

TC Document

I. Basic Information for TC

▪ Country/Region:	PERU
▪ TC Name:	Support to the strengthening of the public institutions of science, technology and innovation in Peru
▪ TC Number:	PE-T1510
▪ Team Leader/Members:	Ventura, Juan Pablo (IFD/CTI) Team Leader; Crespi, Gustavo Atilio (IFD/CTI) Alternate Team Leader; Centeno Lappas, Monica Clara Angelica (LEG/SGO); Genesis Morales (IFD/CTI); Maria Alejandra Galeano (IFD/CTI); Raisa Ramos Sandoval (CAN/CPE); Sergio Rodriguez Soria (IFD/CTI); Villafuerte Manzano, Alba Cecilia (CAN/CAN); Yunjung Shin (IFD/CTI); Genesis Morales (IFD/CTI); Raisa Ramos Sandoval (CAN/CPE);
▪ Taxonomy:	Operational Support
▪ Operation Supported by the TC:	PE-L1263.
▪ Date of TC Abstract authorization:	19 May 2022.
▪ Beneficiary:	National Council of Science, Technology, and Innovation of Peru (CONCYTEC), National Program for Technological Development and Innovation (PROINNOVATE), National Program for Scientific Research and Advanced Studies (PROCIENCIA).
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	Knowledge Partnership Korea Fund for Technology and Innovation(KPK)
▪ IDB Funding Requested:	US\$500,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	30 months (execution period: 24 months)
▪ Required start date:	February 2023
▪ Types of consultants:	Firm and individual consultants
▪ Prepared by Unit:	IFD/CTI-Competitiveness, Technology and Innovation Division
▪ Unit of Disbursement Responsibility:	CAN/CPE-Country Office Peru
▪ TC included in Country Strategy (y/n):	Y
▪ TC included in CPD (y/n):	Y
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation; Institutional capacity and rule of law

II. Description of the Associated Loan

- II.1 The Peruvian government requested financing for an innovation, technological modernization, and entrepreneurship program that would provide PROINNOVATE with technical and financial support. The Peruvian government and the Bank agreed to address the challenges facing *Sistema Nacional de Ciencia, Tecnología e Innovación Tecnológica* (SINACYT) through a conditional credit line for investment projects (CCLIP). Innovation policies materialize in uncertain contexts and are reinforced during implementation. To be effective, they must be supported by a flexible long-term technical and financial support framework. The CCLIP is an ideal instrument that will: (i) provide a programmatic framework consistent with the National Plan for Competitiveness and Productivity (2019-2030) for addressing business innovation needs; (ii) create a long-term intervention framework for the Bank and PROINNOVATE

that will promote institutional learning; and (iii) implement an efficient mechanism for preparing priority operations for the Peruvian government. The CCLIP will be US\$300 million, which reflects the funds needed to help close part of the demand gap affecting investment in innovation. It will provide financing for three individual specific investment or results-based operations over a 10-year period pursuant to the policy set forth in document GN-2246-13.

- II.2 The rationale for the first individual operation is based on the fact that increasing private investment in innovation is essential for productivity growth, and therefore, obstacles that affect the different businesses must be addressed. The general objective is to increase business productivity through greater private investment in innovation activities. The specific objectives are: (i) to increase investment in innovation and the development of innovations in established beneficiary enterprises, incorporating environmental sustainability and climate change considerations for some of the enterprises receiving support; (ii) to increase early financing to promote the growth of new beneficiary innovative enterprises, incorporating environmental sustainability and climate change considerations for some of the new enterprises receiving support; (iii) to reduce productivity gaps among the beneficiary MSMEs, incorporating environmental sustainability and climate change considerations for some of the MSMEs receiving support; and (iv) to improve the sector and regional orientation of innovation policies, incorporating environmental sustainability and climate change considerations. The first individual operation under the CCLIP will be a specific investment loan with a five-year disbursement period. The program will cost US\$140,000,000, of which US\$100,000,000 will come from the IDB (Ordinary Capital) and US\$40,000,000 will correspond to the local counterpart contribution.

III. Objectives and Justification of the TC

- III.1 The objective of this TC is to support the institutional strengthening of Peru's science, technology, and innovation (STI) system. Although Peru's national spending in science and technology has increased throughout the last decades (from 0,08% of the GDP in 2008 to 0,16% in 2019¹), it is still well below the Latin American average (0,56%). Low STI investment impacts negatively in productivity (about 60% of the USA²) and competitiveness (60% of exports are concentrated in non-processed minerals such as copper, iron, and zinc³). At the current level of development, most of Peru's national spending in STI still must come from the public sector. Most of fiscal resources for supporting STI activities come from public investment projects (PIP) financed either with the proceeds from specific taxes (such as canon or cooper tax) or external debt with multilateral organizations. The Ministry of Finance (MEF), who is the responsible for allocating fiscal resources to finance STI activities, finds it necessary not only increasing the budget for STI activities but also streamlining the budget allocation process. Doing this, however, is very complex because the current institutional setting of the STI system seriously undermines both horizontal (across ministries) and vertical (between ministries, programs, and public institutes) coordination leading to fragmentation, overlaps and agency problems that seriously affects the efficiency of fiscal resources. On top of this, the methodologies used for the identification and

¹ RICYT-UNESCO (2022)

² Total Factor Productivity (TFP). PWT09

³ The country has important reserves of lithium that could be used as a platform for the development of new sector related with electro mobility. However, the country lacks the technological capabilities for this.

formulation of STI projects (such as gap indicators and guidelines) are seriously outdated.

- III.2 The leading organization in charge of the institutional governance of STI system is the National Council for Science, Technology, and Innovation (CONCYTEC). CONCYTEC gathers representatives from the public, private and academic sectors in its steering committee and it is led by a president appointed by the President of the Republic. Nevertheless, most of STI policies in Peru are designed and implemented under the responsibility of sectorial Ministries (mainly ministries of Production, Agriculture, Mining and Education) while CONCYTEC has a lower rank in the executive branch than these ministries, leading to a poor coordination. Additionally, the current position in the bureaucratic structure of the State and composition of CONCYTEC discourages private sector participation. Moreover, there are more than 160 individual STI programs funded by the government scattered across the different ministries, among which only 13 accounts for 75% of the total STI budget meaning that most of the programs are of very small in scale to be efficient. About 85% of these programs are under line ministries and only 15% of the public resources are supervised by CONCYTEC. Overlapping functions between CONCYTEC and line ministries and fragmentation of innovation funds result in low effectiveness of STI policy.
- III.3 In 2021, the Government of Peru initiated a series of institutional reforms to improve the above-mentioned institutional context of the STI system. First, two big national programs were created by absorbing some of the functions of the individual programs so far in existence: the Science and Advanced Studies National Program (PROCIENCIA) and the Technological Development and Innovation National Program (PROINNOVATE). PROCIENCIA manages all the resources from previous programs that fund scientific research and science, technology, engineering, and mathematic (STEM) scholarships), while PROINNOVATE gathers most of the resources related to technological development and innovation at the firm level and start-ups. Second, a Ministerial Science, Technology and Innovation Commission at the Prime Minister Office level was created and put in charge of the strategic orientation of STI. Third, an Advisory Science, Technology and Innovation Commission was also established with the participation of the private, academic, and non-governmental sectors to provide advice to the Ministerial Commission. Lastly, the final big reform, is the elevation of CONCYTEC to a ministerial level by a creation of the Ministry of Science, Technology, and Innovation (MINCYT)⁴. With these recent institutional reforms in the national STI system as a background, This TC will be focused on the following subjects: (a) institutional strengthening of CONCYTEC and the enhancement of the national STI system; (b) institutional strengthening of PROCIENCIA and PROINNOVATE; (c) technical assistance for PROINNOVATE in technology appraisals and guarantees.
- III.4 Regarding the governance gaps of the STI system, a working group for the creation of the MINCYT was established at the Office of the Prime Minister analyzing several

⁴ There is an increasing trend in Latin America to establish Ministries of Science and Technology. Before 2018 only two countries had a Ministry of Science and Technology: Brazil (1988) and Costa Rica (1986). In 2007 Argentina created its own Ministry of Science and Technology. More recently in 2019 Chile established a Ministry of Science and Technology followed by Colombia in 2020. Although these ministries have different functions and roles, they signal an increasing prioritization of STI by governments of the Latin America region.

alternatives for the design of the new ministry in coordination with the National Congress. Nevertheless, the creation of a new ministry remained uncertain as the Congress in July formed a new board of directors with a new priority agenda. In this respect, the National Congress has withdrawn the MINCYT agenda from the legislative agenda for this year, causing even greater uncertainty about how the STI reforms could materialize. However, the rector role of CONCYTEC still remains stable regardless and the STI governance needs to be enhanced to empower CONCYTEC to carry out its certain functions they are weak at today, such as policy design, monitoring, evaluation and, horizontal coordination with sectorial ministries. Furthermore, an important task remains with CONCYTEC to identify and help the Ministry of Economy and Finance to allocate the public STI budget to PROCENCIA, PROINNOVATE and other National STI programs, as well as regularly evaluate the performance of these programs to propose evidence-based policy reforms and future institutional changes.

- III.5 Challenges remain at the implementation level as well. In the medium and long-term, it is expected to execute all country's STI funds through the two previously mentioned national programs: PROCENCIA and PROINNOVATE. In this regard, it is imperative to give a holistic examination of the current capacities and help them design effective financial and non-financial instruments. In the case of PROINNOVATE⁵Overall, its institutional capacity is at an intermediate level compared with its counterparts in the region due to its low level of autonomy and organizational flexibility in taking advantage of the opportunities for innovation. In addition, its information technology infrastructure, and high staff turnover are identified as weaknesses. PROINNOVATE needs to have a more flexible organization capable of quickly responding to national challenges such as the COVID-19 pandemic and climate change related natural disasters. It also needs to develop support for increasing digitization of production across sectors (particularly mining and agriculture) and enlarge its scope to tackle the needs of not only innovative firms and start-ups but also the large group of low productivity SMEs through technology extension services. Moreover, PROINNOVATE needs to improve its financial sustainability. Currently 100% of its resources are allocated through competitive matching grants which makes its operation highly dependent on the Treasury's budget transfers. Using reimbursable instruments such as loan, equity investment and issuing guarantees will make PROINNOVATE's operations more financially solid and stable.
- III.6 With regard to PROCENCIA, its instruments need to be developed to address the productive, social and environmental challenges of Peru. Currently, most of the instruments of that PROCENCIA operates are horizontal without strategic orientation. To counter this problem, PROCENCIA needs to develop capacities to design and implement long-term strategic scientific programs in thematic areas (such as forestry, climate change, health, etc). In addition, PROCENCIA needs to tackle gender and the unequal regional concentration of researchers. Female researchers account for 31% of the total researchers in Peru which is one of the lowest in the region while 60% of researchers are concentrated in Lima. Furthermore, PROCENCIA needs to develop an integrated digital platform to facilitate project application and evaluation. The current multiple platforms for each project stage make the whole application and

⁵ This National Program was created by merging the previous Innovation Program and the Aquiculture Innovation Programs. DS 009-2021-PRODUCE.

monitoring process inefficient. Lastly, PROCENCIA needs to improve the operations the Peru's large scientific research equipment by promoting practices of shared used, open access, networks of users and collaboration across institutions.

- III.7 Against this backdrop, Korean experience can provide a meaningful insight to Peru since the Korean National Innovation System has evolved over the past decades overcoming identical challenges of duplicated functions among organizations and ensuring effectiveness. Since the establishment of the Ministry of Science and Technology (MOST)⁶ in 1969, various public STI institutions have been deployed to carry out specific mandates. For example, the Korean National Science and Technology Commission (NSTC) was created for horizontal and vertical policy coordination across the ministries whose support programs were often being overlapped. This experience can be very useful for the recently created Ministerial Commission for Science and Technology in Peru. Furthermore, the practice of the Ministry of Science and ICT (MSIT) and the Korea Institute of S&T Evaluation and Planning (KISTEP) can be very relevant for the strengthened role of CONCYTEC following the reforms. As to the case of PROINNOVATE and PROCENCIA, operations of Korean STI agencies implementing STI programs, namely the National Research Foundation (NRF), the Korean Institute for the Advancement of Technology (KIAT), the Korean Technology and Information Promotion Agency for SMEs (TIPA) and Korea Technology Finance Corporation (KOTEC) among others can be of relevant references.
- III.8 **Strategic Alignment:** This TC is consistent with the Second Update of the Institutional Strategy (UIS) 2020-2023 (AB-3190-2) under the pillars of productivity and innovation and institutional capacity and rule of law by strengthening Peru's science, technology, and innovation (STI) system. Furthermore, this TC is consistent with the guidelines of the Innovation, Science and Technology Sector Framework (GN-2791-13) and is aligned with the priority area of the Sector Strategy on Institutions for Growth and Social Welfare (GN-2587-2) related to strengthening institutional capacities for innovation policies. Also, it is consistent with the Bank's Country Strategy (EBP) of Peru (2022-2026) (GN-3110-1) under the strategic objectives of: (i) strengthening the business climate and (ii) supporting business development. Finally, the TC is also well aligned with the KPK Fund's Operational Guidelines (CC-6015-1) in terms of its objectives of: (i) to support activities that promote S&T capacity and innovation, and (ii) strengthening of the performance of innovation systems at national and regional levels.
- III.9 The TC will contribute to the operational efforts of the Bank with the country by improving the institutional public arrangement of STI system for designing and implementing STI policies and instruments in the scope of the Innovation, Technological Modernization and Entrepreneurship Program (5287/OC-PE). The consultancies and activities of this TC will serve as technical inputs for enhancing the capacity of CONCYTEC at policy level as well as the functional roles of PROCENCIA and PROINNOVATE at the implementation level of the STI system.
- III.10 Furthermore, the TC will also contribute to accomplish policy commitments of Program to Improve Productivity and Competitiveness II (PE-L1276), which is

⁶ Currently Ministry of Science and ICT.

intended to support the Government of Peru in improving the productivity and competitiveness of the economy, through strengthening of public institutions dedicated to competitiveness policies - such as those of STI system- and improving the investment and innovation environments.

IV. Description of activities/components and budget

- IV.1 Component 1: A roadmap design for strengthening of CONCYTEC and recommendations on the STI governance system of Peru.** This component will analyze the status of the governance of Peru's national STI system given the recent institutional reform and support the strengthening of CONCYTEC as a steering body of the national STI system in Peru. A diagnostic study on the governance of Peru's national STI system will be conducted looking into the horizontal and vertical relations of the national actors, its overlapping functions as well as the deployment of resources at different levels⁷. Based on the diagnosis, a set of recommendations will be drawn for effective STI governance at the policy level. As a subcomponent, a case study on Korea's experience with the evolution of the STI governance will be conducted with focus on the identification of main role, functions, regulations, and resources of the MSIT. Based on this, the current capacities of CONCYTEC in design, articulation, monitoring, and evaluation of STI programs and projects will be examined along with its capacity gaps to act as a governing body of the national STI system. In parallel, to enhance the specific capacity in STI budgeting in relation to the public and private investment projects (PIP) financed by the Ministry of Finance, the STI gap indicators will be updated and complemented by the identification of alternative STI financing other than PIP. As a result, a roadmap and a series of recommendations will be put forward to close these gaps.
- IV.2 Component 2: Institutional evaluation and strengthening of existing innovation agencies and recommendations for the innovation agency ecosystem.** This component will analyze the strategic, political, operational, and technical capabilities of the executing innovation agencies, i.e., PROCENCIA and PROINNOVATE. The evaluation is expected to be carried out by a panel of reviewers composed of Korean and international experts with the scope including the following themes: strategic vision, mission, goals, roles, governance, instruments portfolio, funding mechanisms, management structure, staff profiles, technological platform, selection and monitoring process of projects, and impact evaluation, among others. Institutional capacities gaps to improve effectiveness will be identified and respective roadmaps and recommendations will be proposed to close these gaps. The review will be led by a selected Korean institute specialized in innovation and science policy design and evaluation with a team of reviewers from Korea, OECD countries and other Latin American countries. In addition, this component will examine the general ecosystem of public innovation agencies in Peru and how other innovation agencies could be designed or improve their existing functions, e.g., technological extension, public purchases, among others, in parallel with PROCENCIA and PROINNOVATE.

⁷ This will also include the assessment of the MEF's National Investment System regarding investment gap indicators for the STI sector and methodological guidelines for the identification and formulation of public investment in STI. The analysis will also include the mapping of the different sources of STI financing such as public-private investment instruments or sovereign funds.

IV.3 Component 3. Technical assistance for the pilot for technology appraisals for MSMEs. To support the diversification of portfolio of PROINNOVATE's financial instruments, the Bank will conduct a pilot of technology appraisals in cooperation with Korean Technology Finance Corporation (KOTEC), the first government agency issuing letters of guarantees based on businesses' technology potential and viability. In this component, the Peru's Technology Rating system (PTRS)⁸ model developed in 17/18 KSP project will be tested on innovative and tech-intensive SMEs. KOTEC will design a work manual for professionals in charge of technology appraisals and conduct a pilot in close consultation with PROINNOVATE, FOGAPI and COFIDE, having PROINNOVATE as a leading execution agency. After the pilot, the results of appraisals will be evaluated by KOTEC experts, and the model will be fine-tuned for better precision. This component will be carried out in parallel with the IDB operation -Innovation, Technological Modernization, and Entrepreneurship Program (PE-L1263) which will provide SMEs participating in the pilot as well as the funding for the technological guarantees program. KOTEC's support has been assured and will go through a single source selection process considering the exclusivity of its specialty and continuity from 17/18 KSP project where the PTRS was also developed by KOTEC.

Indicative Budget

Activity/Component	Description	IDB/Fund Funding	Counterpart Funding	Total Funding
Component 1	A roadmap design for strengthening of CONCYTEC and recommendations on the STI governance system of Peru	250,000	0	250,000
Component 2	Institutional assessment, roadmap design and recommendations for the strengthening of PROCENCIA and PROINNOVATE.	100,000	0	100,000
Component 3	Technical assistance for the pilot of technology appraisals for MSMEs	100,000	0	100,000
Coordination and Evaluation		50,000	0	50,000
Total		500,000	0	500,000

IV.4 TC supervision will be given by the following designated focal points in the COF: Ventura, Juan Pablo, sector specialist responsible for execution, and Sergio Rodriguez Soria, consultant for technical coordination.

V. Executing agency and execution structure

V.1 This TC will be executed by the Bank upon the request of the beneficiaries. This is based on the Bank's capacity to implement technical cooperation projects, its

⁸ In 2017/18, KOTEC carried out a KSP program with Innovate Peru – the predecessor of PROINNOVATE –, the Small Industry Guarantee Fund (FOGAPI) and the Peruvian National Development Bank (COFIDE). The KSP program focused on sharing experience of the Korean technological guarantees model and assessed the conditions for its implementation, previous local adaptation, to the Peruvian context. A first version of Peruvian technological guarantees model was developed and this will be piloted with the IDB funding (PE-L1263).

knowledge of identifying highly qualified international consultants, and its experience in similar operations among different countries in the region. Bank's execution complies the Procedures for the Processing of Technical Cooperation Operations and Related Matters (OP-619-4), in which, among others, the procedures indicate that in the case of technical cooperation operations executed by the Bank, the beneficiary must expressly request in writing that the Bank carry out the selection and contracting of consulting services, the Bank must have sufficient experience in the area to be able to carry out the selection and contracting of consulting services and the requesting entity does not have the technical, operational or institutional capacity necessary to duly and timely execute the activities foreseen in the project.

- V.2 Currently, neither CONCYTEC, PROINNOVATE and PROCENCIA have previous technical experience in the design of a Ministry of Science, Technology, and Innovation and in the institutional evaluation of research and innovation agencies. In this context and in line with the criteria established in Annex II of the Procedures for Processing Technical Cooperation Operations (OP-619-4), this project will be executed by the Bank, through the Competitiveness, Technology and Innovation Division, given its experience in the area of this TC to achieve a timelier implementation and an independent review of the different consultancies financed.
- V.3 The procurement of individual consulting services will be carried out by the Bank, in accordance with the IDB's Human Resources Department regulations (AM-650). The procurement of firm consulting services will be carried out by the IDB in accordance with the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (GN-2765-4) and its Operational Guidelines (OP 1155-4); and other non-consulting services in accordance with the IDB Institutional Procurement Policy (GN-2303-28).
- V.4 In the same manner, KOTEC will be hired through SSS for technology appraisal pilot for SMEs due to its significant advantage held for assuring continuity from a previous project and its excellency of work; the firm developed the PTRS model in 2017 with the national counterparts in 17/18 KSP project to which applies the exception for SSS(GN-2765-4): "for tasks that represent a natural continuation of previous work carried out by the firm".

VI. Major issues

- VI.1 Potential project risks are associated with the possible absence of the leadership from CONCYTEC during and after the operation related with the creation of the MINCYT. A close monitoring will be followed by IDB staff in the field which will maintain a permanent dialogue with the Office of the Prime Minister and MEF to unblock potential problems. With regards to PROCENCIA and PROINNOVATE no major risks have been identified provided that both Programs are fully operational and have resources from both WB and IDB to support the implementation of their respective reforms.
- VI.2 The products and results of the TC will be shared with the main authorities of Office of the Prime Minister and PRODUCE through workshops and virtual working groups and through discussion documents. In addition, regular communication will be maintained

with the Country Representation and the KPK fund coordinator to share the products and results of the TC.

VII. Exceptions to Bank policy

VII.1 There are no exceptions to the Bank policy.

VIII. Environmental and Social Strategy

VIII.1 Based on the characteristics of the project, no negative environmental or social risks are expected, thus the classification of this operation is Category “C” in accordance with the Environment and Safeguards Compliance Policy (OP-703).

Required Annexes:

[Request from the Client - PE-T1510](#)

[Results Matrix - PE-T1510](#)

[Terms of Reference - PE-T1510](#)

[Procurement Plan - PE-T1510](#)