

TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Promoting Innovation to Accelerate the Circular Economy in LAC
▪ TC Number:	RG-T3636
▪ Team Leader/Members:	Grazzi, Matteo (IFD/CTI) Team Leader; Acosta, Geovana (IFD/CTI); Almeida Oleas, Natalia (LEG/SGO); Chevalier, Ophelie (CSD/HUD); Gonzalez Alzualde, Yohana Beatriz (IFD/CTI); Hennessey, Michael P. (IFD/CTI); Hernandez, Claudia (CSD/CCS); Kelly Castillo, Emily Leticia (IFD/CTI); Pelaez Zambrano, Paula (INO/NFP); Piedrafito, Carolina Marcela (CSD/CSD); Rihm Silva, Juan Alfredo (INE/WSA); Sasso, Simone (IFD/CTI); Sturzenegger, German (INE/WSA); Laguyas, Natalia
▪ Taxonomy:	Research and Dissemination
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	18 Mar 2020.
▪ Beneficiary:	Innovation Agencies, Ministries of Science and Technology, Ministries of Economic Development, Ministries of Environment, Academia and NGOs throughout the region
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	OC Strategic Development Program for Institutions(INS)
▪ IDB Funding Requested:	US\$180,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	August 1st, 2020
▪ Types of consultants:	Individuals and Firms
▪ Prepared by Unit:	IFD/CTI-Competitiveness, Technology and Innovation Division
▪ Unit of Disbursement Responsibility:	IFD-Institutions for Development Sector
▪ TC included in Country Strategy (y/n):	N/A
▪ TC included in CPD (y/n):	N/A
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation; Institutional capacity and rule of law; Environmental sustainability

II. Objectives and Justification of the TC

- 2.1 The circular economy can play a crucial role in decoupling growth from material extraction, thereby creating the conditions to promote growth and development with a diminishing use of primary resources. It can be defined as an economy where the value of products, materials and resources is maintained (or regenerated) for as long as possible, and the generation of waste is minimized (European Commission, 2017). In contrast to the 'take-make-waste' linear model, the circular one is regenerative by design and aims to gradually decouple growth from the consumption of finite resources. Therefore, the circular economy approach fosters innovation and encourages the development of business models which reduce inputs and re-use products and materials, creating value instead of (non-recyclable) waste. According to recent estimates, globally circular economy models can provide a \$4.5 trillion opportunity by 2030 through avoiding waste, making businesses more efficient and

creating new employment opportunities (WEF, 2018). This opportunity is even more important in the context of the economic recovery from the COVID-19 pandemic. A recent study by Nobel laureate Joseph Stiglitz and other internationally renowned economists, after analyzing more than 700 possible post-Covid-19 stimulus policies, finds that economic recovery packages aimed at promoting green innovation and the circular economy can generate more jobs and higher returns in the short term, and allow greater cost savings in the long term, compared to traditional fiscal stimulus packages (Hepburn et al., 2020).

- 2.2 Technological innovations and the current fourth industrial revolution are crucial drivers of the circular economy, as they can offer key solutions to promote and facilitate its implementation. Innovation is key to break the link between resource use and economic growth. This can happen either by promoting solutions that allow to use less land, water, energy, and materials (resource decoupling) or by using resources more efficiently during their lifetime (impact decoupling). For example, 3D printing technologies – by allowing the manufacture of products or components in closer proximity to customers – can reduce byproducts as well as time and transportation costs. Internet of Things (IoT) technologies allow, for example, to schedule the maintenance of machinery on the basis of operating data continuously collected from each individual machine or device (instead of performing it at set intervals). Smart logistics can dramatically reduce the quantity of waste generated or feed the waste that is generated back into the manufacturing process. The private sector is central in making consumption and production more sustainable, by developing or adopting new technologies and business models that re-shape product life cycles from design to consumption and recycling. In this context, public-public partnerships can be important instruments to fully realize the potential of the circular economy and bring about systemic transition, by exploring new regulatory frameworks and creating the right enabling frameworks.
- 2.3 The region is ideally placed to take advantage of the economic potentials of the circular economy and safeguard its natural resources. Latin America produces 44% of the world's copper, 49% of its silver and 65% of its lithium. It hosts 20% of the world's oil reserves, 33% of its fresh water and 20% of the planet's native woodland (UNIDO, 2017). Considering that natural resource extraction and processes are responsible for more than half of the effects of global climate change and that, without action, resource use will more than double from current levels by 2060 (UNEP, 2019), current “linear” economic models can bring about severe negative effects, not only on the environment, but also on health and human wellbeing, as well as greater price volatility of natural resource commodities, especially in natural resource-rich countries (WEF, 2019). Transitioning to renewable energy will only be able to manage the reduction of 55% of the global greenhouse gas emissions required to achieve the Paris Agreement commitments. Therefore, there is an urgent need to address the remaining 45%, and The circular economy can contribute to reduce global greenhouse emissions effectively, by transforming the way products in 5 key areas sectors are produced and used: steel, plastic, aluminum, cement, and food (Ellen MacArthur Foundation, 2019). For this reason, there has been an increasing consensus among LAC policymakers and practitioners that the circular economy represents an important strategy to address some of the most pressing environmental challenges while providing positive economic benefits.

- 2.4 Moreover, the COVID-19 pandemic has demonstrated the importance of being prepared and resilient when crisis hits. For example, the current crisis has caused an unprecedented disruption in global value chains. The related risks are particularly high for Latin American countries, as they are largely dependent on the extraction and export of natural resources (such as minerals and metals) as well as on the import of intermediate and basic goods from other global regions. While the region was not sufficiently prepared to face the pandemic, it appears even less prepared to cope with the strong social and economic consequences that an environmental crisis may bring about. In this context, the development of circular recovery strategies - by guaranteeing environmental benefits and making the region less dependent on the rising and fluctuating commodity prices through the development and deployment of recycling technologies - appear to be the most cost-effective to revive COVID-19 hit economies and ensure at the same time more resilience in the future.
- 2.5 An effective promotion of the circular economy requires a combination of factors. This includes, among others, a solid physical and research infrastructure, a workforce with the right skills and capabilities, strong institutional capacity to design and implement circular policies, as well as well finely tuned coordination mechanisms among the various institutions involved in their promotion and implementation. Despite the growing interest among policymakers and practitioners, LAC policy initiatives to promote the circular economy are still relatively scarce and heterogeneous in their form and execution, mainly focused on consumer recycling. Large scale action is still lacking and further effort to shape policy and shift business practices is still required. Two key reasons underlying this situation are the presence of various knowledge gaps and a relatively weak institutional capacity in this area.
- 2.6 Despite the traction that the circular economy concept has recently gained, significant work is required to move from idea to action. Before policymakers can tap into the economic potential of the circular economy, they first need solid evidence as to what skills are most needed to promote circular jobs. When looking at the very few existing indicators on circular economy, most information remains missing for many countries in the region and virtually no solid indicator can properly picture the skill demand and offer for circular jobs across LAC countries. This, in turn, prevents researchers from producing conclusive empirical evidence on many aspects related to the functioning of the circular economy, and it limits the capacity of policymakers to design and implement sound evidence-based policy mixes.
- 2.7 Additionally, when it comes to designing and implementing public policies in the area, a further challenge is given by the (weak) institutional capacity and coordination. Several LAC countries are characterized by multiple public institutions - sometimes with very different priorities, approaches and constituencies – that are simultaneously in charge of relevant aspects of the sector, making it difficult to design and implement effective policy instruments in the absence of a formal articulation mechanism. Circular economy issues are often addressed mainly by environment ministries, without a proper coordination with other public institutions (e.g., science and innovation or economy ministries, etc.). These challenges are very relevant for several LAC countries, where relevant institutions in the area are without an adequate knowledge base in terms of program design and evaluation.
- 2.8 In the past two years, the Competitiveness, Technology, and Innovation division (IFD/CTI) developed the Economic and Sector Work RG-E1546 “Green Innovation in LAC: Patterns and Policies”. The project aimed at better understanding the patterns of green innovation (GI) creation and diffusion in LAC, as well as its specific

determinants and economic impact. The project produced, among other products, a conceptual framework to measure green innovation in the region, and the first Latin American Green Innovation Scoreboard, which offers a comparative analysis of green innovation performance in LAC countries. This TC builds upon and aims at operationalizing these efforts.

- 2.9 **Objective.** The general objective of this TC is to enhance the capacity of LAC policymakers to design, implement, monitor, and evaluate policies aimed at promoting the circular economy in the region. This will be pursued through three specific objectives: (i) the generation of statistical information and analytical studies on the demand and offer of skills and capacities to promote the circular economy in LAC; (ii) the strengthening of LAC institutional capacity in the circular economy area, through activities of knowledge generation and capacity building; (iii) the development of specific circular economy strategies in a few selected LAC countries.
- 2.10 **Strategic Alignment.** This TC is aligned with the strategic priority of Productivity and Innovation of the Second Update to the IDB Group Institutional Strategy (AB-3190-2), as well as with the cross-cutting topics of climate change and environmental sustainability and institutional capacity and rule of law. Specifically, the project operates in the area of emphasis of promoting technology and innovation, by supporting the development and deployment of public programs in the area. The TC is also aligned with the objective of contributing to public policies and institutions that are more effective, efficient, open and citizen-centered of the Ordinary Capital Strategic Development Program for Institutions (INS) (GN-2819-1) and with the objective of strengthening institutions and networks of the component of Institutions for Innovation and Technological Development of the IDB Sector Strategy Institutions for Growth and Social Welfare (GN-2587-2). In fact, the TC will expand LAC institutional capacities, allowing a more effective policy-design in a substantially unexplored, innovation intensive area.

III. Description of activities/components and budget

- 3.1 **Component 1. Statistical information and analytical research (US\$55,000).** This component will promote the production of analytical research to better understand the gap existing between the demand and offer of human capital for green innovation and circular economy in the region. Taking advantage of the increasing availability of big data, the component will finance – for a few key LAC countries – a set of studies investigating the demand of skills required in the environmental goods and services sector, as well as the supply of skills provided by the countries' educational systems. The skill offer analysis may be conducted through web-scraping of the websites of universities and vocational education institutes, whereas the analysis of skill demand may be carried out through web-scraping of job ads. The studies should consider the specific characteristics of each selected country as well as identify ways through which existing capacities can be strengthened. The countries of study will be selected on the basis of the following criteria: (i) availability, reliability, and consistency of data for the analysis, (ii) presence of local research capacity to carry out the study, (iii) presence of (public or private) actors willing to maintain and update over time the data and studies carried out in this component.
- 3.2 **Component 2. Capacity building and institutional strengthening (US\$70,000).** This component will promote actions to strengthen the capacities of LAC

policymakers in the fields of green innovation and circular economy, with the aim of making public intervention in the area more effective. In particular, it will finance (i), including different policy recommendations for different groups of LAC countries, based on the varying degrees of maturity of the LAC innovation systems, as well as on the efforts and initiatives that have already been made within them over recent years; and (ii) the design and delivery of a training program targeted to regional policymakers to foster the capacity to formulate and implement circular economy policies at national and sub-national level and in key industrial sectors (e.g., agro-industries or mining sector). The training program will build on the results of the review of best policy practices and will include study visits in relevant national and international policy institutions that are leaders in circular economy policy design and implementation.

- 3.3 **Component 3. Circular economy strategies promotion (US\$55,000).** This component will support, in two selected LAC countries, the development of circular economy strategies to guide public actions in the area in the short, medium and long term. This includes the following activities: (i) a review of policy instruments and regulatory framework relevant for the circular economy as well as an assessment on the current role and participation of the private sector in boosting the circular economy in two selected LAC countries; (ii) the promotion of policy dialogue events between different key public institutions (e.g., Ministry of Economy and Finance, Ministry of Science, Technology and Innovation, Ministry of Environment, Ministry of Education) and other private actors in the two selected countries to discuss key issues and suggest regulation and policy reforms to promote the circular economy; (iii) the definition of green recovery strategies and plans to promote the circular economy in the two selected countries in the short, medium and long term. The countries of intervention will be selected on the basis of the following criteria: (i) expressed interest by the country's government, agencies and ministries that are responsible for implementing STI and/or environmental policies and regulations; (ii) presence of specific policies and regulations aiming at triggering green or circular recovery processes based on green technological innovation; (iii) potential synergies with neighboring countries or other LAC countries with similar innovation systems; (iv) presence of on-going or past IDB Group projects which are supporting or have supported the promotion of circular economy approaches and/or the development or deployment of green innovations.
- 3.4 **Communication and Dissemination.** The dissemination strategy of the project consists of different activities, depending on the target audience. First, the main results of the studies financed by the TC will be presented to relevant regional policymakers within the policy dialogue activities financed by Component 3. In this way, the chances that the results of the knowledge products of this TC will be used to guide new policies will be maximized. Second, the results of the analytical research activities will be presented in a relevant conferences and policy events (e.g., LAC Circular Economy Forum). Finally, periodic posts on the CTI Blog will present the main results of the projects to the public at large.
- 3.5 **Budget.** The total budget for this technical cooperation is US\$180,000, to be financed with resources of the Ordinary Capital Strategic Development Program for Institutions (INS).

Indicative Budget

Component	Description	Product	IDB/Fund Funding	Total Funding
Component I	Statistical information and analytical research	Studies on skill demand in the environmental goods and services sector in a few LAC countries	\$30,000	\$55,000
		Studies on skill supply for the environmental goods and services sector in a few LAC countries	\$25,000	
Component II	Capacity building and instit. strengthening	Review of global best policy practices to promote the circular economy	\$20,000	\$70,000
		Training program to foster the capacity to formulate and implement circular economy policies in key economic sectors	\$50,000	
Component III	Circular economy strategies promotion	Review of policy instruments and regulatory framework relevant for the circular economy in two LAC countries	\$20,000	\$55,000
		Policy dialogue event between public institutions and private actors in two LAC countries	\$15,000	
		Definition of strategies and plans to promote the circular economy in two LAC countries	\$20,000	
Total			\$180,000	\$180,000

Indicative Results Matrix

Indicators	Unit of Measure	Baseline		2020	2021	2022	EOP	
		Value	Year				Value	Year
Component I: Statistical information and analytical research								
Outputs								
Technical notes created	Notes (#)	0	2020	0	1	1	2	2022
Outcome: Knowledge and indicators for evidence-based policy making produced								
Number of downloads of documents	Downloads (#)	0	2020				250	2022
Component II. Capacity building and institutional strengthening								
Outputs								
Diagnostics and assessments completed	Diagnostics (#)	0	2020	1	0	0	1	2022
Training products developed	Products (#)	0	2020	0	0	1	1	2022
Outcome: Circular Economy policy capacity improved								
Number of policymakers and practitioners trained	Trainees (#)	0	2020				50	2022

Component III. Circular economy strategies promotion								
Outputs								
Diagnostics and assessments completed	Diagnostics (#)	0	2020	0	2	0	2	2022
Policy dialogue events organized	Events (#)	0	2020	0	0	2	2	2022
Strategies designed	Notes (#)	0	2020	0	0	2	2	2022
Outcome: Circular Economy Policies in LAC strengthened								
Number of citations in policy documents in LAC countries	Citations (#)	0	2020				5	2022

IV. Executing agency and execution structure

- 4.1 The Bank will execute the TC as this is a Research and Dissemination TC originated by the Bank's initiative. The IDB through IFD/CTI will be responsible for the direction, supervision, and coordination of this TC. Given the experience of CTI in the topics included in this TC, this unit will be responsible for the procurement and supervision of the products.
- 4.2 The Bank will select and contract all consulting services (firms and individuals) according to current procurement policies and procedures. The monitoring and evaluation of the TC will be carried out by IFD/CTI with the support of CTI specialists in the country offices of participating countries. All activities to be executed under this TC have been included in the Procurement Plan (see Annex IV) and will be contracted in accordance with Bank policies as follows: (a) AM-650 for Individual consultants; (b) GN-2765-4 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature and; (c) GN-2303-28 for logistics and other related services.
- 4.3 The activities of this TC will be coordinated with (i) the activities executed by CSD/CCS, as part of its mandate to align IDBG's operations toward concrete action in mitigation of and adaptation to climate change, in particular supporting countries in the LAC region in the definition of their long term decarbonization strategies; (ii) the projects that, since 2016, IDB Lab has approved to support the transition to a circular economy, which draw together four lines of action to varying degrees (i.e., the development of circular business models; the stimulation of research and efforts to design products, materials, and business models; access to finance; and the creation of an enabling environment through support for a long-term city or country perspective and promotion of demand); (iii) the on-going efforts of CSD/HUD to promote circular economy in cities, which include a best practice review of circular processes in cities, a toolkit to guide LAC cities towards circularity, and a TC (requested) to test the application of the toolkit in a selected city and across different sectors; (iv) the activities of IDB Invest TC ATN/MC-18076-RG, which aims at incorporating circular value chains that can generate new sources of revenue throughout the life cycle of materials; (v) the ongoing efforts of INE/WSA (GRT/MA-15366-RG) around solid waste management and inclusive recycling throughout the region, and its support to the countries of the Pacific Alliance around circular economy and sustainable plastic management. Before starting any activity in a beneficiary country, the no-objection letter from the liaison entity in that country will be requested.

V. Major issues

- 5.1 There are no major risks associated with the implementation of this TC. However, the success of the activities included in Component I and II will depend, respectively, on the actual availability of big data (in particular of circular skills supply data) in LAC countries (Component I) and the actual capacity of identified partners to execute the training programme (Component II). Furthermore, the training course included in Component II as well as the policy dialogue events included in Component III might be affected by possible delays due to the on-going pandemic. To mitigate the risk of Component I, the budget available will allow to collect alternative primary data on skill supply via the implementation of a survey for higher and vocational education institutions. To mitigate the risk of Component II, the project team partners will be selected on the basis of their experience in the field, institutional capacity and previous work with the IDB. Finally, to mitigate the risks linked to the on-going coronavirus global health crisis (or another large-scale crisis which will preclude large face-to-face activities), both the training course included in Component II as well as the policy dialogues included in Component III could be delivered either in person or on-line depending on the current public health conditions.

VI. Exceptions to Bank policy

- 6.1 No exceptions to Bank policy are envisioned.

VII. Environmental and Social Strategy

- 7.1 Considering the taxonomy of this TC, there are no associated environmental or social risks. Based on the Environment and Safeguards Compliance Policy (OP-703) this operation is classified as "C". See [Safeguards Policy Filter Report \(SPF\)](#) and the [Safeguard Screening Form \(SSF\)](#).

Required Annexes:

[Results Matrix_97864.pdf](#)

[Terms of Reference_79574.pdf](#)

[Procurement Plan_74481.pdf](#)