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DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

USING INFORMATION AND COMMUNICATION TECHNOLOGIES TO
REDUCE EXPOSURE TO AIR POLLUTION IN COLOMBIA

CO-T1560

TECHNICAL COOPERATION ABSTRACT

This document was prepared by the project team consisting of Blackman, Allen (CSD/CSD) Team Leader; Bridget Hoffmann, (RES/RES) Alternate Team Leader; Carlos Salazar (CSD/RND); Jaime Cardona (SCL/SPH); Louis Sarkozy, (CSD/CSD); Jose Sandoval (CSD/CCS); Adrien Vogt-Schilb, (CSD/CCS); Eugenio Hillman (VPC/FMP); Ernesto Crausaz (VPC/FMP); Ynty martinez (SRE/PFA); Cesar Negret (LEG/SGO); Juan Gomez (CSD/CCS); Maurizio Colonna (CSD/CCS), who helped to produce this document.

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TC ABSTRACT

I. Basic Project Data

▪ Country/Region:	COLOMBIA/CAN - Andean Group
▪ TC Name:	Using Information and Communication Technologies to Reduce Exposure to Air Pollution in Colombia
▪ TC Number:	CO-T1560
▪ Team Leader/Members:	BLACKMAN, ALLEN (CSD/CSD) Team Leader; HOFFMANN, BRIDGET LYNN (RES/RES) Alternate Team Leader; SALAZAR ECHAVARRIA, CARLOS ALBERTO (CSD/RND); CARDONA RIVADENEIRA, JAIME EDUARDO (SCL/SPH); SARKOZY, LOUIS (CSD/CSD); SANDOVAL PEDROZA, JOSE MANUEL (CSD/CCS); VOGT-SCHILB, ADRIEN (CSD/CCS); HILLMAN, EUGENIO F. (VPC/FMP); CRAUSAZ SARZOSA, ERNESTO PATRICIO (VPC/FMP); MARTINEZ, YNTY KOYLLOR (SRE/PFA); NEGRET GARRIDO, CESAR ANDRES (LEG/SGO); GOMEZ, JUAN CARLOS (CSD/CCS); COLONNA URDANETA, MAURIZIO (CSD/CCS)
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	06 Jan 2020
▪ Beneficiary:	Ministry of Health Colombia, Ministry of the Environment Colombia
▪ Executing Agency:	INTER-AMERICAN DEVELOPMENT BANK
▪ IDB funding requested:	US\$240,000.00
▪ Local counterpart funding:	US\$0.00
▪ Disbursement period:	24 months
▪ Types of consultants:	Firms
▪ Prepared by Unit:	CSD - Climate Change and Sustainable Development Sector
▪ Unit of Disbursement Responsibility:	CSD - Climate Change and Sustainable Development Sector
▪ TC included in Country Strategy:	No
▪ TC included in CPD:	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Environmental sustainability

II. Objective and Justification

- 2.1 This Technical Cooperation (TC) has two broad goals: (i) to measure the effects of using Information and Communications Technologies (ICTs) that provide detailed real-time information on air quality—a smart phone application and an SMS text messaging system—on the behavior and environmental attitudes of residents of Bogotá metropolitan area; and (ii) to use what is learned about these effects to inform the design of scalable, pilot ICT alert systems in Bogotá and possibly other Colombian cities.
- 2.2 Considerable scientific evidence demonstrates that air pollution causes illness and death (U.S. EPA 2009; Chay and Greenstone 2003; Ebenstein et al. 2017). Numerous studies document this link in Bogotá, Colombia (Blanco-

Becerra et al. 2013; Lozano 2004; Hernández-Flores et al. 2007). Significant evidence also demonstrates that providing people with timely accurate information about air quality (AQ) can reduce the adverse health effects of severe air pollution episodes—particularly among vulnerable individuals such as children, senior citizens, and those with chronic respiratory conditions—by enabling them to take avoidance measures such as wearing face masks, using air purifiers, and avoiding strenuous outdoor exercise (Neidell 2009; Janke 2014; Skov et al. 1991)

- 2.3 These studies suggest that disseminating AQ data from Bogotá's monitoring stations could help reduce pollution's adverse health impacts in the short-term by enabling residents to engage in avoidance behavior on days when AQ is particularly severe. In addition, disseminating AQ information may help to reduce health impacts in the long-term by changing attitudes about the environment, which in turn can generate political support for remedial action.
- 2.4 Currently, however, few Bogotá residents regularly access AQ information generated by the city's monitoring network either on the internet or through other media such as radio, newspapers, or television. A logical policy solution is to use ICTs like smart-phone applications and SMS text message systems to provide this information.
- 2.5 This planned study of the use of ICTs to address air pollution problems in Bogotá is the result of discussions and meetings among the Bank, the Pan American Health Organization Bogotá office, and client country agencies—specifically, the Secretary of Health for Bogotá, the Secretary of the Environment for Bogotá, the Ministry of Health, and the Ministry of Environment—about the need for an ICT system to disseminate AQ information in Bogotá. These discussions and meetings began in the summer of 2019 and continued through the fall of 2019.
- 2.6 In 2019, the Secretary of the Environment for Bogotá has developed a smartphone application called AIRE BOGOTÁ to serve this function and welcomed the Bank's help in conducting an evaluation of its impacts. Because smartphone use is limited in Bogotá among populations particularly vulnerable to air pollution, all stakeholders were interested in the Bank's proposal to develop and evaluate a complementary SMS system to provide air quality information, since such a system would not depend on smartphones and could therefor impact a larger demographic.
- 2.7 Both the Ministry of Health and the Ministry of the Environment are interested in using the results from these studies to decide whether and how to scale the smartphone application and SMS systems to other jurisdictions in Colombia.

III. Description of Activities and Outputs

- 3.1 **Component 1. Randomized implementation of interventions and data collection.** This component will entail designing and administering informational treatments and baseline and endline surveys in the context of two randomized controlled trial (RCT) studies.
- 3.2 **Component 2. Data management and analysis, writing working papers and policy briefs.** This component will entail compiling, cleaning and analyzing the data gathered in the baseline and endline surveys. the principal aim will be to measure the effect of each ICT (for Study A, the AIRE BOGOTÁ application, and for Study B, the SMS text message system) on study participants' environmental attitudes and avoidance behavior.

- 3.3 **Component III: Dissemination of results.** This component will finance the dissemination of results from the interventions. Activities include: (i) meetings with government agencies to present the results of the interventions, to discuss any potential improvements recommended before adoption of similar policies, and to summarize lessons learned that will be important for scale up; and (ii) seminars to present the results of the analysis to government agencies, academics, and other interested stakeholders.

IV. Budget

Indicative Budget (US\$)

Activity/Component	IDB/Fund	Counterpart	Total
Randomized implementation and data collection.	190,000	0	190,000
Data management and analysis, writing papers and briefs.	30,000	0	30,000
Dissemination of results.	20,000	0	20,000
Total	240,000	0	240,000

V. Executing Agency and Execution Structure

- 5.1 The Inter-American Development Bank, through its Climate Change and Sustainable Development (CSD) Sector will execute the TC, in alliance with the Ministry of Health, the Ministry of the Environment and the Pan-American Health Organization, through its Bogota Office. These institutions will assume responsibilities for implementing aspects of the project under the Bank oversight.
- 5.2 The Bank project team has specialized expertise in conducting randomized controlled trials (RCTs) to measure the effect of ICTs that disseminate AQ information. Dr. Blackman, the team leader, has more than 25 years' experience studying air pollution and air pollution control policies in Latin America. He has worked extensively in Colombia. Dr. Hoffmann has conducted multiple RCTs to evaluate the effects of AQ ICTs in Mexico and Chile. The team leaders will directly monitor the submission of deliverables and track that these products are delivered according to the planned timeline for the project. The Bank will contract individual consultants, consulting firms and non-consulting services in accordance with current Bank procurement policies and procedures (AM-650 for individual consultants and GN-2303-20 for consulting firms and non-consulting services). The Bank has obtained a letter of prioritizing the project from Colombia's Presidential Agency for International Cooperation (Agencia Presidencial de Cooperación internacional, APC). The project also has letter of support from the Ministry of Health and the Ministry of the Environment.

VI. Project Risks and Issues

- 6.1 The main risks to the project concern potential changes in local Bogotá city agencies (Secretaría de Salud de Bogotá and Secretaría de Ambiente de Bogotá) following the October 2019 elections. These risks have been minimized by establishing good relations and communications with points of contacts in these agencies who will continue in their positions in the new administration; working towards memoranda of understanding with each agency; and working towards letters of support and memoranda of understanding with federal ministries of health and education.

VII. Environmental and Social Classification

- 7.1 The ESG classification for this operation is "undefined".