

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

ARGENTINA

SCIENCE AND TECHNOLOGY SCHOLARSHIP PROGRAM

(AR-L1156)

LOAN PROPOSAL

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ELECTRONIC LINKS	
REQUIRED	
1.	Annual work plan for the first disbursement and implementation http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37886996
2.	Monitoring and Evaluation Plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37875800
3.	Project procurement plan http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37875814
OPTIONAL	
1.	Program Operating Regulations http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37875775
2.	Itemized budget http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37876022
3.	Economic analysis http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37887169
4.	Demand study http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37887070
5.	Supply study http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=38034648
6.	Technical note on competitiveness and innovation http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37886269
7.	Strategy for the reintegration of scholarship recipients in the productive sector http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37921851
8.	Networking events for scholarship recipients – program for the first event http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37922234
9.	National Science, Technology, and Productive Innovation Plan 2012-2015 http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37922364
10.	Safeguard Policy Filter (SPF) and Safeguard Screening Form (SSF) http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37876859

ABBREVIATIONS

CONICET	Consejo Nacional de Investigaciones Científicas y Técnicas [National Scientific and Technological Research Council]
CQS	Selection based on the Consultants' Qualifications
ICB	International competitive bidding
INDEC	National Statistics and Census Institute
JGM	Jefatura de Gabinete de Ministros [Federal Cabinet Office]
LMS1	Loan management system
MINCYT	Ministry of Science, Technology, and Productive Innovation
OECD	Organization for Economic Cooperation and Development
PNCTI	National Science, Technology, and Innovation Plan
QCBS	Quality- and Cost-Based Selection
R&D	Research and development
RICYT	Network for Science and Technology Indicators – Ibero-American and Inter-American
SEPA	Procurement Plan Execution System
SMEs	Small and medium-sized enterprises
STI	Science, Technology, and Innovation
TFP	Total factor productivity
TIP III	Technological Innovation Program III
UEPEX	Executing Units for Externally-funded Projects

PROGRAM SUMMARY

ARGENTINA SCIENCE AND TECHNOLOGY SCHOLARSHIP PROGRAM (AR-L1156)

Financial Terms and Conditions					
Borrower: Argentine Republic			Flexible Financing Facility*		
			Amortization period:		25 years
			Original weighted average life (WAL)		15.25 years
			Disbursement period:		5 years
Executing agency: Jefatura de Gabinete de Ministros [Federal Cabinet Office] (JGM)			Grace period:		5.5 years
			Inspection and supervision fee:		**
			Interest rate:		LIBOR
Source	Amount	%	Credit fee:		
IDB (Ordinary Capital)	US\$24,000,000	90.2	**		
Local	US\$ 2,600,000	9.8	Currency:		
Total	US\$26,600,000	100.0	U.S. dollars from the Bank's Ordinary Capital		
Program at a Glance					
Program objective/description: The objective of the program is to help increase economic productivity by improving the supply of advanced human capital in the areas of science and technology. To achieve this objective, the program will include two components with actions and instruments to enable more Argentine professionals to study a master's degree abroad, and more enterprises and science and technology institutions to train their human resources at international centers of excellence.					
Special contractual conditions: Special conditions precedent to the first disbursement: submission of evidence that (i) the program's Operating Regulations, consistent with terms agreed on in advance with the Bank, have taken effect; and (ii) a computer system for online submission, evaluation, and monitoring of scholarship applications and applicants is operational (paragraph 2.2).					
Exceptions to Bank policies: None					
Project qualifies as:		SEQ []	PTI []	Sector []	Geographic [] Headcount []

* Under the terms of the Flexible Financing Facility (FN-655-1), the borrower has the option of requesting changes to the amortization schedule, as well as currency and interest rate conversions, subject in all cases to the final amortization date and original weighted average life (WAL). In considering such requests, the Bank will take into account market conditions and operational and risk management considerations.

** The credit fee and the inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with applicable policies.

I. PROGRAM DESCRIPTION AND RESULTS MONITORING

A. Background and challenges

- 1.1 The Argentine economy has been growing steadily in recent years, and is experiencing a transition from high growth to more moderate growth. The gross domestic product (GDP) grew at an average 8.8% a year during the period 2003-2007 and 5.1% in 2008-2012. This momentum has largely been based on expansion in the domestic market and exports. However, even though growth in output has been accompanied by a slight increase in productivity, the gap with other developed countries remains wide. The medium-to-long-term sustainability of the country's growth hinges crucially on its ability to boost the productivity and competitiveness of the productive sector. To move toward these objectives, international experience suggests that it is important to promote policies to build technology and innovation capacities, especially in the area of human capital.¹
- 1.2 According to a Bank study,² Argentina's total factor productivity (TFP) index with respect to the United States was 72% in 2007. In addition, the difference in productivity between different sized companies in Argentina is wider than in more advanced countries.³ Among the many factors that explain these gaps are lack of investment in innovation activities and in training of highly qualified human resources.⁴ In Argentina, investment in research and development (R&D) grew from 0.44% of GDP in 2004 to 0.62% in 2010, but remains below the average for the region (0.67%) and of the Organization for Economic Cooperation and Development (OECD) countries (2.29%). In particular, firms invest very little in R&D, devoting just 0.2% of sales for that purpose, far below the 2.2% in OECD countries. Low innovation is partially associated with a lack of human resources with appropriate skills to manage and perform R&D. In fact, a lack of human resources is an obstacle to innovation of medium to high importance in 40% of Argentine firms.⁵
- 1.3 According to statistics published by the Network for Science and Technology Indicators (RICYT),⁶ Argentina lags behind in terms of advanced human resource training and availability of researchers, especially in the areas of natural and exact sciences, engineering and technology, and agricultural sciences (Table 1). Although there has been an improvement in the number of graduates in recent years, the country still lags behind its regional and international peers, especially in terms of

¹ See innovation policy trends in the OECD Science, Technology and Industry Outlook 2012.

² IDB, The Age of Productivity, 2010.

³ The productivity of small and medium-sized enterprises represents 23.42% and 44.69% of the productivity of larger enterprises, respectively, while in countries like the United Kingdom or France, these percentages range between 60% and 80% (see [optional link 8](#)).

⁴ IDB, The Age of Productivity, 2010. Crespi, G. and Zuniga, P. (2012), Innovation and Productivity: Evidence from Six Latin American Countries, World Development 4(2):273-90.

⁵ IDB, Science, Technology, and Innovation in Latin America and the Caribbean. A Statistical Compendium of Indicators, 2010.

⁶ The indicators are available at www.ricyt.org.

master's degree graduates. The number of annual master's degree graduates in the above mentioned fields per 1,000 people in the economically active population (EAP) in Argentina, is below the average for the region and countries such as Brazil, Chile, and the United States. Also, Argentina has about three researchers per 1,000 people in the EAP, well below the OECD average, where the indicator is close to eight. Even more worrisome is the low number of researchers hired by enterprises. Since 1997, the percentage of researchers employed by businesses has fallen from 16.3% to 9% (verified in 2010), which ranks Argentina below Brazil (26%) and Chile (24%), and even further behind the OECD countries (65%).

Table 1. Training of human resources in natural and exact sciences, engineering and technology, and agricultural sciences, and researchers per 1000 economically active people

Country	Argentina (2010)	Brazil (2010)	Chile (2009)	USA (2008)	Latin America (2010)	Ibero America (2010)
Master's	0.03	0.12	0.13	0.48	0.10	0.11
Doctorates	0.05	0.04	0.04	0.16	0.03	0.04
Researchers	2.88	1.36	0.68	9.17	1.09	1.65
% of researchers working for businesses	9%	26%	24%	79%	23%	27%

Source: RICYT (2013).

- 1.4 The relative deficit in highly-skilled human resources is associated with several weaknesses in the higher education system. First, the Argentine university system, although prestigious and growing,⁷ has an academic level below that of developed countries. To illustrate, according to the latest report from the Academic Ranking of World Universities, only one Argentine university is among the top 500 in the world. Second, there are some thematic deficiencies in the supply of graduate courses. According to the 2013 report on accredited graduate programs by the National Commission for University Evaluation and Accreditation (CONEAU), only 21% of master's and specialized programs are in basic and applied sciences.⁸ Also, when considering only programs of the highest academic level,⁹ the number of programs falls to 67, representing 14.5% of the supply of these disciplines (see [optional link 4](#)). Lastly, these subject areas are relatively less appealing to

⁷ Between 2000 and 2010, the total university population grew at an annual average rate of 2.5%. In 2010, there were 1.7 million undergraduate and 110,000 graduate students.

⁸ Basic sciences include mathematics, physics, chemistry, biology, astronomy, and astrophysics. Applied sciences include agricultural, technological, and earth sciences, architecture, computer science, statistics, biochemistry, pharmacy, environmental sciences, and biotechnology.

⁹ These refer to graduate programs accredited by the CONEAU as category A: excellent. The other categories are B: very good, and C: good.

undergraduate students,¹⁰ and many students, especially in engineering, are recruited by companies before they graduate so as to secure human resources.¹¹

- 1.5 These weaknesses in the higher education system are further compounded by the limited availability of aid for advanced studies abroad, especially in basic and applied sciences. The lack of systematic public funding for study abroad impacts the profile and number of students at this level. In fact, a recent survey indicates that the supply of such incentives is limited to very few foundations and foreign governments, which provide scholarships for Argentine students to pursue a master's or doctoral degree (in any academic field) at universities in the countries they represent. However, these scholarships generally depend on very volatile budget allocations, and the selection of beneficiaries is solely based on academic excellence, with no relevance criteria. These scholarships are supplemented by those offered through agreements between the Ministry of Education and its international counterparts, aimed exclusively at public university academics pursuing purely academic purposes. Data from different sources indicate that just over 200 graduate students a year receive financial support to study abroad, of which a very small proportion are students in basic and applied sciences (see [optional link 4](#)).
- 1.6 In an environment of sustained economic growth, the relative deficit of highly-skilled human resources creates a bottleneck for the development of the productive system, especially for medium and high technology undertakings and companies. According to data from the Observatorio de Empleo y Dinámica Empresarial [Employment and Business Dynamics Observatory] (OEDE), there was a significant recovery after the 2002 crisis with the stock of companies growing from just over 300,000 in 2002 to over 500,000 in 2011. The growth in the number of businesses was accompanied by a rise in registered employment, increasing from 3 to 5 million jobs in industry, trade, and services. In many cases, particularly at higher skill levels, demand for resources could not be fully satisfied, as shown by unmet labor demand statistics and available sector studies (see [optional link 4](#)). According to National Statistics Institute (INDEC) data, between 2005 and 2012, about 40% of companies were seeking to fill positions, with 10% to 15% of them unable to find the profiles sought (unmet labor demand). Moreover, there was increased demand for highly skilled profiles, including professionals with master's

¹⁰ In 2010, university students in applied sciences accounted for one quarter of the total student population.

¹¹ The shortage of professionals in the software industry forces companies to recruit students who, seduced by the high salaries, defer or abandon their academic training. According to the Argentine Chamber of Software Companies and Information Services (CESSI), 31% of workers in the industry dropped out of a university program.

degrees and/or specific skills that can only be acquired through specialized instruction, sometimes not provided by the country's academic institutions.¹²

- 1.7 Manufacturing, trade, and services businesses account for the highest proportion of professionals sought for unfilled job openings. Moreover, in the manufacturing sector, the shortage of professionals is more acute in the high-technology areas.¹³ The professional profiles in greatest demand concern the various engineering fields and their specializations. However, demand for specialized technicians is also strong, especially in sectors with a preponderance of small and medium-sized enterprises (SMEs), such as agricultural machinery, wood and furniture, and software. For example, sector studies identified the need for engineers specializing in areas including food, chemicals, electronics, information security, and project management, and different types of technical specialization in production (see [optional link 4](#)).
- 1.8 Not only does the shortage in highly-skilled human resources affect businesses, but it also limits the future growth of public institutions dedicated to the development of scientific and technological activities. In recent years, entities such as the National Agriculture and Livestock Technology Institute (INTA), the National Industrial Technology Institute (INTI), the National Scientific and Technological Research Council (CONICET) and the National Commission for Space Activities (CONAE) have strengthened their capacity significantly, which has included expanding the professional staff. Between 2006 and 2010, full-time equivalent dedicated R&D staff increased from 23,397 to 31,307. Sustaining this growth requires mechanisms to supplement existing ones to train advanced human resources.

B. Rationale

- 1.9 In recent years Argentina has made sustained efforts to improve its science, technology, and innovation (STI) indicators. The issues remaining to be addressed are covered by the National Science, Technology, and Innovation Plan (PNCTI) 2012-2015 (see [optional link 9](#)).¹⁴ The plan includes two specific objectives: (i) continue strengthening the national STI system by training human resources and improving infrastructure; and (ii) promote a culture of entrepreneurship and innovation aiming to develop a new productive profile that generates value-added, and high quality, more knowledge-based jobs. This program will contribute to the

¹² INDEC statistics are consistent with other available studies. A 2012 survey by the ManpowerGroup shows that Argentine employers have trouble filling vacancies with a high technical profile, especially in engineering. The 2011 PwC annual global survey of CEOs confirms that for Argentine companies, the availability of talent is one of the chief threats to growing their businesses.

¹³ The breakdown of the average proportion of professionals in the unmet demand for the 2005-2011 period was 22.5% in primary activities, 25.6% in trade and services, and 26.6% in manufacturing. Among manufacturers, 40.4% of those with high technological content had unmet demand for professionals.

¹⁴ The PNCTI 2012-2015 was developed with the participation of more than 350 experts, including private sector representatives, and has been validated by different entities, including the Federal Science and Technology Council (COFECYT) and the Interagency Science and Technology Council (CICYT).

twin goals of PNCTI 2012-2015. In particular, it will address the challenge of increasing the supply of advanced human capital to foster innovation, entrepreneurship, and productivity.

- 1.10 The program will help expand and improve an existing mechanism to provide scholarships for professional and technical training abroad (<http://bec.ar>), administered by the Federal Cabinet Office (JGM) with financing provided by the Technological Innovation Program III (TIP III) (operation 2777/OC-AR) (see paragraph 1.13). With this program, the mechanism will include new types of scholarships to meet the different business and institutional needs for human resources. In fact, scholarships will be awarded for master's programs in a broader range of countries and short stays for doctoral programs, with the expectation that graduates will be hired primarily by medium and large enterprises, and science and technology institutions. The program will also include short stay scholarships to meet the need for highly specialized training, with separate calls for candidates from different sized firms and institutions. The candidates proposed by firms and institutions for this line should have two years of technical training or equivalent work experience, which is expected to address the needs of SMEs. It is also expected that professionals trained under the program, especially at the master's and doctoral levels, will help build the capacities of the national university system over the medium-term.
- 1.11 The scholarships awarded under the program will focus on areas of basic and applied sciences (see footnote 8) and should help create the priority intervention opportunities identified in the PNCTI 2012-2015.¹⁵ Through these scholarships, not only will Argentine professionals and technical specialists acquire specific skills and knowledge, but they are also expected to benefit from the international exposure and experience, which, among other things, will help them join global networks for professional cooperation. The latter consideration is one of the main factors underlying similar, but larger, initiatives undertaken by several countries in the region.¹⁶
- 1.12 This operation will be supporting the only mechanism in the country to award scholarships for studies abroad that is funded with public resources. Thus, it will

¹⁵ The PNCTI 2012-2015 identified opportunities for intervention in specific territorial areas based on the coordination of General Purpose Technologies (nanotechnology, biotechnology, information and communications technologies (ICTs)) with goods and services production sectors (agroindustry, environment and sustainable development, social development, energy, industry, and health). For more details, see [optional link 9](#).

¹⁶ Chile, for example, through the Becas Chile program (www.becaschile.cl), awarded 2,297 scholarships between 2008 and 2011 for master's degree study abroad and 578 internship grants. In the same time frame, ICETEX of Colombia awarded more than 5,000 grants and loans for master's degrees. The Ciencias sem fronteiras program in Brazil set a target of 100,000 grants, of which more than 7,000 are for short stays for technological development. No impact evaluations are available for these programs because they have only been in operation a few years. However, results for the Mexican program are described in paragraph 1.29. To transfer the lessons learned from these initiatives to this operation, a workshop will take place in August attended by technical and political representatives from each initiative, the executing agencies, and the Bank.

complement other bilateral cooperation efforts with countries such as the United States, France, Italy, and Brazil, as well as other public policies to promote the development of highly-skilled human resources, such as grants awarded by the Ministry of Science, Technology, and Productive Innovation (MINCYT) and the National Scientific and Technological Research Council (CONICET), for doctoral and master's programs in the country, and training in technical skills offered nationally by the Ministry of Labor, Employment, and Social Security (MTEySS) for specific productive sectors.

- 1.13 **The Bank's participation.** This program is associated with and complements the TIP III operation (operation 2777/OC-AR), approved in 2012 for an amount of US\$200 million, which included a subprogram for human capital formation for innovation for US\$20 million. This subprogram has already conducted four calls for master's degree and specialized training programs, with high demand among students and professionals, employing transparent, efficient selection processes.¹⁷ This operation will expand the grant mechanism implemented under TIP III, incorporate new grant modalities to meet specific business and institutional needs, and diversify the host countries for scholarship recipients. The primary countries selected for TIP III were the United States and Brazil; the program will now incorporate additional countries with prestigious academic institutions, well qualified to address the training needs identified by the program, such as France, Italy, Korea, and Germany. Together, these two initiatives are expected to train 1,500 professionals abroad by 2017, which will partially cover the estimated private sector demand for professionals.¹⁸
- 1.14 **Strategic alignment.** The program is aligned with the Bank's country strategy with Argentina 2012-2015 (document GN-2687), specifically with the priority area of private sector development. In particular, a significant proportion of human resources trained under the program are expected to help increase the productivity of firms outside the pampas region, especially those in the Norte Grande region.¹⁹ Moreover, this project is included in the Bank's 2013 Operational Program Report (document GN-2696). In the framework of the Ninth General Capital Increase (GCI-9), the program contributes to the target of program beneficiaries fostering increased in labor productivity (Social policy for equity and productivity).

¹⁷ As part of TIP III, subprogram II, calls were issued in 2012 for the science and technology master's grants in the United States with the Fulbright Foundation, having selected 48 candidates due to begin their master's in August 2013; and for specialization grants in innovation and technology with the Getulio Vargas Foundation in Brazil, for which 40 students were selected, having successfully completed the specialization program from July to December 2012. In 2013 there will be a second round of calls for master's grants in the United States and specialization grants in Brazil.

¹⁸ [Optional link 4](#) presents an estimate of private sector quarterly demand for professionals.

¹⁹ The competitions will prioritize the sectors having an impact on these provinces, and applicant career plans will be evaluated to ensure they are aligned with the priorities (see paragraph 2.4).

C. Program objective, components, and cost

- 1.15 The objective of the program is to help increase economic productivity by improving the supply of advanced human capital in the areas of science and technology. To achieve this objective, the program will include two components with actions and instruments to enable more Argentine professionals to undertake graduate studies abroad, and more enterprises and science and technology institutions to train their human resources at international centers of excellence.
- 1.16 **Component I. Scholarships for master's degrees in science and technology.** This component will provide financial and logistical support for an estimated 460 Argentine professionals to study in master's degree programs at prestigious universities in countries with which the JGM has signed bilateral cooperation agreements. Program support will focus on master's programs of up to two years in priority scientific and technological areas identified in the PNCTI 2012-2015.
- 1.17 Argentine national and resident professionals, who graduated from a university program of at least four years, work in priority development areas and commit to return to work in the country will be eligible for the financing. The beneficiaries will be selected through transparent public competitive processes, which will be widely disseminated throughout the country, especially in the outlying provinces and among women, and supervised by the Bank. The scholarship recipients will be selected by a tripartite committee consisting of experts from the MINCYT, the JGM, and the institution designated by the host country, and will be supervised by the Bank. Before being published, the results of the competitions will have the Bank's no objection. Financing will be up to US\$90,000 per beneficiary and will cover tuition, travel, and living expenses. Countries eligible for master's grants are: United States, France, Italy, Germany, Canada, Finland, Japan, Spain, Mexico, and Brazil. Other countries may be incorporated into the program with the Bank's prior no objection. In the case of master's programs in the United States, grant recipients will be part of the U.S. President's "100,000 Strong Initiative." Further details concerning this component are included in the program's Operating Regulations.
- 1.18 To facilitate the reintegration of scholarship recipients trained abroad, this component will include: (i) networking activities (such as workshops, seminars, and networking events) to link beneficiaries with science and technology institutions and with businesses; and (ii) monitoring activities during and following the grant period, using cross-cutting tools for networking and dissemination, including an online platform (<http://bec.ar>). The calls will increasingly target the productive sector's training needs, especially in outlying provinces, and cooperation agreements are expected to be signed with companies and institutions to ensure the reintegration of grant recipients in priority sectors and regions. In addition, to mitigate the risk that the country will be unable to take advantage of the trained resources, grant recipients will be required to repay the aid received if they do not return to the country after completing their studies ([optional links 7](#) and [8](#)).

- 1.19 **Component II. Grants for short-stay science and technology training.** This component will provide financial and logistical support for an estimated 390 Argentine professionals and specialists employed in scientific and technological companies and institutions, to take short but highly specialized courses abroad. This component includes the following subcomponents:
- 1.20 **Subcomponent I. Short stays.** This subcomponent will finance technical visits and short training programs of up to nine months, to enable an estimated 300 professionals and specialists employed in companies and institutions of the science, technology and innovation (STI) system to acquire specific knowledge or develop practical knowledge in areas of national priority identified in the PNCTI 2012-2015. The subcomponent will operate through three types of calls to train human resources: (i) small and medium-sized enterprises (SMEs); (ii) large goods and services enterprises; and (iii) Argentine STI institutions.
- 1.21 Eligibility will be determined on the basis of proposals submitted by duly established STI enterprises and institutions, using a predetermined format to present training plans for which human resources have been identified. These human resources will be Argentine nationals and residents, have graduated from university or technical programs of not less than two years duration, or have equivalent professional experience, and express their commitment to return to work in the country. With aid of up to US\$25,000 per person, eligible activities include all those geared to training in technological management and innovation, production and processes, excluding those related to management, marketing, and finance. Proposals for commercial visits and attending fairs and events will not be considered, as a range of public programs to support these activities already exists. Each call for submissions will stipulate the required minimum counterpart contribution to be provided by the applicant company or institution. The details concerning this subcomponent are included in the program's Operating Regulations.
- 1.22 The evaluation criteria for proposals submitted by companies and institutions will be as follows: (i) consistency with the priority areas identified in the PNCTI 2012-2015; (ii) professional profile of the human resources proposed as candidates; and (iii) the socioeconomic impact of the technological and production problem to be addressed. The beneficiaries will be selected through transparent public competitive processes, which will be widely disseminated throughout the country, especially in the outlying provinces, and supervised by the Bank. In all cases, the grant recipients will be selected by an evaluation committee of experts from the MINCYT and the JGM, supervised by the Bank. Furthermore, before being published, the results of the competitions will have the Bank's no objection.
- 1.23 **Subcomponent II. Doctoral grants.** This subcomponent will finance an estimated 90 grant recipients who, as part of a doctoral program in Argentina, wish to study on a short stay of up to nine months at academic institutions or research centers of recognized prestige in the United States, or other countries added to the program

upon prior acceptance by the Bank, in the country's priority scientific and technological areas.

- 1.24 Eligible recipients of these short-stay doctoral grants will include Argentine national and resident professionals pursuing a doctoral degree in Argentina who wish to conduct research relating to a doctoral thesis with potential application in the priority areas identified in the PNCTI 2012-2015, and who commit to return to work in the country. The beneficiaries will be selected through transparent public competitive processes, which will be widely disseminated throughout the country and supervised by the Bank. The calls will be issued jointly by the JGM, CONICET, and the Fulbright Commission (or the applicable entity), that will also make up the evaluation committee supervised by the Bank. Before being published, the results of the competitions will have the Bank's no objection.
- 1.25 Financing will be up to US\$45,000 per beneficiary and will cover tuition, travel, and living expenses. The grant recipients will be required to repay the aid received if they do not return to the country at the conclusion of the study program. Details concerning this subcomponent are included in the program's Operating Regulations.
- 1.26 **Program cost.** The program will cost an estimated total of US\$26.6 million, of which the Bank will finance US\$24 million and the JGM US\$2.6 million (Table 2)

Table 2. Program cost (US\$)

Components	IDB	Local	Total	%
1. Component I: Master's degree grants	16,000,000	100,000	16,100,000	60.5
1.1 Master's in priority areas	15,900,000	0	15,900,000	59.7
1.2 Communications and logistics	100,000	100,000	200,000	0.8
2. Component II: Short-stay and doctoral grants	7,000,000	1,000,000	8,000,000	30.1
2.1 Short-stay grants	4,500,000	950,000	5,450,000	20.5
2.2 Doctoral grants	2,400,000	0	2,400,000	9.0
2.3 Communications and logistics	100,000	50,000	150,000	0.6
3. Administration, evaluation, and audit	500,000	1,000,000	1,500,000	5.6
3.1 Administration	250,000	900,000	1,150,000	4.3
3.2 Audit and evaluation ²⁰	250,000	100,000	350,000	1.3
4. Contingencies	500,000	0	500,000	1.9
5. Finance charges	0	500,000	500,000	1.0
TOTAL	24,000,000	2,600,000	26,600,000	100.0

D. Key results indicators

- 1.27 **Expected impacts and outcomes.** The program is expected to help increase economic productivity by improving the supply of advanced human capital in the areas of science and technology. This will be measured through the indicators

²⁰ The estimated monitoring and evaluation budget is US\$250,000 (see [required link 2](#)).

shown in the Results Matrix, which include: (i) increase in labor productivity and total factor productivity for beneficiary firms measured against the control group; (ii) percentage increase in researchers working in R&D for the productive sector; (iii) percentage of program beneficiaries with a master's in science and technology who rejoin the productive sector and STI institutions; (iv) increase in the income differential between program beneficiaries with a master's in science and technology and the control group, and (v) increase in scientific output between doctoral grant recipients and the control group.

- 1.28 **Key indicators.** In accordance with the objective and targets described, the output indicators will report on each type of scholarship awarded. The indicators will be verified using the database created by the program's executing unit and publications appearing on the JGM website. In addition, growth will be monitored in the number of women and the number of scholarship recipients from different regions in the country, particularly the Norte Grande provinces. The details and targets are included in the Results Matrix in Annex II.
- 1.29 **Focus on outcomes, impact, and evaluability.** There are several studies showing positive outcomes and impacts and confirming the viability of complex evaluations for training or capacity-building programs for advanced human capital. Recent studies on international scholarship programs with characteristics similar to these, conducted in Mexico, Canada, and the United Kingdom, show that they have been effective in building capacity and knowledge to address social and productive issues, and help companies innovate.²¹ Specifically, the impact evaluation for the CONACYT-Mexico scholarship program for the period 1997-2006 identified significant outcomes and impacts.²² Among the most relevant outcomes, the training experience facilitated by the scholarship contributed to rapid integration into the labor market, a significant increase in salary after receiving the scholarship, and greater involvement in R&D activities within the firms hiring scholarship recipients. Moreover, the proportion of master's graduates working in companies shows that there is an important correlation between business needs and the training acquired by former scholarship recipients. It may not be possible to extrapolate this evidence to countries with less experience in this type of international scholarship programs. Argentina, however, through Subprogram II of operation AR-L1141, has already developed some basic skills to implement such a program with a high likelihood of success.

²¹ "Evaluación de Impacto del Programa de Formación de Científicos y Tecnólogos 1997-2006," Centro Redes, 2008 [Impact evaluation of the training program for scientists and technologists]; "Evaluation of the Canadian Francophonie Scholarship Program (CFSP), 1987-2005," Canadian International Development Agency, December 2005; "Evaluating Commonwealth Scholarships in the United Kingdom," CSC, March 2012; Measuring the economic impact of Commonwealth Scholarships: Identifying Methodologies for Cost Benefit Analysis and Value for Money," Nef Consulting, October 2012.

²² "Evaluación de Impacto del Programa de Formación de Científicos y Tecnólogos 1997-2006," Centro Redes, 2008.

- 1.30 **Economic viability and soundness of the project's benefits.** A cost-benefit analysis has been performed on the project's most relevant interventions estimating their potential benefits and costs. The results of the analysis indicate that a positive net present value of US\$16 million would be achieved in the baseline scenario. The analysis of each of the components also shows positive results, and sensitivity exercises show that these results hold up to changes in critical variables such as percentage of graduates, wage differential, graduates with employment, and the success factor of the companies supported. For 1,000 iterations, 99.88% showed positive net present values (see [optional link 3](#)).
- 1.31 **Sustainability.** The grant mechanism that will be expanded and enhanced under this program will continue over the medium and long term thanks to local efforts in line with the objectives of the PNCTI 2012-2015. Also, to sustain program outcomes, the JGM will use its own resources to enhance tools, such as the <http://bec.ar> virtual platform, aimed at maximizing the employment of scholarship recipients in STI businesses and institutions.

II. FINANCING STRUCTURE AND RISKS

A. Financing instrument

- 2.1 The program is structured as an investment loan and will be executed in five years.
- 2.2 Special conditions precedent to the first disbursement: submission of evidence that **(i) the program's Operating Regulations, consistent with terms agreed on in advance with the Bank, have taken effect; and (ii) a computer system for online submission, evaluation, and monitoring of scholarship applications and applicants is operational.**

B. Environmental and social safeguard risks

- 2.3 The program plans to finance human resources training activities, thus no negative environmental and social impacts are anticipated. In accordance with the Bank's Environment and Safeguards Compliance Policy, the program was classified as a category "C" operation requiring no additional environmental and social review. In the matter of gender, under the first component (scholarships for master's degrees in science and technology) there could be a greater concentration among the male population since there are fewer female engineering graduates, which could mean the program will not achieve the intended gender balance. To mitigate this risk, priority will be given to participation by women, assigning a higher score to the female gender in the application selection process, and the content of the communication campaigns will target women so as to promote their participation.

C. Technical and fiduciary risks

- 2.4 During the analysis mission, a risk management workshop was held, allowing the Bank and the counterpart teams to work together to identify the different types of risk that could impact program execution. The impact was assessed, as was the probability of occurrence of the risks, and mitigation measures were proposed for

the seven risks that ranked as high (one) and medium level (six). The high-level risk refers to the gender balance under component 1 (see paragraph 2.3). One of the medium-level risks is that a possible economic slowdown could affect execution of the two components. Demand for qualified personnel by the productive sector could drop resulting in a low labor market uptake of master's graduates (component I); and, if there is little demand for short-stay grants, it will not be possible to train the planned number of human resources (component II). To mitigate these risks, measures designed to promote the employment of scholarship recipients will be intensified in a medium-term scenario of low job demand due to an economic slowdown. Other medium level risks identified are: (i) high international competition for talent could dissuade the program's grant recipients from returning to Argentina, so the country would be unable to take advantage of the resources trained under the program. To address this risk, in addition to including a contractual clause whereby the grant recipient commits to return to the country, a special strategy will be implemented to promote employment in the Argentine labor market;²³ and (ii) employment of scholarship recipients in the labor market may occur primarily in the central provinces, thus failing to achieve the program's proposed territorial coverage. To mitigate this risk, priority will be given during the selection process to sectors with a regional impact, and applicants' career plans will be assessed, giving priority to those with an impact in provinces other than in the pampas region.

- 2.5 The medium-level fiduciary risks identified are related to potential delays/errors in the financial information provided by the program and potential disbursement delays if the detailed processes to pay the beneficiaries are not clearly defined. Mitigation measures include preparation of manuals describing functions and procedures, and training courses in the Bank's policies and procedures.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of institutional implementation arrangements

- 3.1 The borrower will be the Argentine Republic. The program's executing agency will be the JGM's Undersecretariat of Public Management and Employment (SGEP), acting through its specialized executing unit created in the framework of the TIP III (operation 2777/OC-AR). The unit has a general coordinator and five support units: operations management, dissemination, monitoring and evaluation, procurement, and financial administration. It also has an external network of expert evaluators and the support of national and international institutions to assist in the scholarship recipient selection processes.
- 3.2 Component I will be executed in phases, organized as follows: (i) signing of bilateral cooperation agreements with countries where there are centers of excellence offering master's programs in science and technology; (ii) signing of

²³ Details for this strategy are included in [optional links 7](#) and [8](#).

- cooperation agreements with institutions of international renown and prestige in educational promotion, exchange, and collaboration, such as the Fulbright Commission in the United States and Campus France in France; (iii) preparation of terms and conditions for annual calls for master's program scholarships in countries with which cooperation agreements have been signed and which have the Bank's no objection; (iv) publication and mass dissemination of the calls; (v) establishment of evaluation committees by the competent authority. These committees will comprise representatives of the JGM, MINCYT, and the host country cooperating institution; (vi) receipt and evaluation of scholarship applications; (vii) selection and award of grants, publishing the names of beneficiaries in the Official Gazette with the Bank's prior no objection; (viii) signing of contracts with the scholarship recipients; and (ix) payment of grants and monitoring of recipients during the study period and at least two years after completion thereof.
- 3.3 Component II will be executed in phases, organized as follows: (i) preparation of terms and conditions for annual calls for short stays for businesses, institutions, and doctoral programs; (ii) publication and mass dissemination of the calls, with special communication actions for the short-stay grants targeting SMEs; (iii) establishment of evaluation committees by the JGM competent authority. The committees will comprise representatives of the JGM and MINCYT; (iv) receipt and evaluation of short-stay grant applications; (v) selection and award of grants, publishing the names of beneficiaries in the Official Gazette with the Bank's prior no objection; (vi) signing of contracts with beneficiaries; and (vii) payments to beneficiaries and monitoring during their short stay and at least two years after completion thereof.
- 3.4 **Financial and fiduciary management.** Procurement and financial management of the program will be conducted in accordance with applicable Bank policies and as set out in the fiduciary agreements and requirements detailed in Annex III. Very limited procurement is anticipated since the program largely consists of financial aid to companies and individuals. In general, only consulting services will be procured. Procurement of such services will be included in the Procurement Plan approved by the IDB through the Procurement Plan Execution System (SEPA) and in accordance with the Special Conditions of the loan contract.
- 3.5 **Financial statements and external audit.** The JGM will submit financial statements and an audit report annually and at the end of the program. These reports will be submitted within 120 days after the year-end date (31 December) and 120 days after the last disbursement in accordance with the Financial Management Policy for IDB-financed Projects (document OP-273-2). The external audit will be conducted by an entity acceptable to the Bank and will include semiannual and annual financial statements and reports on the internal control system.
- B. Summary of arrangements for monitoring results**
- 3.6 **Annual work plan.** The JGM will prepare an annual work plan to be delivered at year-end with the semiannual report for the end of the previous year, and it will

- include a program of activities, a disbursement projection, and the updated procurement plan.
- 3.7 **Semiannual execution reports.** The JGM will deliver within 60 days after the end of each six-month period, or other agreed upon frequency, a project status report including details on outputs achieved and activities in execution in accordance with the indicators listed in the program Results Matrix; the monitoring and evaluation report based on the plan designed by the project team; and an analysis of problems encountered and corrective actions taken.
- 3.8 **Program evaluations.** The program will have a midterm and a final evaluation. The midterm evaluation will be performed after 24 months of execution or once 50% of the funds have been disbursed, whichever occurs first. For this first evaluation, consulting services will be contracted to review: (i) the operation of program execution mechanisms: organization of the executing unit and administrative and financial procedures, including the procedures for payments to scholarship recipients; (ii) partial results of the first calls and their relation to the targets and objectives indicated in the Results Matrix; and (iii) the evolution and initial outcomes of each agreement signed with a foreign institution that will help organize the grants awarded by the program. Based on this analysis, the consultant may make recommendations to help improve program performance for the remaining execution period. The final evaluation will be contracted once 90% of the funds have been executed, and at a minimum, the studies to be performed should include: (i) a review of the Results Matrix outcomes and outputs achieved; (ii) the operation and sustainability of the executing unit; (iii) the degree to which it has developed the capacity to coordinate with other key institutions of the Argentine scientific and technological system, and the quality of its ties with counterpart organizations in recipient countries; (iv) an analysis of the impact of the scholarships on recipients and on beneficiary businesses (see paragraph 1.27); and (v) the lessons learned for application in future projects. [Required link 3](#) provides details on the program's Monitoring and Evaluation Plan.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	Aligned		
Lending Program			
Regional Development Goals			
Bank Output Contribution (as defined in Results Framework of IDB-9)	Individuals (all, men, women, youth) benefited from programs to promote higher labor market productivity.		
2. Country Strategy Development Objectives	Aligned		
Country Strategy Results Matrix	GN-2687	Facilitate the access to businesses of highly qualified human capital.	
Country Program Results Matrix	GN-2696	The intervention is included in the 2013 Country Program Document.	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability	Highly Evaluable	Weight	Maximum Score
	8.7		10
3. Evidence-based Assessment & Solution	8.0	33.33%	10
4. Ex ante Economic Analysis	10.0	33.33%	10
5. Monitoring and Evaluation	8.1	33.33%	10
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	Medium		
Identified risks have been rated for magnitude and likelihood	Yes		
Mitigation measures have been identified for major risks	Yes		
Mitigation measures have indicators for tracking their implementation	Yes		
Environmental & social risk classification	C		
IV. IDB's Role - Additionality			
The project relies on the use of country systems (VPC/PDP criteria)	Yes	Financial Management: i) Budget, ii) Treasury, and iii) Accounting and reporting. Procurement: i) Information system (Sistema Electrónico de Compras Públicas Nacionales (SECOP)), and ii) Shopping method (Simplified procedure for purchases of \$75.000, equivalent to US\$ 15.000 through SECOP).	
The project uses another country system different from the ones above for implementing the program			
The IDB's involvement promotes improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor	Yes	The project will promote an increase in the labor market productivity.	
Environment			
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project	Yes	Two studies were funded to support the design of the project the first one to analyze the demand for highly skilled human resources and the second one to identify international institutions with short courses in advanced science and technology training. A workshop on best practices in international scholarship programs was also planned.	
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan	Yes	The impact evaluation of this project can provide a significant contribution to better understanding the effectiveness of scholarships for postgraduate education.	

The project is aligned with IDB institutional priorities. The project contributes to the output "individuals (all, men, women, youth) benefited from programs to promote higher labor market productivity". The project is aligned with the country strategy's objective to facilitate the access to businesses of highly qualified human capital.

The project document and its annexes provide a clear and complete justification for the project. Problems and their causes are identified and discussed. The project's potential beneficiaries are also identified. The project's metric is well defined and the results matrix includes valid indicators with baseline and targets.

The project document includes a complete cost/benefit analysis. It also includes a monitoring and evaluation plan (MEP) that is complete and follows the DEM outline. The evaluation strategy is based on a quasi-experimental methodology and is clearly defined.

The risks identified in the risk matrix are rated for magnitude, include mitigation measures and related metrics to track their implementation.

RESULTS MATRIX

Objective	The objective of the program is to help increase economic productivity by improving the supply of advanced human capital in the areas of science and technology. To achieve this objective, the program will include two components with actions and instruments to enable more Argentine professionals to study a master's degree abroad, and more enterprises and science and technology institutions to train their human resources at international centers of excellence.
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Impact

Impact	Measure- ment unit	Baseline 2012	Target 2018	Means of verification / Comments
1. Growth of total factor productivity (TFP) (difference in the percentage of change in TFP for beneficiary enterprises and the control group).	Index	1.00	1.15	<p>The indicator is calculated as the relative index of beneficiary enterprises' TFP compared to the control group. Formula:</p> $\left(\frac{Y_t^B}{(K_t^\alpha L_t^{1-\alpha})^B} \right) / \left(\frac{Y_t^{NB}}{(K_t^\alpha L_t^{1-\alpha})^{NB}} \right)$ <p>Where t=2012 in the baseline and t=2018 in the target. Having an index of 1 indicates that the beneficiary group and the control group have the same TFP in the baseline. The value (as a level) in the TFP baseline is not reported since in the literature it is generally used as an index (and evolution over time). To obtain the information, a survey of beneficiary and control group enterprises will be conducted (baseline and follow-up). A signed commitment will be required from all companies applying for the grant, pledging to respond to the follow-up survey regardless of whether or not they received the benefit. As reference for the baseline situation, labor productivity for Argentine manufacturing companies is equivalent to 17.9% of the productivity of companies in the United States. The data are taken from the Enterprise Survey 2010 and the Survey of Business Owners 2007. Also, according to the SME Map of the Ministry of Industry, in 2008, sales per worker were \$178,000 in the manufacturing sector, \$391,000 in trade, and \$81,900 in services. Lastly, according to the INDEC Economic Census 2004/2005, the value of production per worker in the manufacturing sector was \$227,000 in 2003.</p>
2. Increase in the percentage of private sector researchers. ¹	%	9.6	17	Impact indicator aligned with the Bank's country strategy with Argentina. Source: Argentina: Country Strategy 2012-2015 (document GN-2687). Data collected by RICYT and UNESCO.

¹ "Private sector researchers" refers to human resources dedicated to R&D activities, employed by companies.

Outcomes

Component I:		Improve advanced human capital through scholarships for master's degrees in priority areas of science and technology		
Outcomes	Measure- ment unit	Baseline 2012	Target 2018	Means of verification / Comments
1. Difference in the percentage change in income levels between master's scholarship recipients in science and technology and the control group.	%	0	70%	<p>It is calculated by the difference-in-differences method between applicants who were awarded or were not awarded a scholarship. The executing unit's database is used (semiannual monitoring of beneficiaries' labor and income status for at least two years after completion of the scholarship) and ad-hoc surveys (signed commitments will be required of all grant applicants pledging to respond to the follow-up surveys regardless of whether or not they received the benefit).</p> <p>The baseline reference is the average annual income of people who completed tertiary/university education, equivalent to US\$13,200 in 2012. Baseline data taken from the INDEC Permanent Household Survey.</p> <p>The target was set based on the earlier experience and is consistent with a positive net present value for Component I.</p> <p>Additional information: 90% of master's degree scholarship recipients in science and technology priority areas are expected to graduate and 80% are expected to rejoin the productive sector (private and public companies and institutions providing technology services).</p>

Component II:		Improve advanced human capital through grants for short-stay science and technology training		
Outcomes	Measure- ment unit	Baseline 2012	Target 2018	Means of verification / Comments
2. Difference in the percentage change of labor productivity between beneficiary enterprises and the control group.	%	0	10%	<p>It is calculated by the difference-in-differences method between enterprises with program grant recipients and enterprises that applied but were not awarded grants. Source: A survey will be conducted of beneficiary enterprises and the control group (baseline and follow-up). A signed commitment will be required from all companies applying for the grant, pledging to respond to the follow-up survey regardless of whether or not they received the benefit.</p> <p>As a proxy for the 2012 baseline labor productivity, the average monthly remuneration of registered private sector employees was \$6,389. Source: Employment and Business Dynamics Observatory of the Ministry of Labor. The target was based on the work of Crespi, G., Maffioli and Meléndez, M. (2013) who found that the impact on labor productivity of similar interventions in Colombia ranged between 10% and 15%. The average labor productivity log is 10.93.</p>

Component II:		Improve advanced human capital through grants for short-stay science and technology training		
Outcomes	Measure- ment unit	Baseline 2012	Target 2018	Means of verification / Comments
3. Difference in percentage change in investments in innovation activities ² between beneficiary enterprises and the control group.	%	0	15%	It is calculated by the difference-in-differences method between enterprises with grant recipients and enterprises that applied but were not awarded grants. A survey will be conducted of beneficiary enterprises and the control group (baseline and follow-up). A signed commitment will be required from all companies pledging to respond to the follow-up survey regardless of whether or not they received the benefit. Regarding the baseline situation, INDEC shows that in 2007 investment in innovative activities measured against sales was 1.43%. The target was established by reviewing the outcomes of programs in the region to promote entrepreneurial innovation.
4. Difference in scientific production (measured by the number of publications) between doctoral grant recipients and staff at STI institutions and the control group.	%	0	40%	The databases of the executing unit and of scientific and technological publications (SCI, SCOPUS) will be used. This information will be supplemented by a survey of doctoral grant beneficiaries and staff at STI institutions and the control group (baseline and follow-up). Regarding the baseline, in 2010, the Science Citation Index (SCI) recorded 11.4 publications per 100 full-time researchers. The target was based on the work of Benavente, J., Crespi, G., Figal Garone, L., Maffioli, A., (2012), who found that in the case of FONDECYT in Chile the impact was approximately 3 additional publications in a six-year window. The average for that window is 4 publications (with a deviation of 12).

² Innovation activities: any practice or action undertaken by a company to: transform an idea into a new or improved marketable product; develop a new or improved productive process, or make changes to the company's organization and management; introduce new or significantly improved sales or distribution methods.

Outputs

<i>Component</i>	Cost (US\$)	Baseline	Year 1 2014	Year 2 2015	Year 3 2016	Year 4 2017	Year 5 2018	Total	Measure- ment unit	Means of verification / Comments
Component I: Improve advanced human capital through scholarships for master's degrees in priority areas of science and technology										
• Indicator output 1:		Scholarships for master's degrees in science and technology								
1. Grants awarded	15,900,000	50	20	150	150	115	25	460	Grants	Executing unit database
Component II: Improve advanced human capital through grants for short-stay science and technology training										
• Indicator output 2:		Short-stay grants for SMEs								
2. Grants awarded	2,700,000	40	0	0	60	60	60	180	Grants	Executing unit database
• Indicator output 3:		Short-stay grants for large enterprises								
3. Grants awarded	900,000	0	0	0	20	20	20	60	Grants	Executing unit database
• Indicator output 4:		Short-stay grants for STI institutions								
4. Grants awarded	900,000	0	0	0	20	20	20	60	Grants	Executing unit database
• Indicator output 5:		Doctoral grants								
5. Grants awarded	2,400,000	0	30	30	30	0	0	90	Grants	Executing unit database

Special milestones	GENDER INDICATORS AND REGIONAL DISTRIBUTION			
Outcomes	Measurement unit	Baseline 2011	Target 2018	Means of verification / Comments
1. Women's proportion of total beneficiaries of science and technology master's degrees abroad	%	32.03%	35%	Executing unit database Baseline: Calls for master's degrees: Fulbright 2012 and 2013, France 2013, Italy 2013.
2. Women trained through short-stay grants	#	0	40	Executing unit database
3. Proportion of individuals from Patagonia, the northeast, and the northwest regions, in the total number of beneficiaries of science and technology master's programs abroad	%	25.49%	30%	Executing unit database. Baseline: Calls for masters degrees: Fulbright 2012 and 2013, France 2013, Italy 2013.

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country:	Argentina
Project number:	AR-L1156
Name:	Science and Technology Scholarship Program – Bec.Ar
Executing agency:	Federal Cabinet Office (JGM), acting through the Undersecretariat of Public Management and Employment (SGEP)
Fiduciary team:	Ignacio Vinocur and Gumersindo Velazquez

I. EXECUTIVE SUMMARY

- 1.1 The evaluation was performed using the Risk Management for Sovereign-guaranteed Projects methodology and weaknesses and their inherent fiduciary risks were identified. These elements have been included in the proposed supervision plan. The country's fiduciary management systems were evaluated using the Country Financial Accountability Assessment (CFAA) of 2008 and other means, and the executing agency was evaluated using the above-mentioned tool and found to be satisfactory. The project does not include financing from other multilateral agencies.

II. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY

- 2.1 The fiduciary systems of the Jefatura de Gabinete de Ministros [Federal Cabinet Office] (JGM) were previously evaluated and are considered satisfactory. When the Technological Innovation Program III (TIP III) (operation AR-L1141) was designed, the executing agency was evaluated using the Institutional Capacity Assessment System (ICAS) tool and a number of recommendations were identified to strengthen the program's executing agency, recommendations that are being implemented as planned. The program will use the UEPEX financial management and information system.

III. FIDUCIARY RISK EVALUATION AND MITIGATION MEASURES

- 3.1 The Bank's Project Risk Management (PRM) methodology was used to analyze the project's fiduciary risks, which were identified and rated. A risk mitigation matrix (RMM) and a preliminary risk mitigation plan were prepared for the project. The fiduciary risk of the project was found to be low in general terms; however, individual risks and the corresponding mitigation measures were identified. No

irremediable high-impact risks were found that would impede effective project execution.

A. Considerations for the Special Conditions of the contracts

3.2 To streamline contract negotiations by the project team and the Legal Department (LEG), in particular, the following agreements and requirements should be included in the Special Conditions:

- a. *Conditions precedent to the first disbursement:* Special conditions precedent to the first disbursement: submission of evidence that (i) the program's Operating Regulations have entered into effect; and (ii) a computer system for online submission, evaluation, and monitoring of scholarship applications and applicants is operational.
- b. *Exchange rate agreed on with the executing agency:* The exchange rate to be used will be established as follows:
 - (i) *Reimbursement of expenses incurred:* The program will use the exchange rate indicated in Article 4.09(b)(i) of the General Conditions, effective on the date the request for reimbursement or recognition of expenses is submitted to the Bank.
 - (ii) *Rendering of accounts (advance of funds):* The exchange rate indicated in Article 4.09(a)(i).
 - (iii) *Counterpart:* The exchange rate indicated in Article 4.09(b)(i) of the General Conditions, effective on the first business day of the month the payment is made.
 - (iv) *Disbursements in currency other than U.S. dollars or Argentine pesos:* In cases of direct payment and letter of credit guarantee reimbursement, the equivalence of the loan currency will be determined based on the amount actually disbursed by the Bank.
- c. *Records, inspections, and reports:* The Bank will perform reviews in accordance with the fiduciary supervision plan. Program records will be kept using the UEPEX system, and the reports to be submitted to the Bank will be produced directly by the system.
- d. *Other specific requirements* for financial management that need to be established in the loan contract or agreement to be signed with the Bank: Disbursements will be made as established in Articles 4.03, 4.05, 4.06, and 4.07 of the General Conditions.

IV. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION

- 4.1 Procurement of goods, nonconsulting services, and consulting services by the Federal Cabinet Office will be carried out in accordance with the Policies for the Procurement of Works and Goods Financed by the Inter-American Development Bank (document GN-2349-9); and the Policies for the Selection and Contracting of

Consultants Financed by the Inter-American Development Bank (document GN-2350-9). The executing agency has experience in the execution of subprogram 2 of IDB-financed loan 2437/OC-AR (TIP III), in which these policies have been applied. To protect against temporary connectivity problems and/or problems entering data on the Procurement Plan Execution System (SEPA), a physical Excel spreadsheet may be used on a provisional basis to ensure there is an approved procurement plan in force.

A. Procurement execution

- 4.2 **Procurement of goods and nonconsulting services:** Contracts for goods and nonconsulting services¹ arising under the project will be included in the initial procurement plan, and procurement subject to international competitive bidding (ICB) will use the Bank's standard bidding documents (SBDs). The project's sector specialist is responsible for reviewing technical specifications for procurement when selection processes are being prepared. To strengthen the planning of procurement-related activities, the executing agency will use the online system known as the Procurement Plan Execution System (SEPA). The procurement plan will cover the first 18 months and will be updated annually or whenever necessary using SEPA. Also, selection processes to be contracted directly will be identified.²
- 4.3 In international competitive bidding (ICB) processes, a reduction of up to four weeks in the timeframe specified in the Policies to submit bids for works, goods, and nonconsulting services for noncomplex procurement will be accepted, and the timeframe specified in local legislation for national competitive bidding (NCB) is acceptable. This provision applies in particular to ICBs for amounts slightly higher than the established lower limit for the country's ICBs, on the presumption there will be no international participation. If requested by a potential bidder, the parties will agree to an extension.
- 4.4 In the case of procurement through national competitive bidding, in accordance with paragraph 2.47 of the respective procurement policy, the executing agency may disclose the award at the end of the evaluation process if so provided in national legislation and if so established in the corresponding bidding document. Also, after the date for opening bids, bidders may be given an opportunity to review bids and submit comments or observations (no challenges or protests), which will be addressed in the evaluation report.
- 4.5 **Selection and contracting of consultants:** Consulting service contracts arising under the project will be included in the initial procurement plan and will use the Bank's standard request for proposals (SRFP). The program's sector specialist is responsible for reviewing the terms of reference for consulting services. Each area of the executing agency requiring consulting services will be responsible for determining the technical viability of the terms of reference, while the unit in

¹ Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank (document GN-2349-9) paragraph 1.1: Nonconsulting services are treated as goods.

² Direct contracting must be duly justified.

- charge of process management will verify their consistency with the SRFP. Also, for the selection and contracting methods for consulting services, the executing agency will use the SEPA for process planning and administration.
- 4.6 For consulting services estimated to cost up to US\$200,000, the executing agency will use the selection method based on the consultants' qualifications (CQS), as established in paragraph 3.7 of the policies.
- 4.7 **Selection of individual consultants:** In cases identified in the approved procurement plans, individual consultants may be solicited through local or international advertisements in order to assemble a shortlist of qualified individuals, as established in document GN-2350-9, Section V, paragraphs 5.1 to 5.4. For service contracts, the consultants will provide the executing agency with the midterm or final reports requested. Approval by the competent authority of a performance evaluation with a minimum rating of satisfactory will be sufficient for contract renewal. This evaluation will be conducted once annually to facilitate approval by the relevant authorities.
- 4.8 **Training:** The procurement plan describes the procurement applicable to program components that include training, which are contracted as consulting and nonconsulting services.
- 4.9 **Recurring expenses:** Recurring expenses or operating and maintenance expenses required during the program include: airfare (national legislation in Decree 1191/2002 establishes that domestic and international air travel shall be on Aerolíneas Argentinas and Austral), per diem allowances, local travel, rent and services, maintenance, fees, office supplies, messenger services, postage, cleaning, computer consumables, insurance, telephones, and petty expenses to run the executing agency office. Recurring expenses will be covered by the program, and incurred following procedures which have been reviewed and accepted by the Bank. Operating expenses do not include civil servant salaries.
- 4.10 **Business practices:** Procurement and services contracted for projects whose beneficiaries are small and medium-sized enterprises will be carried out in accordance with the private sector rules. See Appendix 4 of the policies for procurement and contracting of consultants.
- 4.11 **Other:** The program will finance a component for graduate study grants abroad to be executed by the JGM. The Operating Regulations will establish: (i) eligibility and evaluation criteria for project selection and the entities responsible for the different evaluation phases; and (ii) eligibility criteria and procedures for the recruitment and selection of grant recipients.
- 4.12 **Advance procurements/retroactive financing:** No retroactive expenses are anticipated.

1. Table of threshold amounts (US\$ thousands)

Goods ³			Consulting	
International competitive bidding	National competitive bidding	Shopping	International consulting advertising	Shortlist 100% national
≥ 500,000	< 500,000 ≥ 100,000	< 100,000	> 200,000	< 500,000

2. Major procurements

Activity	Bidding method	Estimated date	Estimated amount (US\$ thousands)
1. GOODS			
Printing, publications, and reproductions	Shopping	2014	30
Travel and per diems	Shopping	2014	30
Dissemination: graphic media and billboards	Shopping	2014	80
Events, fairs, workshops for program dissemination	Shopping	2014	20
2. NONCONSULTING SERVICES			
3. CONSULTING SERVICES			
Consultants (Administration)	CQS	2014	25
Consultants (Evaluation)	CQS	2014	60
Evaluation	QCBS	2016	160
External audit	CQS	2014	40
4. OTHER: GRANTS			
Master's scholarships	Open call	2014	7,200
Short-stay grants	Open call	2014	1,400

B. Procurement supervision

- 4.13 Contracts subject to ex post review by the Bank are shown in the following table and will be carried out as established in Appendix I of the respective policy documents. Contracts for amounts greater than or equal to the thresholds in the table will be subject to ex ante review. At the request of the executing agency, ICBs may be subject to ex post review provided the executing agency demonstrates it has the necessary technical and administrative capacity for their management. Likewise, direct contracting of works, goods, services, and consulting services listed in the procurement plan may be subject to ex post review as established in Appendix 1, section 4 of the respective Bank policies, provided they fulfill the requirements for direct contracting established in said policies. The Bank's ex post review visits will take place at least once every 12 months. The ex post review reports will include at least one physical inspection visit, when applicable. It should be noted that at least 10% of the contracts reviewed will be physically inspected during the program.

³ Includes nonconsulting services.

Goods	Consulting services	Individual consultant
< 500,000	< 200,000	< 50,000

Note: The thresholds established for ex post review are applied on the basis of the executing agency's fiduciary capacity and may be modified by the Bank to the extent this capacity changes.

C. Special provisions

- 4.14 **Measures to reduce the likelihood of corruption:** The provisions of documents GN-2349-9 and GN-2350-9 relating to prohibited practices (lists of ineligible companies and individuals kept by multilateral agencies) will apply.

D. Records and files

- 4.15 Documentation of procurement processes will be kept at the offices of the executing agency, the Undersecretariat of Public Management and Employment (SGEP) of the Federal Cabinet Office (JGM). It is very important for ex post reviews that the records and files be kept in due order, classified, and updated, including all the documentation arising from the procurement and contracting processes, which will be described in the Operating Regulations.

E. Financial management

1. Programming and budget

- 4.16 The executing agency's budget includes programmatic categories and other classifications by expenditure purpose (subheadings), namely: personnel expenses, consumer goods, nonpersonnel services, fixed assets, transfers, financial assets, debt service and reduction in other liabilities, and other expenses. Depending on their economic nature, items are classified as current expenditures, capital expenditures, or financial application of funds. Furthermore, internal financing sources may include the national treasury, own resources, specific appropriations, and internal transfers. External financing includes external transfers and credits. No problems are expected in terms of management, timeliness of local counterpart contributions, or system delays affecting execution.

2. Accounting and information systems

- 4.17 The program will use the UEPEX system as its **financial management system**. Cash-basis accounting will be used and the International Financial Reporting Standards (IFRS) will be followed when applicable, in accordance with established national criteria. The financial reports required will be those established in Clause 5.03 of the Special Conditions. In addition, audited midterm financial statements covering the first half of each year will be submitted to the Bank by 30 August of each year.

3. Disbursements and cash flow

- 4.18 Loan proceeds requested from the Bank will be disbursed as established in clauses 4.03, 4.05, 4.06, and 4.07 of the Special Conditions. The funds will be deposited in a special bank account to be opened by the program for that purpose and will be used to pay for project expenses and investments, as planned. The executing agency will maintain strict and adequate control over use of the funds disbursed, using mechanisms to verify and reconcile the balances appearing in their records with the balances for the same items appearing in the Bank's records (LMS1 report).
- 4.19 Supporting documents for expenses or payments made need not be appended when rendering accounts; however, this does not imply the Bank approves of those expenditures.

4. Internal control and internal audit

- 4.20 The national internal audit authority is the Sindicatura General de la Nación [Office of the Comptroller General] (SIGEN). Internal audits of each executing agency are conducted by the internal audit unit (UAI).

5. External control and reports

- 4.21 The Auditoría General de la Nación [Office of the Auditor General] (AGN) is an agency of, and provides assistance to, the National Congress in controlling public sector accounts. Its creation and functions are regulated under Title VII, Chapter I of Law 24,156 on Financial Administration and External Control Systems, which specifies that the AGN has its own legal status and operational independence and is therefore also financially independent. Its assets are composed of all the property assigned to it by the State, the assets formerly belonging to the Tribunal de Cuentas de la Nación [National Audit Court], and those transferred under court proceedings.
- 4.22 The agreement with the AGN, which will perform the external audits of the program, will include: (i) the annual financial statements and a report on the internal control system will be included in the scope of the audits; (ii) audited financial statements corresponding to the first half of each year, including an audit report on the internal control system.

6. Financial supervision plan

- 4.23 The initial financial supervision plan is based on the risk, institutional, and fiduciary capacity assessments conducted on the basis of onsite and desk reviews of the project, and includes operational, financial, and accounting activities; compliance and legal considerations; their frequency; and identification of responsible parties.
- 4.24 At least one annual visit is planned to the executing unit to evaluate the internal control environment, use of the financial management system, compliance with procedures, security of documentation, and compliance with the recommendations made by the external auditors and the Bank.

7. Execution arrangements

- 4.25 The details on program execution can be found in the draft Operating Regulations and in the Proposal for Operation Development.

8. Other financial management agreements and requirements

- 4.26 It will be necessary to establish and formalize the entities with financial and procurement responsibilities which will be accountable for fulfilling the fiduciary obligations and acting as liaison with the Bank.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-____/13

Argentina. Loan ____/OC-AR to the Argentine Republic
Science and Technology Scholarship Program

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Argentine Republic, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Science and Technology Scholarship Program. Such financing will be for an amount of up to US\$24,000,000 from the Ordinary Capital resources of the Bank, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on ____ 2013)

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