reduction of emissions and environmental concentrations, as well as the health benefits that can be achieved in the four cities. In order to provide systematic and comparable information, the CALAC + team has developed indicators that reflect scenarios for reducing CO2 and black carbon emissions as detailed in table 3, which may serve to better estimate climate benefits and public health in the programs to be implemented by 2025 and 2030. There are still significant uncertainties, especially in the off-road machinery data, but with the progressive application of tools such as HEMAQ and HETRANS, relevant data can be specified for decision-making and provide better meaning and

support for cost-benefit analysis and consequent decisions. In other words, the application of these tools will allow greater clarity in the cost-benefit calculation and support the strategic decisions necessary for the full implementation of the emission reduction programs, even with a consistent and comparable estimate of the Net Present Value (NPV) of emission reduction programs. As detailed below, the NPV is an ex ante economic estimate, required for the proper planning and programming of public investment associated with the decontamination programs of the 4 cities, so it is key to systematically and consistently reflect the potential benefits in health and climate. If the NPV estimates of the four cities are added, the net value of the programs promoted by CALAC + exceeds 20 billion dollars, which reflects the magnitude and importance of the measures proposed for the reduction of emissions and the high social profitability A representing your implementation.

Table 1.- Emission reduction projections based on HEMAQ and HETRANS tools

City	Year	Reduction of emissions from buses		Reduction of emissions from off-road machinery	
		CO_2 [ton]	Black Carbon [ton]	CO_2 [ton]	Black Carbon [ton]
Santiago	2025	5.094.983	132,9	3940	20,9
	2030	13.616.454	307,5	N/A*	N/A*
Bogotá	2025	91.793	21,9	2.566	69
	2030	612.147	89,8	7.369	180
Lima-Callao	2025	376.743	130	365	18
	2030	2.360.733	564	15.227	276
México	2025	1,499,641	51.2	N/A**	N/A**
	2030	2,736,130	113.3	N/A**	N/A**

**The 2030 projection was not made in the case of Santiago.*
***There is no data for off-road machinery in the case of Mexico because its inventory has not yet been completed.*

Given the cooperative application of tools and development of the participating community in the knowledge management network, concrete benefits can be expected from having current and systematic information for decision-making. Among the changes that the pandemic has forced us to adopt, one that stands out is a greater participation and use of digital tools, enabling managerial knowledge that will offer multiple benefits to the target group who are public policy decision makers, as well as to other audiences. The attributions and capacities of the knowledge management network may be increased, in such a way that its efforts cease to be predominantly focused on accompanying events to become a network to support air quality management in the target cities and even with the ability to easily expand to other cities that can also benefit from the CALAC + Program.

Below is the status of emission reduction expectations for each of the countries:

- **Peru**

In the case of Lima-Callao, there is a prospective analysis similar to the one carried out for the Decontamination Plan of Santiago, with respect to an upcoming implementation period of 10 years, beginning in 2021 and ending in 2030 (CALAC+, 2020). The costs and benefits estimates correspond to the incremental technological improvements of moving from a Euro 4 / IV standard to a Euro 6 / VI standard. In addition to direct costs, the analysis also considers greater efficiencies in the use of fuels. These are quantified in terms of volume of fuel saved and are valued according to fuel prices in Peru. The benefits of the introduction of the Euro 6 / VI regulation could reach US $ 4.263 million in present value, while the costs would reach US $ 1.291 million. The NPV of the regulation would be $ 2,973 million, with a benefit-cost ratio of 3.3 (CALAC+, 2020). In addition, in relation to the distribution of the costs-benefits according to the agent, it is observed that the issuers are those that absorb most of the costs (91%), while they receive only 17% of the benefits. In contrast, the general population does not absorb the costs, but receives 83% of the benefits, largely due to averted premature mortality.

- **Chile**

According to the PPDA Decontamination Plan of Santiago de Chile that came into force on November 24, 2017, it is established that the net benefits in present value at 10 years are estimated at 6,965 million USD with a cost-benefit ratio of

8 (see section I.8. Costs and benefits of the PPDA) consider the measures related to the reduction of PM2.5 emissions. The considered benefits include the reduction of mortality cases; reduction of effects on human health with the consequent decrease in health costs; and reductions in fuel consumption mainly for the transportation sector. The valued benefits are estimated at USD 7,977 million for an evaluation projection of 10 years, mainly attributable to the transportation sector (61%). The valued costs are estimated at 1,013 million USD, for a projection of 10 years attributable, as well as in the benefits, to the transportation (92%) and industrial (7%) sectors (Ministerio del Ambiente, 2017). With the current intervention of CALAC + and the tools provided, it will be possible to more precisely estimate the benefits achieved from the measures carried out (Ministerio del Medio Ambiente, 2017).

- **Colombia**

The official cost benefit estimates for Bogotá correspond to the estimates made as part of the Ten-Year Air Decontamination Plan in 2011. The following table (Table 4) sets out the optimized measures that were included in the plan. Among these measures, those related to mobile sources were mainly oriented to the implementation of emission reduction systems in buses, freight transport and motorcycles. The measures proposed at the time for mobile sources are aligned with the global objective of the CALAC + Program for low-emission buses and off-road machinery.

Table 2.- Optimal portfolio of plan measures (Secretaría Distrital de Ambiente, 2010)

Measure	Sector	Project	Mode	Description
1	Industrial	Use of emission control systems	2	Installation of emission control systems in the most cost-effective way possible without weighting by type of industrial category.
2	Industrial	Coal to natural gas conversion formalization	5	Technological transformation for 100% of the sources that currently use coal so that they use natural gas. This in combination with the formalization of 50% of the industries that are outside the formal sector.
3	Transport	Use of emission control systems in cargo transport vehicles	1	Install oxidative catalyst in all cargo vehicles that circulate in Bogotá. This requirement will also apply to new vehicles entering the park.
4	Transport	Use of emission control systems on motorcycles	4	Install oxidative catalyst and secondary air injection systems on motorcycles under 250 c.c. This requirement will also apply to new vehicles entering the park.
5A	Transport (SITP)	Implementation of the integrated public transport system	-	Implement the SITP with its continuous fleet renewal and scrapping program.
5B	Transport (SITP)	Use of emission control systems in feeders entering the SITP	3	Installation of particle filters in the buses and vans that will become part of the fleet.

The impact of the optimal portfolio of measures to reduce particulate emissions is estimated to be 45% by 2020. The cost of implementing this portfolio was estimated at 1.6 billion Colombian pesos (at NPV of 2009). These measures would allow health benefits for 15 billion Colombian pesos (considering a variable discount rate and decreasing in time from 4.38 - 3.49 for a period of 10 years) (Secretaría Distrital de Ambiente, 2009). According to these figures, the documented cost benefit balance for the plan was a ratio equal to 9.4. Monitoring of the measures shows a limited implementation. A new 10-year plan is currently being reformulated.

- **Mexico**

In the case of Mexico City, there is no information disaggregated by measure, since implementation has been progressive at different times and partially documented by agencies such as INECC and SEDEMA. For example, based on the study entitled 'Historical analysis of the health benefits of the population associated with air quality in Mexico City between 1990 and 2015', a cost-effectiveness estimate of the implementation of retrofit measures in CDMX for public transport buses and heavy-duty trucks that in combination represent more than 68% percent of diesel consumption in the city (Secretaría de Medio Ambiente de la Ciudad de México, 2018).

The estimated intervention consists of the implementation of DPF systems both in 4 thousand buses licensed with a local license plate and for the approximately 16 thousand tractors with a federal license plate. The fully implemented strategy to modernize via retrofit of both vehicle parks would represent net benefits of more than $ 150 million dollars per year. The expected health benefits are of the order of 250 million dollars per year. Expected annual costs would be less than $ 93 million per year, consisting of $ 61 million in "amortization" of the capital cost of retrofit devices; $ 19 million in annual maintenance costs; and $ 11 million for increases in fuel use. So far no such retrofit program has been carried out, although the CDMX emission reduction plan for the current administration considers some actions such as the replacement of 200 public transport units.

The CALAC + Program has also provided support to other interventions such as cable cars and others that have been interspersed with the inspection of diesel vehicles that was postponed for administrative reasons. There are still no studies documenting cost-benefit estimates of these more recent interventions.

4. EVALUATION OF COMPONENT 1: SOOT-FREE AND LOW-CARBON EMISSIONS BUSES

Component 1 of the program yielded mixed results, due to the different realities of each of the countries. On the one hand, Chile has highly trained local people with more ambitious objectives than the rest of the countries and therefore with higher expectations of the program. The local participants in Peru, Colombia and Mexico have less experience, and thus were satisfied with the activities of the CALAC + Program.

An initial factor of great relevance resided in the performance and interaction of the country coordinators with the national people and program participants, who acted as promoters of component 1.

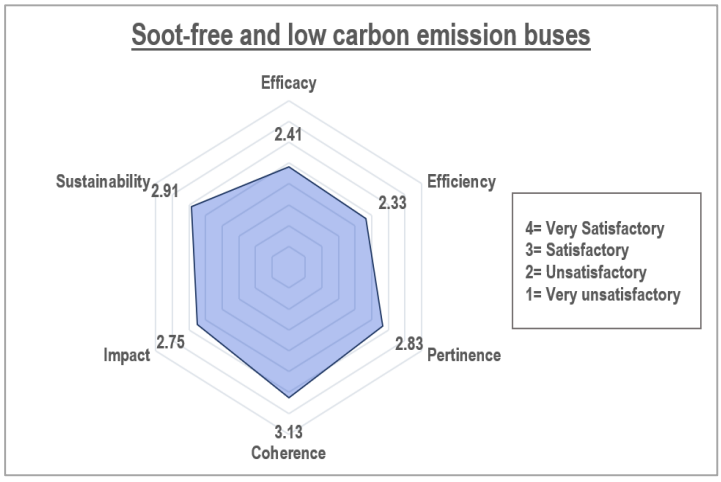

Chart 3.- Graphical representation of the evaluation of component 1 of CALAC+

4.1 Pertinence of Component 1 of the CALAC+ Program

In Peru the pertinence of the program is denoted by encouraging the transition from Euro IV to Euro VI buses, as well as by the drive to take the first steps in electromobility; likewise, the support for the implementation of decrees that reduce the antiquity of goods allowed to enter the country and the establishment of measures that promote the use of non-motorized transport in conjunction with the national counterparts, being the Ministry of the Environment and the Ministry of Transport and Communications.

In the case of Chile, some of the initial activities that were proposed were not considered technically adequate by the counterparts at the time, therefore, some fundamental technical elements had to be redefined. There were unforeseen events associated with planning, causing some delays in implementation. The CALAC + Program presented some difficulties in identifying activities based on the needs of the target group; For example, two different topics are addressed

(electromobility and particle measurement) that do not allow the execution of complementary activities, both with a wide spectrum of action dispersing resources and scope. In this regard, it should be remembered that it is CALAC's second intervention in Chile and the signals from the government about its mitigation actions are already documented in the Decontamination Plan and its measures. There is a positive reaction to join the synergy with the Ministry of Energy but it is urged to improve the planned search for collaborations aimed at controlling emissions in buses.

On the other hand, in Colombia the objectives of the intervention were aligned with the priorities of the target group, especially since for the national counterparts, the management of emissions from heavy vehicles (buses and trucks) has been a priority on the environmental agenda. Likewise, the performance of the country coordinator and the bus component coordinator have kept their activities aligned based on the needs raised by the Ministry of the Environment, the Ministry of Transportation and the District Secretary of the Environment of Bogotá.

Regarding Mexico, the general objective of the program to reduce the emissions generated by the buses of the CDMX public transport was relevant both because of its importance from the point of view of air pollution and its effects on public health and also from the perspective of the impact of black carbon on the climate. The training activities related to the retrofit with DPF and the maintenance protocol were key according to the Secretariat of the Environment of Mexico City, the Secretariat of Mobility and the Passenger Transport Network (Red de Transported de Pajero's, RTP).

4.2 Coherence of Component 1 of the CALAC+ Program

Regarding Peru, the program demonstrated coherence in relation to the public policies implemented in the area of transport in Lima, both at the institutional level and in technical aspects related to scrapping and the use of NGV, while the conditions for the introduction of Euro VI vehicles are met. It was also observed that the selection of activities is consistent both with the objectives of the program at the regional level and with what Peru requires in terms of air quality.

The CALAC + Program in Chile ensured that all measures and actions address the same objective: the reduction of CO2 and soot emissions in passenger transport. However, there are other initiatives and / or groups strongly addressing the issue of electro-mobility in the country, including the private sector. Despite having recognized such groups, during the intervention a duplication of efforts was identified with other ministries. Fortunately, this was subsequently resolved. Although the contribution for the possible design of public policy is recognized, the associated products do not have results with regulatory impact to date.

The coherence of cooperative support in Colombia is evident through other interventions financed by the COSUDE, such as the formulation of the Pollution Prevention, Reduction and Control Plan for the city of Cúcuta and its metropolitan area. In Colombia there are other cooperative programs supporting the issues of emissions from mobile sources. The Ministry of Environment has been defining the strategic space for each program's participation. Several of these supports have a greater focus on climate change and short-lived pollutants. In this sense, support such as the CALAC + Program greatly complements its focus on urban air quality.

For Mexico, it was determined that the objectives set are very consistent with the target group's lines of work, focused on improving emissions from the buses that make up the Mexico City transportation network. Likewise, the interest shown and participation of representatives of the Government of Jalisco in the actions of CALAC + stands out. It is also important to point out that there is the Federal Support Program for Mass Transportation (PROTRAM) that has 43 projects in the portfolio, 27 in preparation, 8 under construction and 8 implemented, with which no interaction has been made during the duration of the program until now. Therefore, there is an opportunity to synchronize with the CALAC + Program.

4.3 Efficacy of Component 1 of the CALAC+ Program +

In the case of Peru, effectiveness is represented by the benefits that the program has had in the development of public policies for the incorporation of soot-free and low-carbon vehicles, although there is still a long way to go. The steps taken so far, are laying the foundations to give it the required sustainability, which is strengthened by the transfer of knowledge to Peruvian specialists and the exchange of experiences with countries in the region that are more advanced in these issues, that allows continuity in the right direction.

In **Chile**, the objectives in terms of products and activities may be fully achieved during the time stipulated for this intervention if the extension of the program is approved, since the activities are currently 95% complete. Chile has successfully contributed to the transfer of capacities in the region and the local counterpart also shows an increase in capacities. However, there were some unforeseen events associated with planning, causing delays in implementation, the projects began between the second half and the end of 2019. Likewise, an additional and different approach is required for

Chile with the enhancement of technical assistance that comes from experts or experiences in topics that are new to Chile and Latin America, such as the implementation of the Euro VI / 6 regulation.

The program in Colombia generated a roadmap for this component that reflects adequate planning; however, intervention strategies could be more effective. There are still products and activities that have not been achieved for three main reasons: 1) the intervention planning cycle, leaving more to the final field work, experimental and pilot tests; 2) local times and processes of the counterpart authorities; and 3) the COVID-19 pandemic situation. Through the extension of the program to 2021, the missing products and activities can be mostly or totally covered.

In the case of Mexico, the evaluation indicates that the best results of this component took place in 2019, when the "Training in Retrofit with DPF in Buses and the Preparation of a Protocol for the Maintenance of the Bus Fleet with Retrofit of DPF", were highly praised by SEDEMA, SEMOVI and RTP.

On the other hand, the activities scheduled for 2020, Electric Mobility and Fleet Control and Monitoring with DPF, were not feasible at the time, due to the fact that SEMOVI did not have the financial resources to allocate to specific items related to electro-mobility. Likewise, it was considered pertinent to wait for the results and experiences of the other cities in the program, Santiago, Bogotá and Lima, in order to make decisions later in this regard. It is important to point out that the current administration is under a severe austerity policy, which was exacerbated by the COVID19 pandemic. It is also essential to emphasize that SEMOVI has actively participated and followed up on the different events and experiences related to the issue of electromobility carried out by other countries of the CALAC + program and is currently conducting tests in the RTP with an electric bus.

4.4 Impact of Component 1 of the CALAC+ Program

Undoubtedly, in Peru, the program has had an important impact on the design of public policies in the field of transport, in strengthening the capacities of national specialists regarding Euro VI technology, as well as the results of the cost-benefit study with its benefits in health. The program, by not imposing an agenda, but rather focusing on capacity building and knowledge transfer, will give decision-makers the tools that allow them to regulate in the future, thus facilitating coordination between the MTC and MINAM, the private sector and the general public.

In Chile at the date of this evaluation, the studies proposed by the CALAC + program are in the last stage of review, therefore the impact of the application of measures to reduce emissions cannot yet be evaluated. Even when the contribution of the projects is recognized, it should be noted that the electro-mobility approach is at its peak and is being addressed by many groups. The results of the products contribute to timely decision-making and their contribution to the design of public policy; however, this does not translate into a regulatory instrument. The support in the implementation of the Euro VI standard stands out, which will enable the regulatory design with a high applicability for emission control and the creation of regulatory parameters once the studies are completed during the approval of an extension of the program.

Preliminarily, for Colombia the main impact on this component (in line with the nature of the program) is that inputs have been generated for the development of public policy in the country such as, the development of the technical concept of the emission reduction proposal for mobile sources. Another activity in process and with a high potential for impact is the vehicle labeling proposal in the country. Colombia has benefitted a lot in terms of learning from other countries. The Chilean case for Colombia has been truly relevant because it has provided experiences based on lessons learned. The group of experts in nanoparticles has stood out as an activity with a transversal impact on the activities of the program and Colombia has played an important role in the process.

For Mexico, the impact of activities related to DPF is considered positive, however, to date their scope is limited, according to local participants from different government entities, who reported that the CALAC + program has played a decisive role in the topic of reducing soot emissions. Similarly, it has had a favorable impact in the training of technical personnel involved in the operation of the buses. In contrast, the activities related to electric buses and the study of control and inspection of the fleet with DPF had a null impact because they were not supported by their counterparts.

4.5 Sustainability of Component 1 of the CALAC+ Program

As the strengthening of capacities and the transfer of knowledge carried out by the program to the decision-makers is successful and the government of Peru continues to support transport policies low in emissions of black carbon and other pollutants, and collaboration will continue In the introduction of emission standards based on nanoparticle counts and those related to electro-mobility, the sustainability of a project with these characteristics can be ensured. Despite the fact that there is always the risk that the participants will change, having a Steering Committee and a Monitoring Committee, in some

way contributes to the continuity of the actions taken with the current government, despite not having an agreement specifically signed for this component.

In Chile, the authorities are well disposed to discuss new collaborations, however, it should be remembered that the selected measures are in the Decontamination Plan and must be fulfilled by decree. The technical capacity is high within the Ministries, so they have no problems in continuing to achieve the activities, however, when new issues are addressed, for Chile, the grounding of the activities requires greater technical experience to align with specific measures. In order not to fall into technical errors and create delays in the materialization of the Decontamination Plan measures, it is important to make sure that firm steps are taken with effective planning that recognizes the specific points of the cooperation provided by SDC, although the activities may be delayed due to the burden of the public agendas with which they must coordinate.

Recent advances in air quality policy in Colombia (CONPES Calidad del Aire, National Air Quality Strategy) have paved the way for vehicle emissions issues to remain on the public agenda once the CALAC + Program ends. The program has been strategic in involving local (territorial) and national counterparts. Due to the characteristics of the environmental sector in Colombia and the limited resources for its management, it will always be useful and necessary to manage additional financial support to facilitate the continuation of the processes. The multilateral development bank and cooperation agencies will continue to play an important role in this regard.

POLICY INCUBATOR FOR OFF-ROAD MACHINERY

In the case of Mexico, based on the interviews with the key participants, it is concluded that the activities related to the DPF may be strengthened due to the target group's great interest in the subject. However, the financial resources of the counterparts are rare. Favorable public policy decisions have been made related to the general objectives of the program; the counterparts mentioned the lack, or very slow progress, of regulations and norms on the matter. In order to increase sustainability, it is necessary to encourage financial schemes so that in the medium and long term, economic resources are not a limitation for the development of activities in Mexico City.

5. EVALUATION OF COMPONENT 2: POLICY INCUBATOR FOR OFF-ROAD MACHINERY

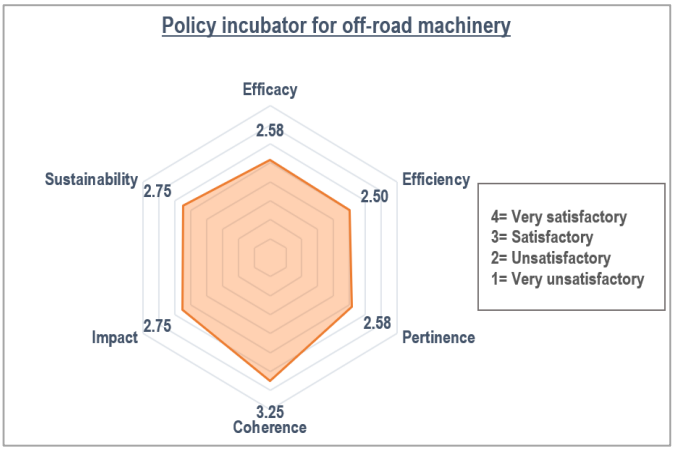

Chart 4.- Graphical representation of the evaluation of the component 2 of CALAC+

Component 2 for the case of all the countries involved was of great relevance to put on the table and expose the problem of emissions generated by off-road machinery, which in many cases has been omitted when preparing emissions standards.

Due to the lack of a regulatory framework in most of the target countries for off-road machinery, the program requires close monitoring of the creation, improvement and / or evolution of the legal and regulatory framework of the countries involved, making a milestone in the Latin American region and thereby generating a relevant impact in terms of improving air quality in the region.

5.1 Pertinence of Component 2 of the CALAC+ Program

Peru needs to strengthen its institutional and regulatory framework in the control of sources of emission of atmospheric pollutants and gases that produce greenhouse effect (GHG), including black carbon. Therefore, the design of public policies aimed at knowing the dimension of the off-road machinery problem is highly relevant through a diagnosis supported by an emissions inventory and the development of a regulatory framework on this line of action. The activities of the CALAC + Program are relevant because they have put an issue on the table that had not previously been discussed or thought about in Peru, and thus has made it possible to visualize the knowledge gap that existed in order to regulate emissions from off-road machinery.

In Chile, no cooperative or institution -beyond the ministries- is addressing solutions to attack this source of pollution (off-road machinery), in the construction sector, a fact that is recognized as an achievement of the CALAC + Program by highlighting an issue in the country which has an implication on public health. Although a clear objective was addressed some areas of opportunity are highlighted for the design of the package of activities, such as the identification of the participants in the different stages and mainly the inclusion of experts who can accompany the implementation when they face " new" issues in Latin America, even from the design of the project components. Finally, the forthcoming entry into force of the Tier 4 regulation in 2022, which already includes the requirement of the filter in diesel engines from the factory, could limit the impact of the activities of this component. With the introduction of the new regulations, the retrofit is now only justified in limited sectors, since replacement could be more feasible. It is necessary to improve the evaluation of the relevance of activities so that these aspects are visualized in the planning. This regulation was announced in 2017 in the Decontamination Plan.

For Colombia, the actions of the CALAC + Program have been relevant since it has made off-road machinery visible on the public agenda related to emissions and air quality. Off road machinery in Colombia did not have a clear responsibility from the institutional point of view, despite its impact on emissions and on the quality of the air that the population breathes. The design of the interventions is supported by the roadmap for this component. This plan clearly recognizes the development of normative instruments on this issue as one of the stages, reflecting that the needs of the target group are understood.

In Mexico, the objective of component 2 turns out to be very pertinent, since the estimation of the type and quantity of pollutants generated by construction machinery is important for the management of air quality in CDMX. However, the results of the intervention do not yet reflect reductions in black smoke emissions from construction machinery operating in Mexico City. On the other hand, the control of emissions from construction machinery is not among the priorities of the target group. The CALAC + Program is however, inducing certain achievements, such as the short-term requirement that a certain percentage of the equipment used in city construction sites are equipped with DPF filters.

5.2 Coherence of Component 2 of the CALAC+ Program

The program in Peru has made it possible to give coherence to the development of a strategy aimed at strengthening actions to reduce emissions for offroad machinery by improving capacities and transferring knowledge to officials and technicians in terms of cost-benefit analysis and in the preparation of emissions inventories and the existing fleet. The program has shown consistency between the objective of the program at a regional level and what was achieved for the city of Lima-Per. This has been, due to the technical support received when dealing with external groups (companies or private sector) in order to reduce resistance to the application of this regulation for this line of action in the future.

In Chile, the intervention of this component responds directly to the measures of the Decontamination Plan, which has noticeably clear guidelines on the implementation of measures associated with this source. It was detected that there are no other initiatives addressing this issue in the country, which represents a contribution to the mitigation agenda. It is important to create agreements and synergies with other groups to expand the application of the knowledge acquired in this component to another spectrum of off-road machinery.

In the case of Colombia, there is coherence between what is supported by the SDC in the CALAC + Program and other support that is presented on the subject of air quality in the country (for example, the Plan for the Prevention, Reduction and Control of Air Pollution Air to Cucuta-Region). The CALAC + Program is one of the few external groups focused on this issue. This has allowed for a much more concrete approach.

The importance of emissions from off-road machinery was practically unknown in Mexico, so the CALAC + Program is playing an important role to control black smoke emissions from construction machinery in the medium term, from the integration of an emissions inventory that allows knowing the contribution of this subcategory to the CDMX general

emissions inventory. Once the validated emissions inventory is available, it can be used as a support tool for the development of appropriate local laws and regulations..

5.3 Efficacy of Component 2 of the CALAC+ Program

With the support and interest of the environmental and transport authorities of Peru and the participants of the CALAC + Program, they have developed national capacities for the preparation of fleet inventories and off-road machinery emissions, as well as the use of cost-benefit tools and calculation of emissions, which favors the development of policies and measures aimed at the use of soot-free and low-emission machinery.

This component has antecedents in Chile through the first CALAC intervention concluded in 2015. When addressing new issues for the ministries, unforeseen events arose derived from the lack of technical expertise, therefore, it is recommended to hire a specialist for technical assistance, even for the design of government projects, in order to cover all the necessary activities. The activities associated with the machinery and filters guide are very close to completion, however, the support in the execution of the installation of DPF filters was postponed for completion next year. Chile has successfully contributed in the transfer of capacities in the region and it is recognized that the SDC has contributed to the increase of capacities in this area. However, an additional approach is required for Chile with empowerment through exchange with peer countries in regulatory progress.

The CALAC + Program is recognized in Colombia because it opened the door to the issue of off-road machinery and managed to integrate the groups in this relevant issue, but so far without much work on the emission control and reduction policy agenda. For this component, the country practically started at zero. Technical inputs such as the inventory of emissions from these types of sources have allowed a better understanding of the relevance for the inclusion of off-road machinery among the emission sources to be controlled through the new national standard for mobile sources.

Just as in other countries, in Mexico the importance of this component lies in having put the issue related to emissions from off-road machinery on the target group's worktable. The first objective was to update the emissions inventory, both at the federal and local levels, so that Mexican stakeholders are aware of the order of magnitude of emissions from this sector. The organized training and dissemination events have been particularly useful for various stakeholders.

5.4 Impact of Component 2 of the CALAC+ Program

One of the main impacts of the CALAC + Program in Peru has been to place the issue on the agenda of both environmental and transport authorities, which has allowed foundations to be laid for the development of an emissions inventory and the training of public officials, the private sector and academia, as well as the development of a regulatory framework that favors the reduction of emissions from this transport sector. Having such technical-scientific bases will facilitate coordination between the different ministries to develop an appropriate and realistic regulatory framework.

In Chile, as of the date of this evaluation, most of the studies proposed by the CALAC + Program are in the last stage of review and others have been postponed, so the impact of the applicability of the results and the reduction of emissions are yet to be reflected. If the planned activities are concluded, these would have a high applicability based on the support of the regulations on filter requirements, the choice of the same for the tender and the monitoring of their implementation. Cooperation must ensure that the filter guides in Chile, as shown in complementary studies, serve to broaden the objective and attack other types of off-road machinery not currently contemplated in Chile. It is noted that the forthcoming entry into force of the Tier 4 regulation in 2022, which already includes the filter requirement in diesel engines from the factory, could limit the impact of the activities of this component; With the introduction of the new regulations, the retrofit will only be justified in limited sectors, since substitution could be more feasible for the private sector.

The evaluation of the impact of the interventions of the CALAC + Program in **Colombia** is still premature for two reasons: 1) the nature of the interventions (the impact will be more measurable in the medium and long term and 2) there are still important activities under development and processes that have not yet been completed. In component 2, the activities that have supported the program have had a relevant impact since they have marked a path to continue advancing in the incorporation of these types of sources into Colombian regulations and because it has encouraged the involvement of national and local actors in this process.

In terms of reducing emissions, the impact of this component in the case of Mexico is not relevant; however, once the validated emissions inventory is available, it is expected that due to the magnitude of emissions associated with these sources greater importance is given to its control. The positive impacts identified throughout the evaluation process are

related to capacity building through workshops and webinars related to this component, which are cross-cutting activities with component 3 of the program.

5.5 Sustainability of Component 2 of the CALAC+ Program

Since the environmental and transport authorities of Peru have assumed leading roles in the definition of emission reduction strategies for off-road machinery and personnel are also being trained on the subject, the sustainability of this line of action is secure for the future. The academy is required to become more actively involved in the generation of knowledge to support the design of public policies on air quality and transportation. Having a Steering Committee and a Monitoring Committee, and now wanting to involve the Academy, allows the continuity of the actions taken with the government, despite not having an agreement specifically signed in Peru..

As in component 1, in Chile the authorities are in the best disposition to discuss new collaborations, but it should be remembered that the selected measures are in the Decontamination Plan and must be complied with by decree. The technical capacity is high within the Ministries, so they have no problems in continuing to carry out activities. Specifically, for component 2 it is necessary to have the support of specialists in the field from countries with greater development in the subject when they want to address new issues, both in the legal and regulatory aspect, as well as in technical issues to improve and expedite the improvement and / or creation of effective public policies for off-road machinery.

Colombia must continue working on establishing those responsible for these types of mobile sources. The guides, technical documents and methodologies generated are an important input to facilitate the continuity of the agenda. This is a step to guarantee sustainability over time of the issues addressed in this component and the responsibility of the private sector and unions (builders, for example,) in this process. It is important to involve other stakeholders in the process so that the issue of off-road machinery emissions continues to gain momentum. Empowering the private sector in this process can be one of the strategies to guarantee financial resources to advance the agenda.

Currently in Mexico the inventory of machinery is being prepared. The counterpart has capabilities and is acting proactively, however, the achievement of the objectives depends on other participants at the federal level, to form an efficient regulatory framework. One limitation of CDMX is that the resources available to the counterparts are limited, so maintaining the sustainability of component 2 will require additional financial support.

6. EVALUATION OF COMPONENT 3: GLOBAL NETWORK OF KNOWLEDGE MANAGEMENT

The training activities and the sharing of experiences were successfully achieved, however, a systematic planning of the activities based on specific goals was not found, as happens in the other components, which makes it difficult to trace the activities and therefore carry out a concrete evaluation. Not all the activities of this component are only intervention based, there is high communication content, and this cannot be considered a result / objective of the program, but rather a means to achieve it, since they do not directly influence the reduction of emissions.

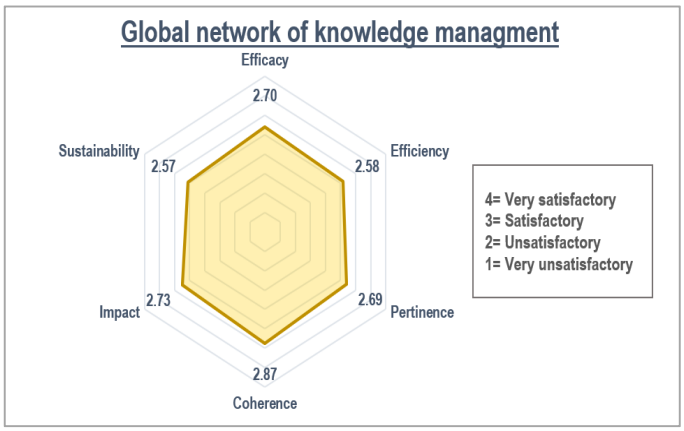

Chart 5.- Graphical representation of the evaluation of the component 3 of CALAC+

6.1 Pertinence of Component 3 of the CALAC+ Program

The activities of this component have been seen as transversal to components 1 and 2 and therefore, the national counterparts consider them pertinent given that they respond to the needs expressed by the national participants and counterparts. However, the dynamics and methodologies are not always those recommended by local groups, who recognize the need for more exchanges and technical visits, and not just workshops or seminars, the groups themselves recognize the great relevance of the visits and exchanges carried out for the exchange of information and knowledge between the participants involved in the program. Of course, due to the current situation, the viability of the activities requested by the counterparts becomes impractical.

The workshops and webinars organized have been of interest to the interviewed participants of the target group. Issues related to the pollution of diesel emissions and their health impacts are important to different sectors of society. The usefulness of the material generated has been recognized as a means to strengthen exposed capacities, in addition to the dissemination of experiences. However, it is recommended to improve the planning and management of such activities to direct them to goals and objectives that allow evaluation of the results.

6.2 Coherence of Component 3 of the CALAC+ Program

All the measures and actions carried out contribute to the control of emissions; however, this component is a complementary contribution and does not have any associated reduction of emissions in the planned activities. The activities of this component accompany the activities of the rest, so it is necessary to improve planning so that the activities coincide chronologically.

The topics taught, workshops, courses and webinars developed were considered consistent with the general objectives of the region by the interviewed participants of the target group, in terms of low-carbon buses, electric buses, DPF, retrofit, and off-road machinery, among others.

There is coherence between what is supported by COSUDE in the CALAC + Program and other pillars that are presented on the subject of air quality for the countries of the intervention.

In this component 3, CALAC + has been strategic interacting with knowledge management and capacity building platforms such as the Climate and Clean Air Coalition, and LEDS LAC. Questions remain about the recognition by national counterparts of these alliances and how they are working.

6.3 Efficacy of Component 3 of the CALAC+ Program

The activities need to be systematized and have an orderly approach for the objectives to be achieved. It is not recommended that dissemination and communication activities be considered a result of an intervention. The activities associated with the strengthening of capacities are substantial, the missions, conferences and workshops for the exchange of experiences are recognized. However, it is unknown to what extent the component meets the objectives, since during the approach there is no defined route, and the activities were modified throughout the intervention.

The methods, initial scope and use of resources for this component were affected by the COVID19 pandemic. Different activities associated with this component were scheduled to be done in person involving travel of experts and delegates from each country. Some of these activities had to be changed and carried out virtually, directly impacting the expected results.

6.4 Impact of Component 3 of the CALAC+ Program

The component developed successful activities, however, it is unknown to what extent the component meets the objectives, since during the approach there was no defined route on the scope and the activities were modified throughout the intervention. Counterparts highlighted the usefulness of capacity building activities, specifically the Latin American Nanoparticle Conference, missions to Switzerland, and the exchange of experiences in Mexico and Chile.

Meetings with different institutions and cooperatives are reported in order to generate alliances with other institutions such as: CCAC, GIZ and ASEAN. However, no systematic strategy was identified in terms of generating a joint line of work, beyond exchanging material already associated with dissemination activities. Among the activities carried out in conjunction with international organizations, the collaborative scheme achieved so far with the CCAC stands out, managing to increase the dissemination of the materials prepared by CALAC + through its incorporation in the official website of the CCAC and carrying out activities together in different events, for example, their collaboration on the theme of COP25.

Despite a balance of the real impact of component 3, it can be assumed that the program, through the webinars, courses, guides and technical documents, has undoubtedly directed actions towards a positive impact in the preparation of technical tables and in supporting the development and / or updating of a more advanced regulatory framework and the formulation of public policies on transportation. However, in the case of Chile, it is necessary to have the support of experts from countries with more experience in the field of DPF, off road machinery, and electro-mobility, among others to improve the capacities of national counterparts.

6.5 Sustainability of Component 3 of the CALAC+ Program

The program's website documents the results of some of the activities and this is part of what is required to continue advancing in the transfer of knowledge related to components 1 and 2. It is still a challenge that the time for the transfer of capacities remains in place since the changes of governments imply changes of people in the public entities that lead these processes, but also because the resources available for these types of activities in the government entities are limited..

It should be noted that certain information generated is delivered in editable format to the national counterparts, this allows the update of data as it is generated in the future. These editable formats facilitate updated information in the medium and long term, and thus, the maxim of the CALAC + Program of the generation of sustainable knowledge is being fulfilled.

7. GENDER EQUITY

It has been pointed out that it is the policy of COSUDE interventions not to discriminate due to any type of physical, social or cultural prejudice, however, the implementers of CALAC + have recognized that a gender perspective has not been integrated that is manifested in the activities of the intervention. It is necessary to contribute to breaking certain cultural patterns that have maintained a differential valuation between female and male gender, and even discrimination or subordination because of identity. It must be ensured that, in the projects and objectives, all the needs and interests of a gender perspective approach are reflected in the design, implementation, monitoring, and evaluation of the intervention. In such a way that the gender approach is held as a guiding principle in the choice of alternatives, the way to implement them and also to evaluate them, for the eradication of gender inequalities that are a reality in the target countries and in Latin America in general.

For example, an immediate action that could be adopted is in the case of the most suitable technical profiles being chosen to carry out the activities or projects. The CALAC + program must ensure that in the selection process the greatest representation of gender identity that may exist in the team is found, all contributing with their opinion and vote in an equitable manner to ensure an impartial decision on the most suitable technical profile. When any study or project is legalized or competed, it must be ensured that criteria are based on a gender equity approach, for example, having at least one expert on the team who is female or one other than male, and give more marks for this fact.

8. CALAC+ SECOND PHASE PERTINENCE ANALYSIS

8.1 Component 1: Soot-free and low carbon emissions buses

The support that COSUDE has provided to Peru through the CALAC + Program, undoubtedly triggered a process of modernization of its vehicle fleet, as well as the updating of its regulatory framework, which added to the capacities acquired by public officials and representatives of the private sector due to the technology and knowledge transfer received, guaranteeing that in the future this process can continue. However, the current conditions of an old vehicle fleet and fuels with high sulfur content, limit the rapid transition to Euro VI technology. Therefore, it is necessary to strengthen the efforts being made, an aspect that fully justifies the implementation of a second phase of the program in Peru.

In Chile, it is recommended to build a conceptual and technical framework that gives precision and clarity to the activities of this component. Two topics are addressed: 1) electro-mobility and 2) support for the implementation of the Euro 6 / VI standard, both with a broad spectrum of action. Without a suitable choice and design of activities there is a risk of dispersing resources. Electro-mobility in Chile is a target issue for many public and private entities. The adoption guidelines are noticeably clear on the part of the authorities that increasingly add participants to accelerate its adoption., Therefore, to continue in this line of work, it is recommended to couple the design of the activities to the projections of the authorities, adding welldirected efforts from the beginning.

The pending electro-mobility in Chile has little to do with the bus technology itself, but rather with accessibility issues to the system, the implementation in other cities and the design conditions for overcrowding in other segments beyond public

transport. The implementation of the Euro 6 / VI regulation in Chile is a relatively new issue in Latin America, so the accompaniment would allow CALAC to generate experience and transfer it to other countries, thus gaining ground on an issue of high relevance to the region, where the technological delay remains a problem for governments. It has many challenges ranging from addressing fuel quality to monitoring emissions in real driving conditions, in addition to the laboratory conditions. In any case, it is essential to first obtain the vision that the authorities have about its implementation in the country.

For Colombia, in a next phase of the CALAC + program for component 1, it is pertinent to facilitate the participation of other Colombian cities that have been working to reduce emissions from diesel vehicles. Medellín and the metropolitan area of Valle de Aburra, Cali, and Barranquilla, are examples where the public transport managing body has already started control and inspection programs, and autonomous fleet renewal accompanied by the national government. In these cities it is essential to have the not only the local government as counterparts, but also the managing entities that operate mass transport.

In the case of Mexico, the public health problems associated with the soot emissions generated by public transport buses in CDMX fully justify the continuation of the CALAC+ Program. If it is possible to influence the modernization of the measurement standard, the installation of DPF is an important segment of the fleet, as well as the renewal of units with clean technologies. It is worth mentioning that all the participants interviewed expressed the convenience of continuing the CALAC + Program into a second stage.

8.2 Component 2: Public policies incubator for off-road machinery

The support that COSUDE has provided to Peru through the CALAC + Program allowed the issue of off-road machinery to be added to the public policy agenda. The actions carried out to date have made it possible to have inventories of emissions and machinery. Likewise, training was received in the management of tools for the development of emissions inventories, cost-benefit studies, and health effects. As it is an incipient issue in terms of public policies, it is essential to have a second stage that allows consolidation and expansion of the actions carried out to date.

In Chile there are more than 20 thousand computers distributed in various sectors that differ greatly by type of use and time (operating cycle), relative size and energy needs. That is why this component should take advantage of the learning acquired in the regulation of off-road machinery and be shared with other sectors whose purpose is to shorten the learning curve. Therefore, it is recommended to identify the types of machinery that truly require retrofit for the installation of filters, either because their remaining useful life and the level of emissions justify it (in relation to the next entry into force of the tier 4 or stage V in 2022) to be addressed the knowledge acquired can be easily adapted to and be expanded to these other typologies more easily. Another possibility is to evaluate projects in machinery segments which could be sought to accelerate or encourage the direct replacement of equipment with more efficient technologies or that comply with the tier 4 or stage V regulations that will be required in Chile. On the other hand, the Superintendent of the Environment is responsible for establishing the equipment certification protocol before the forthcoming entry into force of the regulation of emissions from off-road machinery. For this reason it would be worthwhile offering technical assistance in the certification scheme so that it is carried out as in other mobile equipment, through an approval system, but designed for this type of machinery.

In the next phase of the CALAC + program for Colombia in this component it is pertinent to promote the involvement of other types of participants other than those of the government. For example, the private sector, construction and infrastructure unions, and agencies such as the Sustainable Construction Council. The participation of these groups is a first step to working together to identify criteria for the inclusion of machinery specifications in public infrastructure work tenders.

For Mexico, the continuation of the CALAC + Program is highly desirable, since the results obtained so far are limited and it would be expected that in a second stage the consolidation and validation of the local and national emissions inventories would be achieved and could effectively influence policies, programs and standards for the control of black smoke emissions from off-road machinery. Likewise, it would be important to consider creating a national registry of the number and type of equipment existing in the country, in addition to the amount of equipment that is imported and manufactured, and to carry out studies to refine the activity data required to reduce the levels of uncertainty implicit in this category.

8.3 Component 3: Global network of Knowledge management

The pertinence of component 3 of the CALAC + Program for a second phase is fully justified if the consolidation of components 1 and 2 is adequate. The consolidation of component 3 must be a priority in order to achieve the objectives of the creation and continuous improvement of the global knowledge management network.

To improve this component, the activities have to be complementary to the other two, in all stages of CALAC + 's work, from the design to the systematization of results. It is also pertinent to continue strengthening and making the alliance with CCA possible. This platform can greatly enhance the results of the program, and specifically help consolidate the Global Knowledge Network on issues of emissions from vehicular sources.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 Achievements, Strengths and Areas of Opportunity

Table 3.- Achievements, strengths and areas of opportunity detected by country

County	Achievements	Strengths	Areas of Opportunity
Peru	○ Created bases for modernization of the vehicle fleet ○ First inventories of emissions and off-road machinery ○ Training and exchange of crucial experiences for officials that will provide certainty in future challenges	○ Positive involvement and interest of the two sectors responsible for the program (transportation and environment) in conjunction with officials and technicians ○ Great interest in future actions of the program by local counterparts	○ With the support of COSUDE via this program, Peru has the great opportunity to make a planned transition to a modern vehicle fleet with Euro VI technology, and with a trend towards electro-mobility. ○ Regarding off-road machinery, there is also the opportunity to develop a public policy that allows regulation of this type of emission sources.
Chile	○ Streamlined processes associated with the Decontamination Plan ○ or Unique cooperation addressing off road machinery ○ Continuity from CALAC to CALAC +	○ The intervention is open and sensitive to the needs of the target group ○ The work of the country coordinator was crucial for the landing of the activities and projects	○ CALAC + is not designed under an auditable management model, therefore, it is difficult to trace activities. over time. ○ Reduce the execution times of activities that involve the management of groups, institutional commitments and planning of activities. These began at the beginning of 2018 and were not concluded until the end of 2019. ○ The intervention could be expanded to other cities without departing from the approaches already addressed by the program. ○ Differentiate management and monitoring indicators from those that are impactful. ○ Improve implementation times and adjust agendas to Chile's political times.
Colombia	○ The CALAC + Program has an integrational role between relevant participants ○ Betting on pertinent issues on the public agenda, promoting their compliance	○ The structure of the program, as well as its participants are decisive ○ The country coordinators represent the opportunity for the national counterparts to have the program aceesible and immersed in the dynamics of the institutions ○ The country coordinator represents an opportunity to understand first-hand the specific needs and requirements of each institution	○ CALAC +, being a program focused on technical strengthening processes at the national and local levels that later result in public policies, requires establishing methods for quantifying / qualifying the impacts made. In this sense, it is relevant to review the relevance of the evaluation criteria and methodology for program interventions in such a way that their real impacts can be better measured. ○ Regulatory changes in Latin America lead to processes that take more than one or two years, even after they are technically well supported. For these types of programs to demonstrate the final impact of their interventions, the support systems must be more extensive in time.
Mexico	○ Retrofit activities with DPF and Bus fleet	○ Unified vision with national counterparts to reduce soot	○ Incorporation to the CDMX program of urban solid waste collection vehicle fleets, which is characterized by emitting large amounts of black

	○ maintenance protocol with DPF ○ Development of tools to estimate emissions and costs for health damage	○ emissions from vehicles ○ Validity of interest in the missing program activities to be developed by local participants	smoke in most of its units. ○ Strengthen the cooperative relationship with SEMARNAT and INECC, because during the evaluation period the interaction with these entities was relatively marginal. ○ Provide greater support and influence the development of standards and regulations for the measurement and control of soot emissions in diesel vehicles. ○ In the case of the Metropolitan Area of the Valley of Mexico, the scope of the intervention should be extended to the State of Mexico.

9.2 Recommendations for closing the First Phase of CALAC+

➢ **Peru**

This first phase has made it possible to align public policies on transportation to favor an orderly transition in the modernization of the vehicle fleet, respecting the conditions and regulations of off-road machinery. Therefore it is recommended to provide all facilities and extensions to enable the successful completion of this first phase, in order to have all the resources and capacities that had been planned to be carried out by the program in Peru.

➢ **Chile**

Carry out a systematized report that allows the identification of all the work carried out in Phase I of CALAC +. With the current semester reports it is difficult to measure the amount of work planned, executed and modified, and whose purpose it is to be an input for the design of Phase II. The closure activities should not be part of the objectives or goals of Phase II, so as not to detract from efforts for the new scope or objectives of Phase II of CALAC +. Implementers should be able to adapt so that closure activities do not interfere with the results, planning and timing of the new intervention.

It is recommended to share the results and finished products in December 2020. The activities of "Technical support" should be delimited in this closing stage, so that the activities of the next phase can be defined and the relevance of the continuity, both to the support work in the implementation of the Euro 6 / VI standard, and in the implementation of filters. For component 2 it is also suggested that in the socialization of the DPF Machinery and Filters Guide, participants that cover other types of off-road machinery are added and to establish these arguments for the extension of the scope of this component to these, whose purpose is to take advantage of good results to promote collaboration. Regarding component 3, it is suggested to advance in the search for synergies with other cooperatives, institutions, ministries, and even with the private sector. The aforementioned is intended to design joint work agendas when and where conditions permit.

➢ **Colombia**

Support the performance of dynamic test pilots and control of vehicles in operation in addition to the measurement of the number of particles in line with the emissions regulation standard from mobile sources.

Advance in the procedures for the development of pilot tests to measure emissions for off-road machinery, in order to have a baseline as a point of comparison for the country and to identify which machinery can implement particle filters as a control system for emissions.

Give continuity to the technical advisory group on nanoparticles and achieve the closure of the products that this group outlined in its worksheet and encourage it to continue operating in the next phase of the program. Being able to continue with this technical advisory group is very relevant because of the technical recommendations that come from there for the governments and because it is an instance that adds to the consolidation of a Global Knowledge Network.

➢ **México**

Strengthen links with SEMARNAT and INECC for the design of joint interventions with national repercussions on the issues of regulations, inventory of off-road machinery emissions, and evaluation and control of black carbon emissions from diesel vehicles.

Sign collaboration agreements and design a joint work program for the second phase of the project that includes specific activities for each of the components.

9.3 Second Phase Recommendations

Table 4.- Second Phase Recommendations for CALAC+

Country	Component 1: Soot-free and low carbon emissions buses	Component 2: Public policy incubator for off-road machinery	Component 3: Global network for knowledge management
Peru	○ Continue with the implementation of the strategy to transition to Euro VI technology, while continuing to strengthen the capacities of public officials, technicians and personnel of the Peruvian academy.	○ Continue to improve the inventory of machinery and therefore that of emissions, while developing a regulatory process that allows the establishment of regulations on the matter.	○ Continue with the training of Peruvian officials and technicians, based on the importance of generating a critical mass of trained people to ensure the long-term sustainability of the program. The involvement of the academic sector is essential to achieve these goals.
Chile	○ Build a conceptual and technical framework that gives precision and clarity to the activities of this component. Two topics are addressed: 1) electro-mobility and 2) support for the implementation of the Euro 6 / VI standard. Both approaches with a wide spectrum of action, if high impact projects are not addressed, resources and efforts can be dispersed.	○ Identify the types of machinery that truly require retrofit for the installation of filters when the remaining useful life and the level of emissions justify it (in relation to the next entry into force of the tier 4 or stage V regulations in 2022) and take advantage of the learning acquired for these sectors. ○ Diversify projects to accelerate or encourage the replacement of equipment with more efficient technologies that comply with the new regulations. ○ Offer technical assistance in the implementation of the tier 4 regulation, it could be in the equipment certification scheme before the next entry into force of the regulation, so that this is carried out as in other mobile equipment, through a homologation system.	○ It is suggested that the activities of this component be complementary to the other two at all stages of the program. While these activities should give continuity to capacity building and knowledge transfer; in early stages it should lay the foundations for the design of the intervention. By having an integrational function of activities and projects, it should be able to define an improved methodology for identifying the needs of target groups, defining activities and exploring alliances, in addition to a systematized activity monitoring system. Knowledge management involves the creation, transformation and use of knowledge, so the activities and goals of this component must be linked to the other two and the objectives must be established in terms of achieving an impact on the target group.
Colombia	○ Facilitate the participation in the program of other Colombian cities that have been working to reduce emissions from diesel vehicles such as: Medellín and the Metropolitan Area of Valle de Aburrá, Cali and Barranquilla	○ Promote the involvement of other groups other than governmental ones, but in relation to the use of off-road machinery. For example, the private sector, construction and infrastructure unions, and agencies such as the Sustainable Construction Council.	○ Continue to strengthen and make the alliance with the Climate and Clean Air Coalition more visible. This platform can greatly enhance the results of the program, and specifically help consolidate the Global Knowledge Network on issues of emissions from vehicular sources. ○ Continue promoting missions to international case studies relevant to the Colombian process.

Country	Component 1: Soot-free and low carbon emissions buses	Component 2: Public policy incubator for off-road machinery	Component 3: Global network for knowledge management
Mexico	○ Contribute with the adoption in Mexico of the test for measuring the number of particles to replace the opacity test that is currently used in the emission standards for diesel vehicles. ○ Design strategies for retrofitting with DPF in a significant number of units that are candidates for the adoption of said technology in public transport, considering the possibility of financing it from climate funds. ○ Include measures to reduce soot emissions in the public transport systems of the suburbs of the State of Mexico.	○ Support SEMARNAT in the preparation of a plan for the integration of an off-road vehicle registry that includes at least construction machinery and agricultural tractors, both manufactured nationally and imported. ○ Carry out a study to investigate and estimate diesel consumption patterns associated with off-road machinery and agricultural tractors. ○ Spread the socialization of the tools HEMAQ, HEBASH and HETRANS.	○ Consider repeating the courses and workshops that were highly successful in the first stage for state agency personnel in order to strengthen their capacities. ○ o Make a program agreement with INECC and SEMARNAT to disseminate knowledge of related topics and of interest related to the reduction of black carbon emissions in diesel engines, as well as the identification of synergies in terms of training and sources of financing.
General recommendations for the Latin American region			
Region	The program has shown strengths and sufficient flexibility to prevail as a reference in air quality cooperation in Latin America. The cooperation established in recent years between CALAC + and the national counterparts makes it possible to pursue a greater strategic contribution with an impact on the air quality and climate change agent from the countries of the region. In this regard, five general aspects are recommended to outline the second phase of the program: ○ ***Persevere and maintain:*** The emission control program in buses and off-road machinery must persevere in the implementation of emission control measures and support responsible groups overcome social and institutional barriers and power the objective of heavy vehicles low in emissions. ○ ***Alliance:*** Alliances with sister cooperative organizations may play a relevant role in generating synergies, for which common agendas should be established with the climate and clean air coalition and the Breathe Life initiative of the World Health Organization. ○ ***Become known:*** The program has matured, and it is important to publicize its benefits, especially to promote greater dissemination and application of the tools, experiences and documents that form an important knowledge platform to continue towards progressive objectives in the second phase ○ ***Replicate:*** The program must be multiplied in other cities based on its own infrastructure and networks of contacts that it already has, looking for counterparts in subnational governments that have already demanded cooperation activities such as Arequipa and Trujillo in Peru; Concepción and Valdivia in Chile; Medellín and Barranquilla in Colombia; State of Mexico, Guadalajara and Monterrey in Mexico. ○ ***Zero emissions and urban / energy transition:*** From a global perspective, the program can also promote international flags in the current trend of seeking emission-neutral economies and also promote urban and energy transition with black carbon inventories that can also be neutralized in a short or medium term horizon		

9.4 Proposal for improvement for the Second Phase

➢ **Peru**

It is recommended to add a "Sustainable Mobility" component, which involves the entire life cycle of public transport, taking as objectives the creation of a baseline for measuring air quality and internal ventilation in all public transport systems in the city such as the Metropolitano, Line 1 of the Metro (electric train) in Lima and the Blue Corridors. In the same way, the lines of action regarding Electro-mobility must be matured, since it is an important component within the concept of "Sustainable Mobility".

➢ **Chile**

It is highly recommended to direct the efforts of Component 1 to the implementation of the Euro IV standard. The implementation of Euro 6 / VI has challenges that range from addressing fuel quality to monitoring emissions in real driving

conditions, as well as laboratory conditions. As it is a new topic in Latin America, this experience can be transferred to other countries and reduce the learning curve in the region, in addition to contributing in Chile,.

- **Colombia**

It is recommended to support the development of plans for the reduction, control and prevention of air pollution at the local level. Some cities in Colombia will enter the formulation or updating phase of these public policy instruments in the coming years, for which reason this component is pertinent according to the needs established by the cities.

- **México**

It is recommended that the program include in its scope garbage collection trucks (public and private, if any), as well as cargo trucks with local plates, since they are commonly old vehicles with high soot emissions, mainly when they operate with a load.

9.5 Learned lessons

- **Peru**

One of the main lessons involved the identification of similar projects run by other international or non-governmental organizations that are with the government, and are just starting or are underway, since this overloads the agenda of official public decision makers. Another important lesson learned was to ensure all the systematization of the information so that it is entered through regular channels to the ministries and it forms part of the documentation that is evaluated for decision-making.

- **Chile**

The intervention was not designed under an auditable management model, which makes it difficult to monitor and evaluate the program, and which should be mitigated in the next phase. The definition of roles with activities and responsibilities for all working groups facilitates the adoption of commitments with the counterpart. According to the counterpart, the work of the country coordinator was crucial for the grounding of the activities, so it is urged to continue with this operational role. For the experience exchange, an additional different approach is required for Chile with an empowerment through exchange with peer countries in regulatory progress. Finally, it is necessary to adjust the agenda to the political situation of the country (the elections in Chile are on November 21, 2021 and the term of government is 4 years).

- **Colombia**

Regulatory changes in Colombia and Latin America lead to processes that take more than one or two years between their technical structuring and the legislative process. The phases of cooperation programs such as CALAC + should be considered with longer execution periods, thinking more about medium-term results and better adapting the cooperation times to the governments' times.

- **México**

The CALAC + program has put on the worktable, of the public and mixed transport systems, which are RTP and Metrobus, of CDMX the importance of reducing soot emissions in their fleets through two alternatives: First, the retrofit with DPF in units whose technical characteristics allow it. Another lesson lay in exposing the need to carry out the replacement of obsolete vehicles with new units, preferably with EURO VI technology.

9.6 Recommendations for financing schemes

- **Peru**

It is recommended that, in order to achieve long-term program sustainability and, above all, to achieve concrete results as regulations, SDC should sign agreements with the Peruvian Agency for International Cooperation (APCI), and in this way it will enable the APCI to coordinate with the ministries and entities so that there is a guideline provided by the Peruvian state to ensure greater ease and joint financing for the objectives of the program. Financing can also be sought through the World Bank and its innovation programs for Peru since there are state agreements in which there may be convergence with the objectives of the CALAC + Program.

- **Chile**

It is recommended that the intervention in Chile be complemented with projects that promote financial independence, either through the creation of financing and business models or through public-private partnerships, depending on the nature of the project. Cross-cutting participants with input in this regard should be identified, such as the Production Development Corporation (CORFO), which frequently launches calls to co-finance highimpact projects; Under an adequate design, CALAC + can be a co-financier to apply to research and development projects applied to the goals of the components. This mechanism has been widely used by national and international institutions, as well as the private sector. Another important group to consider is the Ministry of Finance, with which you can explore collaboration in projects that involve credits, subsidies, credit guarantees, invoices, and so on.

At the national level, collaboration with the Ministry of Science can also be sought, which in the search for impact can promote projects that, while supporting decision-making, are a contribution to the generation of knowledge, adding and enhancing resources. It is noted that in December 2020, CORFO published the creation of an Electro-mobility Center made up of a consortium of more than 30 companies and 6 research centers and will be led by the University of Chile. The purpose of the Center is to accelerate the processes of the adoption of electrical technology in order to meet the goal of carbon neutrality by 2050. Multiple collaborations will emerge from this center to multiply impacts and add resources with other cooperatives.

- **Colombia**

The definition of financing schemes for actions aimed at reducing emissions of air pollutants from mobile sources, especially public transport buses, in Colombian cities must take into account different elements. The first thing is to understand the context of the operation of public transport in each city. In those that have integrated systems, it is common to find concessions for vehicles and operations, in which private companies are in charge of providing the service.

The second thing is to recognize that there is no single source of financing; on the contrary, it is necessary to join efforts to achieve the investments. Among the sources of financing are of course the local governments themselves, the national government through transfers made from the central government to the territories, and also development banks. In the case of Colombia, there is a presence of the national development bank Findeter, and some multilateral banks such as CAF, the IDB and the World Bank itself. There is also the possibility of accessing environmental or climate funds such as the GEF and the Green Climate Fund.

The third thing is to be clear about the financial instruments used to access the resources. Each instrument has specific requirements. When it comes to green loans, for example, it is normal that they require guarantees from the local or national governments to back these debts. Due to the type of investments necessary to carry out a technological renewal of the fleet, it is also normal that local governments must commit future periods in their budgets to support said resources. Understanding this context is relevant to understanding that there is no single formula for achieving low emission public transport fleets. Part of the accompaniment of a program like CALAC + to the Colombian government may include the entire process of structuring the projects to make them financiable / bankable ..

- **Mexico**

In the case of Mexico, among the available options, the national source of the Federal Support Program for Mass Transportation (PROTRAM) stands out, being one of the instruments of the National Infrastructure Fund (FONADIN), to support the financing of investment projects in mass urban transport, as well as to promote the institutional strengthening of planning, regulation and administration of urban public transport systems. Among the viable international sources to establish financing schemes, the Global Environment Facility (GEF) and the Inter-American Development Bank (IDB) stand out, among which the Mexican national counterpart, both at the state and federal level, has had positive experiences in obtaining financial support for different projects.

9.7 Recommendations for the extension to proposed cities

- **Peru**

In order to achieve coherence and relevance of the program objectives in possible cases of implementation in other cities of Peru, such as Arequipa and Trujillo which are the most densely populated cities after Lima and therefore have many urban transport problems such as an old and informal automobile fleet, lacking transport systems like those in Lima (Metropolitano, Metro de Lima and Corredor Azul) and without a purely technical authority that regulates them such as the ATU, (They are only regulated by the provincial and district municipality of each city); It is recommended therefore, that the SDC sign agreements with the municipalities of each city. An implementation of the program in these cities would also be interesting because the Public Policies component for Off Road Machinery would have a great impact due to the presence of mining and construction industries, since they follow Lima in terms of industrial development.

- **Chile**

Most of the measures implemented in Chile are national or focus on sectors. In the case of electro-mobility, there is the potential to take the experiences to other cities in the country. The Chilean Ministry of Transport and Telecommunications has planned the creation of electrical corridors in the cities of Concepción and Temuco, which will involve the purchase of 35 buses and the installation of a terminal. The CALAC + Program may seek to provide support in this line to carry out these projects; The pending issues that still remain in Chile have little to do with bus technology itself, but rather with accessibility issues such as charging infrastructure, interoperability of networks, the language of communication between technological systems, technical feasibility studies for the implementation, and so on. It is noted that the suggested cities are illustrative, and no prior arrangements have been made.

- **Colombia**

Medellín and the Metropolitan Area of Valle de Aburrá have been making efforts to improve the operation of the integrated public transport system. These processes include changes and renewal of the fleet towards cleaner and lower emissions technologies. At the same time, the city has prioritized air quality within the public agenda given the continuous events of high concentrations of particulate matter and contingency declarations. As a result of this process, the Comprehensive Air Quality Management Plan for the Aburrá Valley was formulated. Both antecedents show coherence and relevance with the actions promoted by the CALAC + Program, and make Medellín a candidate city to participate in the program.

The city of Cali, through the managing body of public transport, has been carrying out a process of renovating its bus fleet aimed at improving the quality of service and the impact on emissions of air pollutants and greenhouse gases. Likewise, the city's local and regional environmental authority has formulated strategies and plans to control air pollution. Both are pertinently aligned with the actions promoted by the CALAC + Program, making Cali a candidate city to participate in the program.

- **Mexico**

The priority is to extend the program to the surrounding municipalities of the State of Mexico, so that the reduction of soot emissions from public transport is integral to the Metropolitan Area of the Valley of Mexico. In this regard, it is important to mention that the environmental authority of the government of the State of Mexico has shown interest and participation with the CALAC + program, including being a participant of the steering committee on behalf of the Mexican counterpart, together with SEDEMA.

The Ministry of Environment and Territorial Development (SEMADET) of the State of Jalisco, having voluntarily participated in the activities of the CALAC + Program and the problem of soot emissions associated with public transportation systems and construction machinery in the Metropolitan Area of Guadalajara (ZMG) would fully justify its inclusion in the second stage of the program, which can be carried out partially and progressively.

9.8 Recommendations to the CALAC+ governance scheme

Within the governance scheme, it is suggested to modify the steering committee sessions to biannual meetings so that there is better monitoring of the progress of the program. The second meeting of the year may be used to agree on slight modifications to the Works and Activities Program (WAP) so that it better adjusts to the current situation. It is also necessary to comply with the provisions of the approach to the operation of the Steering Committee, having the participation (without the right to vote) of the private sector, a sector that was not present in the 2019 and 2020 sessions.

Chart 6. Proposal to expand committees for local counterparts

Likewise, the adaptation of the national monitoring committees is proposed, to provide a more constant monitoring of the actions carried out in each of the countries.

Table 5.- Members and activities of the national committees

Members	Activities
– **National Counterparts** – **Swisscontact Country Coordinator** – **Local Private Sector** – **Academy** – **NGO**	○ Quarterly meetings ○ Present progress in programmed activities ○ Propose improvement actions for activities ○ Propose new activities ○ Propose collaboration schemes

The scheme for updating national committees is proposed as an option to increase communication with counterparts and other important sectors involved in the issue of emissions and air quality in the target cities.

Within the National Committees, modifications to the WAP may not be made, however, a brief report of the meeting will be made from the results of the meeting to produce a supporting document with improvement actions to be presented at the steering committee session, and then, if approved, may be officially incorporated into the WAP.

9.9 Conclusions

- The performance of the program has been satisfactory in general terms, taking into consideration that its performance was negatively affected by the health crisis caused by COVID-19.
- The program has managed to integrate common agendas on issues of air quality and emissions in the four countries of the region, which reflects an adequate functioning of its governance scheme through a steering committee that includes representatives of national and local authorities. The 3-component approach of the program has been adequate according to the needs of the countries of the region.
- The level of impact is satisfactory in the three lines of action, although there are areas of opportunity for improvement.
- In Chile, the coordination work that allowed the grounding and prioritization of activities in the country and their adequate alignment with the Santiago Decontamination Plan stands out.
- Achievements in Colombia regarding the CALAC + Program are highlighted as an integrator of stakeholders, with the same objective, through the definition and use of a roadmap to achieve it.
- In Mexico City and Lima, the development of information on emissions inventories and technical capacities achieved from the application of tools developed by the program stands out.
- Interaction with international organizations such as the CCAC is recognized to increase the dissemination of events and activities corresponding to component 3, however, joint work schemes must be formalized.

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Management response to the External Review of "Climate and Clean Air in Latin American Cities Plus Programme (CALAC+) Phase 1" (2018-2021)

Management Response

This Management Response (MR) states the position of the SDC on the recommendations of the External Review of phase 1 of the *Climate and Clean Air in Latin American Cities Plus Programme (CALAC+)* . The MR will guide the steering of the last months of the programme's implementation in phase 1, with a view to ensuring that the project can achieve the greatest impacts in the remaining time, and also provides inputs for the design of phase 2 of the programme.

Assessment of the evaluation

The evaluation was conducted by Kuradzo[1] in accordance with international standards. The evaluation process was well managed and included close involvement of the SDC's reference group, comprising the Head of Cooperation in Lima and the Programme Officers (Lima and Bern) in charge of the project.

The main objectives – to conduct a critical evaluation of the extent to which the objectives of the Phase and to assess the relevance of conducting a programme's phase 2 – have been met by the evaluators. The SDC appreciates the comprehensiveness of the evaluation report and the sound analysis of key elements of the SDC's performance in the CALAC+ Phase 1.

The report's analysis and resulting recommendations provide important insights for strengthening the strategic orientation of phase 1 of the programme and for the design of the future Phase 2.

SDC extends its thanks to the evaluators of Kuradzo, to the project implementation partner, Swisscontact, as well as to the project counterparts in Chile, Colombia, Mexico and Peru, for the excellent cooperation throughout the evaluation process.

Main findings

The external review was properly conducted, with a comprehensive methodology, in terms of meticulous planning, compliance with the requirements indicated in the terms of reference, the monitoring of results and evidence generated by the programme in each intervention city and elaboration of communication materials and a presentation to all key stakeholders. The close coordination with the SDC in the evaluation process was particularly welcome, due to the complexity of the issues addressed in terms of the context of the four intervention countries, their common and differentiated needs and developments as well as the relevance of the regional and global impact of the programme.

The **main conclusions** of the evaluators for the overall programme were:

(i) The *performance* of the programme has been *satisfactory* in general terms, taking into consideration that its performance was negatively affected by the health crisis caused by COVID-19;

(ii) CALAC+ has managed to integrate common agendas on issues of air quality and emissions in the four countries of the region, which reflects an *adequate functioning of its governance scheme* through a steering committee that includes representatives of national and local authorities;

[1] https://kuradzo.com/

(iii) The *3 component approach* of the programme has been *adequate* according to the needs of the countries of the region;
(iv) The level of *impact is satisfactory* in the three outcomes, although there are areas of opportunity for improvement;
(v) *Interaction with international organizations* such as the CCAC is recognized to increase the dissemination of events and activities corresponding to the outcome 3, however, joint work schemes *must be formalized*.

The **specific conclusions *for the countries*** of intervention were:
(vi) In *Chile*, the coordination work that allowed the grounding and prioritization of activities in the country and their adequate *alignment with the Santiago Decontamination Plan* stands out.
(vii) Achievements in *Colombia* regarding the CALAC+ Programme are highlighted as an *integrator of stakeholders*, with the same objective, through the definition and use of a roadmap to achieve it.
(viii) In *Mexico City* and *Lima*, the development of information on *emissions inventories* and technical capacities achieved from the application of tools developed by the programme stands out.
(ix) The evaluators also highlight the following achievements and strengths of CALAC+ phase 1 in the four countries where it intervened:

Colombia:

Achievements	Strengths	Areas of Opportunity
The CALAC+ Programme had an integrational role between relevant participants. CALAC+ was betting on pertinent issues on the public agenda, promoting their compliance.	The structure of the programme, as well as its participants are decisive. The country coordinators represent the opportunity for the national counterparts to have the programme accessible and immersed in the dynamics of the institutions. The country coordinator represents an opportunity to understand first-hand the specific needs and requirements of each institution.	CALAC+, being a programme focused on technical strengthening processes at the national and local levels that later result in public policies, requires establishing methods for quantifying / qualifying the impacts made. In this sense, it is relevant to review the relevance of the evaluation criteria and methodology for program interventions in such a way that their real impacts can be better measured. Regulatory changes in Latin America lead to processes that take more than one or two years, even after they are technically well supported. For these types of programmes to demonstrate the final impact of their interventions, the support systems must be more extensive in time.

Chile:

Achievements	Strengths	Areas of Opportunity
CALAC+ streamlined the processes associated with the Decontamination Plan of Santiago and took the unique	The intervention is open and sensitive to the needs of the target groups. The work of the country coordinator was crucial	The intervention could be expanded to other cities without departing from the approaches already addressed by the programme. Improve implementation times and adjust agendas to Chile's political rhythm.

opportunity to address off-road machinery for the first time.	for the landing of the activities and projects. Thematic continuity from CALAC (previous 2013-2015 project) to CALAC+ with SDC.	

Mexico:

Achievements	Strengths	Areas of Opportunity
Retrofit activities with DPF and Bus fleet maintenance protocol. Development of tools to estimate emissions and costs for negative impact on health.	Unified vision with national counterparts to reduce soot emissions from vehicles. Validity of interest in the missing programme activities to be developed by local participants.	Incorporation to Mexico City's programme of urban solid waste collection vehicle fleets, which is characterized by emitting large amounts of soot in most of its units. Strengthen the cooperative relationship with SEMARNAT and INECC, as during the evaluation period the interaction with these entities was relatively marginal. Provide greater support to influence the development of standards and regulations for the measurement and control of soot emissions in diesel vehicles. In the case of the Metropolitan Area of the Valley of Mexico, the scope of the intervention should be extended to the State of Mexico.

Peru:

Achievements	Strengths	Areas of Opportunity
Created bases for modernization of the vehicle fleet. First inventories of emissions of off-road machinery. Training and exchange of experiences for officials to be better prepared for future challenges.	Positive involvement and interest of the two sectors responsible for the programme (Transportation and Environment Ministries) in conjunction with officials and technicians. Great interest in future actions of the programme by local counterparts.	Peru has the great opportunity to make a planned transition to a modern vehicle fleet with Euro VI technology, and to prepare itself for electro-mobility. Regarding off-road machinery, there is also the opportunity to develop a public policy that allows regulation of this type of emission sources.

CALAC+ Phase 1 began in March 2018 and its completion was scheduled for February 2021. However, due to the **COVID-19 pandemic**, some scheduled activities had to be cancelled, postponed or adapted. For this reason, Kuradzo considered that an extension would allow the completion of the first phase of CALAC+ in the course of 2021.

Out of the **ten recommendations**, the SDC **fully agrees** with **nine recommendations** and **partially agrees** with **one recommendation** of the evaluation (see table below) and will take specific measures in line with these recommendations in the remaining months of project implementation and in the design of phase 2.

Recommendations from the external evaluation:

1.	It is necessary to **provide all facilities for the successful completion of the first phase of CALAC+**, in order to apply the resources and capacities necessary to achieve the objectives projected by the programme. **The extension of phase 1 until July 2021 will allow the completion of activities** postponed due to the pandemic, but which are still relevant. This will also permit a deeper impact of the programme in the four cities and countries, especially in relation to the exchange of technical experience and capacity development.	
2.	To maintain high levels of relevance and coherence of the programme's actions with respect to local governments, it is necessary to **align future activities with the national and / or city Decontamination Plans to avoid discordant approaches between CALAC+ and the national counterparts**. It is relevant to continue with the process of programming activities within the framework of the implementation plans and adjust the agendas to the political situation of each country in order to streamline and articulate them with the greatest coherence and sustainability to the official programmes of national and local agencies who are responsible for the implementation of emission reduction measures.	
3.	Due to the fact that regulatory changes in Latin America are processes that take more than one or two years, even after they are technically well supported, it is **pertinent to have interventions with a greater length of time to be able to demonstrate the final impact** of the actions carried out by the programme, in conjunction with national counterparts. The logical framework and roadmap methodologies have shown their usefulness to specify the annual programmes at the regional and local level, so they can be updated and even **formalized under the memorandums of understanding to agreements that must be signed with institutional participants in each city**. In this regard, the governance model of the programme may be updated to **establish binding agendas with the national counterparts of each country**, derived from the plans approved by the steering committee.	
4.	Regarding the component of the global knowledge management network, it is suggested to **advance in the search for synergies with other cooperation agencies, institutions, ministries, and even with the private sector** in order to design joint work agendas when conditions allow it. Therefore, the current and future collaboration with the global Climate and Clean Air Coalition (CCAC) should be strengthened to reach out towards a larger community of cities and countries interested in the issues addressed by CALAC+.	
5.	For a **second phase of CALAC + it is important to incorporate other cities of the target countries** into the programme without departing from the approaches already addressed, considering five general aspects: perseverance and maintenance, alliance, publicizing, replication, zero emissions and urban energy transition.	
6.	In its **second phase CALAC+ should work on agreements with national counterparts to establish a more dynamic collaborative scheme between the programme and counterpart.** It is recommended to establish simplified mechanisms to formalize collaboration, based on the experience obtained in the interactions of the first phase of CALAC+. In order to expedite these agreements, the participation of the country coordinators will be essential to facilitate the management of the processes.	

7.	CALAC+ has shown strengths and sufficient flexibility to prevail as a reference in air quality cooperation in Latin America. The cooperation established in recent years between CALAC+ and the national counterparts makes it possible **to pursue a greater strategic contribution with an impact on the air quality and climate change agents from the countries of the region**. In this regard, five general aspects are recommended to take into account for the outline of the second phase of the program: (i) **Persevere and maintain** the emission control program in buses and off-road machinery; (ii) work on **alliances** with other relevant actors; (iii) **Promote greater dissemination** and application of key results; (iv**) Extend the programme's reach to more cities** (Arequipa and Trujillo in Peru; Concepción and Valdivia in Chile; Medellin and Barranquilla in Colombia; Estado de México and Guadalajara in Mexico); and v) **follow the trend towards net zero emissions economies** as well as the urban and energy transition to **soot-free cities**.	
8.	Phase 2 should **propose financing schemes through national or multilateral sources**, promote financial independence, either through the creation of financing and business models or through public-private partnerships. At the end of the Phase 2, CALAC+ should achieve long-term program sustainability.	
9.	It is recommended to change the frequency of the **Steering Committee meetings from annual to biannual** in order to better monitor the progress of the programme. The second meeting of the year could be used to agree on slight modifications to the Programme of Activities (POA). It is also necessary for the private sector to participate in the Steering Committee (without voting rights). Similarly, it is proposed that the **National Follow-up Committees be adapted to provide a more constant follow-up** of the actions carried out in each of the countries. The objective of these Monitoring Committees is to increase communication with partners and other relevant sectors involved in emissions and air quality issues in the target cities. Their recommended composition is: national partners, Country Coordinator (from the CALAC+ team), private sector, academia, NGOs.	
10.	It is recommended to **strengthen the capacities within the implementing team to integrate the gender approach** as a concept and practice within the regular and cross-cutting work of the intervention. In Phase 1 of CALAC+, a specific gender perspective has not been integrated into the programme's intervention activities. It is noteworthy that the capacity building activities under component 3 handled equal opportunity criteria.	

Fully agree	Partially agree	Disagree

Overview of recommendations, management response and measures

Recommendation 1		
*It is necessary to **provide all facilities for the successful completion of the first phase of CALAC+**, in order to apply the resources and capacities necessary to achieve the objectives projected by the programme. **The extension of phase 1 until July 2021 will allow the completion of activities** postponed due to the pandemic, but which are still relevant. This will also permit a deeper impact of the programme in the four cities and countries, especially in relation to the exchange of technical experience and capacity development.*		
Management response		
Fully agree	Partially agree	Disagree
We fully agree with the recommendation, as we believe that a no-cost extension is necessary for the project team to complete the activities that were delayed or rescheduled due to the COVID-19 pandemic and to meet the original objective.		
Measures	Responsibility	Timing
a) A no-cost extension effective until 31 July 2021 was signed.	SDC and Swisscontact	February 2021 (completed)
b) Detailed planning of pending, adopted and new activities in a Closure Plan and submit it to the Steering Committee for validation and approval.	Swisscontact	March 2021 (completed)
c) Present a closing report to the Steering Committee, reporting on the achievements of phase 1 of CALAC+.	Swisscontact	July 2021

Recommendation 2		
*To maintain high levels of relevance and coherence of the programme's actions with respect to local governments, it is necessary to **align future activities with the national and / or city Decontamination Plans to avoid discordant approaches between CALAC+ and the national counterparts**. It is relevant to continue with the process of programming activities within the framework of the implementation plans and adjust the agendas to the political situation of each country in order to streamline and articulate them with the greatest coherence and sustainability to the official programmes of national and local agencies who are responsible for the implementation of emission reduction measures.*		
Management response		
Fully agree	Partially agree	Disagree
We agree with the recommendation as the CALAC+ Programme needs to continue aligning its activities with the plans of each of the countries where it intervenes.		
Measures	Responsibility	Timing
a) Review those CALAC+ activities that are directly facilitating the implementation of partner policies and plans to improve air quality.	Swisscontact	March 2021
b) Through the National Follow-up Committees and Steering Committee inform all counterparts on the implementation of recommendation 2.	Swisscontact	March and July 2021

c) Make visible the alignment of the project with national policies and plans to improve air quality in the communication pieces to be generated at the end of the phase.	Swisscontact	July 2021
d) Take into consideration the recommendation for the design of phase 2 of CALAC+.	Swisscontact	April 2021

Recommendation 3		
Due to the fact that regulatory changes in Latin America are processes that take more than one or two years, even after they are technically well supported, it is ***pertinent to have interventions with a greater length of time to be able to demonstrate the final impact*** *of the actions carried out by the programme, in conjunction with national counterparts. The logical framework and roadmap methodologies have shown their usefulness to specify the annual programmes at the regional and local level, so they can be updated and even* ***formalized under the memorandums of understanding to agreements that must be signed with institutional participants in each city****. In this regard, the governance model of the programme may be updated to* ***establish binding agendas with the national counterparts of each country****, derived from the plans approved by the steering committee.*		
Management response		
Fully agree	Partially agree	Disagree
We agree with the recommendation to extend the duration of phase 2 as we will face a context of changing authorities in Latin America which requires additional efforts and time to involve the relevant authorities in project activities, as well as a difficult context for project implementation (at least in the beginning of phase 2) due to the COVID-19 pandemic. We also recognise that achieving changes in policy and regulatory processes is a long-term undertaking. This recommendation will also be taken into account for other future SDC projects in the region. With regard to the formalisation of the logical frameworks through agreements, we recall that the project document and the respective logical framework is part of the agreements with the partner countries. We note that the updating or modification of the Logical Framework (related to the development of activities), as well as the approval of the Annual Operational Plan is settled in the Steering Committee, in which partner country representatives also participate. With regards to the recommendation to establish binding agendas, we note that the SDC does not make its cooperation conditional on the implementation of an agenda but helps partners to implement their climate and environmental agendas.		
Measures	Responsibility	Timing
a) Assess the legal, financial and technical feasibility for the design of Phase 2 for a possible duration of four years.	SDC and Swisscontact	March-May 2021
b) The Project Document (including the Logical Framework) will continue to be kept as an annex to the Agreements that SDC signs with the partners.	SDC	2021 and beyond
c) It will be proposed that for Phase 2 of CALAC+ the Steering Committee continues to approve modifications to the Logical Framework (which do not imply an extension of the time of the phase). The Annual Operational Plans should also be approved by this instance.	SDC and Swisscontact	March-May 2021

Recommendation 4
Regarding the component of the global knowledge management network, it is suggested to ***advance in the search for synergies with other cooperation agencies, institutions,***

ministries, and even with the private sector *in order to design joint work agendas when conditions allow it. Therefore, the current and future collaboration with the global Climate and Clean Air Coalition (CCAC) should be strengthened to reach out towards a larger community of cities and countries interested in the issues addressed by CALAC+.*		
Management response		
Fully agree	Partially agree	Disagree
We fully agree with this recommendation, due to the fact that at this stage of the programme, in which there are already several relevant results to share, it is necessary to strengthen the exchange, coordination and synergies with other cooperation agencies working in the same countries that CALAC+, the private sector, as well other actors at regional and global level. This will also be highly relevant for phase 2 where the activities conducted by CALAC+ should be complementary to those of other cooperation agencies.		
Measures	Responsibility	Timing
a) Until the end of phase 1, technical exchanges, trainings, joint events will be planned, involving other cooperation agencies, the private sector and other actors at regional and global level.	Swisscontact	June 2021
b) For phase 2, the implementing agency and/or SDC will sign instruments that formalize joint work with other organizations (agencies, donors, associations, etc.), such as agreements, memorandums of understanding, exchange of letters, etc.	Swisscontact and/or SDC	2021 and during Phase 2

Recommendation 5		
For a ***second phase of CALAC + it is important to incorporate other cities of the target countries*** *into the programme without departing from the approaches already addressed, considering five general aspects: perseverance and maintenance, alliance, publicizing, replication, zero emissions and urban energy transition.*		
Management response		
Fully agree	Partially agree	Disagree
We agree with the recommendation to involve more cities in phase 2, in order to broaden the impact of the results of the CALAC+ programme in its two phases. It is necessary that for phase 2, the level of intervention for new cities should be differentiated.		
Measures	Responsibility	Timing
a) The implementing agency will develop a regional mapping to assess the conditions in other Latin American cities where CALAC+ could intervene in Phase 2.	Swisscontact	March-April 2021
b) During the planning of phase 2 of CALAC+, the form and modality of intervention in more cities will be assessed according to the available operational and financial capacities.	Swisscontact	March-May 2021

Recommendation 6
In its ***second phase CALAC+ should work on agreements with national counterparts to establish a more dynamic collaborative scheme between the programme and counterpart.*** *It is recommended to establish simplified mechanisms to formalize collaboration, based on the experience obtained in the interactions of the first phase of CALAC+. In order to expedite these agreements, the participation of the country coordinators will be essential to facilitate the management of the processes.*

Management response		
Fully agree	Partially agree	Disagree
We agree on the need for more dynamic legal instruments to formalise the SDC's cooperation with government partners. While in phase 1 this has worked very well with Chile, it has been very slow with Colombia, Mexico and Peru due to their lengthy internal approval procedures.		

Measures	Responsibility	Timing
a) Options for more dynamic legal instruments will be discussed with SDC's legal department for countries where the signing of agreements has been difficult.	SDC	May 2021

Recommendation 7
CALAC+ has shown strengths and sufficient flexibility to prevail as a reference in air quality cooperation in Latin America. The cooperation established in recent years between CALAC+ and the national counterparts makes it possible ***to pursue a greater strategic contribution with an impact on the air quality and climate change agents from the countries of the region****. In this regard, five general aspects are recommended to take into account for the outline of the second phase of the program: (i)* ***Persevere and maintain*** *the emission control program in buses and off-road machinery; (ii) work on* ***alliances*** *with other relevant actors; (iii)* ***Promote greater dissemination*** *and application of key results; (iv)* ***Extend the programme's reach to more cities*** *(Arequipa and Trujillo in Peru; Concepción and Valdivia in Chile; Medellin and Barranquilla in Colombia; Estado de México and Guadalajara in Mexico); and v)* ***follow the trend towards net zero emissions economies*** *as well as the urban and energy transition to* ***soot-free cities****.*

Management response		
Fully agree	Partially agree	Disagree
We agree with the 5 components of this recommendation, which should be considered during the planning of Phase 2 of CALAC+. Taking into account the budgetary and human resource restrictions in the team, it is very important for SDC to consider that the evaluation to expand the geographic scope to more cities and countries should take into account that any new activities should not be at the expense of achieving results in the cities where work is already being done.		

Measures	Responsibility	Timing
a) In the planning of phase 2, emphasis will be placed on how to continue and deepen the programme's work on reducing emissions in buses and off-road machinery.	Swisscontact	March-April 2021
b) For phase 2 of CALAC+, a strategy for strengthening partnerships with other organisations working to reduce pollutant emissions will be proposed	Swisscontact	March-April 2021
c) Phase 2 will plan to strengthen the activities contemplated under the Knowledge Management component, in order to disseminate more widely the results obtained by CALAC+.	Swisscontact	March-April 2021
d) The implementing agency will develop a regional mapping to assess the conditions in other Latin American cities where CALAC+ could intervene in Phase 2.	Swisscontact	March-April 2021
e) Net zero and soot-free emissions will be maintained as main objectives in CALAC Phase 2.	Swisscontact	March-April 2021

Recommendation 8		
*Phase 2 should **propose financing schemes through national or multilateral sources**, promote financial independence, either through the creation of financing and business models or through public-private partnerships. At the end of the Phase 2, CALAC+ should achieve long-term program sustainability.*		
Management response		
Fully agree	Partially agree	Disagree
We fully agree, since the Entry Proposal proposes that Phase 2 should propose financing schemes for the implementation of measures to reduce emissions in cities. We agree that this will provide sustainability to what CALAC+ has done during the implementation.		

Measures	Responsibility	Timing
a) Phase 2 will include work on financing schemes for cities to reduce their emissions of pollutants and greenhouse gases. These schemes will be aligned with the plans and policies of each partner country.	Swisscontact	March-April 2021
b) The implementer will map the actors contributing to the implementation of the funding strategy.	Swisscontact	March-April 2021

Recommendation 9		
*It is recommended to change the frequency of the **Steering Committee meetings from annual to biannual** in order to better monitor the progress of the programme. The second meeting of the year could be used to agree on slight modifications to the Programme of Activities (POA). It is also necessary for the private sector to participate in the Steering Committee (without voting rights).* *Similarly, it is proposed that the **National Follow-up Committees be adapted to provide a more constant follow-up** of the actions carried out in each of the countries. The objective of these Monitoring Committees is to increase communication with partners and other relevant sectors involved in emissions and air quality issues in the target cities. Their recommended composition is: national partners, Country Coordinator (from the CALAC+ team), private sector, academia, NGOs.*		
Management response		
Fully agree	Partially agree	Disagree
We fully agree that the Phase 2 governance structure should include more frequent meetings of the Steering and National Follow-up Committees. Broadening participation in these committees will also facilitate stakeholder ownership, programme positioning and dissemination of results. It is very relevant that the private sector is included.		

Measures	Responsibility	Timing
a) The implementing agency will include for Phase 2 a governance scheme that envisages more frequent meetings of Steering Committees and National Follow-up Committees, as well as an extended number of participants.	Swisscontact	March-April 2021

Recommendation 10
*It is recommended to **strengthen the capacities within the implementing team to integrate the gender approach** as a concept and practice within the regular and cross-cutting work of the intervention. In Phase 1 of CALAC+, a specific gender perspective has not been integrated into the programme's intervention activities. It is noteworthy that the capacity building activities under component 3 handled equal opportunity criteria.*

Management response			
Fully agree	Partially agree	Disagree	
We fully agree that Phase 2 of CALAC+ should explicitly incorporate a gender component in order to avoid situations of discrimination or exclusion. It should be noted that such situations have not arisen in Phase 1.			
Measures		Responsibility	Timing
a) The implementing agency will include a gender focus in the outcome and activity indicators for Phase 2.		Swisscontact	March-April 2021
b) The core project team will strengthen its capacities to mainstream gender in the day-to-day implementation.		Swisscontact	2021 and beyond

19th April 2021