Mexico Report

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Part I: Context

Which data and information are available on your country's doctoral education? There is no
need to provide details, a reference to the source suffices:

1. **History:**
   a. **Who were / are the drivers of doctoral training over time (state / regional, federal government, religious institutions?**

   Main drivers are public universities, which are autonomous from state and free from religious affiliations. However, the National Council on Science and Technology (CONACyT), a federal program similar to the National Science Foundation in the U.S.A., has been fundamental in promoting pos-graduate training, with a clear emphasis on STEM.

   b. **Do all institutions of higher education in your country award PhD / doctorate degrees?**

   All may, but typically are public institutions that do. Public institution are the most prestigious and academically consolidated ones in the country.

   c. **What types of doctoral degrees (professional doctorate, industrial doctorate) exist?**

   All types, CONACyT focuses on science and technology, but also has supported social sciences and education both at the masters and doctoral level. 27% of the programs are in humanities and behavioral sciences, 33% are in social sciences, including education, 12% in engineering, 6.4 in biotechnology, 6.7 in Biology and Chemistry, 9.5 in Physics, mathematics, and earth sciences, and 5.7 in Medicine and health sciences.

2. **Size and Demography of Doctorate Pool**:
   a. **Data on the number of doctorate degrees awarded annually in 2005, 2010, 2015, (current, if available).**

Table 1.
Doctoral degrees awarded disaggregated by gender (Source ANUIES)

	Graduates	
	Men	Women
2010-2011	**1,682**	**1,351**
2011-2012	**1,634**	**1,274**
2012-2013	**2,248**	**1,767**
2013-2014	**2,454**	**2,087**
2014-2015	**3,016**	**2,782**
2015-2016	**3,167**	**3,058**

2016-2017	**2,741**	**2,465**
2017-2018	**3,515**	**3,455**

This table shows a clear upward trend in graduation. See table 2 for information on new entrants and total cohorts. This information can be disaggregated by region and states.[1]

b. The distribution of PhDs among your country's universities?

According to a national report published in 2015, 65% of all doctoral programs are offered at public institutions. The total number of programs is 1051. Non-STEM related programs are more likely to be offered at small for-profit institutions (such as education, counseling, administration).

c. The demographic characteristics? (% international students, women & men, major fields of study)

Table 2.
Doctoral pool by enrollment and new cohort status, disaggregated by gender (Source ANUIES)

	Total Enrollment		New Cohort	
	Men	Women	Men	Women
2010-2011	**12,373**	**10,749**	**3,703**	**3,603**
2011-2012	**15,856**	**14,383**	**4,718**	**4,417**
2012-2013	**16,729**	**15,283**	**4,439**	**4,192**
2013-2014	**18,682**	**17,404**	**5,097**	**4,799**
2014-2015	**20,102**	**19,037**	**4,954**	**4,951**
2015-2016	**20,004**	**18,766**	**5,282**	**4,933**
2016-2017	**20,407**	**19,041**	**5,866**	**5,602**
2017-2018	**22,416**	**21,328**	**6,279**	**6,302**

There are no statistics available about international students. Table 2 also reflects an steady increase in the number of enrollees and new entrants.[2]

3. Time-to-degree and Completion of Degree: Data on expected time to completion and actual average time-to-degree? Does the time include the master's degree time? The average completion / attrition rate? Any major disciplinary differences?

From 2008 to 2012, 67% of all students supported by CONACyT (2016) graduated. But this only includes STEM. Notably, the average time reported by CONACyT was 4.4 years. This are the most rigorous and prestigious programs in Mexico and include astrophysics, Optics, Electronics, and Computer sciences.[3]

4. Purpose and Goals of Doctoral Education: If your country offers research (PhD) and professional doctorates, what is the purpose of each type of doctorate? Has the purpose changed in the last 20 years?

[1] http://www.anuies.mx/informacion-y-servicios/informacion-estadistica-de-educacion-superior
[2] http://www.anuies.mx/informacion-y-servicios/informacion-estadistica-de-educacion-superior
[3] https://www.inaoep.mx/~jgob/hjg/2016/Seg/5.3.2.pdf

Professional doctorates seek to increase the prestige of programs employing these new doctoral holders. PhD. seeks to increase the human capital of the country to remain competitive and to increase the science and technology production in STEM or to solve societal problems in Mexico. New cohorts are more focused on the latter perspective, but the proliferation of for-profit programs offering doctoral programs does not contribute meaningfully to this human capitalization goal.

Part II: Structure of Doctoral Education

Please provide brief information on the structure of doctoral education and *weblinks to National Policies and QA frameworks*: What is the predominant model of doctorate edu- cation (structured with courses and thesis; in a cohort; only dissertation; only apprentice- ship model working with the adviser)?

Table 3.

Table shows the number of presential (face to face) students with respect to total entrants who do not have to go to classes on a face to face basis or regularly.[4]

	Face to Face		Face to Face/New entire cohort	
	Men	Women	Men	Women
2011-2012	**3,812**	**3,434**	0.81	0.78
2012-2013	**3,725**	**3,470**	0.84	0.83
2013-2014	**3,714**	**3,247**	0.73	0.68
2014-2015	**3,668**	**3,549**	0.74	0.72
2015-2016	**3,675**	**3,240**	0.70	0.66
2016-2017	**4,034**	**3,780**	0.69	0.67
2017-2018	**4,145**	**3,720**	0.66	0.59

This table shows that in recent cohorts there has been a decreasing tendency toward enrolling in face to face classes, yet practically at least 60% of these new doctoral students are enrolling in presential programs.

There is a doctoral adviser, but students are typically taking classes with other professors and once they are done with coursework requirements, they can start their dissertation work under the guidance of a doctoral committee.

What are the admission and degree requirements?

These presential programs have structured courses, require a standardized admission test, similar to the GRE in the U.S.A., plus interviews and recommendation letters. Degrees require the development of a dissertation with committee members who hold a PhD. Non-presential programs are less structured and there is fewer information. All CONACyT sponsored programs are presential.

Do your institutions have central campus units that are advocating for and providing ser- vices to doctoral students? i.e. a central graduate school, training centers, etc.

Yes, all the programs offered by public universities have campuses. Private for-profit institutions are typically located in malls.

[4] http://www.anuies.mx/informacion-y-servicios/informacion-estadistica-de-educacion-superior

a. **Main National Policies/Reforms Affecting Doctoral Education: Is policy for doc- toral education developed by a Ministry or others?**
Programs that are sponsored by the CONACyT are highly regulated and continuously evaluated by this council.[5] This entity will only offer fellowships to programs that have demonstrated academic rigor and quality.

b. **Funding: What is the relative support for PhD candidates through various kind of sup- port mechanisms (individual fellowships, project funding, structured PhD funded pro- grams/Doctoral Schools, Industry PhD's, Inter Institutional Collaborative doctoral pro- gram, etc)**
CONACyT is the main funder for both fellowships in Mexico and fellowships abroad. In addition, the Department of Education (SEP) has a program of complementary support for Mexican nationals who study abroad.[6] SEP in addition, offers fellowships for faculty members who want to pursue doctoral studies. This program has a specific list of institutions in Mexico and abroad that are known for their quality programs.[7]

c. **Quality Assurance/control: Are there national guidelines? What role do the universi- ties and possibly funding agencies play in the setting and monitoring of quality?**
Funding agencies pay attention to both evaluations at the institution level and international rankings.

d. **Career paths of doctorate recipients: Who collects data doctoral recipients' career path? data website? What level of career support for doctoral candidates is available in universities?**
SEP and CONACyT collect data on their graduates. Also, degree granting programs follow up with their alumni to boost their prestige and provide SEP and CONACyT with this information as part of the evaluation of their quality.

Part III: Trends

1. **International Collaboration: Is collaboration in PhD training encouraged? What are the trends? (intersectoral - industry/government/non-profit collaboration; inter- institutional collaboration within the country). Are joint degrees and co-supervision with other universities encouraged?**
Programs sponsored by CONACyT provide opportunities to study abroad for one semester. Students who can afford to participate in these programs typically select Spanish speaking countries. Joint degrees are common with some French and Spanish speaking programs. These joint-programs typically require doctoral

[5] https://www.conacyt.gob.mx/index.php/becas-y-posgrados/becas-nacionales
[6] https://www.dgri.sep.gob.mx/formatos/concomp14.pdf
[7] http://promepcm.colmex.mx/

students to spend four weeks but no real language speaking need is required (referring to French, specifically). In addition, the committee member should have at least one faculty from these external programs (e.g., French and Spaniard faculty).

2. **Equal Opportunities: Are there policies in your country aiming at diversity and in-clusion in doctoral education focusing on overcoming inequalities in the larger social structure?**
   No, the system is truly stratified and given the admission requirements only those who have the most resources gain access to these programs, which in addition are practically free. This is not an issue of the funding agencies, it is just the reflection of a pervasive system of reproduction of privilege.

3. **Digital Transformation: How has digital transformation influenced the process of doctoral education and training (e.g. MOOCs, life streaming of dissertation defense, new forms of digital dissertations, open science policy)?**
   MOOCs are not prevalent in Mexico yet, and most events take place face to face, with the exception of cases where there are agreements with European universities in joint-programs as depicted above.

4. **Most Important Aspects for Your Country: Currently what are the most burning issues in doctoral education in your country? For example, working conditions, job insecurity, and other pressures on doctoral students? Which issues in doctoral educa- tion does your country plan and/or need to address in policies for the future?**
   High levels of insecurity, infrastructure for STEM graduates and low-paying employment for faculty members. However, CONACyT also has a supplementary salary program for which doctorate holders may apply to become part of this national network of researchers.[8]

[8] https://www.conacyt.gob.mx/index.php/el-conacyt/sistema-nacional-de-investigadores