Capacity-building Programme for the implementation of the Minamata Convention in Argentina

Argentina SIP Project 2018/01/LAC/ARG

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Ministerio de Ambiente y Desarrollo Sostenible Argentina

INTI 65 Años Instituto Nacional de Tecnología Industrial

CRBAS Centro Regional Basilea para América del Sur

UN environment United Nations Environment Programme

MINAMATA CONVENTION ON MERCURY

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Índex

Argentina SIP Project: introduction

As a result of the Initial Assessment of National Capacity for the Implementation of the Minamata Convention on Mercury in Argentina (MIA), prepared by the UNDP ARG/17G25 Project, important results were obtained on the country's priorities and the main challenges to implement the Minamata Convention on Mercury. Based on these needs, Argentina applied to the Specific International Program (SIP), being the first country in the region to benefit from it in its first round of application.

The International Specific Programme is part of the financial mechanism of the Minamata Convention on Mercury and aims to assist developing countries and those with economies in transition to develop projects to improve their capacity to implement their obligations under the Convention. The scope of the Specific International Programme (SIP) extends to capacity building and technical assistance in accordance with paragraph 6 (b) of Article 13 of the Minamata Convention.

In this framework, then-Government Secretariat of Environment and Sustainable Development as an applicant of the Project, through the Basel Convention Regional Centre for the South American Region in Argentina (BCRC) based at INTI, begins the execution of the Project "Capacity building program for the implementation of the Minamata Convention", for an amount of USD 250,000 and a term of 2 years from August 1, 2019.

The objective of the Project was to strengthen the country's capacity to implement Article 4 of the Convention and to develop information generation mechanisms to comply with the Minamata Convention. In this regard, and consistent with Article 19, paragraphs 1 (f) and (g), the Project funded activities to develop information on trade in mercury-added products and to conduct technical and socio-economic studies to assess cost-effective measures to replace products covered by Article 4.

In addition, the Project included measures to design a new set of standards with associated incentives, administrative regulations and enforcement systems. In accordance with Article 18, awareness-raising campaigns were conducted for local governments and key stakeholders to achieve the sustainability of the proposed measures.

The SIP developed a network of laboratories and strengthened its measurement capacities, implementing a mercury control unit, among other activities, in order to address the lack of monitoring capacity at the national and provincial levels.

Based on the above, the project implemented the following measures:

Measure 1: Improve the capacity to implement the obligations under Article 4 of the Minamata Convention

Measure 2: Enhance capacities for research and mercury surveillance, in accordance with article 12 and 19 of the Minamata Convention.

The Project sought to improve mercury research and control capabilities, in accordance with Articles 12 and 19 of the Minamata Convention, creating the necessary basis for the country to generate local data and statistics on mercury emissions and releases, as well as to monitor mercury management activities.

This Project has been developed in the orbit of the National Directorate of Substances and Hazardous Wastes, corresponding to the Ministry of Environment and Sustainable Development (MAyDS), and its implementation agency has been the Basel Regional Center for South America, based at the National Institute of Industrial Technology (INTI).

This project also seeks to have a direct contribution to the fulfillment of the 2030 agenda of Sustainable Development Goals of the United Nations, crucial objectives to achieve sustainable human development, in particular with regard to health and well-being, gender equality, sustainable industries and environmental protection, as follows:

- **SDG 3**: Health and Well-being.

  Target: 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

- **SDG 5**: Gender equality

  Target: 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate

  Target: 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

- **SDG 8**: Decent Work and Economic Growth.

  Target: 8.8. Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

- **SDG 9:** Industry, innovation and infrastructure.

  Target: 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies

and industrial processes, with all countries taking action in accordance with their respective capabilities.

- **SDG 11**: Sustainable Cities and Communities.

  Target: 11.6: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

- **SDG 12**: Responsible Production and Consumption.

  Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Figure 1. The sustainable development goals that the SIP Project contributed.

This document summarizes the measures and activities carried out during the validity of the SIP Project, as well as the results and conclusions thereof, and which guide actions, regulations and procedures, setting a course to follow in relation to the commitments assumed by the country within the framework of the Minamata Convention, with main emphasis on Articles 4, 5, 12 and 19.

Development of the Argentina SIP Project activities

Measure 1. Improve the capacity to implement the obligations provided for in Article 4 of the Minamata Convention.

This first objective sought to improve the capacity to implement the obligations provided for in Article 4 of the Minamata Convention, by carrying out technical studies, developing the necessary legal and administrative mechanisms, and implementing awareness campaigns, in order to avoid the manufacture, import and export of mercury-added products (MAPs). Likewise, and considering that there is already a stock of these products in circulation, this measure sought through awareness, reduce their use and promote the best strategies for their correct management.

Likewise, and in accordance with Article 18 of the Convention, its objectives include the development of awareness campaigns for local governments and key stakeholders in order to achieve the sustainability of the proposed measures. In this sense, from the SIP Project, we understand the importance of sensitizing the key actors identified, as well as vulnerable groups, including women.

In order to achieve the objectives pursued by this measure, three specific activities were carried out, contemplated in the project, and which are:

1. Analysis of the feasibility of replacing mercury-added products, including the identification of barriers and the socio-economic impact of bans.
2. Design of a legal framework that includes administrative regulations, incentives and enforcement systems.
3. Awareness campaigns with local governments and other stakeholders

Below, the development of each activity and its results are detailed.

Activity 1.1: Analysis of the feasibility of replacing mercury-added products, including the identification of barriers and the socio-economic impact of bans

The Minamata Convention, in its Article 4 and Annex A Part I, establishes prohibitions and restrictions to the year 2020 on the manufacture, import and export of certain Mercury-Added Products, hereinafter MAP. Therefore, the MIA project had as one of its priority results the implementation of this article.

Therefore, the SIP Project included among its activities is the development of information search on trade in mercury-added products, and the realization of technical and socioeconomic studies in order to evaluate the viability of substitute products, including the identification of barriers and

the socioeconomic impact that the prohibitions and restrictions applied by the Minamata Convention generated at the national level.

The analysis work included the following categories:

(i) lamps;

(ii) Batteries and batteries

(iii) Switches and relays

(iv) Non-electronic measuring instruments within the health sector

(v) Dental amalgams

To carry out this analysis, the project staff first collected the main information for the preparation of a preliminary report. This made it possible to identify the profiles of researchers for the elaboration of more specific information that allows this report to be generated.

Consequently, the service of a group of researchers belonging to different research centers corresponding to the National Council for Scientific and Technical Research (CONICET) was hired. To guide this working group regarding the collection of information and its analysis, the SIP project provided various material that was taken as a baseline for it to carry out the specific activity.

To achieve this, the Regional Center, through INTI, carried out an Assistance Agreement as a framework for the legal relationship of this work. It was delivered and evaluated by the staff of the SIP Project.

In this context, the SIP Project took this report and carried out a deeper investigation of it, taking data at the international and regional levels. This allowed the report to be developed in its entirety in order to understand the feasibility and impacts generated by replacements of the MAP categories mentioned above.

Among some important data that were concluded were:

- ➔ It is clear that substitute products exist for all cases of MAPs covered by nationwide bans. However, if we think about the price, prices are often higher for substitute products, free of mercury.
- ➔ In this sense, all the products in question, both when we talk about MAPs and mercury-free technologies, are imported products (except for specific cases, detailed in the development of the report).
- ➔ In this sense, the need to take two actions in order to favor replacement is highlighted: on the one hand, to implement public policies that encourage the import of mercury-free technologies, and on the other hand, to generate the necessary stimulus so that these products can be produced at the national level, among some actions is the regulatory framework to encourage such impulse as was Resolution 75/19 and Resolution 299/21.

➔ In the case of dental amalgams, the product should be approached differently from the rest of the categories for various reasons. First, it is not a product that is currently banned, although this measure is already under discussion at the international level within the framework of the Convention. On the other hand, the benefits on substitute products are still not as clear as for the rest of the products, since in many countries it continues to be an efficient alternative. Therefore, among the information collected, a possible alternative could be to restrict the use of dental amalgams exclusively in the form of pre-dosed capsules, with the aim of eliminating pure free mercury from the dental market and avoiding environmental pollution and occupational exposure as well as prohibiting its use in patients at risk such as children and pregnant women.

The following replacements for existing PMAs on the market were also identified:

Product	**Specific uses/application**	**Mercury-free alternative**
Batteries and batteries	Button battery, silver oxide	Mercury-free units such as lithium batteries.
	Button battery, zinc air	
	Alkaline manganese (manganese dioxide)	
	Mercuric oxide	
	Button battery, mercury oxide	
	Button battery, zinc carbon	
Switches and Relays	Tilt/vibration switch	metal ball; electrolytic; potentiometer; mechanical; solid-state; capacitive
	Pressure switch	mechanics; solid state
	Float switch	mechanical; magnetic dry tongue; optical; conductivity; sonic/ultrasonic; capacitance

Product	Specific uses/application	Mercury-free alternative
	Temperature switch	mechanical; solid-state
	Wet foil relay	Dry magnetic, electromechanical, hybrid (electromechanical and solid state) dry tab, silicon controlled rectifier, solid state
	Displacement relay	
	Contact relay	
	Flame sensor	Electronic ignition system
	Thermostat	Digital, fast switch / mechanical and electronics.
Lamps/lighting	Linear fluorescent	Linear LED
	Compact fluorescents	LED, downlight LED
	High intensity discharge	Halogen, LED, mercury-free units
	Backlight units for LCD displays	LED
	Short arc of mercury	No known mercury-free alternatives
	Neon	
Non-electronic measuring instruments in the health sector	Sphygmomanometer	Aneroid, oscillometer
	Thermometer	Digital, infrared
Dental amalgams	Dental cements and fillings	Composite, glass ionomer, resin ionomer

It should be noted that while many MAPs are covered by regulations and their production and import is prohibited, they are still on the market. This is due to the remaining stock that exists in circulation and that was acquired by the merchants prior to the implementation of the prohibitions in our country. In this sense, it is extremely complex to know the quantities in circulation, since in many cases the tariff headings include both the WFP and the substitute. However, these amounts are finite and will be exhausted in the coming years.

On the other hand, the great challenge that lies ahead is the approach of these products when they reach the end of their useful life. It is important to note that the proper management of these items involves the entire life cycle of the product in question and is not merely a matter of replacing one with the other.

Taking into account the problems of differentiated collection systems and the limited possibilities of treatment, these disused MAPs become a risk, both for the environment and for the population, which translates into numerous environmental and health problems, worsening in the most vulnerable populations (such as those who live in areas adjacent to open dumps or informal collectors).

In this sense, the true impact of these products at a social, economic and environmental level, occurs at the time of managing them as waste, and that is where all efforts must be made.

Activity 1.2: Design of a legal framework that includes administrative regulations, incentives and enforcement systems.

For the implementation of Article 4 of the Minamata Convention on Mercury, the following regulations were developed:

Decree 504/19

The Special Program collaborated with the drafting of this regulation that aims to appoint the former Secretariat of the Government of Environment and Sustainable Development, current Ministry of Environment and Sustainable Development, Authority for the Application of international environmental agreements signed by the ARGENTINE REPUBLIC, referring to matters of its specific competence at the national level, including the BASEL, ROTTERDAM, ROTTERDAM and MINAMATA CONVENTIONS.

Figure 2. Identification code of Decree 504/2019 in the Official Gazette.

Resolution 71/19

Resolution 71/2019 was developed, which aimed to regulate international trade in mercury, in order to control imports and exports of mercury. It was published in the Official Gazette on February 12, 2019. It is currently repealed by Resolution 299/2021.

Figure 3. Identification code of Resolution 71/2019 in the Official Gazette.

Resolution 75/19

This Resolution 75/2019 prohibits as of January 1, 2020, the manufacture, import and export of the products listed in Part I of Annex A of the Minamata Convention, was published in the Official Gazette on February 19, 2019. Currently, it is amended by Resolution 299/2021.

Figure 4. Identification code of Resolution 75/2019 in the Official Gazette.

Resolution 335/2019

A Guide for Municipalities for the Design and Implementation of Comprehensive Management Plans for Public Lighting Luminaires with mercury content was prepared, in order to provide municipalities with adequate management tools for the protection of the environment, accompanying the Energy Efficiency Plan, in which numerous municipalities carry out replacement of luminaires for public lighting and that, as a result, waste with mercury content is generated.

Resolution 443/2020

This regulation establishes the guidelines on the definitive or temporary importation of primary batteries and appliances or articles containing them inside or outside, within the framework of Law No. 26,184 on Portable Electric Energy. It only reaches batteries and primary materials, and secondary batteries are regulated by Resolution 299/2021. In this sense, the restrictions are established in accordance with the Minamata Convention:

> "ARTICLE 5° MERCURY CONTENT OF THE BUTTON BATTERIES. - It should be established that for button batteries the mass mercury content of each battery must be less than or equal to TWO PERCENT (2%)."
>
> ARTICLE 4° PROHIBITION OF MERCURY OXIDE BATTERIES. – It should be established that with respect to the import of mercury oxide batteries, the prohibition established in Resolution No. 75/19 or the one that in the future replaces or complements it will apply.

Figure 5. Identification code of Resolution 443/2020 in the Official Gazette.

In addition, the administrative procedures for the implementation of this regulation were elaborated. These are available on the Remote Procedures website, as shown in Figure 6.

Figure 6. Procedures in force in relation to Resolution 443/2020.

Resolution 299/2021

A regulatory proposal has been designed to establish guidelines for the management of elemental mercury, its mixtures and compounds, as well as mercury-added products, within the framework of Law No. 27,356.

Figure 7. Identification code of Resolution 299/2021 in the Official Gazette.

This regulation is one of the most significant regulations of the Minamata Convention, and has the following points:

1. Resolution No. 71/19 was repealed in order to establish the Prior Informed Consent procedure, establishing that it is applicable to cases of import and export of elemental mercury.
2. Resolution No. 75/19 was amended and ANNEX I was replaced to include all mercury-added products listed in Annex A, Part I, of the Minamata Convention.

3. The use of mercury, its mixtures and compounds in the production processes of Annex B of the Convention, including all processes of Part I and II of the Convention, was prohibited. Likewise, article 5, paragraph 6, was implemented, prohibiting the possibility of establishing new industrial establishments that have these mercury technologies in their processes.
4. The import and export of mercury, its mixtures and compounds and added mercury products excluded from the prohibition in Annex A Part I of the Convention, as well as its restrictions, was regulated.
5. The guidelines of the exemption and the requirements to obtain it were regulated, which includes the elaboration of Plans for the reconversion or closure of the industry.

This regulation was intended to unify the current regulations related to the Minamata Convention prepared by the Ministry of Environment, promoting the principle of administrative economy and legal certainty. Also, to improve the control of this substance in the marketing and use.

For the implementation of this regulation, two administrative procedures were developed to issue import and export authorizations for PMAs and elemental mercury their mixtures and compounds, in the Remote Procedures (TAD) platform, as shown in Figure 8.

Figure 8. Procedures related to Resolution 299/2021.

Resolution of the Plans for the Conversion and Closure of Industry within the framework of the Minamata Convention on Mercury

Within the framework of Article 6 of the MINAMATA CONVENTION ON MERCURY, the Argentine Republic has two registered exemptions, for the production process of chlor-alkali and the manufacture of mercury thermometers. In this sense, Resolution No. 299/2021 establishes the guidelines related to the management of elemental mercury, its mixtures

and compounds as well as products with added mercury, regulating the exemption regime. In this sense, Article 5 of the aforementioned resolution provides the procedure for requesting exemptions in its Annex III for the production process of chlor-alkali or the manufacture of mercury thermometers exclusively. Likewise, in said Annex III the presentation of the Plan of Reconversion or Closure of Industry is requested to obtain the exemption.

Therefore, this regulation is complementary to Resolution 299/2021 since it provides the guidelines of these plans and complies with the environmentally sound management of mercury in accordance with the obligations emanating from the Minamata Convention on mercury.

The elaborated Resolution establishes the following main lines:

1. Minimum contents of the Conversion Plans and Closure Plans of Industries
2. Procedure for monitoring, monitoring and evaluating the execution of The Conversion Plans or Closure Plans of Industries.
3. Waste Management: which provides that in order to obtain the approval of the exemption of Resolution No. 299/2021 and its corresponding Industry Conversion and Closure Plans within the framework of the Minamata Convention on mercury, they must have the Annual Environmental Certificate in force and comply with national regulations on hazardous waste, Law No. 24.051, Regulatory Decree 831/1993 and complementary regulations.
4. certificate of compliance: Once the plan for the conversion or closure of the industry has been completed, the SECRETARIAT OF ENVIRONMENTAL CONTROL AND MONITORING, after consideration by the NATIONAL DIRECTORATE OF HAZARDOUS SUBSTANCES AND WASTE, and subsequently the corresponding exemption will be removed.
5. Likewise, sanctions are established for non-compliance with what is regulated in said resolution.
6. On the other hand, the possibility of carrying out inspections is kept as well as the signing of agreements with the parties that are interested in the cooperation of execution of these plans.
7. And finally, it is established that it will be the Secretary of Control and Monitoring who will be the authority of application of these plans.

The objective of this regulation is to achieve a replacement of mercury technology to one free of this substance, managing in an environmentally sound way the waste that can be generated during that replacement, promoting a framework of activities that will be approved by the National Directorate of Hazardous Substances and Waste through its two substantive areas, the Coordination of Hazardous Waste and the Hazardous Substances and Waste Unit.

During the preparation of this report, the draft resolution is being considered by the authorities of the MAyDS for approval.

Articulation with stakeholders

Various articulation activities were carried out with various actors in order to obtain technical and specific information on the status of mercury in Argentina, Mercury Added Products, their substitutes, as well as their economic and social feasibility for their replacement, and finally, the validation of these regulations in the Interministerial Table of Substances and Chemical Products that contemplates a huge number of public agencies.

Some of the main players include:

Figure 9. Main actors for the development and validation of regulations.

Activity 1.3: Awareness campaigns with local governments and other stakeholders

The results of activity 1.3 are intended to comply with Article 18 of the Convention. This article regulates on the information, awareness and training of the public, establishing that:

"1. Each Party shall, within its capabilities, promote and facilitate:

(a) Provision to the public of available information on: (i) The health and environmental effects of mercury and mercury compounds; (ii) Alternatives to mercury and mercury compounds; (iii) The topics identified in paragraph 1 of Article 17; (iv) The results of its research, development and monitoring activities under Article 19; and (v) Activities to meet its obligations under this Convention;

(b) Education, training and public awareness related to the effects of exposure to mercury and mercury compounds on human health and the environment in collaboration with relevant intergovernmental and non-governmental organizations and vulnerable populations, as appropriate".

In this sense, the SIP Project has developed different awareness-raising activities, and taking into account the objective public can be categorized as follows:

(i) Awareness-raising and training for different actors; ii) Awareness campaigns for the general public. To carry out this, the following was also carried out:

- Designed a stakeholder map;
- Training activities were implemented with different stakeholders (including labour organizations, NGOs and government agencies).

Stakeholder Map Design

To begin to develop Activity 1.3 of Measure 1 of the SIP Project, it began by identifying the actions to be carried out for the implementation of Article 4 of the Minamata Convention that refers to Products with Added Mercury, their commercialization and prohibitions, as well as regarding their replacement. To this end, a plan of activities was drawn up and the elaboration of the map of key actors regarding these activities and that are detailed below.

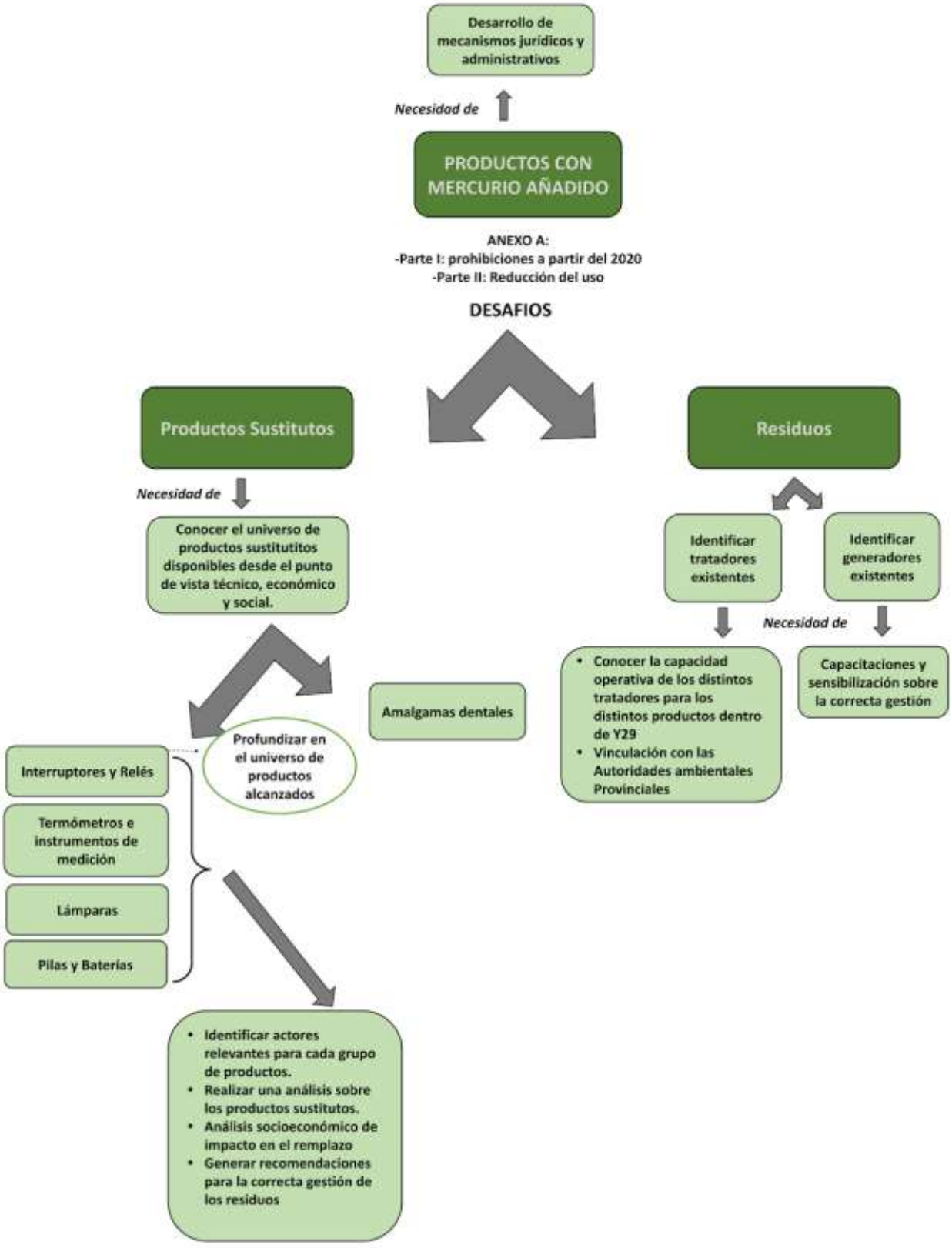


Figure 10. Map of activities to implement Article 4 of the Minamata Convention.

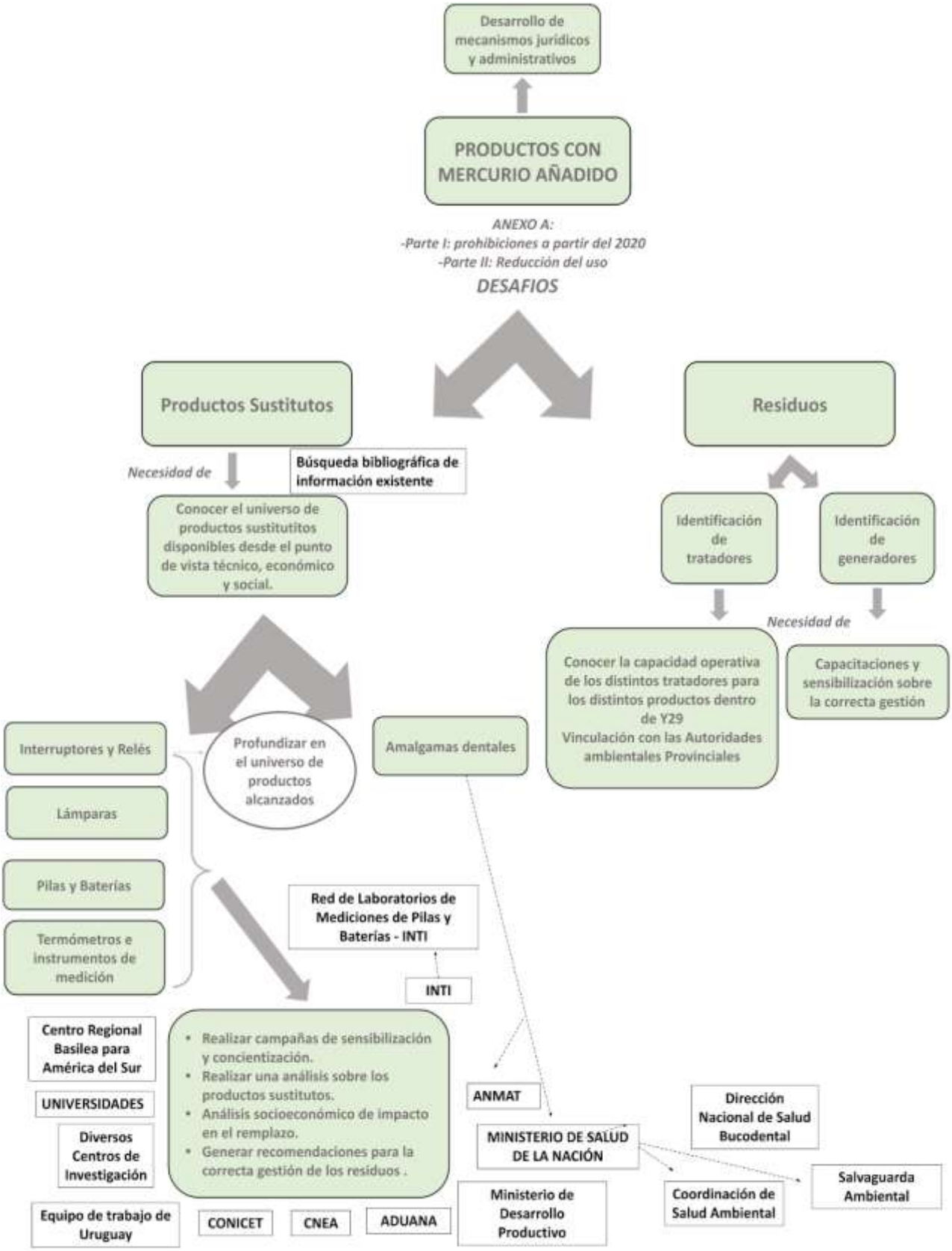


Figure 11. Map of stakeholders in relation to the activities to implement Article 4 of the Minamata Convention.

Similarly, this identification was made for the second measure of the SIP project that refers to Improving mercury research and control capacities, in accordance with Articles 12 and 19 of the Minamata Convention (see Figures 58 and 59). In this sense, it has two major activities, one of them is the Strengthening of the technical capacity of the Ministry of Environment and Sustainable Development, local government agencies, laboratories, academies and research centers; and the other, refers to the equipment of a local unit to support the sampling, processing and other control activities of mercury.

Articulation and training activities with different stakeholders

In reference to this activity, it is worth remembering that during the period of 2020 and 2021 these activities were affected by the pandemic caused by COVID 19, changing the modalities of their face-to-face to virtual realization. This change allowed to reach more people around the country, not limited to specific places and people.

In this context, various activities were carried out that included: advisory meetings or exchange of experiences, trainings, surveys and requests for information.

Among the relevant actors to achieve the general objective of implementing the Agreement, the realization of articulation activities with national public bodies, academies, NGOs, Municipalities and Provinces stands out.

For the Sip project, the approach with local governments had a high relevance, since they are the ones who have a direct articulation with society, as they also know more about the realities of their place, therefore, to promote technical knowledge regarding the management of this metal and its waste, know how to identify them, where they are and how to act in the face of a state of emergency, since it is these who have a real vision of the territory and its problems, therefore they need to be trained to act and promote appropriate public policies.

In this sense, the SIP Project has developed various activities to articulate with the different Municipalities and Provinces of our country and achieve a dialogue and exchange that results in identifying and understanding the challenges that arise when implementing actions to ensure proper compliance with the Agreement, while allowing us to enhance opportunities for improvement. Below are the activities carried out.

Workshops in Río Negro and Tierra del Fuego

During 2019, workshops were held in different provinces in order to transmit good practices for the management of hazardous substances and wastes in which the theme of mercury and the Minamata Convention were incorporated.

Figure 12. Slides of the presentations carried out in the Prov. of Rio Negro and Tierra de Fuego.

Webinar Use of Mercury in the Health Sector

It was held in the year 2020. Intended for the staff of health facilities and municipal officials and technicians in charge of the health area.

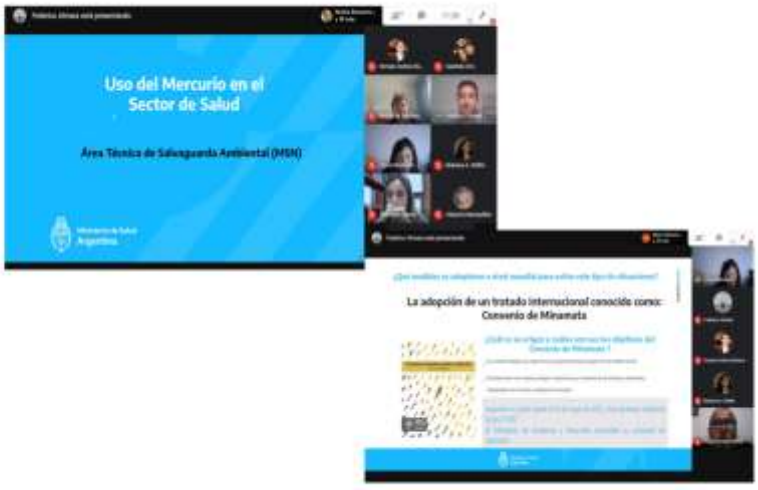


Figure 13. Presentations in the Webinar Use of Mercury in the Health Sector

It was carried out jointly by the Safeguard Area of the Ministry of Health, and the axes addressed were:

- Raise awareness of the environmental impact of mercury use, as well as the associated health risk.
- Publicize the Minamata Convention and disseminate its main objectives.
- Promote sustainable purchasing in health facilities, acquiring mercury-free substitutes.
- Promote the best available alternatives when it comes to managing mercury waste generated in the clinical, hospital and dental fields.

Likewise, this seminar was shared with the Argentine Society of Environmental Professionals and Consultants (SAPROCEA), so that through them it reaches different Municipalities.

To participate in the webinar , prior registration was required and it is available online at https://www.youtube.com/watch?v=xUrIfOKINUI&feature=youtu.be.

40 people participated and it has 106 views on YouTube.

Comprehensive Mercury Seminar

Within the framework of the National Training Plan on the Minamata Convention on Mercury, the seminar was held and designed by an interdisciplinary team, coordinated by the SIP Project in collaboration with scientists from the National Atomic Energy Commission (CNEA) and the 3IA Institute of the National University of San Martín (UNSAM).

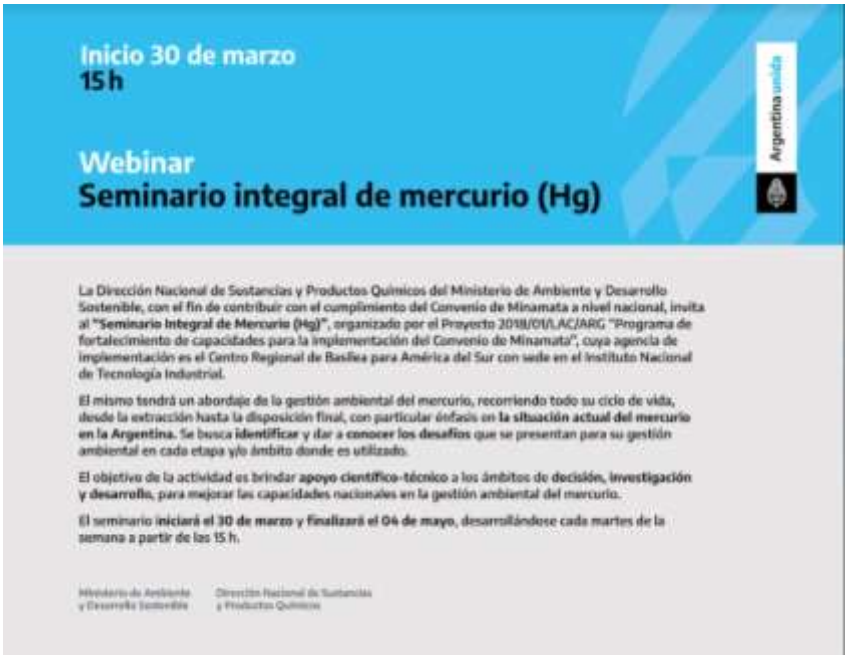


Figure 14. Invitation to the Comprehensive Seminar on Mercury (Hg).

For more details on this training and its results, see Measure 2, Activity 2.1 Strengthening the technical capacity of the Ministry of Environment and

Sustainable Development, local government agencies, laboratories, academies and research centres.

Technical assistance with the Municipalities of General Pico

A meeting was held between the National Directorate of Hazardous Substances and Waste (DNSYRP), where representatives of the different areas that make it up participated, including the Coordination of Hazardous Waste, the Transboundary Movements Unit, the Substances and Chemicals Unit and the projects with external financing, the SIP Project and the GEF Project. On behalf of the Municipality of General Pico, Province of La Pampa, representatives of the Environmental Management Directorate and the Infrastructure Directorate participated.

Figure 15. Photo of the meeting with the Municipality of General Pico, la Pampa.

The main objective of this meeting was to advise the municipality in reference to the management of disused luminaires containing mercury.

Technical assistance to Ciudad de Córdoba (Córdoba)

In the same way, a meeting was held between members of the SIP Project and representatives of the environmental area of the Municipality of the City of Córdoba.

The main objective of this meeting was to advise the municipality in reference to the management of disused luminaires containing mercury.

Technical assistance to the Provincial Agency for Sustainable Development (OPDS) of the Province of Buenos Aires

On March 22, 2021, a virtual meeting was held between the then National Directorate of Substances and Chemical Products (DNSyPQ) of the Ministry of Environment and Sustainable Development (MAyDS), among which were members of the SIP Project and the Provincial Directorate of Special Waste of the Provincial Agency for Sustainable Development (OPDS). The objective of the meeting was to define strategies and actions

to be followed within the framework of the management of final disposal of stocks of PCBs held by different state agencies and the management of Mercury waste.

Figure 16. Photo of the meeting with the OPDS of the Province of Buenos Aires.

Likewise, and on several occasions, contact was maintained with technical staff of the Provincial Directorate of Special Waste (OPDS), in order to exchange the best practices available for the management of mercury waste.

Participation of the Federal Council for the Environment (COFEMA)

The COFEMA, whose main objective is to contribute to the generation of an environmental policy of integration between the provinces and the federal government, and is an area of concertation of environmental policies, in which the representatives of the various jurisdictions are issued through agreements and regulations such as Resolutions and Recommendations, consensual and agreed. The Council convened a meeting on April 16, 2021 at 4 p.m. on the zoom platform, to address the theme of "Waste". In this sense, representatives of the SIP Project participated, in order to provide advice and opinions in relation to the waste generated by products with added mercury that are obsolete, and need to be addressed from an environmental management.

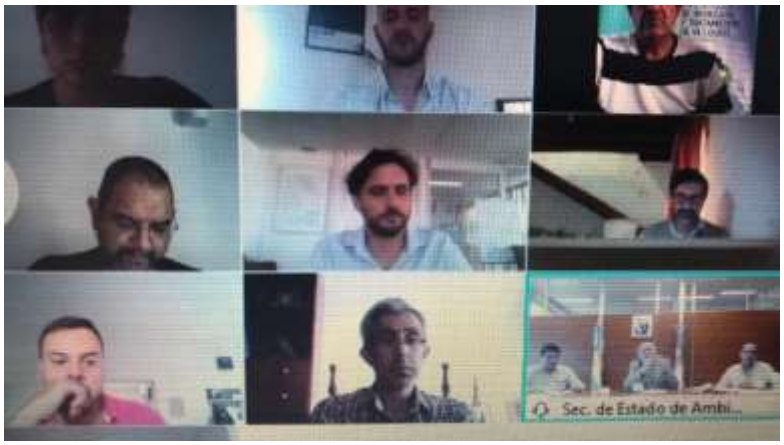


Figure 17. Participation of the meeting in the Federal Council of Environment on Waste.

Survey of the current situation of implementation of the Minamata Convention and mercury management.

In order to know the perception of the Municipalities in the subject of mercury and to know their main interests when addressing the subject, a survey was carried out, available in Annex 1. At the time of designing the questionnaire, it was sought that the questions were divided into thematic sections and mostly closed questions to favor the tabulation of the answers.

Figure 18. Survey of Municipalities for the knowledge of the current situation of implementation of the Minamata Convention and mercury management

The objectives of the survey were:

1. To survey the current situation of each Municipality in relation to the implementation of the Minamata Convention and the environmental management of mercury in order to identify contents or important aspects to contribute, expand, clarify and / or explain through the training activity that will be provided.
2. Produce data on the status of municipalities in relation to mercury management and implementation of the Minamata Convention.
3. Improve linkage and transfer mechanisms between national public policies and municipalities.

Two routes were selected when disseminating the survey. In the first place, it was shared in a virtual meeting between representatives of the Federal Council of the Environment (COFEMA), in order to articulate with the provincial authorities, and that they are the ones who disseminate the survey to the Municipalities. COFEMA is an area of coordination of environmental policies in which the Nation, CABA and the Provinces participate.

On the other hand, contact was made with the Argentine Society of Environmental Professionals, Consultants and Experts (SAPROCEA), which is a non-profit Civil Association that provides support to different professions working in the environmental field and articulates and provides support to different municipalities in the country.

However, despite the different channels of dissemination, a good call was not achieved in the number of responses.

The Survey obtained only 1 response from the Municipality of General Pico, who showed a great interest in addressing the problem of mercury, especially in relation to the management of MAP waste.

Therefore, from the SIP Project, we consider it necessary to continue and improve the articulation with the municipalities in order to increase efforts to comply with the Minamata Convention.

Regulatory Design: Guide for Municipalities on the Management of Public Lighting Luminaires with Mercury content

The SIP project participated in the production of the guide for the municipalities that was promoted by the then Directorate of Waste and the Directorate of Substances and Chemical Products belonging to the then-Secretariat of Environment and Sustainable Development and approved by Resolution 335/19.

This guide was intended to guide municipalities in the design, implementation or updating of Comprehensive Management Plans for disused Public Lighting Luminaires that could contain mercury (throughout the guide we will use the abbreviation PGILU).

Figure 19. Guide for Municipalities: Design and Implementation of Comprehensive Management Plans for Mercury-Containing Street Lighting Luminaires (PGILU)

South-South Exchange

In order to strengthen national capacities and promote the exchange of experiences at the regional level, the SIP Project carried out a cooperation cycle, called South-South Cooperation between Argentina and Uruguay.

The cycle of meetings was held with the support of the United Nations Development Programme (UNDP), and the Basel Regional Centre for South America (CRBAS). For this cycle, exchanges were planned via videoconference, to share experiences, visions and coordinate actions of both countries on different issues of mercury management.

Through a previous work, four common thematic axes were identified, from which it was sought to involve the corresponding institutional actors, to achieve an enriching dynamic for both parties. Four instances were defined, which correspond to the agenda detailed below, and in each meeting specialists in the subject from different organizations of both countries participated.

Theme	Date and time	Possible guests
Monitoring	Friday, October 11, 2019 10.00 a.m.	Argentina Project Uruguay Project DINAMA Laboratory (CIAT) CIAT (Amalia Laborde) Technological Pole of Pando (Daniela) Conicet Argentina CRBAS
Dental amalgams	Thursday, October 24, 2019 10.00 a.m.	Argentina Project Uruguay Project MSP (Carmen Ciganda) Faculty of Dentistry (Renée Romero) Rapa (Maria Carcamo) Health Argentina Directorate of Oral Health (Argentina) AMMA CRBAS
Opening of tariff headings	Friday, November 1, 2019 10.00 a.m.	Argentina Project Uruguay Project VUCE Uruguay (Piero) Customs Uruguay (Liz) Argentine Customs Argentine Trade CRBAS
Replacement of thermometers for clinical use	Friday, November 8, 2019 10.00 a.m.	Argentina Project Uruguay Project MSP (Carmen) LATU (Martha) MSP (Rafael) Health Argentina ANMAT (Argentina) INTI CRBAS

Latin American Symposium on Safe Design of Cosmetic and Household Hygiene Products CASIC

The meeting that took place on November 12, 13 and 14, 2019 at the Argentine Chamber of the Cosmetics and Perfumery Industry – CAPA Paraguay 1857, 1121 CABA, the then staff of the project participated in it to be able to exchange information regarding the cosmetics with mercury listed in annex to part I of the agreement.

Conference on chemical products for MERCOSUR

Within the framework of the pro tempore presidency of Argentina in MERCOSUR, from the Ministry of Environment and Sustainable Development, the Conference on the state of the art and the challenges for the implementation of the Globally Harmonized System (GHS) for the classification and labeling of chemical products in each country and perspectives for the regional bloc was developed.

The initiative aimed to move forward with some of the activities formulated in the MERCOSUR Chemicals and Wastes Action Plan 2021-2024, which will be presented at the next meeting of the MERCOSUR Environment Working Subgroup (SGT No. 6), to be held on May 19.

From the SIP Project, contributions were made in the development and active participation was made.

Figures 20 and 21. Participation of MAyDs in the Mercosur Environment Sub-Working Group SGT 6°

Webinar: Chemicals and international conventions

In 2020, the Webinar "Chemicals and International Conventions: Challenges at the National Level" was held. Event promoted by the SIP Project and co-organized with the Institute of Biotechnology of the National University of Hurlingham (UNAHUR).

The meeting was attended by authorities of the UNAHUR, as well as the Ministry of Environment and Sustainable Development and advisors of the same.

Some topics covered in the Webinar are:

· Strengthening the link and transfer of capacities between public management and the national scientific, technical and university system.

· Provide information on the activities carried out in the National Directorate of Substances and Hazardous Wastes (DNSyRP), its organization, work axes and role as executing unit of the implementation of the International Conventions on chemicals and wastes within the Ministry of Environment as Enforcement Authority.

· Dissemination on the International Conventions of Rotterdam, Stockholm, Basel and Minamata. Implementation and instrumentalization. Activities and actions that are carried out for its correct fulfillment and the challenges presented by its application at the national level.

It was disseminated by different media from UNAHUR, as well as from DNSyRP, and was broadcast on the YouTube and Zoom channel. It is available online at...

Likewise, it is highlighted that it had 664 views on the YouTube platform and 60 registered on Zoom, being 63.3% women.

Figure 22. Publication of the event on the website of the National University of Hurlingham (UNAHUR).

Figure 23. Photo of the event on the Zoom platform.

Figure 24. Presentations on the SIP Project and the Minamata Convention on Mercury.

Multilateral Environmental Agreements on Hazardous Substances and Waste

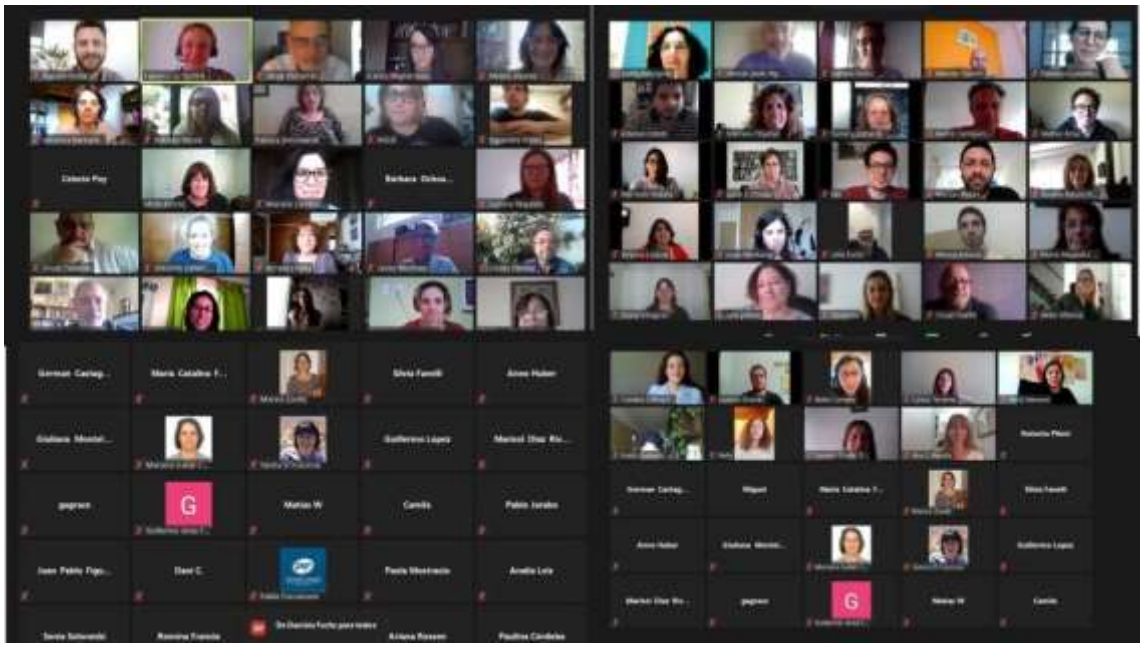
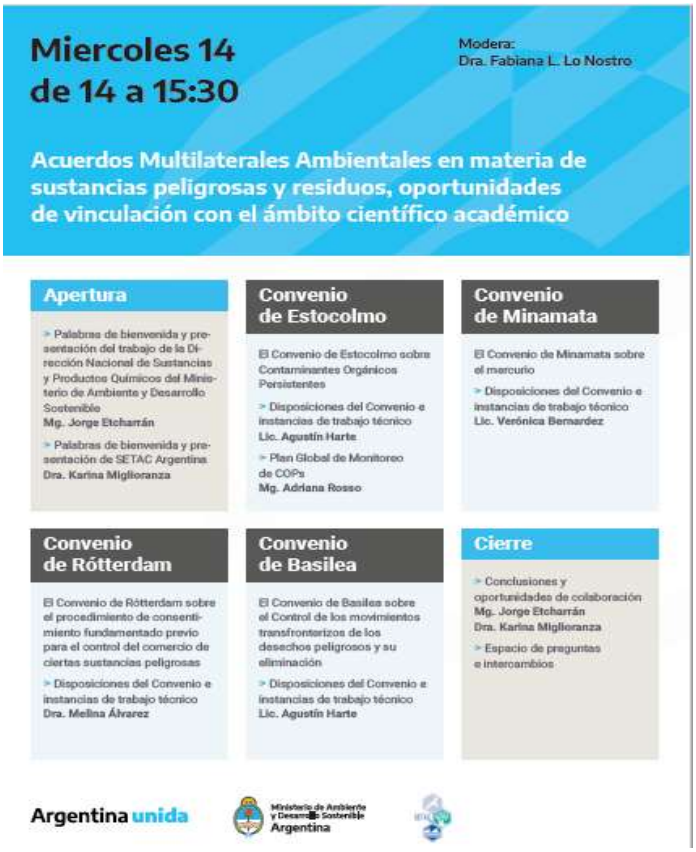


Figure 25. Image published on the website of SETAC ARGENTINA.

In 2020, the Webinar entitled "Multilateral Environmental Agreements on Hazardous Substances and Waste, Opportunities for Linkage with the Academic Scientific Field" was held, aimed at the scientific-academic sector and the public sector.



Figures 26 and 27. Invitation to the Event and its agenda.

It was carried out jointly by SETAC Argentina and the National Directorate of Substances and Chemical Products (DNSyPQ).

Among the main topics presented were the agenda of the National Directorate regarding multilateral environmental agreements in which the work that is carried out in return for the implementation of the Basel, Rotterdam, Stockholm and Minamata Conventions was mentioned.

This event was broadcast on YouTube and Zoom, for the latter prior registration was required. It is currently available online at: https://www.youtube.com/watch?v=7XTyOdIg_0k&t=1s

To highlight some interesting facts: there were 616 views on YouTube, 100 participants on Zoom, of which 70% were women.

Training in the Professional Practice of the Faculty of Law of the University of Buenos Aires at the Legal Clinic of the Environment and Natural Resources Foundation – FARN

The SIP Project together with the Coordination of Hazardous Waste carried out a training for teachers and students of the Faculty of Law of the University of Buenos Aires who carry out professional practice in the Legal Clinic of the Environment and Natural Resources Foundation (FARN), a

recognized NGO that carries out free legal advice to people and communities affected by environmental problems, whose rights to access justice have been violated.

In this closed event, the management of hazardous waste was explained and, in particular, the situation of products with added mercury was presented , taking into account the prohibition of manufacture, import and export to 2020 by the Minamata Convention and by National Regulation 75/19 and the situations of alternatives and replacements of these products with mercury. The case studies of the socioeconomic report were mentioned: Dental amalgams, Batteries, Lamps: the situation of the replacement of lamps in municipalities of the national program was explained, and thermometers with mercury and taking into account the COVID-19 pandemic situation. The challenges and opportunities of the traceability of the product with mercury were explained and, finally, the difficulties of the management of these products were mentioned, which in the case of batteries is also reached by the REGU regulations.

It was attended by 22 people.

Figure 28. Presentation on the traceability of the manifesto within the framework of Law 24.051

Figure 29. Presentation of the interaction between regulations and examples of mercury-added products.

Participation in the Interministerial Working Group on Chemicals

The Interministerial framework is a working group with representatives of different state agencies with competence in the field of chemical substances, created by Decree 504/2019. This meeting is held every 21 days.

In this sense, the SIP Project has attended and organized the aforementioned meetings and has participated in exposing the regulatory proposals developed from the Project with respect to products with added mercury (MAP).

Figure 30. Publication of the meetings of the Interministerial Bureau on the website of the MAyDS

Figure 31. Presentation to the Interministerial Bureau of Resolution 299/21 prepared by the SIP Project.

Awareness campaigns for different stakeholders

To strengthen the strengthening of capacities to implement the Minamata Convention on Mercury, various awareness campaigns were developed for the general public, in which they disseminated different contents regarding the Minamata Convention, Mercury management, Minamata disease and Mercury Added Products.

These dissemination materials were published in the different social networks of the Ministry of Environment and Sustainable Development, and some are detailed below.

Short videos on the Minamata Convention and mercury management

In order to bring to the general public the knowledge related to Mercury and its products, and the actions in the face of domestic accidents with products containing mercury, (for example, the rupture of a thermometer), as well as what is linked to the Minamata Convention, it was disseminated through the different social networks of the Ministry of Environment and Sustainable Development (Instagram, Facebook, Twitter).

Figures 32 and 33. Video-short What is mercury? and Do you know what Minamata disease is?

In addition, these videos were disseminated through Telegram and Whatsapp, and are permanently available on the Ministry's website.

The visualizations were:

- Videos on Instagram: 2684

- Videos on YouTube:
    - Minamata disease: 1605
    - What is Mercury? 1369
- Interactive stories: It was not possible to count the content, since within 24 hours of publication the content is no longer available and cannot be counted.
- Videos on Twitter: 2977 views.
- Whatsapp and Telegram: it is not possible to count how many people you reached through that means.
- Website: it is available permanently and freely accessible.

All informative videos are available at:

- Instagram: https://www.instagram.com/p/CFmseOdDjVY/ https://www.instagram.com/p/CFmjkP9Df_a/
- Twitter: https://twitter.com/AmbienteNacion/status/1309877116515872769 https://twitter.com/AmbienteNacion/status/1309857013892087810
- Facebook: https://www.facebook.com/AmbienteNacion/videos/377853459900018/

https://www.facebook.com/AmbienteNacion/videos/3478644585529675/

Figures 34 and 35. Video about mercury and mercury-added products, what to do when a mercury thermometer breaks?

"Mercury at home" section on the website of the Ministry of Environment and Sustainable Development

Two sections on Mercury Management and the Minamata Convention were held on the website of the Ministry of Environment and Sustainable Development.

It contains a section referring to basic information on mercury and its derivatives, as well as the Minamata Convention and the actions carried out by the Ministry of Environment for its implementation.

Another section was also made in reference to "Mercury at Home" in order to provide information on the various places where this dangerous metal is found in our daily lives and how to act when we are in the presence of it to avoid poisoning.

Both sections are available in https://www.argentina.gob.ar/ambiente/contenidos/mercurio-en-casa and https://www.argentina.gob.ar/ambiente/control/productos-quimicos/mercurio.

Figure 36. "Mercury at Home" section on the MAyDS website

Figure 37. "Mercury" section on the MAyDS website

Short video on Environmental Impact: Heavy Metals

The SIP Project collaborated with the assembly of the video developed by the UNDP ARG 17010 Special Programme "Strengthening national capacities for the sound management of chemicals and wastes", in order to raise awareness about heavy metals, where they are found and their impact on the environment and health when they are poorly managed.

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The video was published on the social networks of the Ministry of Environment and Sustainable Development, available in https://www.youtube.com/watch?v=RciKpMW5828.

It has a total of 780 views on YouTube.

Figure 38. Video on the impact of heavy metals

Figure 39. Video images showing certain products containing added mercury

Activities on Gender and Mercury

In accordance with Article 18 of the Convention, the Project carried out various activities to identify relevant aspects of the relationship between chemicals, in particular mercury, and gender issues, their inequality gap and the impetus for their reduction. Consequently, a final report was prepared where it compiles all the activities, their developments and results, mentioning below some conclusions:

- ➔ People are exposed daily to a variety of different chemicals. Biological differences, as well as social factors, including differences in occupation and responsibilities within the household, influence the way men and women are exposed to toxic chemicals and their

consequent health impacts. Because women are disproportionately affected, it is crucial to understand and address such differences to improve their well-being.

- ➔ It is extremely necessary to continue articulating with key actors, including other public bodies, that allow us to identify with greater precision which are the potentially exposed populations, in order to be able to design public policies that allow the care and protection of these populations.
- ➔ The situation caused by the COVID-19 pandemic has presented a great challenge when it comes to articulating with other organizations, in particular with the health sector, which during this period have focused on solving this problem. Therefore, it is essential to re-articulate with this sector to jointly carry out awareness activities on the risks that mercury implies for health and the environment.
- ➔ Deepen the incidence of dental caries in women and pregnant bodies during pregnancy, in order to implement public policies that give them the necessary care and accompaniment in order to avoid reaching the instance of dental restoration with mercury amalgam.
- ➔ There are products with mercury that, beyond the fact that international manufacturing and marketing is prohibited since 2020, will still continue to be present in homes for those who already have them or acquire them from the stock that continues in circulation. Following the results of the "Gender and Mercury" survey, it is still women (when we think of the binomial categories man-woman) who play the role of care and who could use this product more frequently and, therefore, are more exposed to this dangerous substance.

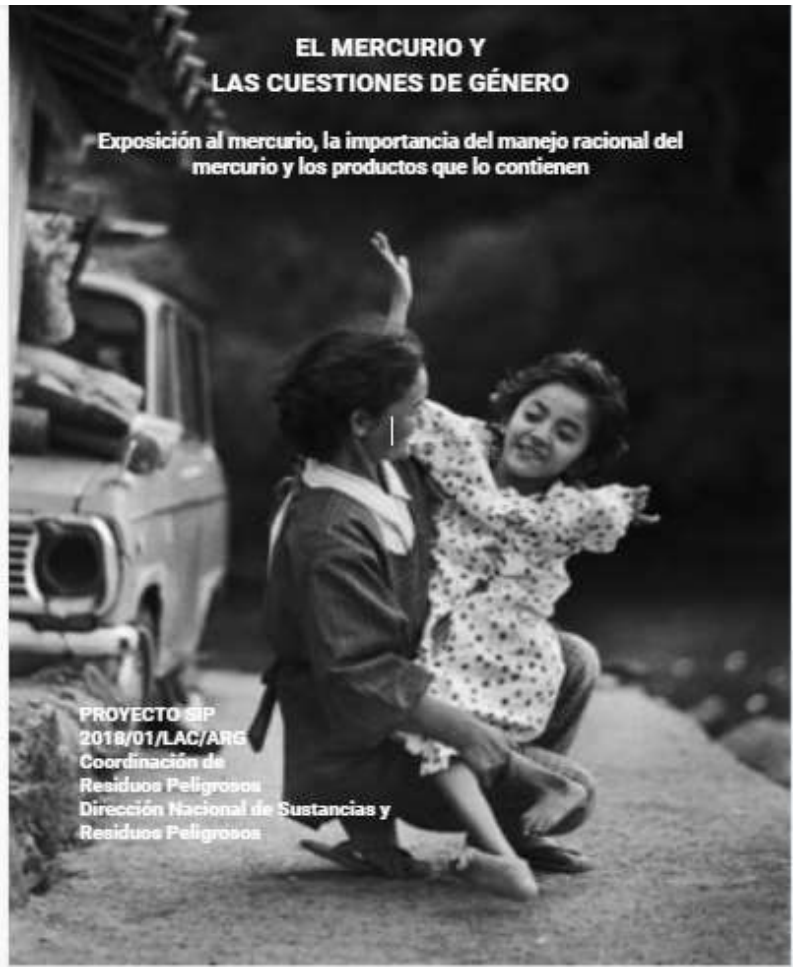

Figure 40. Cover of the Report "MERCURY AND GENDER ISSUES: Exposure to mercury, the importance of the sound management of mercury and mercury-containing products"

Measure 2: Enhance capacities for research and mercury surveillance, in accordance with article 12 and 19 of the Minamata Convention

Improve mercury research and control capabilities, in accordance with Articles 12 and 19 of the Minamata Convention. This measure aims to create the necessary basis for the country to generate local data and statistics on mercury emissions and releases, exposure and contaminated sites, as well as to monitor mercury management activities. In this sense, the following activities will be developed:

Activity 2.1. Strengthening the technical capacity of the Ministry of Environment and Sustainable Development, local government agencies, laboratories, academies and research centers.

As the UNDP ARG/17G25 Project "Assessment of National Capacities for the Implementation of the Minamata Convention on Mercury in Argentina

(MIA)" concludes, the country does not have a nationwide network focused exclusively on mercury management. That is why it was considered essential to start with the forging of a network of laboratories that work together and synergistically to respond to this problem.

In line with this, direct contact was initiated with interested universities and laboratories (and that had previously worked with mercury) and after several meetings the bases for the assembly of the network were given. Members of the 3IA Institute of the University of San Martín, the National Atomic Energy Commission (CNEA) and the National University of Avellaneda participate in conjunction with the SIP Project.

After several meetings, working groups were created to organize the activities.

Its main objective was the realization of a national training plan of the Minamata Agreement and activities between laboratories and calibration implemented, as well as the equipment of a laboratory unit. Due to the health emergency generated by the pandemic caused by Covid-19, there were difficulties in acquiring equipment for laboratories, such as its delivery; likewise, it was not possible to carry out the activities in laboratories, however, it was carried out under the virtual modality.

The development and result of the activities are detailed below.

National training plan on the Minamata Convention on Mercury

In order to develop the National Training Plan on the Minamata Convention, the SIP Project identified the main actors that could collaborate with it. Also, as mentioned above, a working group network was set up for the management of hg.

This is how the "Integral Mercury Seminar" was born, designed by an interdisciplinary team, coordinated by the SIP Project in collaboration with scientists from the National Atomic Energy Commission (CNEA) and the 3IA Institute of the National University of San Martín (UNSAM).

The objective of this training was to address the environmental management of mercury at a general level, covering its entire life cycle, from extraction to final disposal. Mainly, addressing the current situation of mercury in Argentina, identify and publicize the challenges that arise for its environmental management in each stage and / or area where it is used.

Figure 41. Dissemination of the first meeting

1. Design, structure and implementation

The modality was under the virtual modality, distributed in 6 modules. Each module was taught on a different day and had presentations by invited specialists according to expertise in each subject.

The organizational details are described below:

Total duration: 6 weeks

Start and end date: March 30 to May 4, 2021.

Days: every Tuesday

Format: synchronous classes by the Zoom and YouTube platform; asynchronous classes by the live YouTube platform, recorded videos and Virtual Campus of the Ministry of Environment.

Hours: 15:00 hs - 18:00 hs

Approximate duration: 3 hours per class with 10 minutes of interval, and 20 final minutes for questions / exchange of opinions.

Figure 42. Screenshot of the MAyDS Virtual Campus page where the Seminar is located.

This seminar was attended by the following people in each module:

Opening and Closing

- Sergio Federovisky, Secretary of Control and Environmental Monitoring.
- Jorge Etcharrán, then National Director of Substances and Chemical Products.
- Dina Migani, Secretary of the Secretariat of Environment and Climate Change of the Province of Rio Negro and Vice President of the Federal Council of the Environment (COFEMA).

Module I. Introduction

- Verónica Bernardez, National Directorate of Substances and Chemical Products, MAyDS.
- Miguel Blesa, 3IA Institute, National University of San Martín

Module II. Mercury in industry

- Leila Devia, National Institute of Industrial Technology
- Adriana Rosso, National Institute of Industrial Technology
- Gabriel Augusto Popp, National Administration of Drugs, Food and Medical Technology.
- Gabriel Schuguremsky, National Administration of Drugs, Food and Medical Technology.
- Sandra Sara, National Administration of Drugs, Food and Medical Technology.

Module III. Toxicology and ecotoxicology of Mercury

- Marina Orman, Ministry of Health.
- Mariela Chervin, Ministry of Health
- Karina Miglioranza, National University of Mar del Plata
- Luciana Regaldo, National University of Litoral

Module IV. Hg Monitoring Program

- Daniel Cicerone, National Atomic Energy Commission
- Gonzalo Nader, National Atomic Energy Commission
- María Fernanda Décima, Argentine Geological Mining Service

Module V. Analytical techniques

- Patricia Smichowski, National Atomic Energy Commission
- Agustín Londonio, National Atomic Energy Commission

- Paola Babay, National Atomic Energy Commission

Module VI. Mercury Waste and Challenges

- Oscar Taborda, Hazardous Wastes Coordination, MAyDS
- Irina Talamoni, Hazardous Wastes Coordination, MAyDS
- MarianaTognetti, Directorate of Quality and Environmental Recomposition, MAyDS
- Leonardo Pfluger, Directorate of Quality and Environmental Recomposition, MAyDS
- María Judith Jimenez, Secretary of Environment and Climate Change of the Province of Río Negro.

2. Communication and dissemination

With regard to the dissemination of the event, and in order to seek a very varied audience, the call and promotion of the seminar was carried out in different ways:

- ➔ Official communication through GDE to the areas/persons responsible (Figure 42).
- ➔ Invitation by institutional email to all those enrolled in the seminar (Figures 42, 43 and 44).
- ➔ Through the social networks of the Ministry of Environment and Sustainable Development, which were disseminated prior to each meeting (figures 45 and 46).
- ➔ Press releases for the opening and closing of the seminar (Figures 47 and 48).
- ➔ Through other interested agencies (Figures 49 and 50).

Figure 43. Registration form for the Seminar, sent by Mail and by GDE.

Figures 44 and 45. Graphic pieces of dissemination of the Seminar sent via email and social networks.

Figures 46 and 47. Graphic pieces of the Seminar, disseminated by the social networks of the Ministry (Instagram on the left; Twitter on the right).

Figure 48 and 49. Publication on the website of the Ministry, for the opening (left) and closing (right) of the Seminar.

Figure 50. Publication of the Seminar on the website of the Argentine Association for the Progress of Sciences (AAPC)

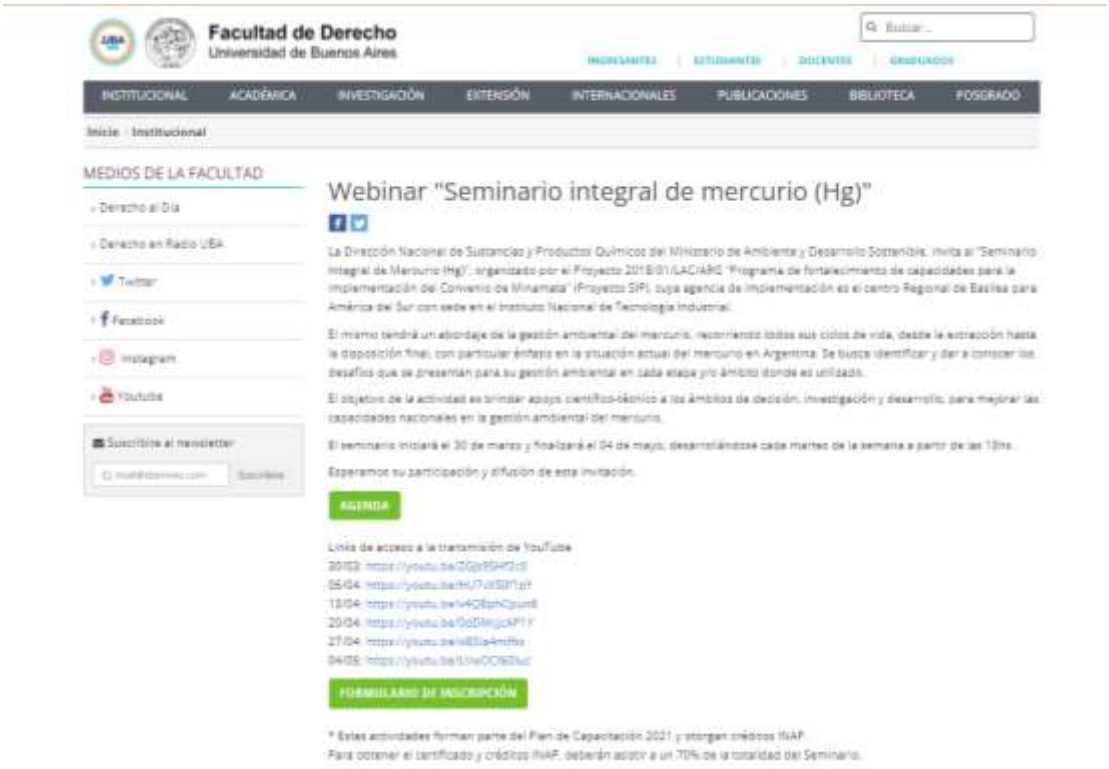

Figure 51. Publication of the seminar on the website of the Faculty of Law, University of Buenos Aires.

3. Results of the Seminar

➔ 335 people signed up.

- Public bodies totalling 45.9% of the total number of registrants[1].
- Academic/teaching scientific sector and students (36.7%)
- Private organizations (15.1%).
- Category "Other" with 2.4%.

Figure 52. Cake graphic indicating the distribution of those registered according to work organization/students.

➔ Participation by gender: more than half (57.5%) belong to the female sex, and 31% male. The rest have preferred to answer for the options: trans woman, trans man, I prefer not to respond or I am not sure.

[1] Within the category "Public Bodies" can be mentioned: Matanza Riachuelo Basin Authority (ACUMAR), National Administration of Drugs, Food and Medical Technology (ANMAT), Address General of Customs AFIP, National Institute of Industrial Technology (INTI), SArgentine Geological Mining Service (SEGEMAR), Superintendence of Occupational Hazards, National Service of Agrifood Health and Quality (SENASA), Ministry of Agriculture, Livestock and Fisheries (MAGyP), Ministry of Productive Development (MDP), Ministry of Foreign Affairs, International Trade and Worship (MRECIyC), Ministry of Health of the Nation (MSal) and from different jurisdictions, Ministry of Labour, Employment and Social Security (MTEySS), Ministry of Transport (MTR), Ministry of Defence (MINDEF), Provincial Agency for Sustainable Development (OPDS), National Parks Administration (APN), Andjército Argentino (EA), Argentine Federal Police (PFA), different municipalities, among others.

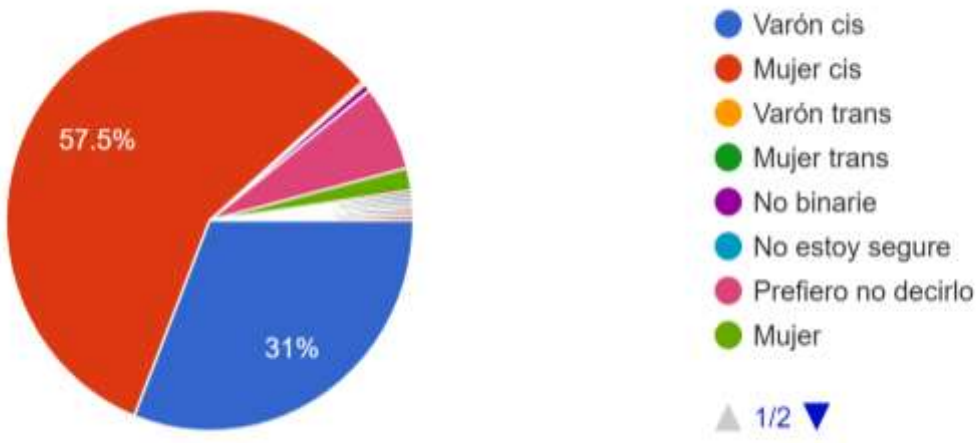

Figure 53. Cake chart indicating response regarding the gender of the enrollees.

➔ 180 people were certified by the National Institute of Public Administration (INAP) and by the Ministry of Environment and Sustainable Development.

Figure 54. Model certificate issued by the Human Resources Directorate of the Ministry of Environment and Sustainable Development for those approved for the course.

➔ Of the 6 modules, the total number of views on YouTube was 3659. The first module had 1061 views on YouTube.

Modules	Number of views on Youtube	Number of Zoom participants
Module I: Introduction	1061	71
Module II: Mercury in Industry	685	40
Module III: Toxicology and ecotoxicology of mercury	516	33
Module IV: Mercury Monitoring	494	27
Module V: Analytical Techniques	348	38
Module VI: Mercury waste and challenges	555	65

Figure 55. Number of views on YouTube and participants on ZOOM.

➔ Special edition book Minamata Convention and mercury management: As a result of the good repercussions and comments obtained from the Integral Mercury Seminar, the organizers and exhibitors are developing a book with the impulse of the Argentine Association for the Progress of Sciences (AAPC), which will contain the different chapters in relation to the different topics exposed during the Seminar. This e-book will be publicly accessible and downloaded for free, and will serve in the future as a reference bibliography regarding mercury.

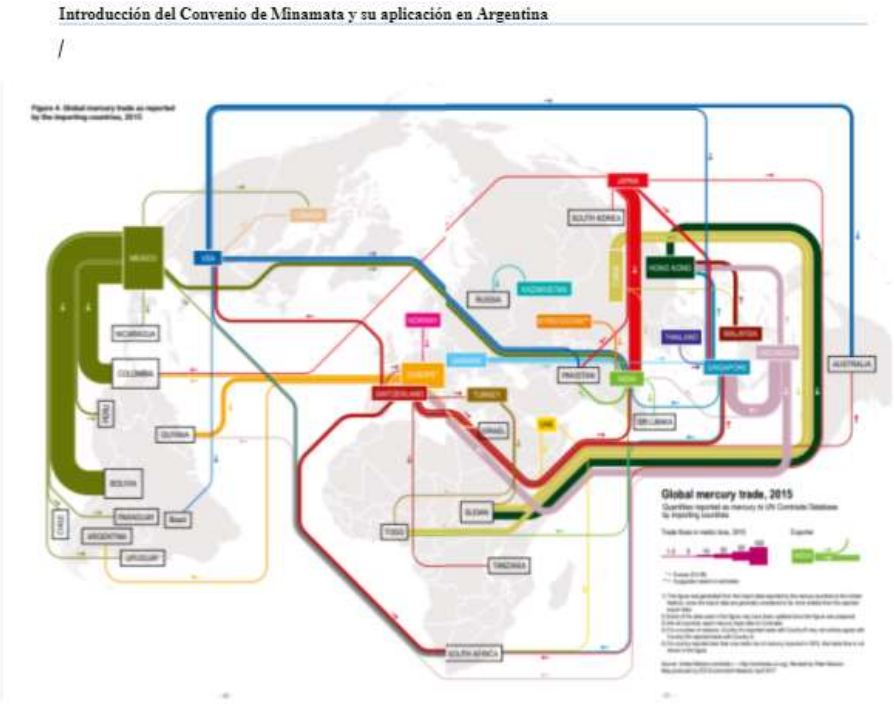

Figura 6. Fuente: United Nations Environment Programme (UNEP), Global mercury supply, trade and demand, Chemicals and Health Branch, Geneva, Switzerland, 2017. Elaborado por UNEP.

Figure 56. Image from Chapter 1 of the book "Introduction to the Minamata Convention and its application in Argentina".

4. Interlaboratory and calibration activity

Due to the Sars-CoV-2 pandemic situation, this activity could not be carried out in person. Therefore, it was proposed in conjunction with the Hg network to carry out another activity to replace it and that also contributed to the strengthening of institutes and laboratories in mercury monitoring.

The proposed activity was a webinar that was developed within the framework of the Comprehensive Mercury Seminar, included as an annex to Module V: Analytical Techniques.

The Webinar was entitled: Quality of Mercury measurements, was carried out through the Zoom platform on May 11 of this year, and the exhibition was in charge of the master María Mabel Puelles, of the National Institute of Industrial Technology (INTI).

The agenda consisted of :

- ➔ Chemical Metrology and traceability. Metrological traceability and calibration applied to mercury measurements. Capabilities for measuring and disseminating capabilities. International Regulations.
- ➔ Reference standards and reference materials Features, suppliers, certificates. Certified and reported values. Use of Reference Materials for metrological traceability.

- ➔ Control of measuring equipment regulatory requirements. Qualification, calibration and verification of analytical equipment.
- ➔ Primary, secondary and reference measurement methods. Validation of measurement methods. Uncertainty in chemical measurements. Criteria for quality assurance of measurements. Aptitude tests.

Figure 57. Image of the Webinar made by the Zoom platform

It was attended by different agents of scientific-technical institutions and agents of laboratories of public bodies, among them: National Atomic Energy Commission (CNEA), 3iA Institute of the National University of San Martín (UNSAM), National Institute of Industrial Technology (INTI), Argentine Geological Mining Service (SEGEMAR), National Service of Health and Agrifood Quality (SENASA), Argentine Naval Prefecture, Ministry of Labour, Employment and Social Security (MT), and the Ministry of Environment and Sustainable Development (MAyDS).

Below is the list of participants to the Webinar and membership body:

Name, surname and organization:

1. Rita Pla, CNEA
2. Patricia Smichowsi, CNEA
3. Griselda Polla, UNSAM
4. Sol, Piccirilli, Argentine Naval Prefecture
5. Sergio Paz, MT
6. Oscar M Taborda, MAyDS
7. Gustavo Gonzalez Acosta, SENASA
8. Adriana Rosso, INTI
9. Liliana Gonzalez, SEGEMAR
10. Agustín Harte, MAyDS
11. Agustín Londonio, CNEA
12. Florence Lanzillotta, MAyDS

13. Jaime Palatnik, CNEA
14. Analía Amigo, MAyDS
15. Jorge Etcharrán, MAyDS
16. Lucia Muntaner Mendoza, MAyDS
17. Marisol Diaz Rivera, MAyDS
18. Maria Florence Layun, MAyDS

The recording of the class was uploaded to the virtual campus for the visualization of the 180 active participants of the same.

Activity 2.2. Equip a local unit to support mercury sampling, processing and other control activities

In order to enhance mercury research and control capacities under Articles 12 and 19 of the Minamata Convention in order to create the necessary basis for the country to generate local data and statistics on mercury emissions and releases, exposure and contaminated sites, as well as to monitor mercury management activities, the SIP Project set out to equip a local unit to support and achieve this objective, thus improving the analytical capacity of at least one laboratory.

In this sense, it should be borne in mind that the design and implementation of a laboratory-type space includes robust equipment for the management and conservation of samples, and mercury analysis equipment, in addition, field equipment capable of evaluating potentially contaminated sites and developing management plans, generating efforts to improve the application of articles 12, 17, 18 and 19 of the Minamata Convention.

Taking this into account, the SIP Project carried out the design and development of equipment for two laboratories of public universities and that their process will be detailed below.

Development and implementation

1. Initial survey and choice of equipment recipients

All existing information regarding the installed capacity of mercury monitoring institutions has been collected. A map of relevant actors was created to favor the advancement and execution of the activities (Figures 58 and 59).

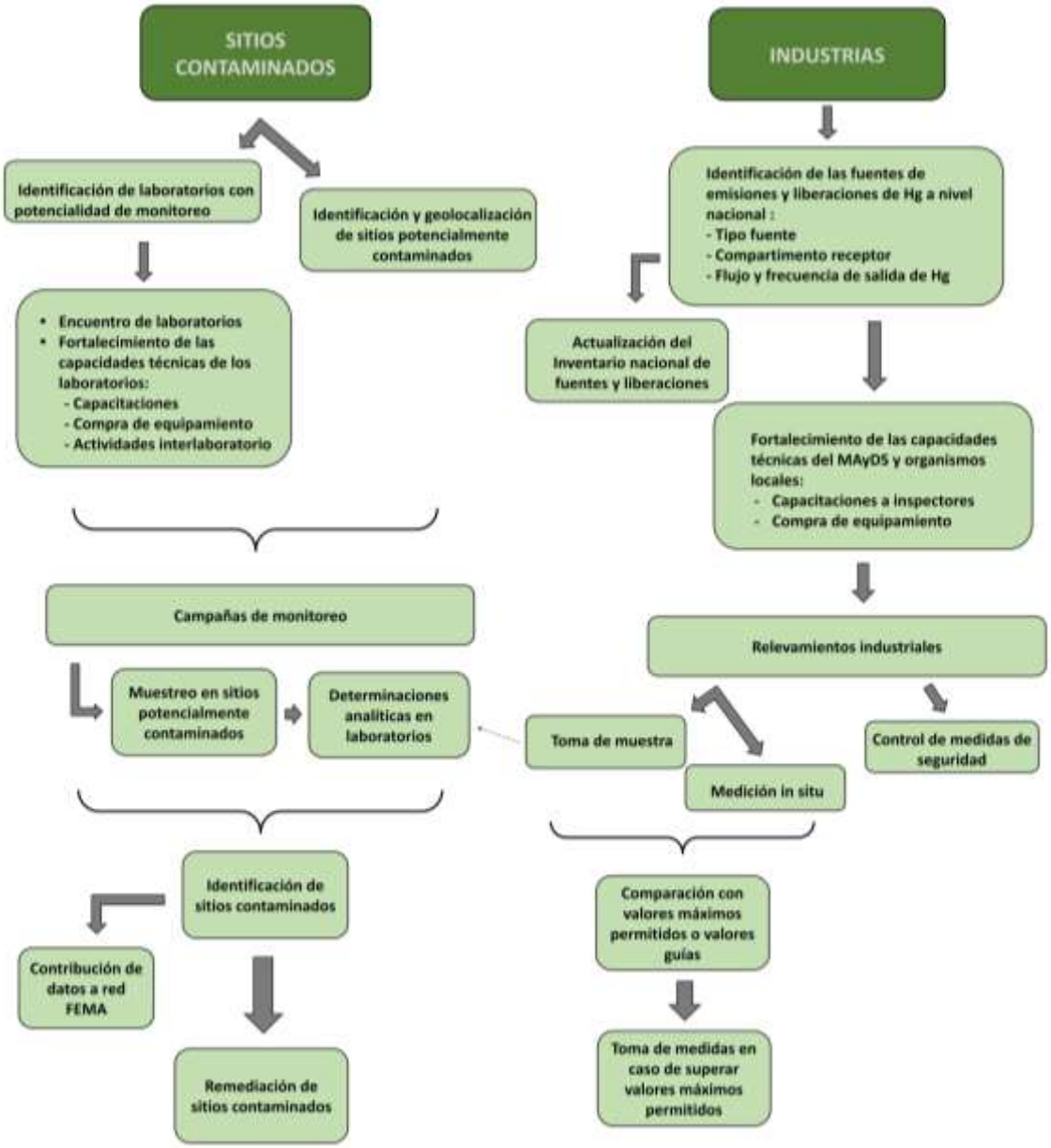

Figure 58. Monitoring, control and surveillance plan, and capacity building.

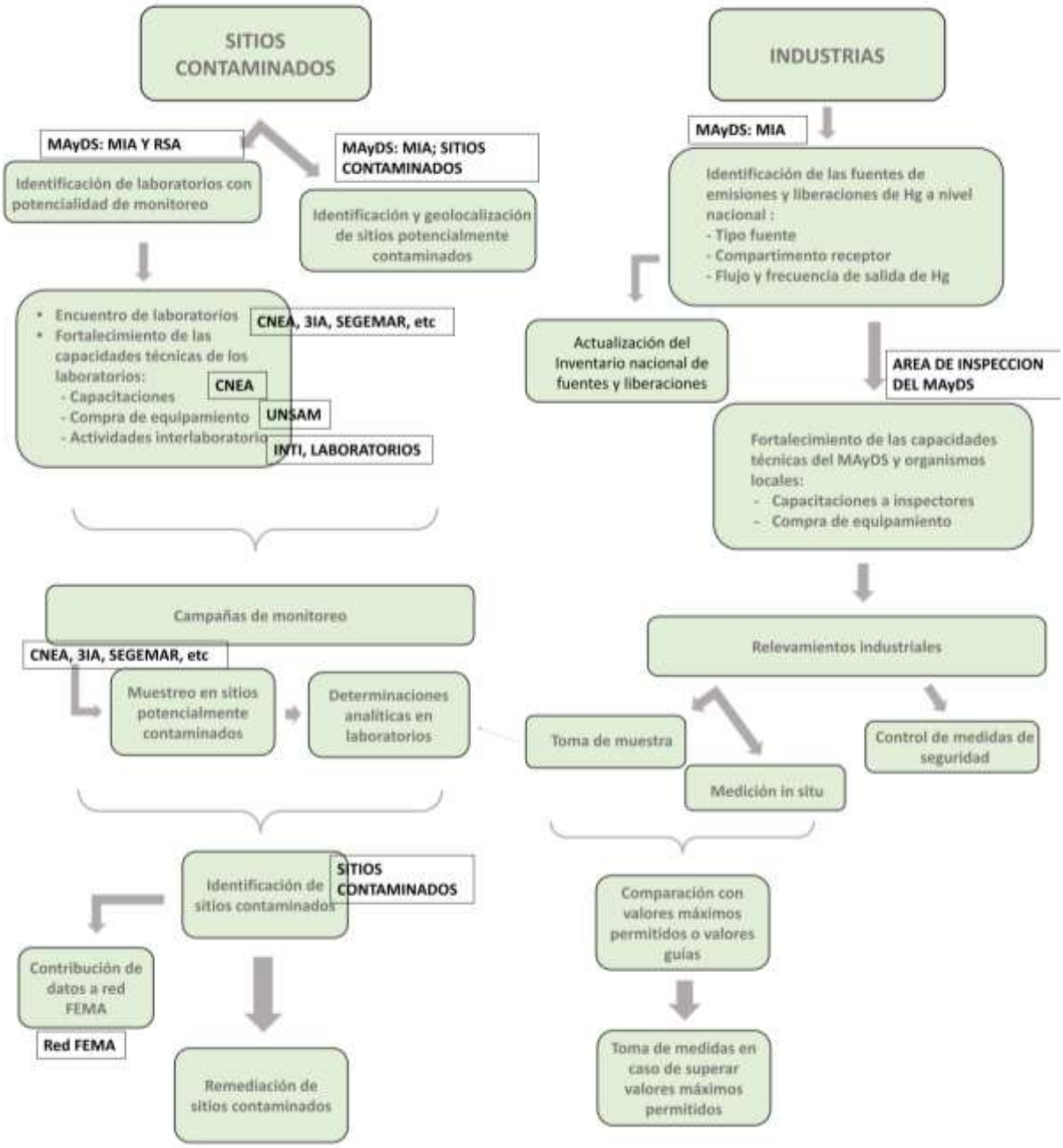

Figure 59. Map of actors for the Monitoring, Control and Surveillance Plan, and Capacity Building.

2. Requirements for the selection of the recipients of the equipment

For the selection of the recipients of the equipment, priority was given to national universities that reported interest in working with the theme of mercury. The following are the requirements for the selection of recipients:

1. Sources of emission and/or release and potentially contaminated sites (Source: MIA): The magnitude and quantity of sources of

emission and release of mercury in the different provinces where the laboratories surveyed are distributed were taken into account.

2. Matrices: The matrices that were given greater relevance were the air, fish, soil/sediment matrix.
3. State of situation of the laboratories: it was decided to strengthen those laboratories that demonstrated through response to the surveys carried out, the need for equipment for the analytical determinations of mercury.
4. Economic solvency and human resources: prevalence was given to laboratories that demonstrated the economic solvency that guarantees the use and maintenance of equipment as well as to those that have the human resources trained to monitor mercury in different matrices.
5. Possibility of articulation with the Ministry of Environment and Sustainable Development: this criterion is of particular importance since it is the main component when establishing relations between the ministry and the laboratories.
6. Proximity to the Ministry of Environment and Sustainable Development: it was considered that those laboratories located near the Ministry of Environment and Sustainable Development would be the most appropriate when it comes to generating links and providing services.
7. Interlaboratory activities: the participation of laboratories in interlaboratory activities and/or their interest in carrying out this type of activity in the future was considered an important factor.

3. Election procedure

The survey was sent to the list of laboratories with mercury monitoring capacity located in those provinces where the most relevant sources of emission or release of mercury were found and in greater quantity.

In the first instance, the laboratories that responded to this survey were selected since their interest in mercury determinations is a very important factor.

A second selection was then made taking into account consideration 1, that is, laboratories located in the provinces that had a large number of sources of emission or release of mercury were selected. At the same time, the proximity of the laboratories to the current Ministry of Environment and Sustainable Development was considered relevant, which would facilitate relations and work between both actors (consideration 6). As a result, laboratories located in the province of Buenos Aires were selected. They are detailed below:

- ➔ Analytical Developments Division, Chemical Management, CNEA
- ➔ Experimental Laboratory of Water Quality, INA.
- ➔ Coordination of Chemical Assets and Residues, SENASA
- ➔ Environmental Laboratory, UNDAV

- Analytical Services Management, SEGEMAR
- Institute of Environmental Research and Engineering (3IA), UNSAM
- Center for Environmental Research, UNLP
- Institute of Theoretical and Applied Physicochemical Research (INIFTA), UNLP-CONICET.

As mentioned above, it is in our interest to strengthen the institutions that are in a not very favorable economic situation and strengthen them with respect to the rest of the great leading scientific institutions. Therefore, laboratories were taken into account (consideration 3) that demonstrated a lack of equipment in optimal conditions for mercury monitoring, and which in turn guaranteed:

Possibility of carrying out sampling (themselves or working together with groups of the same institution) and analytical determinations of mercury in the relevant matrices (considerations 2 and 4). This would ensure that the laboratory has the human resources trained for both sampling and analytical determinations in the matrices of interest and, therefore, is able to use the equipment; economic solvency for the maintenance and use of the equipment (consideration 4). It is very important to ensure that the laboratory is in a position to maintain the equipment and thus guarantee its use; participation in interlaboratory activities and / or interest in carrying out in the future (consideration 7). These activities give an idea of the laboratory's interest in complying with standardized methods for laboratory testing.

The final choice of the recipient was governed by the possibility of a link between the National Directorate of Substances and Chemicals and scientific institutions since it is a key factor in making such a decision (consideration 5). The opportunity was then presented to generate links with the Institute of Environmental Research and Engineering (3IA) of the National University of San Martín (UNSAM) and with the Environmental Laboratory of the National University of Avellaneda (UNDAV), which met all the requirements detailed above.

After several meetings in which the members of the 3IA and the National Directorate of Substances and Chemical Products of the MAyDS participated, and in parallel meetings with the SIP Project team and the University of Avellaneda, where all the actors demonstrated mutual interest, the final decision was made, choosing these two scientific institutions as the recipient of the equipment.

3IA Institute, National University of San Martín

Based on the requirements expressed by said institution to be able to contribute to the monitoring of mercury, it will be favored with the purchase of:

- Atomic absorption and emission spectrophotometer.

Brand Shimadzu, model 24.471,20 1 unit 24.471,20 AA-7000F/AAC for flame analysis, manufactured in Japan. N/P 206-77500-58

Figure 60. Atomic absorption and emission spectrophotometer, Shimadzu brand, model 24.471.

This atomic absorption spectrophotometer allows the analytical determination of Hg and other hydride-generating metals (As, Se, Sn, Sb, Te, Bi) in different environmental matrices with detection limits of the order of ppb.

Includes:

- Hydride generator system to lower detection limits;
- Automatic sampler to automate analytical determination;
- Air compressor;
- Mercury cathode lamp.
- Standard Solutions.

➢ For its use and installation, the following PRODUCTS AND SERVICES are needed, which will be granted to this institution:

- UPS 10 KVA for equipment installation and operation

Figure 61. Installation of the UPS 10 KVA at UNSAM.

- Installation of the suction system:
- Truncated pyramidal bell
- Suction flow regulating clapper
- Extraction ducts,
- Multi-blade centrifugal extractor and
- American type chimney;
- Adaptation, reform and installation of countertop;
- Adaptation of gas pipes and regulators for acetylene (Control knob for acetylene gas).

Figures 62 and 63. Before the installation of the countertop and suction system in UNSAM.

Figure 64. Installation of the countertop and suction system in UNSAM.

Environmental Laboratory of the National University of Avellaneda
Based on the requirements expressed by said institution to be able to contribute to the monitoring of mercury, it will be favored with the purchase of:

- Deena II Metal Digester

Figure 65. Deena II Metal Digester

This equipment allows the digestion of the samples to be analyzed in the Atomic Absorption or other equipment that the laboratory has. The digestion of the samples is essential for the analytical determination of Hg in samples of different environmental matrices. And includes:

- Standard Solutions
- Mercury cathode lamp to measure Hg.

Figure 66. Cathode lamps delivered to the UNDAV.

It is worth mentioning that the process of choosing the right equipment has been a joint work with the techniques of the laboratories benefiting from the equipment and with the correct advice of the technicians belonging to the companies that supply the equipment as well as expert laboratories such as INTI.

4. Equipment procurement and inventory process

Once the best equipment was chosen in relation to cost and benefit, the administrative processes for its purchase continued through bidding processes for each of the goods and services acquired.

In order to achieve this objective, a great effort and joint work with the beneficiary universities, the Ministry of Environment and Sustainable Development of the Nation and INTI was required. For this reason, the inventory of the equipment acquired is detailed below (Figure 67).

Name of the good/service		**Univ. Intended**
1	Acquisition of 10KVA UPS for spectrophotometer operation	UNSAM

Name of the good/service		Univ. Intended
2	Adaptation of the laboratory and installation for the operation of the atomic absorption spectrophotometer equipment.	UNSAM
3	Control knob for acetylene gas	UNSAM
4	Truncated pyramidal bell	UNSAM
5	Extraction ducts	UNSAM
6	Centrifugal extractor	UNSAM
7	Chimney ("American Type")	UNSAM
8	Acquisition of the Atomic Absorption Spectrophotometer	UNSAM
9	Acquisition of an automatic system for sample preparation and digestion for METALS DEENA II	UNDAV
10	Acquisition of mercury cathode lamps to measure Hg	UNDAV

Figure 67. Equipment purchased with the beneficiary university

5. Legal aspects related to the purchase of the goods

To carry out the purchase it was necessary to make different legal documents accompanied by technical reports that support the purchase.

To this end, the following were elaborated:

1. Reports with the technical specifications of each good and service purchased.
2. Technical reports in reference to the justification of purchases and regarding offers.
3. Amendments to the cooperation agreement between INTI and UNEP.
4. Framework and Specific Cooperation Agreements for the management of mercury and its waste with the beneficiary universities.

5. Agreement with the INTI and the MAyDS for the transfer of goods.
6. Loan contracts between the MAyDS and the Universities.

6. Mercury Control Operations Unit Manual

This activity was originally designed for a laboratory unit, owned by the National Directorate of Hazardous Substances and Waste. However, subsequently, and after a change of authorities, the focus of the same has been changed and it has been decided (as well detailed in this report and in the Process Report of selection of the recipients)

allocate the equipment to laboratories belonging to national universities.

These laboratories already have their own procedure manuals, and therefore the design of a mercury control operations manual was rendered useless.

Therefore, it has been decided to take a strategic turn to design an activity that is useful to train agents of the National Directorate of Hazardous Substances and Waste and other public bodies.

The result was the design of a manual entitled "Cabinet Tools for Decision Making in Chemicals Management". It seeks to provide the necessary knowledge for the correct use of databases of chemical substances and for the correct use of models for the behavior, dispersion, transport and destination of chemical substances. These tools are intended to provide technical support for decision criteria with regard to the management of chemical substances.

Figure 68. Manual "Cabinet tools for decision making in the management of chemical substances".

7. Mercury Monitoring Proposal

As the project mentions, one of the objectives was to strengthen the scientific-technical institutes in mercury monitoring.

Through the purchase of this equipment, it is that it resulted in the strengthening for the analytical determinations of mercury. These determinations are a key stage for monitoring as they provide the required information regarding mercury concentrations in the environment.

For its part, it was also necessary to devise a mercury monitoring plan, so that in the future the samples of the different environmental matrices can be analyzed by the equipment delivered to the beneficiary universities of these goods.

Therefore, in the first place, we began with the analysis of the current situation of information from the possible monitoring sites so that it is used as a guide for the strategic design of a monitoring plan.

This analysis was presented to the members of the mercury network, and then different proposals were discussed as to the best strategy for future monitoring.

A posteriori, it was defined that the best strategy would be the choice of a model case to carry out the monitoring. This was decided since this activity involves many resources and long execution time, so it was decided to start with a single site to monitor and use it in the future as a model case.

It was considered essential that the type of site possibly contaminated is an open dump/landfill/micro-garbage dump as they are the sites that present great possibilities of exposure mainly of the vulnerable population. At the same time, it was considered convenient that these sites are within the province of Buenos Aires since it is the province that on the one hand has the largest number of laboratories trained for the sampling and analysis of samples; and that on the other hand is the province that has the highest population density, which generates a high amount of landfills or landfills and a high probability of exposure.

As it is intended to be of a national nature, it was thought that it would be appropriate to involve different organizations and academic scientific institutions to participate in it in order to forge or strengthen links throughout the national territory.

Based on the analysis, a pilot project has been designed for a National Mercury Monitoring Plan, which was presented to the MAYDS authorities for consideration (Figure 69).

Figure 69. Pilot project for a National Mercury Monitoring Plan.

Conclusions

It is important to remember that the development of the project was crossed by the pandemic caused by COVID-19, this generated great challenges and important changes in the structure of the framework of activities, as well as its development and implementation.

The project fulfilled its main objective of strengthening national capacities for the implementation of the Minamata Convention on mercury and, in particular, the obligations established in its article 4, elaborating as a final result the "National Strategy to strengthen capacities to implement the Minamata Convention", which was presented to the MAYDS authorities for consideration (Figure 70).

Figure 70. National Strategy to implement the Minamata Convention.

In this regard, some important results and lessons learned will be detailed below:

- It is important to mention that, during the development of the activities, the SIP Project encountered numerous challenges and mostly produced by the complications caused by the pandemic situation - COVID-19, but, as well, it was a situation in which it made

possible the generation of new opportunities for articulation. Well, virtual meetings and trainings became massive and constantly available, allowing environmental education to a huge universe of people in a free and quality way. In this sense, the SIP Project had as a relevant result a total of approximately 15,000 visualizations only on social networks of the trainings carried out during the period of one year.

- Dissemination activities should continue to be developed with respect to the use of these products with added mercury and their relationship with the risks of exposure of this metal, measures for their correct management and actions in case of accidents, for example the short of how to act before the rupture of a thermometer and lamps, being the products with mercury that still persists in the domestic market and in homes.
- After the positive impact of the National Training Plan, the Comprehensive Mercury Seminar, at the request of various local authorities and the general public, this training will be relaunched again in the Virtual Campus, where it already has the recordings and documents for its realization. As well as in 2022, the special edition book of the AAPC and the MAyDS will be published, which have the exhibitors of this seminar and the contents exposed in it with greater depth.
- It is important to publicize and encourage the different technologies that exist free of mercury, so that these products are no longer acquired.
- The pandemic also brought serious challenges for the acquisition of equipment for laboratories, in particular, many sectors were dedicated to working exclusively to face the impacts of the health emergency, other sectors such as the public, were crossed by changes in hierarchical structure, as well as administrative procedures in order to respect health protocols, but a sector hit hard was the private, causing a shortage of raw material and great difficulties in the manufacture of goods and their logistics. This context was not external to the development of the Project but had to go through them for the acquisition of equipment for the laboratories of the Public Universities and achieve its objectives, which is the strengthening of capacities to improve mercury monitoring.
- It should be noted that the academic sector as well as NGOs were interested in the subject and maintain close contact with the National Directorate for the development and dissemination of information.
- From the activities implemented by the SIP Project, we highlight the importance of articulating with the different key actors and stakeholders in the subject, including the Municipalities, Provinces, Academia, Private and Public Sector, such as NGOs, in order to

address the environmental management of mercury in a comprehensive and synergistic way.

- Awareness-raising and articulation activities had great challenges, in particular, we must highlight the difficulty in interacting with local authorities. The objective of knowing the state of the situation of mercury management and the degree of implementation of the Minamata Convention in the local territory was a great challenge that must be reinforced by the Ministry in order to improve the links between both environmental authorities.
- Beyond the actions carried out by the Project, there are armed structures to give continuity to the activities of awareness, training and articulation with the interested actors and the general public in order to improve the approach to the implementation of the Minamata Convention, but also to promote a better environmental management of mercury.

Within the framework of the environmental management of mercury, there are still many challenges that Argentina will have to face, such as the proper local management of MAPs at the end of their useful life including their final disposal, the continuation of the monitoring program to assess mercury trends in environmental compartments and identify new possible sources of pollution and continue to strengthen the capacities of local authorities for the control and control of mercury environmental regulations. The capacities generated through this project together with other initiatives, programs and projects in execution and supported by the networks created will serve to give continuity to the results obtained and to address the new challenges identified.

Capacity-building Programme for the implementation of the Minamata Convention in Argentina

Argentina SIP Project 2018/01/LAC/ARG

Diciembre 2021