

## **BILL TO PASS A DECREE TO REFORM SEVERAL ARTICLES OF THE GENERAL LAW OF SCIENCE AND TECHNOLOGY AND THE GENERAL LAW ON EDUCATION**

The undersigned, Senator Ana Lilia Herrera Anzaldo, a member of the 62<sup>nd</sup> Congressional Legislature, based on the provisions set forth in Part II of Article 71 of the Constitution of the United Mexican States and Articles 8, paragraph 1, Part I, I, numeral 164, and 169 of the Rules of the Senate, submits to the consideration of this Sovereignty, **a BILL TO PASS A DECREE TO REFORM AND SUPPLEMENT SEVERAL ARTICLES OF THE LAW ON SCIENCE AND TECHNOLOGY AND THE GENERAL LAW ON EDUCATION TO ESTABLISH THAT ALL RESEARCH CARRIED OUT IN PUBLIC INSTITUTIONS OR WITH PUBLIC RESOURCES, OR THE USE OF INFRASTRUCTURE FINANCED WITH PUBLIC FUNDS, BE MADE AVAILABLE IN OPEN ACCESS FORMATS THROUGH ONLINE PLATFORMS;** with the following:

### **Statement of Reasons**

According to a study carried out by the National Autonomous University of Mexico (UNAM) and the Imanol Ordorika Studies Center in 2011, the private sector completes only one research project for every ten research documents produced by institutions of higher education.

Research sponsored by state resources generates scientific and technological advances that drive the development of society. Scientific research allows for the creation of products and solutions that improve the quality of life of citizens.

Knowledge is increased when information is freely shared and accessed. For example, scientific collaboration has led to global advances, such as the mapping of the Human Genome, at a lower cost and in less time. This collaboration has been possible thanks to the **Open Access** to research and information previously published by professionals and institutions from around the world. The result of this research has permitted the development of drugs and studies on genetic disorders in almost any college worldwide, thanks to the interoperability and access to the information.

There is a global trend among researchers, institutions and governments to share scientific knowledge by using the technological advantages offered by the Internet and the digitization of information.

For example, universities recognized internationally such as Harvard, urge their students and researchers to publish the results of their studies in an **Open Access** format to ensure a maximum exposure to publications and reduce the costs of acquiring scientific data published in magazines or specialized editions, especially when much of this research was financed with University funds.

Moreover, on the 22<sup>nd</sup> of February of this year, the office of science and technology policy of the United States, issued the guidelines to publish all research funded with federal resources in an **Open Access** format. That country's government will invest \$100 million U.S. dollars so research and educational institutions can guarantee the safeguarding of the documents and **Open Access** via the Internet of all future publications.

This is the latest accomplishment on the path to achieving **Open Access** as a structure for scientific dissemination. Since 2002, the Budapest **Open Access** Initiative to scientific texts should be understood as their free availability on the Internet so all users can read, download, copy, distribute or print such information and be able to browse or link the whole article. The only limit to copying and distributing the articles published, and the only copyright role in this framework,

cannot be other than to ensure that authors control the integrity of their work and the right to be credited and quoted.

The same approach states that research institutions must promote mandatory **Open Access** to all future publications, with respect for copyrights and by ensuring their digital safeguarding.

The Bethesda statement issued in 2003, declared that the author and copyright holder grants all users free, irrevocable, worldwide and perpetual access rights and license to use, distribute, transmit and display the work publicly and to produce and distribute derivative works in any digital medium for any responsible purpose, subject to proper attribution of authorship. The information shall also be protected, including a copy of the **Open Access** license, in an accessible electronic format as the initial publication in at least one networked repository supported by a government, educational or academic institution.

In 2004, the Organization for Economic Cooperation and Development (OECD), which Mexico belongs to, issued the guidelines and principles for **Open Access** to information and research funded with public resources. That document established that accessibility, flexibility, transparency, legality, intellectual property protection, sustainability, quality and interoperability should be the guiding principles of the **Open Access** policy for all member countries.

The OECD recognizes that the science and technology policy of its member countries is based on the free exchange of ideas, technologies and knowledge and that the use of information technology is prevalent in all fields of scientific research which has increased this free trade and opened new opportunities for cooperation. However, the progress made by science depends not only on new technologies but on how quickly the countries wishing to join the international scientific collaboration are able to adjust their research policies, practices, formats and even their cultural values.

Based on the statements and guidelines proposed by the OECD, we must understand **Open Access** as *immediate access through digital platforms, with no registration, subscription or pay requirements, to research, educational, academic, scientific or other materials produced by public research centers, public education institutions or with public resources, or with the use of infrastructure wholly or partly financed with public funds.*

According to the **Open Access** Publications Study published in 2012 by the European Commission, Mexico is the country that faces the greatest difficulties in obtaining funds for scientific publications, out of the 30 countries evaluated. The main reason to popularize science is to develop and enrich the understanding of society. The State is bound to find the tools to maximize the dissemination of scientific publications, especially those financed with public funds.

Despite the lack of legislation and public policy on the subject of **Open Access**, some Mexican institutions are pioneers in Latin America in disseminating this policy.

For example, the Autonomous University of the State of Mexico (UAEMex) issued in its December 2012 gazette issue, the *Agreement establishing the institutional order to **Open Access** for Development of the Digital University*, by which the University recognizes the intrinsic value of **Open Access** and expresses its willingness to develop and disseminate among the university community its free, voluntary and optional adherence to this global movement for sharing knowledge with no greater limits than those the author deems relevant to access, disclose, distribute, quote and, if appropriate, transform its work, thus agreeing to encourage the creation of an institutional repository in order to promote the dissemination of college education and cultural heritage to permit its free consultation, use and disclosure.

Currently, leading journals with a peer review process in Latin America are available through **Open Access** in the *Network of Science Journals of Latin America and the Caribbean, Spain and Portugal* (redalyc.org), which gathers more than 800 scientific journals from different universities, to offer researchers and students more than 260,000 scientific articles. This initiative, coordinated by the UAEMex, which has been recognized by the international group of scholars as an innovative contribution to the dissemination of scientific knowledge, was honored by the World Summit Award (UNESCO) as the best e-science page in Mexico, in 2009.

Setting **Open Access** as the state policy in the field of science communication, will allow the knowledge produced in Mexico and by the Mexicans to contribute to global scientific development, trigger access to knowledge and improve coordination between scientific research centers nationwide.

The legal changes propounded provide the juridical foundation for the new science disclosure policy included in the leading educational reform sponsored by the Government of the Mexican Republic, where one of the objectives consists of increasing access to education and matching the opportunities Mexicans have to access quality scientific knowledge in the most affordable manner and with the most ample coverage.

## **LEGAL GROUNDS**

Part II of Article 3 of the Constitution of the United Mexican States is known to favor education based on scientific progress results.

To this effect, Articles 2 and 7 and Parts II and VII of the General Law of Education determine the need to promote access to education and knowledge to obtain, disseminate and enhance the culture to promote observation, analysis and critical reflection skills with the goal of fostering attitudes that further scientific and technological innovation.

These are added attributions the federal education authorities have to develop, as well as provide educational services, publish books and create educational materials, library services, continuously further research and development of science and technology encouraging its teaching and disclosure in conformity with the terms set forth in Article 14 of the General Law on Education.

The Law on Science and Technology plays a vital role in this respect, by establishing that the Federal Government shall determine the means by which it shall comply with the obligation to support scientific research, technological development and innovation.

Finally, Article 13, Part I, Section I of the General Law on Science and Technology establishes that the Federal Government shall support scientific research, technological development and innovation through the following means: the collection, processing, automation and dissemination of information on scientific research, technological development and innovation carried out in Mexico and abroad;

While Article 14 establishes that the integrated information system on scientific research, technological development and innovation shall be directed by the National Council of Science, and Technology (CONACyT), which shall manage the system and keep it updated. The system will be available to the general public, without prejudice of the intellectual property rights and the confidentiality rules established.

Furthermore, the 2013 Federal Spending Budget includes an allowance for science, technology and innovation in the amount of 70.395 billion Mexican pesos, 18 percent higher than last year. CONACyT also has an allocation in the amount of 28.312 billion Mexican pesos, 13 percent higher than last year. It is necessary to guarantee that the research generated in Mexico produces higher added value to make sure we are not only a manufacturing country but one that also incorporates greater understanding in our products. This is not limited to increasing the amount of investment in innovation but optimizing it with the use of tools that maximize their use.

**Open Access** as a science disclosure policy shall include the following objectives:

- Establish that the Mexican State is bound to use technological tools to maximize the dissemination of scientific publications, especially those financed with public funds.
- Legally define the **Open Access** and interoperability guidelines by which the bound institutions must publish and secure future scientific papers;
- Establish that the higher education institutions and those belonging to the Integrated Science and Technology Research Information system must publish their research, theses and dissertations in an **Open Access** structure and guarantee the permanent digital safeguarding of this collection.
- Urge the scientific community and private research institutions to establish **Open Access** as a policy of maximum disclosure;
- Nurture alliances with international **Open Access** journal networks, in order to achieve greater dissemination of Mexican research in the global research market.
- Encourage the development of portals to streamline access to the information published in **Open Access** formats, and promote its use in the nation's public libraries.
- Foster the creation of digital libraries at universities and research centers financed with public funds, to centralize access to information published in an **Open Access** format.
- Encourage cooperation between the public and private sectors to improve access to information and support, among other things, by forming public-private partnerships with foundations and other organizations funding research;
- Motivate Mexicans supported with public funds, to pursue education abroad in order to publish their research in journals or institutions using the **Open Access** format.

Based on the foregoing, I hereby submit for consideration of this Honorable Assembly, the following bill to pass a

**DECREE TO REFORM AND SUPPLEMENT SEVERAL PROVISIONS OF THE GENERAL LAW ON SCIENCE AND TECHNOLOGY AND THE GENERAL LAW ON EDUCATION:**

**FIRST.** Part XII is added to Article 4 and parts II, VI, XII and XV of Article 12 and Articles 14 and 15 of the General Law on Science and Technology are amended to read as follows:

“**Article 4.** The following definitions shall apply for the purpose of this Law:....

**XII. Open Access; the immediate access through digital platforms, with no registration, subscription or pay requirements, to research educational, academic, scientific or other materials produced by public research centers, public education institutions or with state resources, or with the use of infrastructure wholly or partly financed with public funds.**

...

**Article 12.** The principles governing the support the Federal Government is bound to give to promote, develop and strengthen overall scientific research, technological development and innovation, and in particular, the research activities carried out by Federal Government Public Administration agencies and entities, shall be as follows:

...

**II.** The results of the research, technological development and innovation activities that are the subject to support in terms of this Law shall always **be published in an Open Access format**, and evaluated and taken into account to grant further support;

...

**VI.** Concurrence input shall be sought from public and private national and international resources, for the production and implementation of scientific research, technological development and innovation, **the dissemination of publications through Open Access platforms** and technological modernization, linked to the productive sector and services and training of specialized human resources to ensure the industry’s innovative and technological development;

...



XII. Promote the dissemination of science and technology by **publishing all research in Open Access formats** to expand and improve society's scientific and technological culture;

...

XV. The research, technological development and innovation institutions supported by the Federal Government, shall transmit their activities to society, and the results of their research and development through **Open Access platforms** without prejudice of the corresponding intellectual property and information rights, which must be reserved by virtue of their nature;

...

**Article 14.** The integrated information system on scientific research, technological development and innovation shall be directed by the National Council of Science and Technology (CONACyT), who shall manage and keep it updated. This system **shall guarantee Open Access to the general public to all publicly funded research**, subject to the intellectual property rights and confidentiality rules established.

The information system shall also contain information on technical services for technological modernization, standardization, industrial property, technological development and innovation.

...

**Article 15.** The agencies and entities of the Federal Government Public Administration shall work with CONACyT on the establishment and management of the integrated information system mentioned in the preceding article. (...)

The companies or agents of the social and private sectors that conduct scientific research, technological development and innovation may voluntarily join the integrated information system.

**The information distributed through the system must be provided in an Open Access format, standardized by the principles issued by the System's Board of Directors to this end. The individuals and business corporations that have**

provided information to the System may request its nondisclosure by justifying that the information is of a confidential or proprietary nature.”

**SECOND.** The Decree reforms Article 14 of part VIII of the General Law on Education to read as follows:

**“Article 14.** In addition to the unique powers referenced in Articles 12 and 13, the federal and local education authorities shall be concurrently vested with the following powers:

I. (...)

VIII. Promote research and development of science and technology, and further education and outreach on the subject matter **through Open Access platforms. Open Access is defined as the immediate access through digital platforms, with no registration, subscription or pay requirements, to research educational, academic, scientific or other materials produced by public research centers, public education institutions or with public resources, or with the use of infrastructure wholly or partly financed with public funds.”**

#### Provisional Articles

First. This Decree shall enter into force on the day following its publication in the Federal Official Gazette.

Second. All laws, regulations and administrative provisions contrary to this Decree are repealed.

**Third.** For a three-year period after the publication of these reforms, and as part of the other projects mentioned in Article 26 of the Law for the Coordination of Higher Education, institutions may apply for funding for the creation, modification and operation of platforms enabling the concentration of publications in an **Open Access** format.

**SIGNED BY**  
**SENATOR ANA LILIA HERRERA ANZALDO**

**PRI Parliamentary Group**

Issued in the Senate Session Hall on the twelfth day of March 2013.