



# *What is the Fund for Research Projects (FPI) at UNAN-Managua?*

**M.Sc. Dalia Sánchez Merlos**

Research Department

UNAN-Managua

*dsanchez@unan.edu.ni*

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## **ABSTRACT**

Nicaraguan Higher Education Institutions have as one of their essential objectives to develop and promote scientific research as a fundamental strategy to contribute to the transformation of society. This article describes the role of the Fund for Research Projects (FPI) of the Universidad Nacional Autónoma de Nicaragua, Managua (UNAN-Managua) in promoting and increasing research at the University. The population under study was composed of the applied and awarded projects in the four calls (2015-2017, 2016-2018, 2017-2019 and 2018-2020). Out of 233 projects received, 127 were financed, of which 66 projects were in the research area of climate change, environmental management, and natural resource management. The modality with the highest number of funded projects was that of Teacher-Researchers. The main limitations have been the delay in financial returns, acquisition of inputs and the delay in delivery of products. However, the FPI has become an important instrument for promoting research at UNAN-Managua, following the agreement with the compromises included in the National Human Development Plan and the Sustainable Development Goals.

## INTRODUCTION

Latin American universities face challenges to find mechanisms and instruments to develop and promote scientific research (Restrepo and Zavala 2016), which contributes to the solution of problems and the transformation of society, through the generation and application of knowledge (Autonomy Law of Higher Education Institutions, 1990, OECD, 2015). In this scenario, universities have promoted various initiatives for resource management.

That is why, in 2015, the Research Projects Fund, known by its acronym FPI (as in Spanish), was created in UNAN-Managua, in charge of the then Vice-Rectorate for Research, focused on strengthening the research function through capacity development scientific, knowledge generation and strengthening of postgraduate training (masters and doctorate). The FPI operated based on four modalities: Doctoral research projects, Master's research projects; Bachelor Research Projects; and research projects of teachers-researchers.

The FPI, through its four calls, has encouraged the development of research at the University, granting financing through a competitive mechanism based on quality. The maximum amount to be financed for the modalities of doctoral research projects was \$ 4,000.00, for the modalities of master's research projects and teacher-research projects were \$ 1,200.00; and for the \$ 400.00-degree modality.

For the evaluation of the projects, an integrated commission was formed with at least two professors with an academic degree equal to or greater than the project candidate, who at the end of the process determined the approval or non-approval of the projects presented. The evaluation criteria were based on three areas: novel and original (10 points), the scientific quality of the project (10 points) and feasibility (10 points).

The maximum score based on the three criteria is 30, with 25 points being the minimum approval to access the Fund. Researchers benefiting from the allocation of financial resources in the different calls will prepare a scientific article and submit it in an indexed journal to publicize the results of the research project.

Thus, this study describes how IPFs have been used to promote and increase research at UNAN-Managua.

## METHODOLOGY

An analysis of the databases corresponding to the four calls (2015-2017, 2016-2018, 2017-2019 and 2018-2020) was carried out, considering the following indicators:

- Number of projects received by modality.
- Number of projects benefited by modality.

- Number of projects benefited by the academic unit.
- Number of projects benefited by degree careers.
- Number of projects benefited by postgraduate programs.
- Number of research projects distributed in the work areas of the University.
- Dissemination.

## RESULTS

From 2015 to 2018, the FPI has received a total of 233 research projects, of which 127 projects were funded.

Of the 127 projects, 72 correspond to research by research teachers, 23 to master’s research, 19 to doctoral and 13 to bachelor’s degree (Table 1). Based on these results, it can be evidenced that the FPI has become an important instrument to promote research at UNAN-Managua, raise academic success in the postgraduate course and promote the graduation modality with monographs.

Table 1. Number of projects received and benefited by call modality (2015 to 2018). Fund for Research Projects (FPI), UNAN-Managua.

Type of announcement	No. of projects received	No. of projects benefited
Professor Research Projects-Researchers	141	72
Master’s Research Projects	42	23
Doctoral Research Projects	29	19
Degree Research Projects	21	13
<b>Total</b>	<b>233</b>	<b>127</b>

### Number of projects benefited by academic unit and by degree program

When analyzing the number of projects benefited by academic unit, it is observed that two units dedicated to research, (Center for Research in Aquatic Resources and the Biotechnology Laboratory) obtained the majority in the call for research teacher projects (27 and 19, respectively). The call for degree research projects had the highest number of projects that benefited in the Biology degree with a mention in Natural Resources Administration. It

should be noted that the students of the majors of the Faculty of Science and Engineering of UNAN-Managua were the ones that obtained the most projects benefited (Table 2).

Table 2. Number of projects benefited by the FPI in the different academic units and by degree.

<b>Research projects of Teacher-Researcher</b>	<b>No. benefited projects</b>	<b>Degree Investigation Projects</b>	<b>Projects benefited</b>
Center for Research in Aquatic Resources of Nicaragua (CIRA as in Spanish)	27	Degree in Biology with Mention in Natural Resources Administration	4
Biotechnology Laboratory	19	Degree in Environmental Chemistry	2
Faculty of Science and Engineering	7	Degree in Industrial Chemistry	2
Institute of Geology and Geophysics (IGG / CIGEO)	6	Degree in Physics with a mention in Medical Physics	2
Faculty of Medical Sciences	6	Degree in Biology with mention in Environmental Education	1
Estelí Regional Multidisciplinary Faculty	2	Degree in Statistics	1
Polytechnic Institute of Health (POLISAL as in Spanish)	1	Microbiology Degree	1
Faculty of Humanities and Legal Sciences	1		
Faculty of Education and Languages	2		
Faculty of Economic Sciences	1		
<b>Total</b>	<b>72</b>		<b>13</b>

### **Number of projects benefited by the postgraduate program**

Analyzing the information of the projects benefited by the graduate program, the Master in Environmental Management of the Faculty of Science and Engineering is distinguished with

11 projects, followed by the Ph.D. program in Sustainable Territorial Rural Development of the FAREM-Matagalpa with 9 research projects (Table 3).

Table 3. Number of research projects benefited by the FPI by postgraduate programs (Doctoral and Master's).

<b>Doctoral Program</b>	<b>No. benefited</b>	<b>Master Program</b>	<b>No. benefited projects</b>
Doctorate in Sustainable Territorial Rural Development	9	Master in Environmental Management	11
Doctorate in History with Mention in Regional and Local Transdisciplinary Studies	3	Master in Scientific Research Methods	5
Doctorate in Environmental Sciences	2	Interinstitutional Master in Biotechnology	2
Doctorate in Health Sciences	2	Master in Latin American and Caribbean Historical Studies	2
Central American Regional Master in Water Sciences with emphasis on Water Quality	1	Doctorate in Management and Quality of Scientific Research	1
Doctorate in Sciences in Public Health	1	Master in Training of Teacher Trainers	1
Doctorate in Education with Specialization in Pedagogical Mediation	1	Master in Public Health	1
<b>Total</b>	<b>19</b>		<b>23</b>

### **Distribution of research projects in the work areas of the University**

The FPI has supported innovative research, new models or tools that are distributed in six areas of research work of the University. Thus, 66 projects are registered in the area of climate change, environmental management, and natural resource management, 19 projects in the area of development and food and nutrition security, 16 projects in the area of technologies, innovation and renewable energy, 12 projects in the area of public health, chronic noncommunicable and infectious diseases, 9 projects in the area of population, education, social inclusion and interculturality, and 5 projects in the area of territoriality, risk, and local development.

The FPI has strengthened the University's research capacity in correspondence with the National Human Development Plan (PNDH), the quality, novelty and relevance of the research benefited. These capacities correspond to the government's commitments included in the PNDH, in the search for solutions to the main environmental problems due to the management of hydrographic basins, soil contamination, environmental contamination by solid and liquid wastes, continuous use of prohibited pesticides, deforestation, loss of genetic diversity, marine species, climate change and its impacts (III.12). These capacities also contribute to seven of the 17 objectives of World Sustainable Development (3, 6, 12, 13, 14, 15 and 17), which are a call to adopt measures to protect the planet.

The FPI, besides, to strengthen research capacity has supported the University Extension function at UNAN-Managua by financing projects with local beneficiaries such as the Oyster Farmers Cooperative (CPOO), in El Ostional Bay, Rivas in the search of the ideal places for cultivation utilizing a bathymetry and the residents of La Fuente, La Paz Centro, León in the search for safe places for water for human consumption when monitoring arsenic content in groundwater in the area, among others.

### **Amount invested by type of modality**

The total amount invested in the 127 research projects amounts to \$ 148,265.82 (see Table 4).

*Table 4. Total amount invested in the four FPI modalities.*

<b>Type of modality</b>	<b>Amount (\$)</b>
Research Projects of Professors-Researchers	62,248.82
Doctoral Research Projects	54,879.00
Master's Research Projects	26,993.54
Bachelor Research Projects	4,144.46
<b>Total</b>	<b>148,265.82</b>

### **IPF dissemination**

The FPI has generated a large number of products of scientific dissemination, among which 20 theses are distinguished from the different academic levels (6 monographs, 11 master's degrees and 3 doctoral), 15 scientific articles and 19 academic (15 published and 19 under evaluation) ) and 21 oral presentations in different national and international academic events, among which the III Biennial Meeting of Research and Postgraduate, I International Congress of Increase of Agricultural Productivity, I International Congress of Agro Family

Industry and Rational Use of Additives, stand out, International Congress of Sports Medicine and Physical Activity, VII International Meeting of Oral History: Memory, Voices and Images of Latin America and the Caribbean, VIII Cuban Congress of Hematology, Central American Congress of Natural Medicinal Products, Congress of Science, Technology and Innovation and IV Nicaraguan National Higher Education Congress.

## **CONSIDERATIONS**

UNAN-Managua has considered the strengthening of research strategic, which is largely achieved through the Fund for Research Projects (FPI), which in the period 2015-2018 has allocated a total of \$ 148,265.82, financing 127 projects that they correspond to the National Human Development Plan and the Millennium Development Goals.

The FPI has been governed by general provisions, eligibility criteria for the applicant and the projects, as well as evaluation criteria and obligations of those awarded that have allowed it to be handled with transparency and clarity. However, there are certain aspects in which there are opportunities for improvement, for example in the delay of financial returns and the acquisition of inputs, preparation of budgets for research projects and respect for the time limits set for the delivery of products of the projects.

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