

# Web platform for the registration of REDNACECYT researchers

Juan Francisco Salas Alba, María de la Luz Valdez Ramos, Dulce María León de la O,  
Víctor Manuel Arias Peregrino, Clemente Hernández Arias, Hugo del Ángel Delgado

National Technological Institute of Mexico / Technological Institute of Villahermosa. Systems and Computing Department.  
Highway Villahermosa - Frontera Km. 3.5 Ciudad Industrial Villahermosa, Tabasco, Mexico. C.P. 86010

## Abstract

This article presents the development of a web platform aimed at managing the registration of researchers, under the administration of the State Organizations of Science and Technology affiliated with REDNACECYT (National Network of State Councils and Organizations of Science and Technology). The main purpose of this platform is to optimize information management and foster collaboration among the 32 state councils of science and technology in Mexico. This initiative aims to improve communication and information exchange among these organizations, thus enhancing the coordination of joint projects and promoting scientific and technological development at the state and national levels. Developed using the Yii2 framework, the platform simplifies both the registration and management of researchers, allowing centralized access to relevant information about their areas of specialization, as well as their level within the National System of Researchers (SNI), provided by CONAHCYT.

## Resumen

En este artículo se presenta el desarrollo de una plataforma web destinada a la gestión del registro de investigadores, bajo la administración de los Organismos Estatales de Ciencia y Tecnología afiliados a la REDNACECYT (Red Nacional de Consejos y Organismos Estatales de Ciencia y Tecnología). El propósito fundamental de esta plataforma es optimizar la gestión de la información y fomentar la colaboración entre los 32 consejos estatales de ciencia y tecnología en México. Esta iniciativa tiene como objetivo principal mejorar la comunicación y el intercambio de información que manejan estos organismos, enriqueciendo así la coordinación de proyectos conjuntos y promoviendo el desarrollo científico y tecnológico a nivel estatal y nacional. Desarrollada utilizando el framework Yii2, la plataforma simplifica tanto el registro como la gestión de los investigadores, permitiendo un acceso centralizado a información relevante sobre sus áreas de conocimiento, así como su nivel dentro del Sistema Nacional de Investigadores (SNI), proporcionado por el CONAHCYT.

**Keywords:** REDNACECYT, CONAHCYT, SNI, Yii2 Framework, Web platform

**Palabras Clave:** REDNACECYT, CONAHCYT, SNI, Framework Yii2, Plataforma web

## 1. INTRODUCTION

The National Network of State Science and Technology Councils and Agencies (REDNACECYT) has played a fundamental role for over two decades. This network, composed of representatives from state science and technology councils throughout the country, has worked to promote scientific and technological activities, increase the training of qualified human resources, boost funding for research, and foster a scientific culture in Mexican society.

In its constant pursuit of strengthening collaboration among researchers, academic institutions, and the government sector, REDNACECYT has identified the need for a web platform to facilitate the registration and management of researchers within its network. In order to address this, need effectively, the decision has been made to implement the platform using the Yii2 Framework, renowned for its robustness, flexibility, and ability to develop advanced web applications.

In this article, we will explore the development of a web platform designed for the registration of researchers within REDNACECYT. We will detail the objectives, functionalities, and the role it will play as a technological tool for collaborators of the 32 state councils of science and technology, distributed in each federative entity of the Mexican Republic.

## 2. CONTEXT OF THE PROBLEM

The problem lies in the lack of coordination and access to information of researchers affiliated as evaluators of CONAHCYT, specifically in each federative entity. Each state council of science and technology that is part of REDNACECYT manages its own database of researchers. However, there arises the need to consult information of researchers from other states, which has caused difficulty in the exchange of information and the allocation of resources, and the decision-making process regarding which projects to finance or which areas to prioritize in terms of scientific and technological development in each federative entity.

These researchers are experts in their respective areas of knowledge and are summoned to participate in evaluation committees. These committees review and evaluate research project proposals that have been submitted to CONAHCYT for funding. Affiliated evaluators conduct a detailed analysis of the proposals, considering their relevance, technical feasibility, potential impact, and contribution to the advancement of knowledge in their specific area.

## 3. STATEMENT OF THE PROBLEM

For the development of the web platform, the challenges faced by state councils of science and technology regarding the management of information of researchers affiliated as evaluators in CONAHCYT were taken into account. Among the main difficulties are:

- Each state council of science and technology manages its own database of researchers within its state, making it difficult to exchange information between federative entities. This lack of coordination hinders the identification of experts in various fields of knowledge at the national level and limits the ability to allocate resources efficiently.
- The need to consult information from researchers in other states implies a complex and inefficient process. This results in difficulty in making comparative analyses and informed decisions about which projects to finance or which areas to prioritize in terms of scientific and technological development in each federative entity.
- The disorganization of researchers' information complicates the creation of a unified and updated database. This can lead to redundancies, inconsistencies, and difficulties in maintaining the integrity and quality of the data.

Given these challenges, there is a need for a web platform that allows for the organization and management of information of researchers affiliated as evaluators in CONAHCYT.

#### 4. JUSTIFICATION

The implementation of a web platform for REDNACECYT becomes even more relevant when considering the current context of the scientific community, where technology plays a fundamental role in research management and access. As mentioned by González-Ruiz et al. (2018), the advancement towards an increasingly technological society and the growing demand for interaction through Information and Communication Technologies (ICTs) are leading to a reconsideration of research management and access methods.

In this sense, the implementation of a web platform will provide REDNACECYT collaborators with crucial information about researchers who act as evaluators in CONAHCYT. With this tool, they will be able to conduct detailed and specific analyses on each researcher, including aspects such as their membership in the National System of Researchers (SNI), their expertise, area of knowledge, field, and discipline to which they belong.

#### 5. GENERAL OBJECTIVE

Developing a web platform for the registration of researchers within REDNACECYT.

#### 6. SPECIFIC OBJECTIVES

- Requirements Analysis
- Requirement gathering and design diagrams
- Frontend and Backend programming
- Testing Development
- Deployment of the web platform and database in production

#### 7. REDNACECYT

The National Network of State Councils and Organizations for Science and Technology, REDNACECYT, is a civil association established on November 23, 1998, in Guanajuato by Coahuila, Durango, Guanajuato, Michoacán, Querétaro, San Luis Potosí, Sinaloa, and Tamaulipas. Since its creation, this entity has had a significant impact on the promotion of science, technology, and innovation in Mexico. Its formation not only marks the union of various organizations with similar objectives in these areas but also demonstrates the commitment of the federative entities to play an active role in the formulation and execution of policies aimed at promoting knowledge and its application in development (Rednacecyt, n.d.).

#### 8. NATIONAL SYSTEM OF RESEARCHERS (SNI)

The National System of Researchers, through its members, constitutes an entity that encompasses all scientific areas present in the country and includes the majority of higher education institutions, as well as institutes and research centers in Mexico. Collectively, this system contributes to promoting the optimal development of

scientific activity throughout the national territory and facilitates the establishment of high-level academic research groups in all federative entities. (CONAHCYT, 2024).

The National System of Researchers establishes reliable and valid criteria for evaluating research activities carried out by academics and technologists, as specified in the Regulation of the National System of Researchers (Official Gazette of the Federation, 2022). This regulation details the organization and operation of the system, eligibility requirements, procedures for appointing review committees, and their functions. Additionally, it describes the benefits of belonging to the National System of Researchers and the durations of the appointments.

According to the provisions of this regulation, the Federal Government grants three categories of distinctions through the SNI:

- I. Candidate for National Researcher
- II. National Researcher, with three levels
- III. National Emeritus Researcher

To be recognized as a National Researcher, it is necessary for the researcher to regularly and systematically carry out scientific or technological research activities and adequately present the documented results of their work.

## 9. TECHNOLOGICAL TOOLS

For the development of the web platform, the following programming technological tools were chosen:

### 9.1 HTML

HTML, short for Hypertext Markup Language, is the set of instructions used to organize and present a web page and its content. This content can vary from simple paragraphs to bulleted lists, images, and data tables. As its name suggests, this article aims to provide a fundamental understanding of HTML and explain its purpose (MDN, 2023).



Figure 1. HTML logo

### 9.2 CSS

The term CSS (Cascading Style Sheets) refers to "Cascading Style Sheets" and is based on a fundamental but highly effective concept: applying styles (such as colors, shapes, margins, etc.) automatically and uniformly to one or more documents, typically web pages in HTML format (CSS Language, n.d.).



Figure 2. CSS logo

### 9.3 JavaScript

JavaScript is a programming or scripting language that enables the incorporation of advanced functions into web pages. Whenever a web page goes beyond displaying static information and provides dynamic content updates, interactive maps, 2D/3D graphics animations, video playback with playback control, among others, it is highly likely that JavaScript is involved (MDN, 2023).



Figure 3. JavaScript logo

### 9.4 PHP

PHP (recursive acronym for PHP: Hypertext Preprocessor) is an open-source language suitable for web development and can be embedded in HTML. This hypertext processor provides the ability to enhance code efficiency for the appearance and functionality of the web environment, allowing us to develop operations and applications more efficiently (Lerdorf, 1995).



Figure 4. PHP logo

### 9.5 Yii2

Yii is a set of tools for web development based on PHP and object-oriented programming, offering a free license and the ability to create large-scale applications in an agile manner. Currently, it is in its version 2, and work is underway on version 3 to be compatible with PHP 8. Its name, yii (pronounced /i:/), comes from the English words "easy," "efficient," and "extensible" (Xue, 2008).

Some features of Yii include:

- Model-View-Controller (MVC) design pattern.
- Database Access Objects (DAO), query builder, Active Record, and database migration.
- Integration with jQuery.
- Form inputs and validation.
- Ajax widgets, such as autocomplete text fields and more.
- Built-in support for authentication. Additionally, it supports authorization through hierarchical Role-Based Access Control (RBAC).
- Customization of skins and themes.
- Complex WSDL generation, specification, and management of web service requests.



Figure 5. Yii2 logo

## 9.6 MYSQL

It is a fully managed database service that enables developers to quickly create and deploy native cloud applications securely, using the world's most popular open-source database.

This MySQL database service is unique in the cloud, as it features an integrated high-performance analytics engine called HeatWave. This allows customers to perform advanced analytics directly on their running MySQL databases, without the need for complex, costly, and time-consuming data movements to integrate with a separate analytics database (Oracle, 2014).



Figure 6. MySQL logo

## 10. METHODOLOGY

SCRUM represents a dynamic methodology for software development, characterized by its iterative and incremental approach. This approach offers an adaptable and efficient agile framework, focusing on delivering value to the customer throughout the project. The development process is organized into Sprints, short interaction periods with a typical duration of 30 days, each producing a tangible result that is presented to the client upon completion (CHANCUSI, 2012).

This methodology fosters an excellent relationship between the client and the final product, making it easier for developers to progressively deliver results and reducing the risk of potential changes in the final stage of the project. This is one of the main reasons why it is proposed for the development of software systems.

In SCRUM, there are primarily three fundamental roles:

- Product Owner: Responsible and owner of the product.
- Scrum Master: Acts as a leader, removing obstacles or difficulties that may arise during a sprint.
- Team Developer: Individuals responsible for ensuring the timely availability of the product.

The project's outcomes are established in time intervals called phases or sprints, each with its respective planned activities. The delivery of this project was primarily based on five phases detailed in Figure 7.

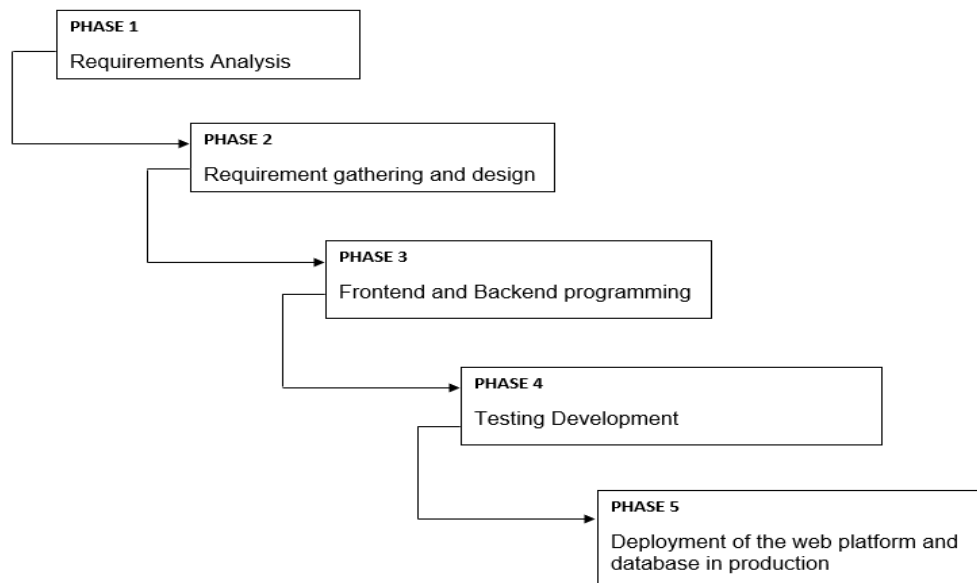


Figure 7. Diagram of the phases used in the development of the web platform

Each of these stages has a maximum time limit of 30 days to be completed. If they are not finished within the specified period, the project and subsequent stages are delayed, which fails to meet the objective.

### 10.1 PHASE 1. Requirements analysis

This is the initial phase in which the product owner communicates to the development team what requirements the web platform must meet. At the same time, the development team starts the analysis and begins setting up the necessary services.

### 10.2 PHASE 2. Requirement gathering and diagram design

During this phase, the schemes were created that were employed in the progress of the system, which are fundamental for recording, analyzing, organizing, optimizing, and transmitting processes that typically prove complicated, represented in diagrams in a clear and understandable manner.

### 10.3 PHASE 3. Frontend and backend programming

In the frontend, user interfaces and visible features for end users are designed and developed using technologies such as HTML, CSS, and JavaScript. Meanwhile, in the backend, functions and business logic supporting system operations are built, including data management, security, and communication with the database and other external systems, using PHP and the Yii2 framework.

### 10.4 PHASE 4. testing development

Once the project was developed, it moved to the phase of unit testing in Yii2 to ensure that each component of the code works correctly independently. In this phase, unit tests were conducted for the models, controllers, and application components.

### 10.5 PHASE 5. Deployment of the web platform and database in production

In this final phase, the implementation date must be established, and it must be ensured that the database and the web platform are prepared to be deployed on the server where the project will be in production.

## 11. RESULTS

As a final result, the views, sections, and modules that make up the web platform for registering Researchers of REDNACECYT are displayed. To access the platform, one must have a previously registered account for platform access. Figure 8 shows the first view of the platform, where users must log in with their email and password.



The image shows a login form for REDNACECYT. At the top, there is a logo consisting of a network of colored nodes (yellow, orange, red, blue, green) connected by lines. To the right of the logo, the text reads 'REDNACECYT' in bold, followed by 'Red Nacional de Consejos y Organismos Estatales de Ciencia y Tecnología, A.C.' in a smaller font. Below the logo and text, there are two input fields: 'Correo Electrónico' (Email) and 'Contraseña' (Password). Below the password field is a checkbox labeled 'Recordarme' (Remember me). At the bottom of the form is a black button with the text 'Iniciar Sesión' (Log In) in white.

Figure 8. Login Form

Figure 9 shows the home section of the web platform, where a general description of the platform's purpose is displayed.





Figure 9. Home Section of the Web Platform

As shown in Figure 10, a section dedicated to registering researchers has been established, offering the possibility to view and consult relevant information about those researchers accredited as CONAHCYT evaluators.

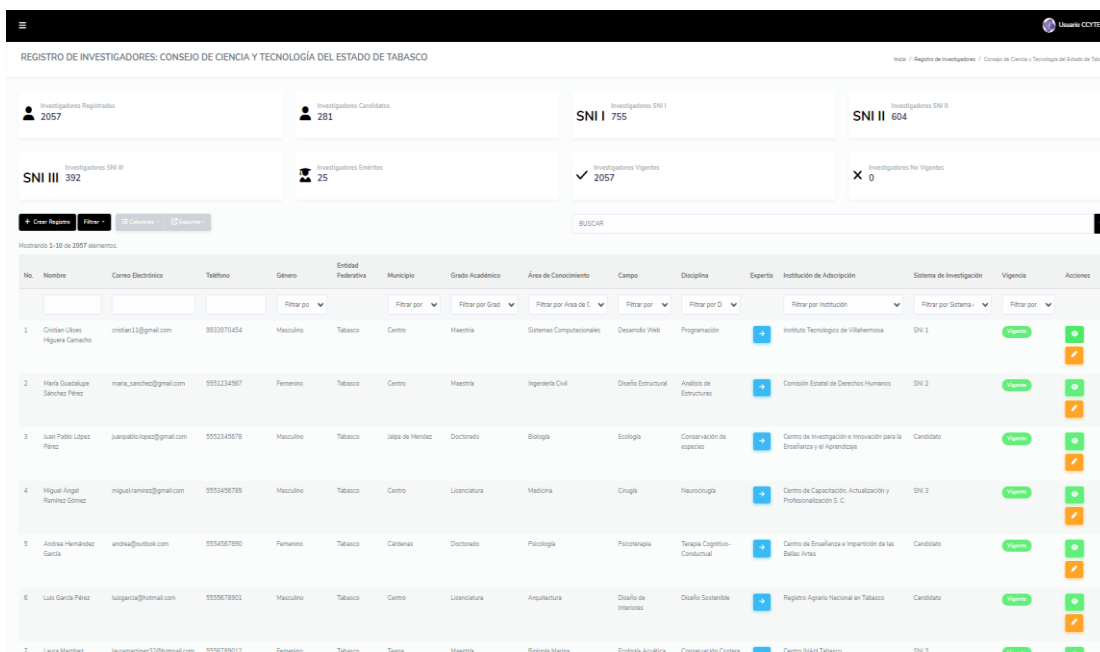


Figure 10. Section for Registering Researchers

To register a researcher, you must display the form through the option "Create Record," which will display the form with the respective fields to be registered, as shown in Figure 11.

**Registrar nuevo investigador**

Nombre:  Apellido Paterno:

Apellido Materno:  Correo Electrónico:

Teléfono:  Género:

Grado Académico:  Municipio:

Institución de Adscripción:

Sistema de Investigación:  Vigencia:

Institución de Adscripción:

Institución Académica  Institución Gubernamental  Empresa  Asociación  ONG  Cluster

Institución Académica:

Área de Conocimiento:  Campo:  Disciplina:

Expertis:

Figure 11. Researchers Registration Form

When creating or wanting to consult a record, the "View" action is available, which upon selection will display a modal showing the general information of the researcher, as seen in Figure 12.

**Datos del Investigador**

**Datos personales:**

Nombre: Cristian Ulises Higuera Camacho Correo Electrónico: cristian11@gmail.com Teléfono: 9933970454

Genéro: Masculino Entidad Federativa: Tabasco Municipio: Centro

Vigencia: **Vigente**

**Información del investigador:**

Grado Académico: Licenciatura Institución de Adscripción: Instituto Tecnológico de Villahermosa Sistema de Investigación: SNI 1

Área de Conocimiento: Sistemas Computacionales Campo: Desarrollo Web Disciplina: Programación

Expertis:  
El investigador tiene 3 años de experiencia en Programación Web, tiene conocimientos en los sig. lenguajes de programación:

- PHP
- JavaScript

**Datos del Registro:**

Responsable del Registro: Usuario CCYTET Fecha del Registro: 15/02/2024

Figure 12. General Data View of Researcher

For the consultation and generation of reports of researcher records, a section was created which displays a list where the records of each headquarters of the researchers registered can be identified, as shown in Figure 13.

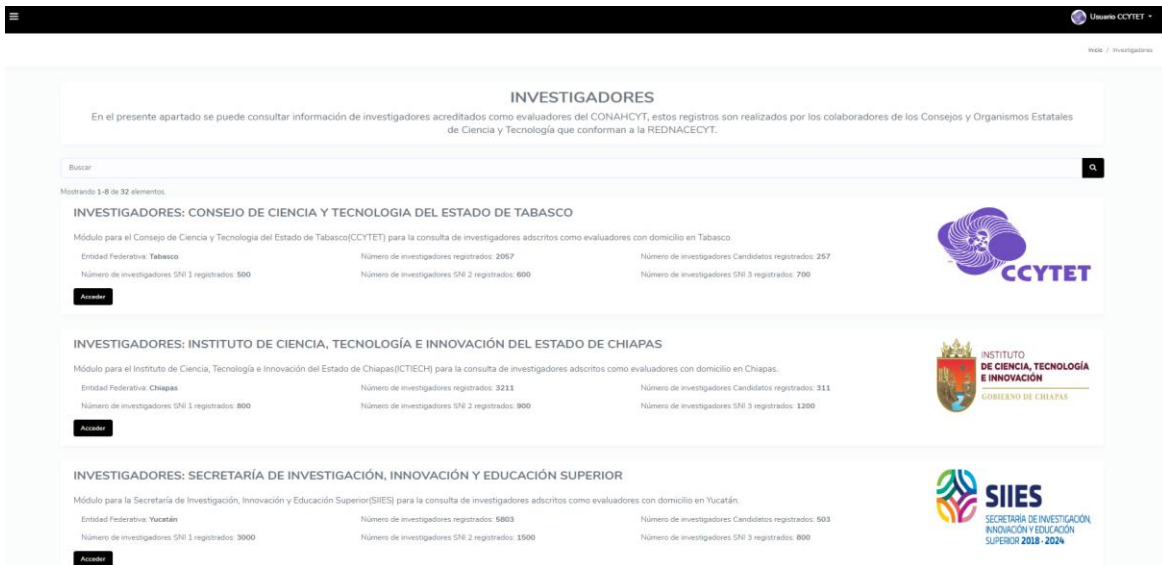


Figure 13. Section for querying Researchers by Headquarters

As shown in Figure 14, when querying the records of a headquarters, it redirects the user to a section where it will display a list of researchers specifically registered for that headquarters. Additionally, this section includes filters and report generation in .XLSX format.

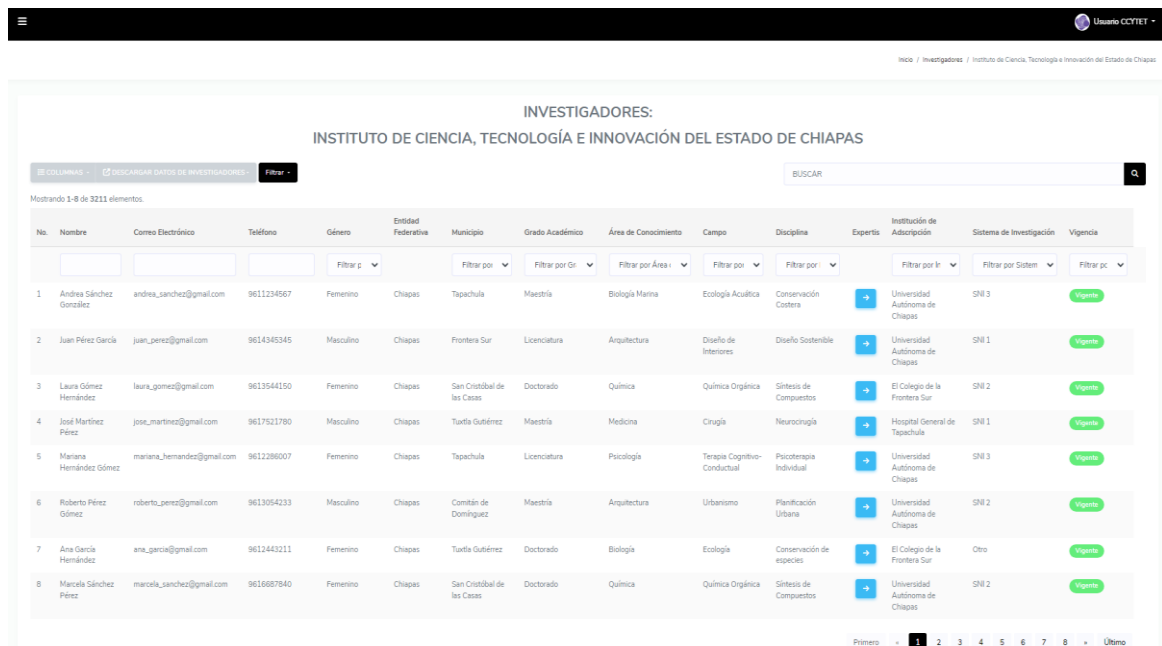


Figure 14. Section for Listing Researchers' Records

Figure 15 presents a module for registering researchers' projects. To register a project, the information is recorded through a form, which can be seen in Figure 16.

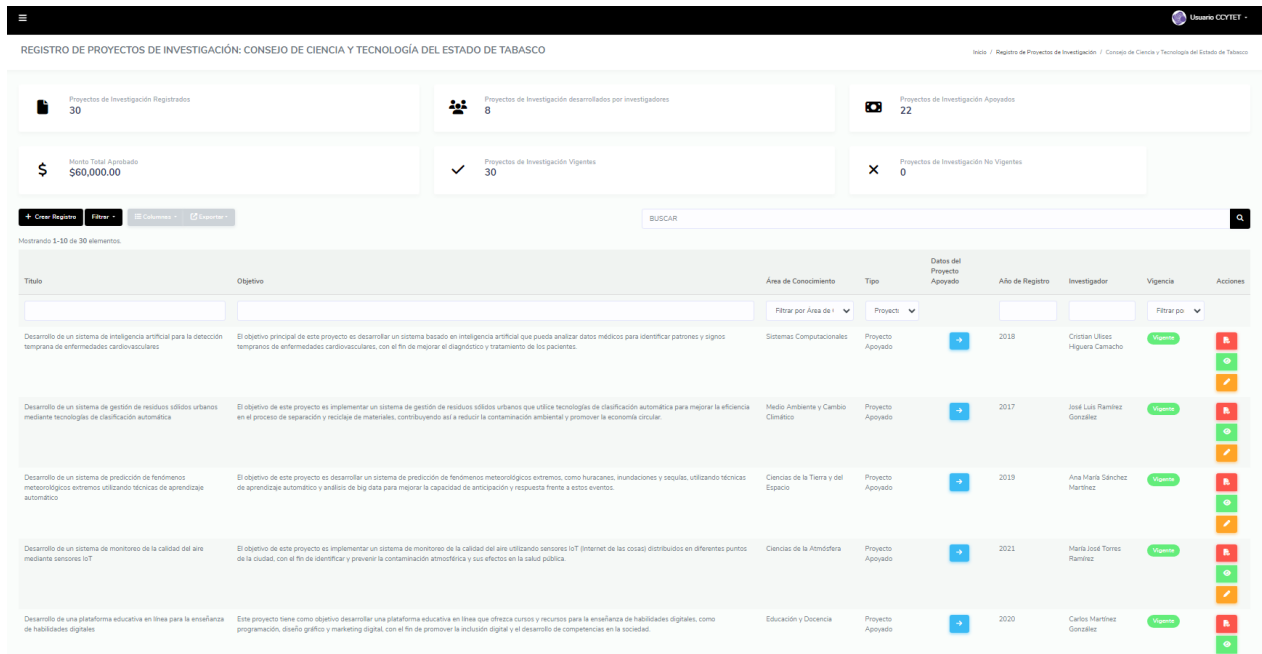


Figure 15. Research Projects Registration Module

The 'Registrar nuevo proyecto' form contains the following fields and options:
 

- Título:** Text input field.
- Objetivo:** Text input field with a copy icon.
- Año de Registro:** Text input field.
- Vigencia:** Dropdown menu with the option '---Selecciona una opción---'.
- Investigador:** Dropdown menu with the option '---Selecciona un investigador---
- Área de Conocimiento:** Text input field.
- Subir Documentos(Proyecto):** File upload area with an 'Examinar' button.
- Tipo:** Dropdown menu with 'Proyecto Apoyado' selected.
- Convocatoria:** Text input field.
- Monto Aprobado:** Text input field with a '\$' symbol.
- Fuente de financiamiento:** Radio buttons for 'Institución Académica', 'Institución Gubernamental' (selected), 'Empresa', 'Asociación', 'ONG', and 'Cluster'.
- Institución Gubernamental:** Dropdown menu with the option '---Selecciona una institución gubernamental---

 The form concludes with 'Cancelar' and 'Guardar' buttons.

Figure 16. Research Project Registration Form

As shown in Figure 17, a section was created for the consultation of research projects where REDNACECYT collaborators can access the records held by each headquarters regarding the research conducted by the researchers.



Figure 17. Section for Research Project Query by Headquarters

Figure 18 shows the section where the list of research projects is displayed. In this section, you can generate Excel reports and download the available documents for each investigation, as well as query relevant information such as research data, the amount provided for research support, the organization for which it was conducted, or if it was for independent research.

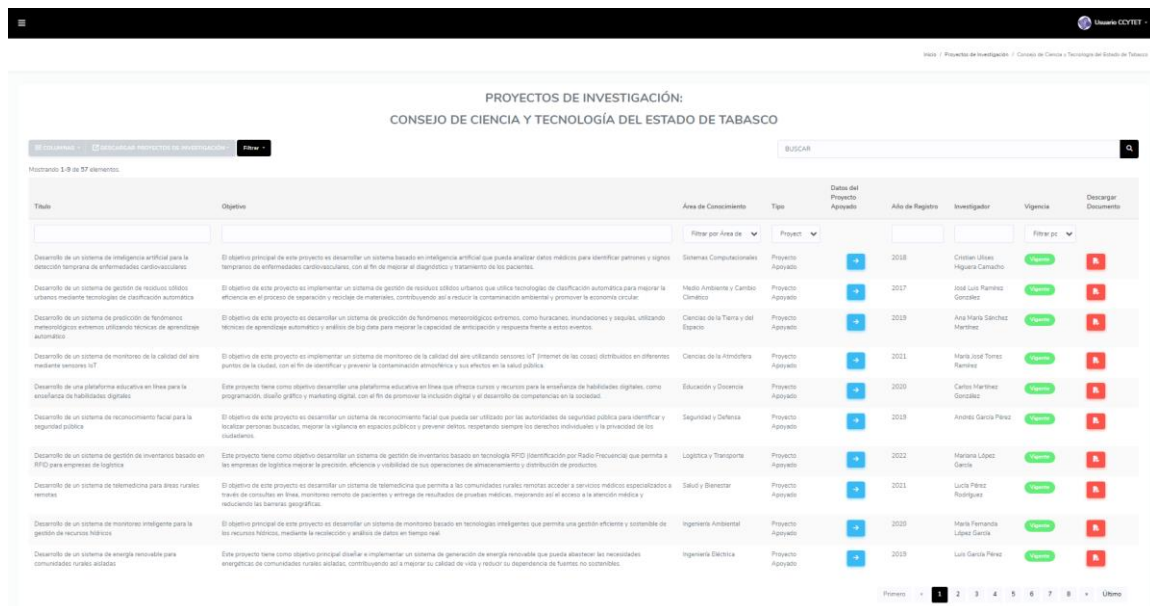


Figure 18. Section for Listing Research Projects Records

Similar to the modules shown in Figures 10 and 15, in this module depicted in Figure 19, scientific products produced by researchers are registered. These scientific products include scientific articles, books, intellectual property or industrial records, among others. To register a product, the information is recorded through a form, which can be seen in Figure 20.

Título	Autor	Nivel de Acceso	Licencia	Materia	Resumen o descripción	Año de Publicación	Idioma	Área de Conocimiento	Tipo	Versión	Vigencia	Acciones
INFORME FINAL DE LA EVALUACIÓN DE IMPACTO DEL PROGRAMA DE FOMENTO REGIONAL PARA EL DESARROLLO CIENTÍFICO, TECNOLÓGICO Y DE INNOVACIÓN "FORDECYT"	Miguel Santiago Reyes Hernandez	Acceso Abierto	Atribución-NoComercial-CompartirIgual	Economía de la ciencia Administración de la ciencia y de la investigación		2018	Español	Ciencias Económicas	Documento de trabajo	Versión publicada	Activa	[Iconos de acción]
INFORME FINAL DE LA EVALUACIÓN DEL IMPACTO DE LAS POLÍTICAS DE INVESTIGACIÓN CIENTÍFICA Y TECNOLÓGICA EN MÉXICO	José Luis García Martínez	Acceso Abierto	Atribución-NoComercial-SinDerivadas	Política Científica Evaluación de Políticas Científicas		2020	Español	Ciencia Política	Tesis de maestría	Versión final	Activa	[Iconos de acción]
INFORME DE RESULTADOS DE LA INVESTIGACIÓN SOBRE EL IMPACTO DE LA TECNOLOGÍA EN EL SECTOR AGROALIMENTARIO	María Fernanda Torres López	Acceso Abierto	Atribución-CompartirIgual	Tecnología Agrícola Impacto Tecnológico		2019	Español	Ingeniería Agrícola	Tesis de maestría	Versión revisada	Activa	[Iconos de acción]
ESTUDIO SOBRE EL DESARROLLO DE LA INTELIGENCIA ARTIFICIAL EN LA INDUSTRIA MANUFACTURERA MEXICANA	Juan Carlos Gómez Rodríguez	Acceso Abierto	Atribución-NoComercial-CompartirIgual	Inteligencia Artificial Industria Manufacturera		2018	Español	Ingeniería Industrial	Estudio de investigación	Versión publicada	Activa	[Iconos de acción]
ESTUDIO SOBRE LA INFLUENCIA DE LA INNOVACIÓN TECNOLÓGICA EN LA COMPETITIVIDAD EMPRESARIAL EN MÉXICO	Ana María López Pérez	Acceso Abierto	Atribución-CompartirIgual	Innovación Tecnológica Competitividad Empresarial		2021	Español	Administración de Empresas	Tesis de doctorado	Versión final	Activa	[Iconos de acción]
ANÁLISIS SOBRE EL IMPACTO DE LAS ENERGÍAS RENOVABLES EN EL DESARROLLO ECONÓMICO DE MÉXICO	Rosa María García Flores	Acceso Abierto	Atribución-NoComercial-SinDerivadas	Energías Renovables Desarrollo Económico		2022	Español	Economía Energética	Informe de investigación	Versión revisada	Activa	[Iconos de acción]

Figure 19. Scientific Products Registration Module

**Registrar producto científico**

Título:

Autor:

Área de Conocimiento:

Nivel de acceso:  Licencia:

Materia:

+Agregar otra materia

Resumen o descripción:

Año de Publicación:  Idioma:

Tipo:  Versión:

Vigencia:

Subir Documento(Investigación):

Examinar

Figure 20. Form for Scientific Products Registration

Figure 21 displays a section for viewing the list of records of scientific products of researchers corresponding to each headquarters of REDNACECYT. Similarly, each headquarters shown has its section to consult the records held by each one regarding the scientific productivity of the researchers, which can be seen in Figure 22.

**PRODUCTIVIDAD CIENTIFICA**

En esta sección podrá consultar los productos derivados de la actividad de los investigadores de los Estados que conforman la República Mexicana, tales como artículos científicos, libros, registros de propiedad intelectual o industrial, entre otros.

Buscar

Mostrando 1-8 de 32 elementos.

**PRODUCTIVIDAD CIENTIFICA: CONSEJO DE CIENCIA Y TECNOLOGIA DEL ESTADO DE TABASCO**

Módulo para el Consejo de Ciencia y Tecnología del Estado de Tabasco(CCYTET) para el registro de productividad científica de investigadores que residen en Tabasco.

Entidad Federativa: Tabasco Número de proyectos de investigación (Productividad Científica): 30

[Acceder](#)

**PRODUCTIVIDAD CIENTIFICA: INSTITUTO DE CIENCIA, TECNOLOGÍA E INNOVACIÓN DEL ESTADO DE CHIAPAS**

Módulo para el Instituto de Ciencia, Tecnología e Innovación del Estado de Chiapas(ICTECH) para el registro de productividad científica de investigadores que residen en Chiapas.

Entidad Federativa: Chiapas Número de proyectos de investigación (Productividad Científica): 100

[Acceder](#)

**PRODUCTIVIDAD CIENTIFICA: SECRETARÍA DE INVESTIGACIÓN, INNOVACIÓN Y EDUCACIÓN SUPERIOR**

Módulo para la Secretaría de Investigación, Innovación y Educación Superior(SIIES) para el registro de productividad científica de investigadores que residen en Yucatán.

Entidad Federativa: Yucatán Número de proyectos de investigación (Productividad Científica): 57

[Acceder](#)

Figure 21. Section for Scientific Productivity by Headquarters

**PRODUCTIVIDAD CIENTIFICA: SECRETARÍA DE INVESTIGACIÓN, INNOVACIÓN Y EDUCACIÓN SUPERIOR**

Mostrando 1-9 de 57 elementos.

Título	Autor	Nivel de Acceso	Licencia	Materia	Resumen o descripción	Año de Publicación	Idioma	Área de Conocimiento	Tipo de publicación	Versión de la publicación	Vigencia	Descargar Documento
INFORME FINAL DE LA EVALUACIÓN DE IMPACTO DEL PROGRAMA DE FOMENTO REGIONAL PARA EL DESARROLLO CIENTÍFICO, TECNOLÓGICO Y DE INNOVACIÓN "FORDECICYT"	Miguel Santiago Reyes Hernandez	Acceso Abierto	Atribución-NoComercial-CompartirIgual	Economía de la ciencia Administración de la ciencia y de la investigación	<a href="#">+</a>	2018	Español	Ciencias Económicas	Documento de trabajo	Versión publicada	<span style="color: green;">Vigencia</span>	<a href="#">B</a>
INFORME FINAL DE LA EVALUACIÓN DEL IMPACTO DE LAS POLÍTICAS DE INVESTIGACIÓN CIENTÍFICA Y TECNOLÓGICA EN MÉXICO	José Luis García Martínez	Acceso Abierto	Atribución-NoComercial-SinDerivadas	Publica Científica Evaluación de Políticas Científicas	<a href="#">+</a>	2020	Español	Ciencia Política	Tesis de maestría	Versión final	<span style="color: green;">Vigencia</span>	<a href="#">B</a>
INFORME DE RESULTADOS DE LA INVESTIGACIÓN SOBRE EL IMPACTO DE LA TECNOLOGÍA EN EL SECTOR AGROALIMENTARIO	María Fernanda Torres López	Acceso Abierto	Atribución-CompartirIgual	Tecnología Agrícola Impacto Tecnológico	<a href="#">+</a>	2019	Español	Ingeniería Agrícola	Tesis de maestría	Versión revisada	<span style="color: green;">Vigencia</span>	<a href="#">B</a>
ESTUDIO SOBRE EL DESARROLLO DE LA INTELIGENCIA ARTIFICIAL EN LA INDUSTRIA MANUFACTURERA MEXICANA	Juan Carlos Gómez Rodríguez	Acceso Abierto	Atribución-NoComercial-CompartirIgual	Inteligencia Artificial Industria Manufacturera	<a href="#">+</a>	2019	Español	Ingeniería Industrial	Estudio de investigación	Versión publicada	<span style="color: green;">Vigencia</span>	<a href="#">B</a>
ESTUDIO SOBRE LA INFLUENCIA DE LA INNOVACIÓN TECNOLÓGICA EN LA COMPETITIVIDAD EMPRESARIAL EN MÉXICO	Ara María López Pérez	Acceso Abierto	Atribución-CompartirIgual	Innovación Tecnológica Competitividad Empresarial	<a href="#">+</a>	2021	Español	Administración de Empresas	Tesis de doctorado	Versión final	<span style="color: green;">Vigencia</span>	<a href="#">B</a>
ANÁLISIS SOBRE EL IMPACTO DE LAS ENERGÍAS RENOVABLES EN EL DESARROLLO ECONÓMICO DE MÉXICO	Rosa María García Flores	Acceso Abierto	Atribución-NoComercial-SinDerivadas	Energías Renovables Desarrollo Económico	<a href="#">+</a>	2022	Español	Economía Energética	Informe de investigación	Versión revisada	<span style="color: green;">Vigencia</span>	<a href="#">B</a>
ESTUDIO SOBRE EL USO DE LA BIOTECNOLOGÍA EN LA INDUSTRIA ALIMENTARIA MEXICANA	Ricardo González Pérez	Acceso Abierto	Atribución-NoComercial-CompartirIgual	Biotecnología Alimentaria Industria Alimentaria	<a href="#">+</a>	2019	Español	Ingeniería en Alimentos	Artículo	Versión final	<span style="color: green;">Vigencia</span>	<a href="#">B</a>
ANÁLISIS SOBRE EL IMPACTO DE LA TECNOLOGÍA BLOCKCHAIN EN EL SECTOR FINANCIERO MEXICANO	Luis Rodríguez Martínez	Acceso Abierto	Atribución-NoComercial-CompartirIgual	Tecnología Blockchain Sector Financiero	<a href="#">+</a>	2020	Español	Finanzas	Artículo	Versión revisada	<span style="color: green;">Vigencia</span>	<a href="#">B</a>
ESTUDIO SOBRE EL IMPACTO DE LA INNOVACIÓN TECNOLÓGICA EN EL SECTOR DE LA SALUD EN MÉXICO	María José Gutiérrez López	Acceso Abierto	Atribución-NoComercial-SinDerivadas	Innovación Tecnológica en Salud Sector de la Salud	<a href="#">+</a>	2021	Español	Ingeniería Biomédica	Tesis de licenciatura	Versión final	<span style="color: green;">Vigencia</span>	<a href="#">B</a>

Primero 1 2 3 4 5 6 7 8 Último

Figure 22. Section for Listing Scientific Productivity Records

An Indicators section was implemented to visualize data through graphs related to Researchers, Scientific Productivity, and previously registered Organizations. Additionally, this section offers filtering options to query various metrics recorded within date ranges and headquarters, as shown in Figure 23.

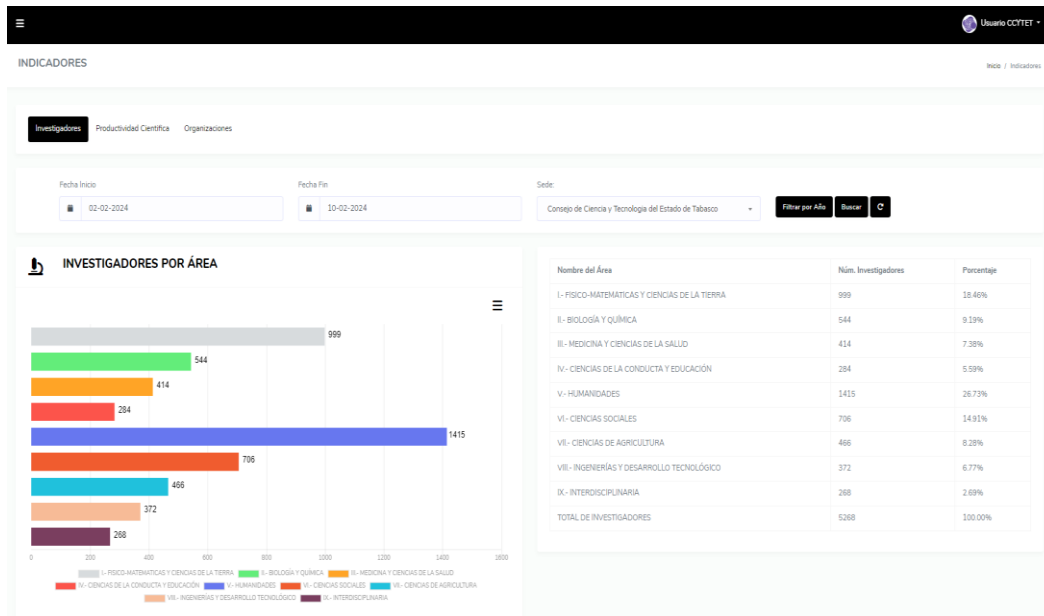


Figure 23. Section for Indicators

The platform includes other sections for detailed information query about organizations (Companies, Associations, NGOs, and Clusters), academic institutions, and governmental entities as shown in Figures 24, 25, and 26. All these organizations and institutions are dedicated to research and development and are verified and registered by all the State Councils and Organizations of Science and Technology that make up REDNACECYT.

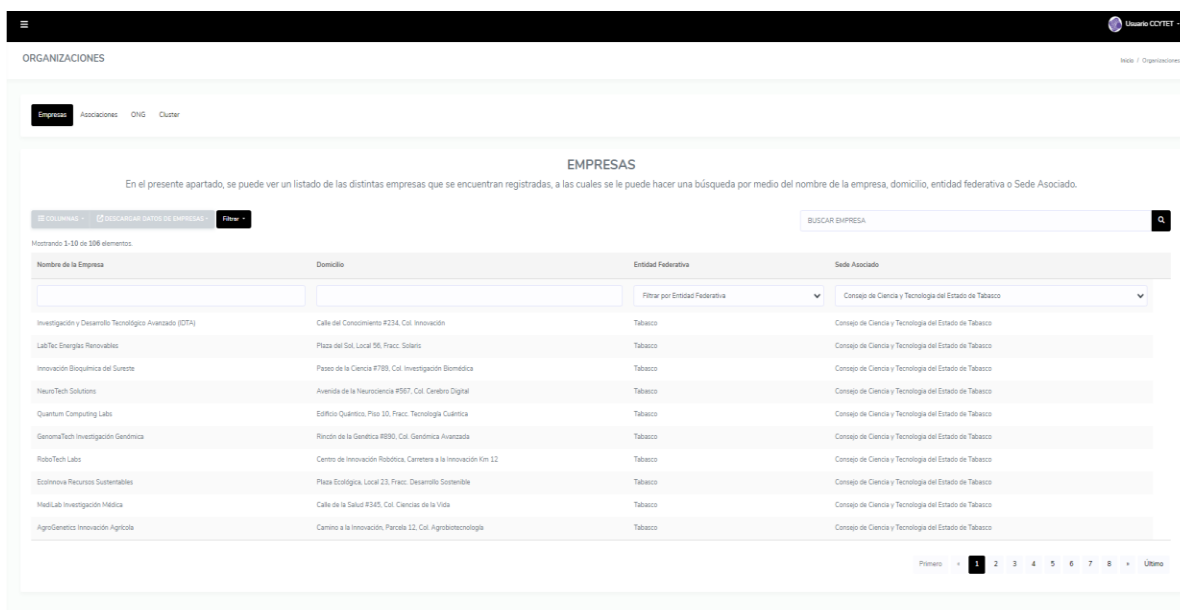


Figure 24. Section for Registered Organizations Query



INSTITUCIONES ACADÉMICAS

En el presente apartado, se puede ver un listado de las distintas instituciones académicas que se encuentran registradas, a las cuales se le puede hacer una búsqueda por medio del nombre de la institución, siglas de la misma, entidad federativa o sede asociado.

Mostrando 1-15 de 207 elementos.

Nombre de la Institución	Siglas	Correo Institucional	Teléfono Institucional	Descripción	Domicilio	No. Investigadores Adscritos	Entidad Federativa	Sede Asociado	Página Web
Universidad Nacional Autónoma de México	UNAM	unam@unam.mx	556740322		Ciudad Universitaria S/N, Ciudad Universitaria	238	Estado de México	Consejo Nacional de Ciencia y Tecnología	https://www.unam.mx/
Tecnológico Nacional de México	TENA	tecnac@tecnac.mx	556422141		Av. Instituto Tecnológico S/N	179	Jalisco	Instituto Consejo Estatal de Ciencia y Tecnología de Jalisco	https://www.technac.mx/
Universidad Autónoma de Tlaxcala	UAUTL	uautil@uautil.mx	429422228		Av. Universidad S/N	305	Tlaxcala	Instituto de Investigación y Transferencia de Tecnología de Tlaxcala	https://www.uautil.mx/
Instituto Politécnico Nacional	IPN	ipn@ipn.mx	556224957		Av. Luis Enrique Erro S/N	89	Estado de México	Consejo Nacional de Ciencia y Tecnología	https://www.ipn.mx/
Universidad Autónoma de Baja California	UABC	uaabc@uaabc.mx	939878542		Bld. Benito Juárez S/N	144	Baja California	Consejo de Ciencia e Innovación Tecnológica de Baja California	https://www.uaabc.mx/
Universidad Autónoma de San Quintán	UASQ	uasq@uasq.mx	698987543		Av. Perla 1200	200	Jalisco	Instituto Consejo Estatal de Ciencia y Tecnología de Jalisco	https://www.uasq.mx/
Universidad de Guaymas	UGTO	ugto@ugto.mx	993288876		San Nicolás de Copal No 9	12	Guaymas	Instituto de Investigación, Ciencia e Innovación para el Estado de Guaymas	https://www.ugto.mx/
Universidad Autónoma Veracruzana	UAVER	uaaver@uaaver.mx	952228878		Av. San Pablo 100	58	Estado de México	Consejo Nacional de Ciencia y Tecnología	https://www.uaaver.mx/
Universidad Autónoma de Tlaxcala	UAOT	uaot@uaot.mx	998765432		Calle 60 No. 400A	23	Tlaxcala	Secretaría de Investigación, Innovación e Educación Superior del Estado de Tlaxcala	https://www.uaot.mx/
Universidad Autónoma del Estado de Hidalgo	UAEH	uaeah@uaeah.mx	461224957		Carrtera Pachuca-Tlaxcala km 4.5	75	Hidalgo	Consejo de Ciencia, Tecnología e Innovación de Hidalgo	https://www.uaeah.mx/
Universidad Autónoma de Sinaloa	UAS	uas@uas.mx	461224957		Bld. de los Estudios - Av. de las Torres	205	Sinaloa	Comisión General para el Fomento de Investigación Científica e Innovación del Estado de Sinaloa	https://www.uas.mx/
Universidad de Sonora	UNISON	unison@unison.mx	777228424		Bld. Luis Donato Colón Huertas S/N	5	Sonora	Consejo Estatal de Ciencia y Tecnología del Estado de Sonora	https://www.unison.mx/
Universidad Autónoma de Zacatecas	UAZ	uaaz@uaaz.mx	461224957		Ciudad Universitaria	42	Zacatecas	Consejo Zacatecano de Ciencia, Tecnología e Innovación	https://www.uaaz.mx/
Universidad Autónoma del Estado de México	UAEM	uaem@uaem.mx	778442141		Ciudad Universitaria Av. Instituto Literario 100	61	Estado de México	Consejo Nacional de Ciencia y Tecnología	https://www.uaem.mx/
Universidad Autónoma de Querétaro	UAQ	uaq@uaq.mx	449203112		Centro Universitario	40	Querétaro	Consejo de Ciencia y Tecnología del Estado de Querétaro	https://www.uaq.mx/

Primero 1 2 3 4 5 6 7 8 Última

Figure 25. Section for Registered Academic Institutions Query

INSTITUCIONES GUBERNAMENTALES

En el presente apartado, se puede ver un listado de las distintas instituciones gubernamentales que se encuentran registradas, a las cuales se le puede hacer una búsqueda por medio del nombre de la institución, correo o teléfono institucional, entidad federativa o sede asociado.

Mostrando 1-15 de 256 elementos.

Nombre de la Institución	Correo Institucional	Teléfono Institucional	Descripción	Domicilio	No. Investigadores Adscritos	Entidad CTI	Entidad Federativa	Sede Asociado
Fundación para el Desarrollo Agroalimentario y Rural AC	fundacion.desarrollo@gmail.com	1224567890		Calle Reforma #7, Colonia Centro	251	Juan José López González	Veracruz	Consejo Veracruzano de Investigación Científica y Desarrollo Tecnológico
Centro de Ecología Regional, A.C.	contacto@ecologia-regional.com	9076543210		Avenida del Bosque #456, Colonia Bosques de la Ciudad	348	Luis Martínez Pérez	Chihuahua	Instituto de Innovación y Competitividad
Agupación de Silvicultores Región El Salto S.C.	info@silvicultoresvalto.com	2345678901		Calle del Bosque #789, Colonia El Salto	12	Carlos Sánchez López	Jalisco	Instituto Consejo Estatal de Ciencia y Tecnología de Jalisco
Productores de Cacahuete del Municipio de Rodas, Durango	contacto@productoresrodas.com	3456789012		Independencia #567, Colonia Independencia	200	Marina Díaz Rodríguez	Michoacán	Instituto de Ciencia, Tecnología e Innovación del Estado de Michoacán
IQ Desarrollo de Inteligencias Múltiples AC	contacto@iqdesarrollo.com	4567890123		Calle de la Reforma #890, Colonia Reforma	78	José Antonio Ramírez Gómez	Quintana Roo	Consejo de Ciencia y Tecnología del Estado de Quintana Roo
Asociación EKATEC	info@asociacionekatec.org	5678901234		Calle de las Flores #231, Colonia Jardines del Sur	491	María Fernanda Sánchez Ruiz	Coahuila	Consejo Estatal de Ciencia y Tecnología del Estado de Coahuila
Enra Cultura Ambiental AC	contacto@enraculturaambiental.com	6789012345		Calle del Campo #456, Colonia San José	66	Luis Hernández Pérez	Hidalgo	Consejo de Ciencia, Tecnología e Innovación de Hidalgo
Módulo 11 Guadalupe Victoria del Distrito de Riago MVSQ	contacto@modulo11guadalupe.com	7890123456		Calle del Ochoque #789, Colonia Esperanza	190	María José Martínez García	Moravia	Consejo de Ciencia y Tecnología del Estado de Moravia
Centro Estatal de Ganadería	info@centroestatalganaderia.com	1234567890		Calle de la Subsidios #567, Colonia Unión	33	Luis Sánchez Pérez	Tamaulipas	Consejo Tamaulipeño de Ciencia y Tecnología
Sidería Mexco AC	contacto@sideriamexco.org	2345678901		Calle de la Educación #123, Colonia Piedad	16	José Semerán Díaz	Puebla	Consejo de Ciencia y Tecnología del Estado de Puebla
Centro de Investigación e Innovación para el Desarrollo Educativo	contacto@centroinvestigacioninnovacion.com	(545) 678-9012		Calle de la Tecnología #901, Colonia Tecnológica	21	José Ignacio Rodríguez López	Oaxaca	Consejo Oaxaqueño de Ciencia, Tecnología e Innovación
CECAP	info@cecapoaxaca.com	4567890123		Boulevard del Milenio #321, Colonia Engema	56	María José García Hernández	Cuba	Consejo Estatal de Ciencia y Tecnología de Cuba
Acortijo Museo Interactivo Región Laguna	contacto@acortijomuseo.com	5678901234		Calle del Ganadero #456, Colonia Ganadera	43	Luis Hernández Pérez	Chiapas	Instituto de Ciencia, Tecnología e Innovación del Estado de Chiapas
Unión Ganadera Regional de Durango	contacto@unionganaderadurango.com	6789012345		Calles del Algodón #789, Colonia Leves	45	María Guadalupe Martínez González	Guerrero	Instituto de Investigación, Ciencia e Innovación para el Estado de Guerrero
Companía Jurídica CJ	info@companiajuridica.com	7890123456		Av. de la Independencia #789, Colonia Libertad	180	Luis Ramírez González	Yucatán	Secretaría de Investigación, Innovación e Educación Superior del Estado de Yucatán

Primero 1 2 3 4 5 6 7 8 Última

Figure 26. Section for Registered Governmental Institutions Query

12. DISCUSSION AND CONCLUSIONS

With the development of a web platform for registering researchers of REDNACECYT, access to information about researchers affiliated as evaluators in CONAHCYT has been organized and made quickly accessible for the State Councils and Organizations of Science and Technology that make up REDNACECYT.

It is also important to highlight the significance of having a technological tool that simplifies the comprehensive management of information related to researchers, organizations, and academic and governmental institutions throughout Mexico. For such web projects, frameworks like Yii2 were employed for platform development due to its solid structure and versatility, ensuring efficient implementation adaptable to the specific needs of REDNACECYT.

## REFERENCES

- [1] Rednacecyt. (s. f.). Conócenos — Red Nacional de Consejos y Consejos y Organismos Estatales de Ciencia y Tecnología. Red Nacional de Consejos y Consejos y Organismos Estatales de Ciencia y Tecnología. Retrieved from REDNACECYT: <https://www.rednacecyt.org/conocenos>
- [2] CONAHCYT. (2024). Sistema Nacional de Investigadoras e Investigadores – Conahcyt. Retrieved from Conahcyt: <https://conahcyt.mx/sistema-nacional-de-investigadores/>
- [3] Diario Oficial de la Federación. (2022). Reglamento del Sistema Nacional de Investigadores. Retrieved from Secretaria de Gobernación: [https://dof.gob.mx/nota\\_detalle.php?codigo=5660859&fecha=10/08/2022#gsc.tab=0](https://dof.gob.mx/nota_detalle.php?codigo=5660859&fecha=10/08/2022#gsc.tab=0)
- [4] MDN. (2023). Conceptos básicos de HTML. Retrieved from MDN Web Docs: [https://developer.mozilla.org/es/docs/Learn/Getting\\_started\\_with\\_the\\_web/HTML\\_basics](https://developer.mozilla.org/es/docs/Learn/Getting_started_with_the_web/HTML_basics)
- [5] Lenguaje CSS. (s.f.). ¿Qué es CSS? - CSS en español. Obtenido de Lenguaje CSS: <https://lenguajecss.com/css/introduccion/que-es-css/>
- [6] MDN. (2023). ¿Qué es JavaScript?. Retrieved from MDN Web Docs: [https://developer.mozilla.org/es/docs/Learn/JavaScript/First\\_steps/What\\_is\\_JavaScript](https://developer.mozilla.org/es/docs/Learn/JavaScript/First_steps/What_is_JavaScript)
- [7] Lerdorf, R. (1995). PHP Hypertext Preprocessor. Retrieved from PHP: <https://www.php.net>
- [8] Qiang Xue. (2008). Yii Framework. Retrieved from Yii Framework: <https://www.yiiframework.com>
- [9] Oracle. (2014). Manual de Referencia de MySQL 5.0. Retrieved from MySQL Community: <https://downloads.mysql.com/docs/refman-5.0-es.pdf>
- [10] CHANCUSI, K. M. (Noviembre de 2012). MÉTODO ÁGIL SCRUM, APLICADO A LA IMPLANTACIÓN DE UN SISTEMA INFORMÁTICO PARA EL PROCESO DE RECOLECCIÓN MASIVA DE INFORMACIÓN CON TECNOLOGÍA MÓVIL. Retrieved from Repositorio Institucional de la Universidad de las Fuerzas Armadas ESPE: <http://repositorio.espe.edu.ec/handle/21000/5893>
- [11] González-Ruiz, S., Domínguez-Alfonso, R., Chica-Merino, E., Pastrana-Brincones, J., & Hernández-Mendo, A. (2018). UNA PLATAFORMA VIRTUAL PARA LA EVALUACIÓN e INVESTIGACIÓN ON-LINE: MENPAS. Retrieved from <https://www.redalyc.org/journal/2270/227068106003/>

Email of corresponding author: [M23301208@villahermosa.tecnm.mx](mailto:M23301208@villahermosa.tecnm.mx)