

2025 FULL REPORTS OF THE MINAMATA CONVENTION ON MERCURY

Report submitted on 30 December 2025

*Question 9.2 amended by Colombia on 18 February 2026



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REPORTING PERIOD:

1 January 2021 to 31 December 2024

UNOFFICIAL ENGLISH TRANSLATION

Attachments can be found on the website

▼ INFORMATION ON THE PARTY

1. Information on the party

Name of party

Colombia

Date on which its instrument of ratification, accession, approval or acceptance was deposited

August 26, 2019

Date of entry into force of the Convention for the party

November 24, 2019

2. Information on the national focal point

Full name of the institution

Ministry of Foreign Affairs of Colombia

Title of Contact Officer

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3. Information about the contact officer submitting the reporting format if different from the above

Focal Point is submitting the national report

- ☐ Information is submitted by the national focal point
- ☒ Information is submitted through the national focal point by the contact officer

a3_subsection

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Ministry of Foreign Affairs of Colombia

Title of contact officer

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▼ ART. 3: MERCURY SUPPLY SOURCES AND TRADE**3.1: Does the party have any primary mercury mines that were operating within its territory at the date of entry into force of the Convention for the party?**

- ☐ Yes – primary mercury mining with available data
- ☐ Yes – primary mercury mining with no available data
- ☒ No

3.2: Does the party have any primary mercury mines that are now in operation that were not in operation at the time of entry into force of the Convention for the party?

- ☐ Yes – primary mercury mining with available data
- ☐ Yes – primary mercury mining with no available data
- ☒ No

3.3: (A) Has the party engaged to identify individual stocks of mercury or mercury compounds exceeding 50 metric tons that are located within its territory?

3.3: (A) Has the party engaged to identify individual stocks of mercury or mercury compounds exceeding 50 metric tons that are located within its territory?

- ☒ Yes – with new data* (also to be selected by parties reporting for the first time)
- ☐ Yes – endeavoured and indicates same stocks as reported in the previous report
- ☐ No

ba33a_subsection

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ii. Supplemental: Please provide any related information – for example, on the use or disposal of mercury from such stocks.

In Colombia, as mentioned, the use and sale of mercury is prohibited within the national territory in accordance with Law 1658 of 2013. However, efforts have been made to identify the quantities of mercury or mercury compounds present through the following actions:

Implementation of national regulations on hazardous substances:

Law 1658 of 2013 mandates the reduction and elimination of mercury use in all industrial and production processes nationwide starting in 2023, and in mining starting in 2018. Furthermore, Decree 2133 of 2016 established the final import quota for mercury and control measures for the import and sale of other mercury products, which were later further broken down, along with products containing added mercury, in Decrees 419 of 2021 and 1433 of 2022.

Regarding the recycling of products containing added mercury, Resolution 851 of 2022 establishes the guidelines and requirements for The collection and management systems for Waste Electrical and Electronic Equipment (WEEE) within the Extended Producer Responsibility (EPR) framework, which are the responsibility of producers, and the conditions for WEEE acceptance by EEE distributors, include recycling or recovery processes, with the aim of preventing and controlling adverse environmental impacts.

An exercise was conducted to identify stockpiles in accordance with paragraph 5(a) of Article 3, including information on potential seized mercury stockpiles and an analysis of import and export data for mercury compounds.

Annex A of this report includes the information compiled, the results of which show that stockpiles of mercury and mercury compounds do not exceed 50 metric tons. In fact, potential sources of mercury supply were identified, which are unlikely to exceed 10 metric tons annually in Colombia.

It is expected that this information can be expanded through the regional project with GEF resources entitled “Accelerating compliance with the Minamata Convention through a better understanding and control of the mercury trade in Latin America”, and that the illegal trade flow of mercury can be known in greater detail.

3.3: (B) Has the party endeavored to identify individual sources of mercury-supply-generating stocks exceeding 10 metric tons per year that are located within its territory?

3.3:(B) Has the party endeavoured to identify individual sources of mercury-supply-generating stocks exceeding 10 metric tons per year that are located within its territory?

- ☒ Yes – with new data* (also to be selected by parties reporting for the first time)
- ☐ Yes – endeavoured and indicates same stocks as reported in the previous report
- ☐ No

ba33b_subsection

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ii. Supplemental: Please provide any related information – for example, on the use or disposal of mercury from such stocks.

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Implementation of national regulations on hazardous substances:

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It is expected that this information can be expanded through the regional project with GEF resources entitled "Accelerating compliance with the Minamata Convention through a better understanding and control of the mercury trade in Latin America", and that the illegal trade flow of mercury can be known in greater detail.

3.4: Has the party determined that it has excess mercury available from the decommissioning of chlor-alkali facilities?

- ☐ Yes
- ☒ No – you have determined it has no excess mercury
- ☐ No – you have not made a determination

3.5: *Has the party received consent, or relied on a general notification of consent, in accordance with article 3, including any required certification from importing non-parties, for all exports of mercury from the party's territory in the reporting period?

- ☐ Yes – exports to parties
- ☐ Yes – exports to non-parties
- ☒ No – no export took place
- ☐ No – consent was not given

3.6: Has the party allowed the import of mercury from a non-party?

- ☒ No
- ☐ Yes
- ☐ The importing party has relied on paragraph 7 of article 3

Part E – Additional comments on this article

3.1. NO. According to the Mining Registry and Cadastre of the National Mining Agency in Colombia (ANM), as of the entry into force of the Minamata Convention for Colombia (November 26, 2019) and in accordance with Monitoring and Control, NO authorization has been granted for the primary exploitation of mercury in the country. Furthermore, in accordance with the prohibition of the use of mercury in the mining sector as of July 2018, established by Law 1658 of 2013, there are NO primary mercury extraction mines in Colombia.

3.5. The information from the Foreign Trade Database (BACEX) platform (<https://www.mincit.gov.co/estudios-economicos/estadisticas-e-informes/banco-de-datos-de-comercio-exterior-bacex>) and Legiscomex (<https://www.legiscomex.com/>) was validated for the reporting years, revealing that no imports or exports were found under subheading 2805.40.00.00, corresponding to elemental mercury.

Note 1: Colombia is neither a producer nor an exporter of mercury. However, there may be mercury smuggling into the country for use in gold mining activities. It is expected that the regional project

funded by the GEF, entitled “Accelerating Compliance with the Minamata Convention through a Better Understanding and Control of Mercury Trade in Latin America,” will provide a more detailed understanding of this illegal mercury trade flow.

Note 2: As part of the process of gathering information on imports of different tariff subheadings, the importation of products into the country under HS 2852.90.90.00 “Other inorganic or organic mercury compounds, whether or not of defined chemical constitution, except amalgams,” was found in quantities of approximately 0.5 kg. This information will be subject to confirmation through studies and results of the regional project funded by the GEF entitled “Accelerating compliance with the Minamata Convention through a better understanding and control of mercury trade in Latin America,” which will provide a more detailed understanding of this illegal trade flow of mercury and its compounds.

▼ ART. 4: MERCURY-ADDED PRODUCTS

4.1. Has the party taken any appropriate measures to not allow the manufacture, import or export of mercury-added products listed in Part I of Annex A of the Convention after the phase-out date specified for those products?

- ☒ Yes
- ☐ No
- ☐ Yes (implementing paragraph 2 of article 4)

If yes, please provide information on the measures.

The measures taken in Colombia, under environmental legislation, explicitly prohibit the manufacture, import, and export of products with added mercury, in accordance with Decree 419 of 2021. This decree specifically prohibits the manufacture, import, and export of products with added mercury classified under the tariff subheadings corresponding to the list established in Annex A, Part I of the Convention.

Subsequently, Decree 1433 of 2022 amended Decree 419 of 2021, but maintained the prohibition, making some clarifications and establishing specific exclusions, as outlined in Annex A5. It also clarified the exclusion of cosmetic products, whose import and marketing are governed by Decision 833 of 2018 of the Andean Community.

The Foreign Trade Directorate of the Colombian Ministry of Commerce, Industry and Tourism has structured tools such as regulations and the implementation of controls derived from those regulations through the Single Window for Foreign Trade (VUCE), which serves as the platform for issuing opinions, authorizations, and denials of applications. The Bacex website, maintained by the customs authority DIAN, tracks the quantity of products entering and leaving the national territory through import and export declarations.

The Occupational Risk Directorate of the Ministry of Labor requested reports from Occupational Risk Insurers on companies using mercury and lead, along with data on worker exposure to these substances, in accordance with Law 1658 of 2013. In response to this request, two insurers (Occupational Risk Administrators) reported that none of their affiliated companies handle mercury and lead contaminants in their production processes.

If yes, have the party registered for an exemption pursuant to article 6?

- ☐ Yes
- ☒ No

4.3: (A) Has the party taken two or more measures listed in subparagraphs (i) to (ix) of part II of annex A for the mercury-added products listed in part II of annex A in accordance with the provisions set out therein?

4.3:(A) Has the party taken two or more measures listed in subparagraphs (i) to (ix) of part II of annex A for the mercury-added products listed in part II of annex A in accordance with the provisions set out therein?

☒ Yes

☐ No

If yes, please provide information on the measures.

The country has adopted guidelines for the controlled use of dental amalgams in dental services, as part of the National Mercury Plan for the Health Sector. Although the goal is to eliminate amalgams, their encapsulated use is still permitted in cases where the professional deems it necessary, especially in contexts where administratively viable alternatives are not available in certain regions of the country.

Measures and guidelines are in place for the prevention of caries, as established in the Comprehensive Care Pathway for Health Promotion and Maintenance (RIAPYMS), adopted through Resolution 518 of 2015, whose technical annex was modified by Resolution 3280 of 2018 (repealed by Article 29 of Resolution 1597 of 2025, with the exception of numeral 14.1 of Article 14, which will remain in force in relation to the matters provided for in this administrative act). These measures and guidelines address actions related to the public health competencies assigned to territorial entities in Law 715 of 2001 regarding prevention campaigns, among others. Alternative dental materials to amalgam are also covered, as well as the promotion and support of the work of associations such as the Colombian Association of Dentistry (ACFO), which since 2010 has incorporated courses for the training of human talent into its curricula, as defined in... the Comprehensive Health Care Policy (Resolution 2626 of 2019). The limitation on the use of encapsulated dental amalgam, with Invima being the entity responsible for sanitary registrations and the implementation of guidelines for good environmental practices to be applied by dental services, is outlined in the document "Guidelines for the Controlled Use of Dental Amalgam in Dental Services. Guidelines within the Framework of the Commitments Assumed in the Minamata Convention."

This document is available at the following link:

<https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/VS/PP/ENT/uso-controlado-amalgama.pdf>

<https://www.minsalud.gov.co/salud/publica/ambiental/Paginas/Salud-ambiental.aspx>

Guidelines for Reducing the Use of Dental Amalgams, Best Available Techniques, and Best Environmental Practices for the Management of Mercury Waste in the Health Sector. This document is available at the following link: MERCURY DOCUMENTS – Chemical Substances Management <https://quimicos.minambiente.gov.co/mercurio-documentos/>.

4.3: (B) If the amendment to annex A adopted in decision MC-4/3 has entered into force for the party, has the party (please check the appropriate box below) taken relevant measures:

4.3:(B) If the amendment to annex A adopted in decision MC-4/3 has entered into force for the party, has the party (please check the appropriate box below) taken relevant measures:

☒ Yes

☐ No

☐ Not applicable

If the party answered yes please select from the bellow checkboxes

☐ Excluded or not allowed, by taking measures as appropriate, the use of mercury in bulk form by dental practitioners

☒ Excluded or not allowed, by taking measures as appropriate, or recommended against, the use of dental amalgam for the dental treatment of deciduous teeth of patients under 15 years of age and of pregnant and breastfeeding women, except when such use is considered necessary by the dental practitioner based on the needs of the patient

If the party answered yes to either option above, please provide information on the measures.

The country has adopted guidelines for the controlled use of dental amalgams in dental services, as part of the National Mercury Plan for the Health Sector. Although the goal is to eliminate amalgams, their encapsulated use is still permitted in cases where the professional deems it necessary, especially in contexts where administratively viable alternatives are not available in certain regions of the country.

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4.4: Has the party taken measures to prevent the incorporation into assembled products of mercury-added products whose manufacture, import and export are not allowed for it under article 4?

☒ Yes

☐ No

☐ No - not applicable (do not have facilities assembling products using mercury-added products)

If yes, please provide information on the measures.

Yes, through Resolution 0721 of 2018, the Ministry of Commerce, in conjunction with the Ministry of Environment, jointly regulated zinc-carbon and alkaline batteries, detailing the maximum permissible mercury limits for these products.

It is also important to note that other entities have adopted regulations specifically for added mercury. For example, the Ministry of Health has regulated mercury in tableware through Resolution 1893 of 2019, amended by Resolution 1163 of 2020, which extends the validity of the emergency technical regulation for glass, ceramic, and vitroc ceramic utensils, glass, ceramic, and vitroc ceramic tableware in contact with food, and ceramic utensils used in cooking. Regarding paints, this same entity is currently working on developing its own regulations.

4.5: Has the party discouraged the manufacture and the distribution in commerce of mercury-added products not covered by any known use in accordance with article 4, paragraph 6?

- ☒ Yes
- ☐ No – no action taken
- ☐ No – an assessment of the risks and benefits of the product demonstrates benefits to human health or the environment

If yes, please provide information on the measures.

Yes. Paragraph 1 of Decree 1433 of 2022, which prohibits the manufacture, import, and export of products with added mercury, establishes that “If new products that may be subject to this measure are introduced, a new declaration must be submitted to be considered in each transaction.”

Likewise, paragraph 1 of Article 3, which lists the exclusions in Annex A of the Convention, establishes that, in order to verify that there are no viable mercury-free alternatives for spare parts, switches and relays, cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFLs and EEFLs) for electronic displays, and measuring instruments, the importer must submit a sworn statement establishing the technical justification for the lack of a viable mercury-free alternative, accompanied by the corresponding technical data sheets and any other supporting documentation deemed relevant.

In 2022, the Ministry of Environment and Sustainable Development, with support from the UNDP, developed a project to prevent and minimize mercury release in homes and productive sectors. The objective was to implement a demonstration project in the health sector on replacing mercury-containing medical equipment, as well as on the proper treatment and disposal of its waste. This involved collecting 3,913 mercury thermometers and distributing 16,000 digital thermometers. The project also included raising awareness among mothers and community leaders in six departments across the country, and providing technical support for the technological conversion of the only Colombian company authorized to use mercury in dental amalgams (see <https://quimicos.minambiente.gov.co/cop-acciones/>, documents of interest, Reduction of releases of Persistent Organic Pollutants (POPs)).

Part E – Additional comments on this article

4.2 The alternative defined in paragraph 2 of Article 4 of the Minamata Convention is NOT applicable to the Colombian case because no exclusion has been specified for the manufacture, import and export of the products with added mercury in Annex A, nor has an exemption been registered in accordance with Article 6.

Therefore, these questions are not applicable to the Colombian context.

▼ ART. 5: MANUFACTURING PROCESSES IN WHICH MERCURY OR MERCURY COMPOUNDS ARE USED

5.1: Are there facilities within the territory of the party that use mercury or mercury compounds for the processes listed in Annex B of the Minamata Convention in accordance with paragraph 5 of article 5 of the Convention?

- ☐ Yes
- ☒ No
- ☐ I don't know

5.2: Are measures in place to not allow the use of mercury or mercury compounds in manufacturing processes listed in Part I of Annex B after the phase-out date specified in that Annex for the individual process?

CHLOR-ALKALI PRODUCTION

- ☒ Yes

- ☐ No
- ☐ Not applicable (do not have these facilities)

If yes, please provide information on these measures.

Measures have been taken to prohibit the use of mercury or mercury compounds in the manufacturing processes of Part I of Annex B of the Convention. In accordance with Law 1658 of July 15, 2013, "Establishing Provisions for the Marketing and Use of Mercury," Article 3 establishes "the necessary regulatory measures to safely and sustainably reduce and eliminate the use of mercury in the country's various industrial activities. The use of mercury shall be eradicated throughout the national territory, in all industrial and production processes, within a period not exceeding ten (10) years (...)." Consequently, a different technological alternative was used in the case of chlor-alkali manufacturing, and acetaldehyde is not produced in the country. Furthermore, no exemptions have been requested pursuant to Article 6.

ACETALDEHYDE PRODUCTION IN WHICH MERCURY OR MERCURY COMPOUNDS ARE USED AS A CATALYST

- ☐ Yes
- ☐ No
- ☒ Not applicable (do not have these facilities)

5.3: Are measures in place to restrict the use of mercury or mercury compounds in the processes listed in Part II of Annex B in accordance with the provisions set out therein?

VINYL CHLORIDE MONOMER PRODUCTION

- ☐ Yes
- ☐ No
- ☒ Not applicable (do not have these facilities)

SODIUM OR POTASSIUM METHYLATE OR ETHYLATE

- ☐ Yes
- ☐ No
- ☒ Not applicable (do not have these facilities)

PRODUCTION OF POLYURETHANE USING MERCURY-CONTAINING CATALYSTS

- ☐ Yes
- ☐ No
- ☒ Not applicable (do not have these facilities)

5.4: Is there any use of mercury or mercury compounds in a facility using the manufacturing processes listed in Annex B that did not exist prior to the date of entry into force of the Convention for the party?

- ☐ Yes

☒ No

5.5: Has the party discouraged the development of any facility using any other manufacturing process in which mercury or mercury compounds are intentionally used that did not exist prior to the date of entry into force of the Convention?

☒ Yes

☐ No – no action taken

☐ No – the party demonstrated to the Conference of the Parties the significant environmental and health benefits of the manufacturing process and that there are no technically and economically feasible mercury-free alternatives available providing such benefits.

If yes, please provide information on the measures taken.

Yes. In addition to the provisions prohibiting mercury in productive and industrial activities in Law 1658 of 2013, the Ministry of Labor initiated a process in June 2024 for a Legal Opinion to prohibit Mercury Compounds (Mercury Salts), a final opinion that was issued in September 2024, but which requires visibility from other Ministries.

Additionally, the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) manages the Single Environmental Registry (RUA Manufacturero), which must be maintained by establishments whose main activity is classified in Section C (Manufacturing Industries) of the ISIC and that require any environmental license, environmental management plan, permit or registration of an environmental nature according to Resolution 839 of 2023, which updated Resolution 1023 of 2010.

Furthermore, through Resolution 20223040045515 of August 5, 2022, from the Ministry of Transportation, the National Registry of Cargo Dispatches (RNDC) was updated and Resolution 377 of 2018 was repealed, with the exception of Article 1, within the public policies for land transport by road. Through this registry, a comparative analysis was conducted with the information provided by the logistics group regarding the mercury and mercury-derived salts transported in recent years, revealing the following quantities: 2021: 328 tons, 2022: 399 tons, 2023: 312 tons. There was a drastic decrease in mercury transport of 96% between 2018 and 2019, due to the implementation of the Convention, and in the following four years, an average annual transport of 377 tons.

Over the past six years, the most frequently transported mercury salt has been mercury acetate, identified by UN number 1629, with a total of 2,556 tons. This is followed by mercury potassium iodide, identified by UN number 1643, with a total of 820 tons, and finally mercury ammonium chloride, identified by UN number 1630, with 293.4 tons. Conversely, the least transported substance over the past six years has been mercury oleate, identified by UN number 1640, with a total of 0.03 tons (see graph in Part C).

Part E – Additional comments on this article

5.1. No. There are no facilities in Colombia that use mercury or mercury compounds for the processes listed in Annex B of the Minamata Convention (production of chlor-alkali, acetaldehyde, vinyl chloride monomers, sodium or potassium methyl or ethylate, and polyurethane).

In the 2023 report submitted to the Convention Secretariat, one company in the country was identified that carried out an industrial chlor-alkali process, but that since 2014 it has implemented a phased technological conversion project that eliminated the use of mercury. Currently, the process is carried out using membranes, which do not require mercury.

5.3. Not applicable because there are no facilities with production processes mentioned in Part II of Annex B of the Convention. Furthermore, according to Law 1658 of July 15, 2013, the use of mercury is prohibited in the country's various industrial activities. Additionally, no exemptions have been required pursuant to Article 6 of the Minamata Convention

▼ ART. 7: ARTISANAL AND SMALL-SCALE GOLD MINING

7.1: Have steps been taken to reduce, and where feasible eliminate, the use of mercury and mercury compounds in, and the emissions and releases to the environment of mercury from, artisanal and small-scale gold mining and processing subject to article 7 within your territory?

☒ Yes

☐ No

☐ There is no artisanal and small-scale gold mining and processing subject to article 7 in which mercury amalgamation is used in the territory

If yes, please provide information on the steps.

Yes. Although the use of mercury in mining has been prohibited since July 2018, the Colombian government initially established sectoral work plans and a National Mercury Plan. Subsequently, the National Action Plan for Artisanal and Small-Scale Mining was developed, through which various entities were coordinated. These entities have been carrying out actions to eliminate the use of mercury, its emissions, and releases, including the following:

– On October 26 and 27, 2021, the ANM – ACTIVATE THE REGIONS activity was held in Cauca, covering topics such as the formation of companies and the solidarity economy of mining work. This activity was carried out under Administrative Cooperation Agreement No. 008 of 2020, signed between the ANM and the Special Unit of Solidarity Organizations – UAEOS, with the objective of “Joining inter-administrative cooperation efforts between the ANM and the UAEOS to assist and provide technical support to traditional mining communities, traditional mining operators, and small-scale mining titleholders in the Promotion, creation, and strengthening of solidarity economy organizations and solidarity-based enterprises.”

In 2021, the Sectoral Strategic Plans for the elimination of mercury in Colombia were updated by the environment, transportation, labor, health, commerce, education, mining, and energy sectors.

The Ministry of Labor provided coverage from a preventative perspective, establishing and disseminating guidelines for controlling occupational exposure to mercury in different economic activities, especially for the mining sector. Therefore, policies were developed for each stage of the mercury cycle, promoting workers' health, such as Resolution 0312 of 2019, “Which defines the minimum standards of the Occupational Safety and Health Management System.” Resolution 773 of 2021, which “Defines the actions that employers must develop for the application of the Globally Harmonized System (GHS),” Resolution 3029 of 2022, “By which the internal working group for occupational risk inspection is created,” Decree 944 of 2022 with MME, “By which Decree 1886 of 2015, Regulation of Hygiene and Safety in Underground Mining Work, is modified,” and Decree 539 of 2022, “By which the Regulation of Hygiene and Safety in Open Pit Mining Work is issued.”

In July 2022, the Sectoral Strategic Plan for the Elimination of Mercury in Colombia from the Transportation Sector (PES Hg) was approved and published on the hazardous materials portal of the Ministry of Transportation's website: <https://mintransporte.gov.co/publicaciones/2518/portal-de-mercancias-peligrosas/>. Also in 2022, the review and modification of Book 2, Part 2, Title 1, Chapter 7, Section 8, “Land Transportation of Hazardous Materials by Road,” of Decree 1079 of 2015, the Single Regulatory Decree for the Transportation Sector, was initiated.

For 2022 and 2023, the Ministry of Transportation prepared a monitoring report on the transportation of elemental mercury and mercury salts, using information from the National Registry of Cargo Dispatch (RNDC) by companies authorized to provide public land transportation services for cargo, and submitted the progress matrix for the PUNHg and PES.

Agreement No. 608 of 2023, signed between the National Mining Agency and the National University of Colombia, Medellín campus, was developed with the objective of “Joining efforts for the development and implementation of a strategy for associative systems for the sustainable consolidation of mining and productive transformation in mining communities.” The execution of the Agreement included Phase 1: the methodology for characterizing associative potential (baseline survey); Phase 2: Strategic Mining Planning; and Phase 3: Annual Operational Planning. Within the framework of this agreement, two pilot projects were carried out in the municipality of Buriticá, Antioquia. The first describes the dynamics in the area surrounding the ZIJIN Continental Gold mine, which influences five rural communities and the municipal seat. The second corresponds to Block 23

of Strategic Mining Areas in the rural communities of Tabacal and La Fragua, bordering the municipality.

A Mercury Subcommittee was held within the framework of the Chemical Safety Committee of CONASA in September 2023, in which the request for information of Circular No. 9 of 2023 – Attorney General's Office – ALERT ON THE PROBLEM OF ILLICIT MINING IN THE AMAZON THAT ENDANGERS THE GUARANTEE OF THE RIGHTS OF INDIGENOUS PEOPLES AND THE PRESERVATION OF PROTECTED AREAS was reviewed.

With the support of SENA, 320 small-scale and legal subsistence miners are being trained through a 360-hour complementary course: "Construction, operation and maintenance of gold ore processing equipment with cleaner production techniques" in 6 gold-producing departments: Antioquia, Bolívar, Cauca, Nariño, Santander and Caldas, with the aim of strengthening the technical capacities of the miners.

Inter-administrative Cooperation Agreement No. 273 of 2015, signed between the Ministry of Mines and Energy, the Ministry of Labor, the National Learning Service (SENA), the National Mining Agency, and Positiva Compañía de Seguros SA, aims to combine technical and administrative efforts to support and strengthen the implementation of the National Mining Safety Policy formulated and adopted by the Ministry of Mines and Energy.

To continue characterizing deposits in geological, mineralogical, and metallurgical aspects, the Colombian Geological Survey is developing four guides for gold recovery without the use of mercury in the departments of Bolívar, Chocó, and Antioquia. These guides include, among other things, environmental and economic aspects related to the technical guidance that miners in each area should have in their processing.

The Ministry of Mines and Energy (MME) launched the "Mining Learning Center" strategy, a section on the Ministry's website that seeks to leave a legacy in education within the sector. Promoting legal mining activity through training programs aimed at improving the application of best practices in the mining sector.

Currently, the Ministry of Mines and Energy (MME) has created three options for submitting mining development projects within the general royalties system, along three lines: i) Strengthening infrastructure for the provision of mining development services; ii) Construction of community-run gold ore processing plants; and iii) Development of a methodological guide for improving productivity in the gold ore processing stage. The

MME has also designed a model project for technological conversion and productivity improvement in gold ore processing, called "Construction and Equipping of a Community Gold Processing Plant." With this project, the MME aims to enable local governments that have identified low levels of clean gold ore production in mining operations to access resources to improve environmental conditions and optimize the use of gold ore in their territories.

The Ministry of Labor participated in and contributed to the development of the following guides: Guide for the responsible management and disposal alternatives for mercury in mining sector work environments. "We Are Treasure" Project, funded by the United States Department of Labor; the Alliance for Responsible Mining and the Ministry of Labor. (Link: <http://www.responsiblemines.org/wp-content/uploads/2017/12/06-28-2017-Gu%C3%ADa-para-el-manejo-responsable-del-mercurio-V9.pdf>), Guide for the implementation of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) in workplaces. (Download link: <https://www.fondoriesgoslaborales.gov.co/publicacionesguias/>), and the "Guide for the Control of Occupational Exposure to Mercury," which is currently under technical review and includes measures for the prevention and control of occupational exposure to mercury, and epidemiological surveillance of workers.

In order to characterize the identified artisanal and small-scale mining (ASM) territories based on alternative economic and productive activities, the Ministry of Labor requested that 12 occupational risk administrators report information on companies using mercury and worker exposure to mercury from 2019 to 2023. This information will be used to facilitate the retraining of small-scale artisanal mining (ASM) communities, focusing on three key areas: Workers, Companies, and Institutions. This will be achieved through a personalized survey to identify the most suitable productive scenarios for

each community. Furthermore, a comprehensive comparative analysis of the situation in Chocó has been conducted to characterize existing economic and productive activities and promote alternative agricultural production options. The job retraining survey was conducted in the department of Chocó, specifically in the municipalities of Quibdó, Atrato (Yuto), Istmina, and Unión Panamericana, during October and November 2024 (Link: <https://www.mintrabajo.gov.co/web/guest/prensa/publicaciones>).

In 2024, an agreement was signed between the Ministry of Mines and Energy and the University of Córdoba (currently underway) with the objective of “joining efforts to analyze mineral and mercury concentrations in tailings and hotspots, as well as identify opportunities for secondary use under PML techniques and mercury recovery from tailings” in the municipalities of Buenos Aires, Guapi, and Timbiquí (Cauca), Atrato – Yuto, Cértegui, and Lloró (Chocó), and Andes – Sotomayor, La Llanada, and Mallama (Nariño).

In 2024, the technical capabilities of the National Mining Agency (ANM) began to be strengthened for its oversight professionals, who conduct monitoring and control in the field. This effort aimed to understand the environmental problems caused by mercury in the gold processing industry, determine techniques for identifying heavy metals, and ensure the proper use of mercury measurement equipment.

That same year, the National Mining Agency operationally managed 19 inter-administrative agreements with Regional Autonomous Corporations and Sustainable Development Corporations through the Socio-Environmental Group of the Vice Presidency for Promotion and Development, with support from the ANM's Vice Presidency for Monitoring, Control, and Mining Safety. The objective was to combine inter-institutional efforts and streamline environmental control measures for mining and mineral processing activities. These agreements also aimed to maintain more efficient communication among institutions and provide timely responses by coordinating their responsibilities to promote responsible mining practices in accordance with applicable laws and regulations. For this reason, technical meetings have been held with corporations that operate gold ore mines in their region of operation, mining in the process of formalization and/or legalization, and to promote strategies for eliminating the use of mercury in the gold ore processing.

7.2: Has the party determined, and notified the secretariat, that artisanal and small-scale gold mining and processing within its territory is more than insignificant?

☒ Yes

☐ No

7.3: Has the party developed and implemented a national action plan and submitted it to the secretariat?

☒ Yes

☐ No

☐ In progress

7.4: Attach your most recent review that must be completed under paragraph 3 (c) of article 7, unless it is not yet due

{Empty}

7.5: Supplemental: Has the party cooperated with other countries or relevant intergovernmental organizations or other entities to achieve the objective of this article?

☐ Yes

☐ No

Please provide information

{Empty}

Part E – Additional comments on this article

7.4. In accordance with the provisions of paragraph 3(c) of Article 7, the deadline for submitting the progress and evaluation report of the National Action Plan, corresponding to three years from its approval (January 15, 2027), has not yet expired.

Question 7.5: Supplemental: Has the Party cooperated with other countries or relevant intergovernmental organizations or other entities to achieve the objectives of this article? (para. 4) – YES.

Question 7.5: Supplemental: Has the Party cooperated with other countries, intergovernmental organizations, or other relevant entities to achieve the objective of this article? (Paragraph 4) – YES.

Yes, several activities are being carried out within the framework of support or cooperation projects, or as programs and initiatives. The following are some examples:

- Joint efforts are underway among the Andean Community countries (Bolivia, Colombia, Ecuador, and Peru) to exchange information on the production, import, export, trade, transport, and use of elemental mercury, within the framework of the Andean Mercury Observatory, created by Regulation 844 of 2019 and regulated nationally by Resolution 2197 of 2021.
- Through funds provided by the GEF, the project "Integrated Management for the Elimination of Mercury from Small-Scale and Subsistence Mining in Colombia" was developed, with international cooperation from the "Planet GOLD" project – funds provided by the Global Environment Facility (GEF). This project aims to eliminate and/or prevent the use of 20 tons of mercury in the subsistence and small-scale mining sector, located in 11 municipalities in the departments of Antioquia, Bolívar, and Cauca. This project has a duration of 5 years, beginning with actions in the 2019.
- With the support of the Swiss government, the following projects were carried out in gold mining operations during the 2024–2025 fiscal years: CPS–127–2024 signed between the Corporation of Regional Service Centers (CORCRESER) and the Colombian Institute of Technical Standards and Certification – ICONTEC, CPS–129–2024 signed between the Corporation of Regional Service Centers (CORCRESER) and CONEVOLUCIÓN SAS, CPS–130–2024 signed between the Corporation of Regional Service Centers (CORCRESER) and CONEVOLUCIÓN SAS, CPS–131–2024 signed between the Corporation of Regional Service Centers (CORCRESER) and ZERPROYE SAS, or CPS–131–2024 signed between the Corporation of Regional Service Centers (CORCRESER) and TOPA & ASSOCIATES.
- The MME signed an agreement with the Canadian government, through the COMUNICA International Cooperation program of the Agre Team Foundation, seeking to join efforts aimed at knowledge management, education and communication, generating the e-learning course "Challenges and actions for the integrated management of mercury in Colombia".
- Through the Letter of Intent signed between PURE EARTH, the National Mining Agency (ANM) and its Vice Presidency of Monitoring, Control and Mining Safety (VSCSM), on March 21, 2024, it was agreed to carry out collaborative work and contribute to the formulation of joint activities belonging to the exercise of mining inspection and identification of contaminated sites. Specifically, PURE EARTH initially shared technical information from the project "Promoting the recovery and responsible management of mercury in contaminated tailings from artisanal gold mining in Colombia":
 - Report on Mercury Recovery Technologies in Tailings
 - Technical report of partial results of pilot tests of copper plates PHASE I & II December 2020 – PHASE III August 2021, with Report of Laboratory Test Results for Mercury Recovery by Copper Plates
 - Implementation and economic model for the use of copper plates – February 2022
 - Technical protocol for the responsible management of mercury-contaminated tailings in Colombia – April 2022
 - Technical report – results of mercury removal tests in cyanidation processes – September 2022
 - TECHNICAL PROTOCOL FOR MERCURY STORAGE IN INTERNAL LABORATORIES – 2023. With each of its data sheets, instructions, form, chain of custody and manual.

All of this has been a valuable input for mining oversight to work on:

- Strengthening the skills and competencies of professionals who carry out monitoring and control activities in gold processing plants, and also, in the agreements signed with Environmental Authorities, conducting joint training sessions focused on heavy metal identification techniques and the operation of specialized equipment for detecting heavy metals such as mercury, a pollutant prohibited by law.
- Coordinating and strengthening the institutional framework with technical support, in order to

manage instruments and/or measuring equipment that allow the identification and determination of concentrations of heavy metals and pollutants present in gold ore processing, within the framework of monitoring and control activities.

- Develop and implement a monitoring plan for gold ore processing plants associated with mining and industrial concessions. This plan should include the design of a form that considers various variables to effectively identify the use of pollutants prohibited by law. Additionally, establish a baseline using portable X-ray fluorescence equipment currently being purchased by the VSCSM (Vice-Rectorate for Social and Cultural Affairs) to identify and characterize elements present in the tailings of gold mining concessions in the exploitation phase. This will be based on the representative sampling methodology that PURE EARTH has implemented in the field.

- In the first half of 2021, the Integrated Management of the Putumayo-Içá River Basin project was submitted to the GEF (Global Entity for Development) for approval. This project aims to promote the integrated management of natural resources in the Putumayo-Içá River Basin, shared by Brazil, Colombia, Ecuador, and Peru. At the beginning of 2024, all institutions on the project's Technical Committee signed Interinstitutional Cooperation Agreements in the four participating countries. Regional implementation was managed by the Wildlife Conservation Society (WCS). The project began its five-year implementation in 2024, focusing on two main components: governance and capacity for informed and participatory decision-making, and the management of key interventions aimed at shared and integrated watershed management.

Finally, the project “Accelerating compliance with the Minamata Convention through a better understanding and control of mercury trade in Latin America” is also mentioned. This project, between Bolivia, Colombia, Ecuador, Honduras, Mexico, and Peru, is being implemented regionally by the Basel Convention Coordinating Centre, Stockholm Convention Regional Centre for Latin America and the Caribbean (BCCC-SCRC). It was managed during the reporting period, and its agreements will be finalized in 2025 for implementation until 2027. This project aims to strengthen regional cooperation towards better control of major mercury flows, according to three main components: (1) Preparing coordinated strategies to assess mercury trade issues at the national and regional levels, (2) Developing legal instruments for mercury trade and control at the national and regional levels, and (3) Establishing regional cooperation on mercury trade and the sustainability of project results.

▼ ART. 8: EMISSIONS

8.1: Identify any Annex D source categories for which there are new sources of emissions of mercury or mercury compounds as defined in paragraph 2 (c) of article 8.

For each of those source categories describes the measures in place, including the effectiveness of such measures, to implement the requirements of paragraph 4 of article 8.

☒ Coal-fired power plants

Coal-fired power plants

Colombia has Resolution 909 of 2008, which “establishes the permissible emission standards for air pollutants from stationary sources, adopts emission measurement procedures for stationary sources, and regulates agreements for conversion to clean technologies.” It also regulates maximum emission standards for all industrial activities. Chapter XIX of this resolution provides guidelines on emission control systems based on the Protocol for the Control and Monitoring of Air Pollution Generated by Stationary Sources, and Chapter XX addresses the alternatives for conversion to clean technologies. This measure is general for all categories of sources.

To identify the existence of new sources, the relevant entities were consulted, and it was found that there is no substantial variability in the number of reported sources.

The National Environmental Licensing Authority (ANLA) has granted only one new environmental license for a thermal power plant since August 26, 2019, the date the Convention entered into force for Colombia. This plant is currently under construction; therefore, the environmental monitoring and control measures are focused on the obligations established for this stage, which do not include activities involving the emission of mercury or mercury compounds. It is clarified that ANLA grants environmental licenses for the operation of electricity generation projects with an installed capacity equal to or greater than one hundred (100) MW, including those that generate electricity from coal combustion.

On the other hand, the Colombian Geological Survey, within the framework of the National Plan to Control Unintentional Mercury Emissions into the Atmosphere (Plan CENI-Hg) led by the Ministry of Environment and Sustainable Development, is responsible for preparing a report characterizing mercury in coal at the national level. This report, prepared in 2024, is currently under review and being formalized within the Survey. The aim of this activity is to design and implement a monitoring plan to promote knowledge and generate information on the sources of unintentional mercury emissions in Colombia.

☑ Coal-fired industrial boilers

Coal-fired industrial boilers

Colombia has Resolution 909 of 2008, which “establishes the permissible emission standards for air pollutants from stationary sources, adopts emission measurement procedures for stationary sources, and regulates agreements for conversion to clean technologies.” It also regulates maximum emission standards for all industrial activities. Chapter XIX of this resolution provides guidelines on emission control systems based on the Protocol for the Control and Monitoring of Air Pollution Generated by Stationary Sources, and Chapter XX addresses the alternatives for conversion to clean technologies. This measure is general for all categories of sources.

To identify the existence of new sources, the relevant entities were consulted, and it was found that there is no substantial variability in the number of reported sources.

Through the Single Environmental Registry (RUA Manufacturero) administered by the Institute of Hydrology, Meteorology and Environmental Studies – IDEAM, information is available on stationary sources that report emissions monitored by isokinetic analysis to identify pollutant concentrations. It is important to note that data is not available for all sources every year, as isokinetic analyses are performed at a frequency defined at the discretion of the environmental permitting process. Information is also collected on control measures implemented by establishments to reduce or mitigate emissions. The following are the emission sources for this category that reported isokinetic results:

Coal-fired boiler: (year/number of sources): 2019/220; 2020/240; 2021/241; 2022/239; 2023/231

Note: There are also furnaces that use coal as fuel for other activities, average sources/year: 170 – Source: IDEAM, Equipment and Fuel Emissions Database, RUA Manufacturing.

Furthermore, the Colombian Geological Survey, within the framework of the National Plan to Control Unintentional Mercury Emissions into the Atmosphere (Plan CENI-Hg) led by the Ministry of Environment and Sustainable Development, is responsible for preparing a report characterizing mercury in coal at the national level. This report was prepared in 2024 and is currently under review and being formalized within the agency. This activity aims to design and implement a monitoring plan to promote knowledge and generate information on the sources of unintentional mercury emissions in the national territory.

☑ Smelting and roasting processes used in the production of non-ferrous metals

Smelting and roasting processes used in the production of non-ferrous metals

Colombia has Resolution 909 of 2008, which “establishes the permissible emission standards for air pollutants from stationary sources, adopts emission measurement procedures for stationary sources, and regulates agreements for conversion to clean technologies.” It also regulates maximum emission standards for all industrial activities, external combustion equipment, and other sources, as well as their monitoring for other industrial activities. Chapter XIX of this resolution provides guidelines on emission control systems based on the Protocol for the Control and Monitoring of Air Pollution Generated by Stationary Sources, and Chapter XX addresses the alternatives for conversion to clean technologies. This measure is general for all categories of sources.

To identify the existence of new sources, the relevant entities were consulted, and it was found that there is no substantial variability in the number of reported sources.

Through the Single Environmental Registry (RUA Manufacturero) managed by the Institute of Hydrology, Meteorology and Environmental Studies – IDEAM, information is available on stationary sources that report emissions monitored by isokinetic analysis to identify pollutant concentrations. It is important to note that data is not available for all sources every year, as isokinetic analyses are performed at a frequency defined at the discretion of the environmental permitting process.

Information is also collected on control measures implemented by establishments to reduce or mitigate emissions. The following are the emission sources for this category that reported isokinetic results:

(year/number of sources): 2019/1; 2020/2; 2021/1; 2022/0; 2023/0 – Source: IDEAM, Equipment and Fuel Emissions Database, RUA Manufacturero

☒ Waste incineration facilities

Waste incineration facilities

Colombia has Resolution 909 of 2008, which “establishes the permissible emission standards for air pollutants from stationary sources, adopts emission measurement procedures for stationary sources, and regulates agreements for conversion to clean technologies.” It also regulates maximum emission standards for all industrial activities, external combustion equipment, incineration facilities, including mercury in hazardous waste incineration facilities, and its monitoring for other industrial activities. Chapter XIX of this resolution provides guidelines on emission control systems based on the Protocol for the Control and Monitoring of Air Pollution from Stationary Sources, and Chapter XX addresses alternatives for conversion to clean technologies. This measure is general for all source categories.

Regarding the source categories for which new emission sources exist, these sources are present, although there is no substantial variation in the number of reported sources.

☒ Cement clinker production facilities

Cement clinker production facilities

Colombia has Resolution 909 of 2008, which “establishes the permissible emission standards for air pollutants from stationary sources, adopts emission measurement procedures for stationary sources, and regulates agreements for conversion to clean technologies.” It also regulates maximum emission standards for all industrial activities, external combustion equipment, including mercury in cement kilns that co-process hazardous waste, and its monitoring for other industrial activities. Chapter XIX of this resolution provides guidelines on emission control systems based on the Protocol for the Control and Monitoring of Air Pollution from Stationary Sources, and Chapter XX addresses alternatives for conversion to clean technologies. This measure is general for all categories of sources.

To identify the existence of new sources, the relevant entities were consulted, and it was found that there is no substantial variability in the number of reported sources.

Through the Single Environmental Registry (RUA Manufacturero) managed by the Institute of Hydrology, Meteorology and Environmental Studies – IDEAM, information is available on stationary sources that report emissions monitored by isokinetic analysis to identify pollutant concentrations. It is important to note that data is not available for all sources every year, as isokinetic analyses are performed at a frequency defined at the discretion of the environmental permitting process. Information is also collected on control measures implemented by establishments to reduce or mitigate emissions. The following are the emission sources for this category that reported isokinetic results:

Clinker cement manufacturing/Coal-fired kilns: (year/number of sources): 2019/18; 2020/37; 2021/27; 2022/34; 2023/20

Note: ** There are also furnaces using coal as fuel for other activities, average sources/year: 170 – Source: IDEAM, Equipment and Fuel Emissions Database, RUA Manufacturer

Has the party required the use of best available techniques or best environmental practices (BAT/BEP) to control and where feasible reduce emissions for new sources no later than 5 years after the date of entry into force of the Convention for the party?

☒ Yes

☐ No (please explain)

If yes, please explain.

Colombia has Resolution 909 of 2008, which “establishes the permissible emission standards for air pollutants from stationary sources, adopts emission measurement procedures for stationary sources, and regulates agreements for conversion to clean technologies.” It also regulates maximum emission standards for all industrial activities, external combustion equipment, incineration plants, and crematoria, including the pollutant mercury in incineration plants, cement kilns that co-process hazardous waste, and its monitoring for other industrial activities. Chapter XIX of this resolution provides guidelines on emission control systems based on the Protocol for the Control and Monitoring of Air Pollution Generated by Stationary Sources, and Chapter XX addresses alternatives for conversion to clean technologies.

Regarding the categories of sources for which new emission sources exist, sources are present for each of the categories mentioned in Annex D. To identify the existence of new sources, the relevant entities were consulted, and it was found that there is no substantial variability in the number of reported sources.

The National Environmental Licensing Authority (ANLA) has granted only one new environmental license for a thermal power plant since August 26, 2019, the date the Convention entered into force for Colombia. This plant is currently under construction; therefore, the environmental control and monitoring carried out is focused on the measures and obligations established for this stage, which do not include activities involving the emission of mercury or mercury compounds. It should be clarified that ANLA grants environmental licenses for the operation of electricity generation projects with an installed capacity equal to or greater than one hundred (100) MW, including those that generate electricity from coal combustion.

Additionally, through the Single Environmental Registry (RUA Manufacturero) managed by the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM), information is available on stationary sources that report emissions monitored by isokinetic analysis to identify pollutant concentrations. It is important to note that data from all sources is not available every year, as isokinetic analyses are performed at a frequency defined at the discretion of the environmental permitting process. Information is also collected on control measures implemented by establishments to reduce or mitigate emissions.

The emission sources within the categories of Annex D that reported isokinetic results are listed above.

On the other hand, the Colombian Geological Survey, within the framework of the National Plan to Control Unintentional Mercury Emissions into the Atmosphere (Plan CENI-Hg) led by the Ministry of Environment and Sustainable Development, is responsible for preparing a report characterizing mercury in coal at the national level. This report, prepared in 2024, is currently under review and being formalized within the Survey. The aim of this activity is to design and implement a monitoring plan to promote knowledge and generate information on the sources of unintentional mercury emissions in Colombia.

8.2: Identify any Annex D source categories for which there are existing sources of emissions of mercury or mercury compounds as defined in paragraph 2 (e) of article 8.

For each of those source categories, select and provide details on the measures implemented under paragraph 5 of article 8 and explain the progress that these applied measures have achieved in reducing emissions over time in your territory:

▼ COAL-FIRED POWER PLANTS

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

In general, the measures taken are similar for all categories. A multi-pollutant control strategy is employed, as is the case with the use of the Multi-Pollutant Emission Control System, which includes mercury.

Additionally, the Pollutant Release and Transfer Register (PRTR), managed by IDEAM, collects environmental information from establishments requiring environmental authorization and generates a database of emissions monitoring results from these establishments. For

manufacturing establishments, this process began in 2025, and for the hydrocarbon, electricity, mining, and service sectors, it will begin in 2026 (see: <https://quimicos.minambiente.gov.co/ocde-documentos-enlaces/>).

For this category, the parameters and maximum permissible limits are determined at the discretion of the territorial authority according to the environmental procedure, such as the emissions permit. It is important to note that the Ministry of Environment and Sustainable Development formulated the national plan to control unintentional mercury emissions into the atmosphere (Plan CENI-Hg) in 2023, representing progress in establishing objectives and control measures for reducing mercury emissions. Since Colombia has been a Party to the Minamata Convention since August 26, 2019, it still has time to implement this plan.

Progress

100%

▼ COAL-FIRED INDUSTRIAL BOILERS

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

In general, the measures taken are similar for all categories. A multi-pollutant control strategy is employed, such as the use of multi-pollutant emission control systems, including mercury.

Additionally, the Pollutant Release and Transfer Register (PRTR), managed by IDEAM, collects environmental information from establishments requiring environmental authorization and generates a database of emissions monitoring results from these establishments. For manufacturing establishments, this process began in 2025, and for the hydrocarbon, electricity, mining, and service sectors, it will begin in 2026 (see link: <https://quimicos.minambiente.gov.co/ocde-documentos-enlaces/>).

For this category, the parameters and maximum permissible limits are determined at the discretion of the territorial authority according to the environmental procedure, such as the emissions permit. It is important to note that the Ministry of Environment and Sustainable Development formulated the national plan to control unintentional mercury emissions into the atmosphere (Plan CENI-Hg) in 2023, representing progress in establishing objectives and control measures for reducing mercury emissions. Since Colombia has been a Party to the Minamata Convention since August 26, 2019, it still has time to implement this plan.

Progress

100%

▼ SMELTING AND ROASTING PROCESSES USED IN THE PRODUCTION OF NON-FERROUS METALS

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources

- ☐ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

In general, the measures taken are similar for all categories. A multi-pollutant control strategy is employed, such as the use of multi-pollutant emission control systems, including mercury.

Additionally, the Pollutant Release and Transfer Register (PRTR), managed by IDEAM, collects environmental information from establishments requiring environmental authorization and generates a database of emissions monitoring results from these establishments. For manufacturing establishments, this process began in 2025, and for the hydrocarbon, electricity, mining, and service sectors, it will begin in 2026 (see link: <https://quimicos.minambiente.gov.co/ocde-documentos-enlaces/>).

For this category, the parameters and maximum permissible limits are determined at the discretion of the territorial authority according to the environmental procedure, such as the emissions permit. It is important to note that the Ministry of Environment and Sustainable Development formulated the national plan to control unintentional mercury emissions into the atmosphere (Plan CENI-Hg) in 2023, representing progress in establishing objectives and control measures for reducing mercury emissions. Since Colombia has been a Party to the Minamata Convention since August 26, 2019, it still has time to implement this plan.

Progress

100%

▼ WASTE INCINERATION FACILITIES

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

In general, the measures taken are similar for all categories. A multi-pollutant control strategy is employed, such as the use of multi-pollutant emission control systems, including mercury.

Additionally, the Pollutant Release and Transfer Register (PRTR), managed by IDEAM, collects environmental information from establishments requiring environmental permits and generates a database of emissions monitoring results from these establishments. For manufacturing establishments, this process began in 2025, and for the hydrocarbon, electricity, mining, and service sectors, it will begin in 2026 (see link: <https://quimicos.minambiente.gov.co/ocde-documentos-enlaces/>).

For this category, the parameters and maximum permissible limits have been defined in Resolution 909 of 2008, which "establishes the rules and standards for admissible emissions of air pollutants from stationary sources, adopts the procedures for measuring emissions from stationary sources, and regulates the agreements for conversion to clean technologies," and by the Principle of Subsidiary Rigor, they may be stricter according to the evaluation given by the territorial authority to the environmental license process.

Progress

▼ CEMENT CLINKER PRODUCTION FACILITIES

- ☐ A quantified goal for controlling and, where feasible, reducing emissions from relevant sources
- ☒ Emission limit values for controlling and, where feasible, reducing emissions from relevant sources
- ☐ Use of BAT/BEP to control emissions from relevant sources
- ☒ Multi-pollutant control strategy that would deliver co-benefits for control of mercury emissions
- ☐ Alternative measures to reduce emissions from relevant sources

Measures

In general, the measures taken are similar for all categories. A multi-pollutant control strategy is employed, such as the use of multi-pollutant emission control systems, including mercury.

Additionally, the Pollutant Release and Transfer Register (PRTR), managed by IDEAM, collects environmental information from establishments requiring environmental permits and generates a database of emissions monitoring results from these establishments. For manufacturing establishments, this process began in 2025, and for the hydrocarbon, electricity, mining, and service sectors, it will begin in 2026 (see link: <https://quimicos.minambiente.gov.co/ocde-documentos-enlaces/>).

For this category, the parameters and maximum permissible limits have been defined in Resolution 909 of 2008, which "establishes the rules and standards for admissible emissions of air pollutants from stationary sources, adopts the procedures for measuring emissions from stationary sources, and regulates the agreements for conversion to clean technologies," especially for cement kilns that carry out co-processing of hazardous waste and/or residues, and by the Principle of Subsidiary Rigor, they may be stricter according to the evaluation given by the territorial authority to the environmental license process.

Progress

100%

Have the measures for existing sources under paragraph 5 of article 8 been implemented no later than 10 years after the date of entry into force of the Convention for the party?

- ☒ Yes
- ☐ No

8.3: Has the party prepared an inventory of emissions from relevant sources within 5 years of entry into force of the Convention for it?

- ☒ Yes
- ☐ No
- ☐ Have not been a party for 5 years

If yes, when was the inventory last updated?

November 30, 2025

Please indicate where this inventory is available

Yes, from the Single Environmental Registry (RUA Manufacturero), which as indicated before, is administered by the Institute of Hydrology, Meteorology and Environmental Studies – IDEAM, which collects environmental information from establishments that require some environmental license, environmental management plan, permit or registration of an environmental nature according to

Resolution 839 of 2023 that updated Resolution 1023 of 2010, there is a database of results of emissions monitoring carried out by these establishments. It should be noted that the database for the period covered by this report does not include thermal power plants and waste incineration facilities, which, according to Resolution 839 of 2023, must be registered in 2025 and submit their first report in 2026.

The conceptual model of the Pollutant Release and Transfer Register (PRTR) and its data collection instrument (RUA) for all productive sectors can be found at the following link:
<https://quimicos.minambiente.gov.co/ocde-documentos-enlaces/>.

It is important to highlight that, starting in 2026, public information will be available, without request, for each establishment, on emissions from facilities required to register with the RUA-PRTR, including information on emissions and transfers of pollutants associated with mercury.

The RUA RETC information outputs are available at the following link:
<https://www.ideam.gov.co/nuestra-entidad/estudios-ambientales/registros-ambientales/rua/retc>
(Although the launch took place during December 2025, it is under review and adjustment, and is expected to be fully available in 2026)

Attach

{Empty}

8.4: Has the party chosen to establish criteria to identify relevant sources covered within a source category?

☒ Yes

☐ No

If yes, please explain how the criteria for any category include at least 75 percent of the emissions from that category and explain how the party took into account guidance adopted by the Conference of the Parties.

Yes. Within the framework of the commitments under the Escazú Agreement, approved by Law 2273 of 2022, and CONPES 3868 of 2016 on the Policy for managing the risks associated with the use of chemical substances, an inter-institutional and inter-sectoral effort has been underway, led by the Ministry of Environment, in conjunction with IDEAM and ANLA, and in close collaboration with the regulated sector and academia, for the establishment and implementation of the Pollutant Release and Transfer Register (PRTR) in Colombia.

To determine which sources to control, the process will begin with the creation of an inventory that includes all point sources for various activities, among which are the point source categories listed in Annex D. For nine years, a roadmap has been followed, achieving milestones such as the establishment of coordination bodies and the development of the conceptual model for the implementation of the PRTR in Colombia. Requirements for improvements and optimization of the Single Environmental Registry (RUA) software tool are identified and developed; a pilot test of the Pollutant Release and Transfer Register (PRTR) is conducted through the RUA (available at <https://quimicos.minambiente.gov.co/ocde-documentos-enlaces/>); manuals for completion and registration are developed and updated; and socialization workshops (approximately 90 sessions with over 6,300 participants) are continuously held throughout the process with various stakeholders regarding the technical advancements of the PRTR.

As mentioned in question 8.3, the PRTR is adopted under Resolution 0839 of 2023 from the Ministry of Environment (Minambiente). A web portal will be available to the public without prior request or access codes (expected by the end of 2025). IDEAM is the administrator of the Information Subsystem on the Use of Renewable Natural Resources (SIUR), whose data collection instrument is the RUA.

Additionally, this resolution stipulates that the implementation of the RUA (Single Registry of Emissions and Pollutants) will be phased in, beginning with the manufacturing sector, which will be subject to annual completion and updating. By 2026, all productive sectors—mining, electricity, hydrocarbons, and services—will be included.

With the adoption of the RETC (Registry of Pollutants and Transfers of Contaminants) in the country, data will be provided to support the identification and assessment of potential risks to human health

or the environment by identifying the sources and quantities of emissions and transfers of pollutants into the environment (including those associated with mercury emissions and transfers). This will also support the formulation of environmental policies and regulations, controls, and the monitoring of productive activities by environmental authorities, among other things.

The RUA RETC information outputs are available at the following link:

<https://www.ideam.gov.co/nuestra-entidad/estudios-ambientales/registros-ambientales/rua/retc>
(Although the launch took place during December 2025, it is under review and adjustment, and is expected to be fully available in 2026).

8.5: Has the party chosen to prepare a national plan setting out the measures to be to control emissions from relevant sources and taken their expected objectives, goals and outcomes?

☒ Yes

☐ No

If yes, has the party submitted its national plan to the Conference of the Parties under this article no later than 4 years after the date of entry into force of the Convention for the party?

☐ Yes

☒ No

Please explain

Yes, Colombia has adopted measures to control emissions from industrial activities through Resolution 909 of 2008, which establishes permissible emission standards for air pollutants from stationary sources. Furthermore, in 2023, the Ministry of Environment and Sustainable Development formulated the national plan to control unintentional mercury emissions into the atmosphere (link to the CENI-Hg Plan). This plan represents progress in defining objectives and control measures for reducing mercury emissions.

The objective of this national plan is to decrease and potentially minimize the release of mercury into the atmosphere by implementing best practices and available environmental techniques in priority sectors. This includes improving the management and control of mercury by strengthening policies and the regulatory framework related to this pollutant, expanding knowledge of emission sources, and strengthening institutional management at the national and regional levels.

This document provides analytical elements regarding Colombia's commitments under the Minamata Convention and outlines the measures and strategies that must be adopted by the productive sectors listed in Annex D of the Convention, environmental authorities, and institutions, as well as the goals, objectives, and expected results for controlling unintentional mercury emissions. The document is available at the following link: <https://www.minambiente.gov.co/documento-entidad/plan-nacional-para-controlar-las-emisiones-no-intencionales-de-mercurio/>

Part E – Additional comments on this article

8.2. With respect to “existing sources,” these have been identified for each of the categories mentioned in Annex D. (An inventory prior to the entry into force is not available.)

Regarding the measures applied under paragraph 5 of Article 8, the following is indicated:

Table No. 2. Measures applied by source category

Coal-fired power plants: • Emission Control System (multiple pollutants), not specific for mercury
Industrial coal-fired boilers; • Emission Control System (multiple pollutants), mercury monitoring is at the discretion of the environmental authority

Smelting and calcination processes used in the production of non-ferrous metals; • Emission Control System (multiple pollutants), mercury monitoring is at the discretion of the environmental authority

Waste incineration plants; • Emission limit values to control and, where feasible, reduce emissions from relevant sources • Emission control system for multiple pollutants, including specific control for mercury emissions

Clinker cement plants. • Emissions Control System (multiple pollutants): Mercury monitoring is at the discretion of the environmental authority.

As can be seen, maximum permissible limit values have not been defined for some categories (see details in Part C). However, it is at the discretion of the environmental authority and the environmental process to require mercury monitoring, and since Colombia has been a Party to the Minamata Convention since August 26, 2019, it still has time to implement these measures. It is important to note that, in 2023, the Ministry of Environment and Sustainable Development formulated the national plan to control unintentional mercury emissions into the atmosphere (Plan CENI-Hg), which represents progress in defining objectives and control measures for reducing mercury pollutant emissions.

The document is available at the following link: National Plan to Control Unintentional Mercury Emissions – <https://www.minambiente.gov.co/documento-entidad/plan-nacional-para-controlar-las-emisiones-no-intencionales-de-mercurio/>

▼ ART. 9: RELEASES

9.1: Are there, within the party's territory, relevant sources of releases as defined in paragraph 2 (b) of article 9?

☒ Yes

☐ No

☐ I don't know (please explain)

Please indicate the measures taken to address releases from relevant sources and the effectiveness of those measures.

In the case of Colombia, the primary source of mercury release, as defined in paragraph 2(b) of Article 9, is artisanal gold mining and the illegal use of mercury for amalgamation. The country's activities in this regard are summarized in the response to question 7.1 of this report.

Furthermore, information obtained from the Pollutant Release and Transfer Register (PRTR), described in the response to question 8.4, will allow for the future identification of other relevant sources of release and, therefore, whether future actions will be required. The Manufacturing RUA (Single Registry of Appropriate Uses), mentioned in the questions section of Article 8, provides a database of sources that discharge into water, their monitoring, and controls.

However, in the case of mining activity, other actions have been taken in addition to those in the answer to question 7.1, which are described below:

1. Monitoring has been carried out on matrices such as sediments within the area of influence of the environmental impacts of the licensed mining projects.

Project: Buriticá Gold Project – Yaraguá Mine Expansion

Owner: Continental Gold Limited Colombia Branch

Municipalities: Buriticá, Antioquia

Administrative act that granted or modified the environmental control and management instrument: 411 of February 18, 2022; 1633 of August 1, 2024

ANLA filing with information: 2021217860-1-000 of October 7, 2021; 20246200158712 of February 13, 2024

Monitoring matrices: Groundwater, surface water, sediments, surplus from the beneficiation and transformation process; Surface Water

Project: Gold mining in the Nechí River basin

Owner: Mineros Aluvial SAS Bic

Municipalities: El Bagre, Zaragoza, Caucasia and Nechí, in the department of Antioquia

Administrative act that granted or modified the environmental control and management instrument: 659 of April 9, 2021; 1858 of October 19, 2021; 812 of April 25, 2022

ANLA file with information: 2020132573-1-000 of August 14, 2020; 2021169802-1-000 of August 12, 2021; 20212499861-1-000 of November 18, 2021

Monitoring matrices: Surface water, sediments; Soils, rock, surface waters and rock

Project: Use of mineral resources in the Quereras and Porvenir Hills
Owner: Cerro Matoso SA
Municipalities: Planeta Rica, Córdoba
Administrative act that granted or modified environmental control and management instrument:
2355 of October 10, 2023
ANLA file with information: 2022291183-1-000 of December 26, 2022;
Monitoring matrices: Rock, surplus from beneficiation and transformation process, surface water

Project: Gold and silver mineral exploitation project called "Angostura" corresponding to mining concession contract No. 3452
Holder: ECO ORO Minerals Corp Colombia Branch
Municipalities: California, Santander
Administrative act that granted or modified environmental control and management instrument:
2841 of December 20, 2024
ANLA file with information: 20246200186632 of February 21, 2024; 0238200251792 of March 8, 2024
Monitoring Matrices: Rock, sediments, surface waters

Project: Gramalote
Owner: Gramalote Colombia Limited
Municipalities: San Roque, Antioquia
Recent administrative act of environmental monitoring and control: Resolution 1168 of 2025
ICA File Number: 20246200732952 of June 28, 2024
ICA Timeframe: Quarterly
Monitoring Matrices: Surface waters, sediments

2. Projects that report mercury in the monitoring and control plan:

**** Buriticá Gold Project – Yaraguá Mine Expansion** – Project Environmental Management Plan.**
Environmental Management Program.

Sheet AI_2 – Integrated management of industrial wastewater.

Action or activity: It must be ensured that the characteristics of the effluent comply with the concentrations permitted by current legal environmental regulations; The following is a reference to Resolution 0631 of 2015, Article 10, which establishes the physicochemical parameters and their maximum permissible limits for point source discharges of non-domestic wastewater (AmD) into surface water bodies from mining activities.

Fact Sheet AI_6 – Integrated Management of Ordinary, Hazardous, and Special Solid Waste.

Action or Activity: Refinery waste resulting from condensation. Mercury is a byproduct of the process and will not be used in gold processing; it is contained within the rock itself. Mercury is not used in the processing; it is inherent to the natural mineralization of the mineral deposit.

Fact Sheet AI_6 – Integrated Management of Ordinary, Hazardous, and Special Solid Waste.

Action or Activity: Refinery waste resulting from condensation. Mercury is a byproduct of the process and will not be used in gold processing; it is contained within the rock itself. Mercury is not used in the processing; it is inherent to the natural mineralization of the mineral deposit.

Control and monitoring program

Sheet 5 – Groundwater monitoring plan, levels and quality.

Action or activity: Quarterly samples are taken from each piezometer for analysis of the following parameters: including Mercury.

Sheet 1 – Water quality monitoring of Domestic Wastewater (DWW) discharge and surface waters in the area of influence of the Buriticá gold mine.

Post-consumer waste report: refinery waste resulting from condensation. Mercury is a byproduct of the process; it will not be used in gold beneficiation; it is contained within the rock itself. Mercury is not used in the beneficiation process; it is inherent to the natural mineralization of the mineral deposit.

Sheet 1 – Water quality monitoring of Domestic Wastewater (DWW) discharge and surface waters in the area of influence of the Buriticá gold mine.

Monitoring of metals and metalloids in the receiving streams of the discharge.

Sheet 3 – Monitoring and tracking of sludge generated at the wastewater treatment plant. Measurement of the parameters established in Decree 4741 of 2005 and EPA Rule 503 regarding sludge and those defined for leachate monitoring, including mercury, among other metals.

Sheet 8 – Atmospheric Emissions Monitoring.

Air quality monitoring for operational conditions control at the site called Higabrá, as well as at a location northeast of the Filtered Tailings Deposit. Mercury is reported in the report. Isokinetic monitoring of the stationary source at the Merrill Crowe plant. Mercury is reported.

****Gold mining in the Nechí River basin****

Environmental Management Program.

Sheet MMB10 – Compensation program for intervention in aquatic habitats during alluvial mining operations.

Mercury monitoring in water bodies for fish restocking.

Control and Monitoring Program.

Sheet PGS1 – Environmental Education Program.

Training processes for miners who formally request to begin a responsible mining process as artisanal miners. Mercury and its consequences for health and the environment.

Fact Sheet PMS1 – Water Quality Monitoring Program.

Physicochemical monitoring of natural watercourses three times a year, every four months, during high, low, and transitional water levels. Includes mercury. Monitoring in dredge wreck sites. Includes mercury monitoring in sediments.

Fact Sheet PMS13 – Monitoring and Follow-up Program for the Operational Pond. Monitoring of surface waters, includes mercury.

Fact Sheet PMS15 – Monitoring and Follow-up Program for Nuevo Guamo, El Pital, and El Hojasrascal. Monitoring of surface waters, includes mercury.

PMS10 Fact Sheet – Monitoring of restoration of areas impacted by alluvial operations. Monitoring in surface waters, including mercury.

It is also important to highlight that some of these projects also involve informal mining activities, which can contribute to the release of mercury used by communities to separate gold from the ore.

Research conducted by the Sinchi Institute⁷ describes the sources of mercury releases in the Colombian Amazon, identifying sources such as:

- Artisanal and illegal mining: The main source of mercury emissions in the region is artisanal and illegal gold mining, where mercury is used to amalgamate gold. In these activities, mercury is released during the extraction process, contaminating the environment and water bodies. Studies conducted in different years, such as 1998 and 1999, reported the use of approximately 50 kg of mercury per month in certain areas, and the presence of mining rafts in rivers like the Inírida and Guainía, demonstrating increasing mining activity that contributes to the continuous release of the metal.

- Accumulated spills and historical contamination: Illegal mining activity has led to an accumulation of mercury in the ecosystem for more than thirty years. The presence of rafts and spills in the rivers has generated a significant accumulation of mercury in sediments, amphibians, and aquatic organisms, affecting the health of local communities and wildlife.

- Transformation into organic compounds: An additional source of concern is the transformation of inorganic mercury into organic compounds such as methylmercury, which is much more toxic. This process occurs in the ecosystem, especially when water contaminated by mining activity is subjected to burning or environmental disturbances that facilitate the formation of these compounds. The presence of methylmercury results in severe neurological effects in humans and animals, especially pregnant women and children, a problem that has not yet been fully addressed.

- Other sources of contamination: Although mining is the main source, it is not the only one. Waste

from various population centers and human activities also contribute to mercury contamination in rivers. The disposal of untreated solid and liquid waste in these centers increases the presence of mercury in the environment, affecting the health of local communities.

9.2: Has the party established an inventory of releases from relevant sources within 5 years of entry into force of the convention for it?

- ☒ Yes
- ☐ Relevant sources do not exist in the territory
- ☐ Have not been a party for 5 years
- ☐ No (please explain)

When was the inventory last updated?

November 30, 2025

Please indicate where this inventory is available.

{Empty}

Please explain

<https://www.anla.gov.co/proyectos-anla/centro-de-monitoreo/cm-tableros-control-visualizacion-divulgacion>

<https://www.ideam.gov.co/nuestra-entidad/estudios-ambientales/registros-ambientales/rua/retc>

Part E – Additional comments on this article

9.2. It is important to highlight that in Colombia, the use, import, production, marketing, handling, transport, storage, final disposal, and release into the environment of mercury are prohibited throughout the national territory in all industrial activities, in accordance with Law 1658 of 2013.

Therefore, the ANLA (National Environmental Licensing Authority) prohibits the use of mercury in the processing and beneficiation activities of the projects, works, and activities under its jurisdiction. For authorized gold mining activities, monitoring reports are prepared for each project, included in the MONITORING STRATEGY for the different matrices, specifically for the gold mining projects in the Nechí River basin and the Buriticá Gold Project – Yaraguá Mine Expansion. The frequency of these reports is determined according to the Environmental Compliance Report (ECR).

Note: Monitoring of the water component of the Buriticá Gold Project – Yaraguá Mine Expansion (LAV0029–00–2016) and gold mining in the Nechí River basin (LAM0806). These can be viewed at: <https://www.anla.gov.co/proyectos-anla/centro-de-monitoreo/cm-tableros-control-visualizacion-divulgacion>.

Furthermore, the IIAP Institute conducted research on determining mercury levels in sediment and fish samples from two (2) water sources receiving mining waste. An Action Plan was also developed to comply with Order 5 of Ruling T 622 of 2016, which declares the Atrato River a subject of rights. The following studies are listed:

– Evaluation of total mercury in sediments and fish of the Tanando River, tributary of the Atrato River, IIAP, October 2023. Small-scale artisanal mining activity is carried out in the Tanando River, with the presence of pumps installed in different sectors, where 50% of the species sampled from the water sources exhibited a concentration of Hg-t greater than the 0.5 mg/kg of fresh weight permissible for human consumption, established in resolution number 000122 of 2012 of the Ministry of Health and Social Protection of Colombia (a concentration greater than that set by the FAO/WHO of 0.2 mg/kg). Sediment analyses were also taken at 10 sampling points, yielding results below 140µg/Kg, the equivalent of 0.14mg/kg minimum detectable by the equipment used for this measurement (Permissible limits for the conservation of aquatic life established by Canada (0.094 mg/kg) according to ECMDEPQ, (2007) and the EPA in the United States (0.15 mg/kg)).

– Development of the action plan that complies with order 5a of ruling T 622 of 2016, developed in the Atrato River basin with the communities and stakeholders named and not named in the Constitutional Court's ruling. December 2019. Similarly, mercury monitoring data in water, conducted by Corpourabá at 15 points in the basin, is available, with values ranging from <1 to 3.39 µg Hg/L. Concentrations at 3 of the 15 points exceed the maximum value permitted in Resolution 2115 of 2007 for substances that have adverse effects on human health in water (1 µg Hg/L). The

National Mining Agency (ANM) maintained a registry of 150 mining titles, covering 247,108 hectares as of 2019. Other projects included:

- Evaluation of the physicochemical and ecological quality of the Doña Josefa stream in the municipality of Atrato, Chocó, as an analysis of disturbances caused by human activities, 2023.
- Monitoring of the physicochemical and ecological quality of coastal waters in Turbo Bay – area of influence of the El Waffe stream, 2024.

Similarly, the RUA platform, managed by IDEAM, provides systematic reports related to wastewater discharges and laboratory analyses of these discharges, including specific information on the contaminant mercury.

Finally, over the past five years, the Sinchi Institute has conducted scientific research to help establish a baseline for the presence of total mercury, methylmercury, and its speciation in environmental matrices (water, sediment, and alluvial soil) and biological matrices (fish muscle tissue) in aquatic ecosystems of the Colombian Amazon, both with and without gold mining activity. The results of these assessments are published in section 8.1.

▼ ART. 10: ENVIRONMENTALLY SOUND INTERIM STORAGE OF MERCURY, OTHER THAN WASTE MERCURY

10.1: Has the party taken measures to ensure that the interim storage of non-waste mercury and mercury compounds intended for a use permitted to a party under the Convention is undertaken in an environmentally sound manner?

- ☐ Yes
- ☒ No (please explain)
- ☐ I don't know (please explain)

If no, please explain

Colombia prohibits the use, import, production, marketing, handling, transport, storage, final disposal, and release into the environment of mercury in all industrial activities throughout the national territory, in accordance with Law 1658 of 2013. Therefore, there is no temporary storage of mercury that is not intended for waste or a permitted use.

However, in the course of various judicial activities, it may sometimes be necessary to locate, collect, transport, temporarily store, and dispose of mercury when it has been used in criminal activities.

For the handling and disposal of this waste, primarily used in criminal contexts, the Attorney General's Office developed the "Guide for the Safe Handling of Mercury" (Code: FGN-MP02-G-47), which establishes a suggested procedure for officials who may come into contact with this substance.

Additionally, mercury compounds are controlled under Decree 2133 of 2016, which governs their importation under authorization and marketing registration. Chemical substances in general are regulated under Decree 1496 of 2018, which adopts the Globally Harmonized System (GHS) in Colombia and establishes the mandatory classification and labeling of chemical products, both for industrial and consumer use, as regulated by Resolution 773 of 2021. Likewise, both Decree 1347 of 2021 and Environmental Guide 45 detail infrastructure requirements, compatibility and responsibilities, and storage guidelines to prevent hazardous reactions and major accidents.

Part E – Additional comments on this article

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▼ ART. 11: MERCURY WASTES

11.1: Have measures outlined in article 11, paragraph 3, been implemented for the party's mercury waste?

☒ Yes

☐ No

☒ Yes – the party has taken measures so that mercury waste is managed in an environmentally sound manner

Please describe measure and effectiveness of measures

Colombia has a robust legal framework for hazardous waste management through the implementation of its Environmental Policies for Hazardous Waste Management, the current version of which includes an action plan for 2022–2023. These policy documents are available at the following link: <https://quimicos.minambiente.gov.co/respel-politica-implementacion/>.

The general regulatory framework for hazardous waste (RESPEL) is established by Decree 4741 of 2005 (compiled in Title VI of Decree 1076 of 2015), which defines the prevention, handling, and final management of hazardous waste (RESPEL) in Colombia. It defines the principles, responsibilities, and procedures for its comprehensive management, from generation to disposal, in order to minimize risks to human health and the environment. Furthermore, it establishes the obligations of generators, transporters, and managers of hazardous waste, as well as the requirements for its registration and handling under safety and traceability standards.

Within its scope, the decree includes mercury and its compounds as hazardous waste. Therefore, activities that generate waste containing mercury—such as mining, the electrical industry, dentistry, and laboratories—must implement specific measures for its temporary storage, treatment, and final disposal under controlled conditions. The objective is to prevent the release of mercury into the environment, especially into water and soil, where it can transform into highly toxic forms such as methylmercury.

Within the framework of this regulation, there is a registry of hazardous waste generators (currently included in the RUA–RETC) that allows for tracking the generation of this waste by different establishments in the country's economic sectors, including mercury-related waste.

In fact, Colombia has broken down the Y29 Mercury Waste and Mercury Compounds stream to provide more detail on the type of waste generated and managed (2024 results are not reported, as these are consolidated and published by IDEAM in December 2025).

Table 4. Mercury Waste and Mercury Compounds

Code Y29.1.

Hazardous Waste Type Y29 – A4060: Waste consisting of mercury or mercury compounds (e.g., metallic mercury, mercury chloride waste, mercury sulfide).

2023 Generation: 17 tons, equivalent to 4%.

2022 Generation: 13 tons.

Recovery: 24%.

Treatment: 17%.

Final Disposal: 59%.

Code Y29.2.

Hazardous Waste Type Y29 – A4060: Waste containing mercury such as lamps, dental amalgam, and pressure gauges.

Generation 2023: 240 tons, equivalent to 59%.

2022 Generation: 325 tons.

Recovery: 60%.

Treatment: 6%.

Final Disposal: 34%.

Code Y29.3.

Hazardous Waste Type Y29 – A4060: Mercury-contaminated waste such as soil or tailings.

2023 Generation: 149 tons, equivalent to 37%.

2022 Generation: 193 tons.

Recovery: 0%.

Treatment: 0%.

Final Disposal: 100%.

Total Y29 – A4060 Waste.

Total 2023 Generation: 406 tons, equivalent to 11%.

Total 2022 Generation: 531 tons.

Total Recovery: 33%.

Total Treatment: 11%.

Total Final Disposal: 56%.

Source: IDEAM: National Report on Hazardous Waste 2023, available at the following link:

<https://quimicos.minambiente.gov.co/respel-documentos-enlaces-interes-2/>.

Hazardous waste (including mercury waste) must be managed through facilities with an environmental license. The complete list of these facilities can be found at the following link:

<http://rua-respel.ideam.gov.co/respelpr2009/mapa.php>.

According to the Hazardous Waste Generators Registry database, 918.07 tons of waste was generated in stream Y29 in 2021.

Similarly, the following streams are reported:

Table 5. Waste electrical and electronic equipment that may have added mercury

A1010 Metallic waste and waste containing alloys of any of the following substances: Antimony, Arsenic, Beryllium, Cadmium, Lead, Mercury, Selenium, Tellurium, Thallium

In tonnes: 2021: 12,727.89; 2022: 445.43; 2023: 289.74

A1180 Waste electrical and electronic assemblies or remains thereof containing components such as accumulators and other batteries included in List A, mercury switches, cathode ray tube glass and other activated glass and PCB capacitors, or contaminated with constituents of Annex I (e.g. cadmium, mercury, lead, polychlorinated biphenyl)

In tonnes: 2021: 2,777.24; 2022: 2,862.33; 2023: 3,107.54

Source: IDEAM, RUA Manufacturing.

In general, the report is primarily due to mercury-containing light fixtures and waste electrical and electronic equipment (WEEE) from authorized collection systems. Only one establishment reports COD vials, which correspond to those containing small volumes of mercuric sulfate used to determine this parameter. It is clarified that other economic activities also report this type of hazardous waste.

☐ Yes – the party has taken measures so that mercury waste is recovered, recycled, reclaimed or directly re-used for a use allowed to a party under the Convention or for environmentally sound disposal pursuant to paragraph 3 (a)

☐ Yes – the party has taken measures so that mercury waste is not transported across international boundaries except for the purpose of environmentally sound disposal

If the party answered yes to any measures above, please describe the measures implemented pursuant to paragraph 3, and please also describe the effectiveness of those measures.

Colombia has a robust legal framework for hazardous waste management through the implementation of its Environmental Policies for Hazardous Waste Management, the current version of which includes an action plan for 2022–2023. These policy documents are available at the following link: <https://quimicos.minambiente.gov.co/respel-politica-implementacion/>.

The general regulatory framework for hazardous waste (RESPEL) is established by Decree 4741 of 2005 (compiled in Title VI of Decree 1076 of 2015), which defines the prevention, handling, and final management of hazardous waste (RESPEL) in Colombia. It defines the principles, responsibilities, and procedures for its comprehensive management, from generation to disposal, in order to minimize risks to human health and the environment. Furthermore, it establishes the obligations of generators, transporters, and managers of hazardous waste, as well as the requirements for its registration and handling under safety and traceability standards.

Within its scope, the decree includes mercury and its compounds as hazardous waste. Therefore, activities that generate waste containing mercury—such as mining, the electrical industry, dentistry,

and laboratories—must implement specific measures for its temporary storage, treatment, and final disposal under controlled conditions. The objective is to prevent the release of mercury into the environment, especially into water and soil, where it can transform into highly toxic forms such as methylmercury.

Within the framework of this regulation, there is a registry of hazardous waste generators (currently included in the RUA–RETC) that allows for tracking the generation of this waste by different establishments in the country's economic sectors, including mercury-related waste.

In fact, Colombia has broken down the Y29 Mercury Waste and Mercury Compounds stream to provide more detail on the type of waste generated and managed (2024 results are not reported, as these are consolidated and published by IDEAM in December 2025).

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Recovery: 24%.

Treatment: 17%.

Final Disposal: 59%.

Code Y29.2.

Hazardous Waste Type Y29 – A4060: Waste containing mercury such as lamps, dental amalgam, and pressure gauges.

Generation 2023: 240 tons, equivalent to 59%.

2022 Generation: 325 tons.

Recovery: 60%.

Treatment: 6%.

Final Disposal: 34%.

Code Y29.3.

Hazardous Waste Type Y29 – A4060: Mercury-contaminated waste such as soil or tailings.

2023 Generation: 149 tons, equivalent to 37%.

2022 Generation: 193 tons.

Recovery: 0%.

Treatment: 0%.

Final Disposal: 100%.

Total Y29 – A4060 Waste.

Total 2023 Generation: 406 tons, equivalent to 11%.

Total 2022 Generation: 531 tons.

Total Recovery: 33%.

Total Treatment: 11%.

Total Final Disposal: 56%.

Source: IDEAM: National Report on Hazardous Waste 2023, available at the following link:

<https://quimicos.minambiente.gov.co/respel-documentos-enlaces-interes-2/>.

Hazardous waste (including mercury waste) must be managed through facilities with an environmental license. The complete list of these facilities can be found at the following link: <http://rua-respel.ideam.gov.co/respelpr2009/mapa.php>.

According to the Hazardous Waste Generators Registry database, 918.07 tons of waste was generated in stream Y29 in 2021.

Similarly, the following streams are reported:

Table 5. Waste electrical and electronic equipment that may have added mercury

A1010 Metallic waste and waste containing alloys of any of the following substances: Antimony, Arsenic, Beryllium, Cadmium, Lead, Mercury, Selenium, Tellurium, Thallium

In tonnes: 2021: 12,727.89; 2022: 445.43; 2023: 289.74

A1180 Waste electrical and electronic assemblies or remains thereof containing components such as accumulators and other batteries included in List A, mercury switches, cathode ray tube glass and

other activated glass and PCB capacitors, or contaminated with constituents of Annex I (e.g. cadmium, mercury, lead, polychlorinated biphenyl)

In tonnes: 2021: 2,777.24; 2022: 2,862.33; 2023: 3,107.54

Source: IDEAM, RUA Manufacturing.

In general, the report is primarily due to mercury-containing light fixtures and waste electrical and electronic equipment (WEEE) from authorized collection systems. Only one establishment reports COD vials, which correspond to those containing small volumes of mercuric sulfate used to determine this parameter. It is clarified that other economic activities also report this type of hazardous waste.

11.2: *Are there facilities for final disposal of waste consisting of mercury or mercury compounds in the party's territory?

☒ Yes

☐ No

☐ I don't know (please explain)

If the party answered yes to any measures above, please select from the following

☒ Yes – there are facilities in the party's territory

☐ Yes – there are facilities outside the party's territory accessible to the party (in accordance with paragraph 5 of article 11)

If there are facilities in the party's territory and if the information is available, how much waste consisting of mercury or mercury compounds has been subject to final disposal under the reporting period? Please specify the method of the final disposal operation/operations. If the party does not have specific data on waste consisting of mercury or mercury compounds, the party may report on the data including other mercury waste, with an explanatory note.

Hazardous waste (including mercury waste) must be managed through facilities with an environmental license. A complete list of these facilities can be found at the following link: <http://rua-respel.ideam.gov.co/respelpr2009/mapa.php>.

For Y29 mercury waste, Colombia has 39 waste management companies with the capacity to perform any of the following activities: storage, treatment, or final disposal of mercury waste. Source: <http://rua-respel.ideam.gov.co/respelpr2009/mapa.php>. The quantities managed were mentioned in question 11.1.

The final disposal method for mercury waste is carried out in landfills or secure cells, taking into account prior conditioning and stabilization operations, before being confined in the licensed cell.

Kindly attach any additional relevant information

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Part E – Additional comments on this article

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▼ ART. 12: CONTAMINATED SITES

12.1: Has the party endeavoured to develop strategies for identifying and assessing sites contaminated by mercury or mercury compounds in its territory?

☒ Yes

☐ No

Please elaborate

Among the activities carried out by the country are:

Strengthening the skills and competencies of professionals who perform monitoring and control

activities in gold processing plants. The National Mining Agency (ANM) signed a letter of intent with the organization PURE EARTH, which led the training workshop "Identification of Heavy Metals and Use of Equipment for the Detection of Mercury and Other Metals." This training focused on learning heavy metal identification techniques and the operation of specialized equipment for detecting heavy metals such as mercury. The first part was held virtually on October 18, 2024, for more than 70 professionals who carry out oversight activities at regional service points in Medellín, Pasto, Quibdó, Bucaramanga, Manizales, and other cities. The second part was conducted in person through practical training on October 23, 30, and November 27 at the ANM's Regional Service Points (PAR) and the Regional Autonomous Corporations of Valle del Cauca, Nariño, and Tolima, respectively. (See link <https://www.anm.gov.co/?q=node/63190"%3B>%3BL>).

Analysis and characterization of contaminated sites. In response, inter-institutional agreements have been developed, such as

the one between the Ministry of Mines and Energy and the University of Córdoba, which, since 2024, has been conducting the analysis of mineral and mercury concentrations in tailings and hotspots, as well as identifying opportunities for secondary use under Cleaner Production (CP) techniques and mercury recovery in tailings in the municipalities of Buenos Aires, Guapi and Timbiquí (Cauca), Atrato – Yuto, Cértegui and Lloró (Chocó) and Andes – Sotomayor, La Llanada and Mallama (Nariño).

Similarly, the Sinchi Institute signed an agreement with the Biodiversity Research Institute (BRI – USA), in order to assess emerging threats to wildlife and ecosystems through collaborative research to build a standardized methodological route to evaluate and understand the flow of mercury in ecosystems impacted by mining through the use of bioindicators, where the presence of mercury will be evaluated in birds, fish and bats from recent catches on the Colombian Coast.

Geometallurgical studies are also being conducted by the Colombian Geological Survey's Laboratory Directorate. These studies aim to explore gold extraction methods that avoid the use of toxic substances such as mercury and cyanide. They include a chemical–environmental characterization of mercury in soils, sediments, water, and tailings, as well as TCLP testing in Vetás, California, and Suratá, Santander; Santa Isabel and Líbano in the department of Tolima in 2021; Puerto Berrio, San Roque, and Santodomingo in the department of Antioquia in 2022; and El Bagre, Antioquia in 2023 and 2024.

Additionally, geochemical sampling of surface and drinking water and active stream sediments is being carried out to determine the concentration and distribution of mercury and other potentially hazardous elements in the municipalities of Aranzazu, Filadelfia, Salamina, Pácora, and Aguadas (department of Caldas). This will help assess the geochemical health risks (GHRs) to the population related to these elements. Occurrences and manifestations of natural mercury by the Environmental Geochemistry and Medical Geology Group (Directorate of Mineral Resources) for the years 2023–2024.

Since 2024, the Sinchi Institute has conducted scientific research to generate a baseline on the presence of total mercury, methylmercury and its speciation in environmental matrices (water, sediment and alluvial soil) and biological matrices (fish muscle tissue) in aquatic ecosystems of the Colombian Amazon, already described in section 8.1.

Regulation on environmental liabilities. In accordance with the provisions of Law 2327 of 2023, whose Article 2 defines an environmental liability as “(...) environmental impacts caused by human activities, directly or indirectly, authorized or not, cumulative or not, measurable, locatable, and geographically delimitable, which generate an unacceptable level of risk to life, human health, or the environment (...)”, the Ministry of Environment and Sustainable Development has formulated the Strategy for the Management of Environmental Liabilities, established as a Technical Procedures Manual. This Strategy is conceived as a dynamic tool that outlines the activities to be carried out within the framework of environmental liability management.

This set of activities encompasses everything from the initial suspicion regarding a specific area with a potential impact that generates an unacceptable level of risk, through intervention and subsequent verification. This management process involves identifying the factors that generate the risk and the impact, as well as formulating and implementing remediation, isolation, rehabilitation, or restoration measures aimed at reducing the risk to life, human health, and the environment. In this sense, environmental liability management is carried out through seven (7) stages:

- (i) Identification based on suspicion,
- (ii) Characterization or preliminary analysis,
- (iii) Risk assessment or detailed analysis ,
- (iv) Declaration and registration in the REPA (Registry of Environmental Liabilities),
- (v) Analysis of responsibility for the intervention,
- (vi) Intervention, and
- (vii) Verification.

It is important to note that an environmental liability can be declared due to impacts resulting from the presence of mercury in environmental components, originating from human activities and representing a potential risk to human health or the environment. In this regard, the Strategy for the Management of Environmental Liabilities may be applied under these circumstances.

Furthermore, within the framework of the regulatory development of the aforementioned Law, and with the purpose of guiding investigations aimed at identifying and verifying environmental liabilities through a robust methodology that yields results supported by analytical data and objective evidence, the Ministry of Environment and Sustainable Development, in collaboration with the Ministry of Health and Social Protection, is developing, through a methodological guide, guidelines for assessing the chemical risk arising from the presence of chemical substances in environmental components as a consequence of human activities. Within the framework of these guidelines, Generic Risk-Based Limits are being defined for various substances, including mercury.

Similarly, in 2023, as part of the development of procedures and analyses for suspected environmental liabilities, the possibility of using satellite images, and especially multispectral sensor technology, was reviewed in the preliminary stage. This analysis corresponds to the document "Technical proposal that allows the interpretation of satellite photographs as input for the preliminary analysis of sites suspected of being environmental liabilities."

Part E – Additional comments on this article

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▼ ART. 13: FINANCIAL RESOURCES AND MECHANISM

13.1: Has the party undertaken to provide, within its capabilities, resources in respect of those national activities that are intended to implement the Convention in accordance with its national policies, priorities, plans and programs?

☒ Yes

☐ No

Please specify

In Colombia, resources have been provided both locally and through international support to achieve the objectives of the agreement. Some examples are cited below:

The Technical Assistance program of the Development Group of the Vice Presidency of Promotion and Development of the National Mining Agency provides mining projects and communities, categorized as small and medium-sized mining and the different entities in the process of formalization and/or legalization, with support activities and specialized technical assistance in the geological, mining, environmental, business-financial, social and legal components, under an organizational approach according to the characteristics of the territories.

Each component is led by a qualified professional, who in turn forms groups of six experts in each area. Each group is assigned to a region or department with gold mining operations, as follows:

Cauca and Nariño,
Chocó
, Manizales and Tolima,

Antioquia
, Bolívar,
and Santander.

The Association Program of the Promotion and Development Vice Presidency's Development Group seeks to strengthen associative organizations, fostering integration among individuals or groups engaged in small-scale mining as an economic activity. This contributes to the formalization of sustainable mining in communities defined according to national government policies. The program focuses on groups of formalized small-scale miners and communities transitioning to mining formalization. Since 2024, the Promotion and Development Vice Presidency's Development Group has had three professionals dedicated to carrying out association strengthening activities in accordance with the registration process for the various mining groups in each region.

Inter-administrative Agreement No. 608 of 2023: Agreement signed between the National Mining Agency and the National University of Colombia, Medellín campus. Purpose: "To join efforts for the development and implementation of a strategy of associative systems for the sustainable consolidation of mining and productive transformation in mining communities." During the execution of the agreement, an associative characterization of mining communities was carried out, along with the projection of a strategic and operational mining plan. These inputs serve as a baseline for the implementation of associativity projects in different regions.

The Vice Presidency for Promotion and Development of the National Mining Agency (ANM) is conducting activities in the regions to guide and inform individuals and communities engaged in small-scale mining, as well as those undergoing formalization and/or legalization processes. These initiatives are called Workshops on Best Practices, Association, and Mining Formalization, and include the establishment of Local Service Points in the regions. These workshops target priority communities in areas where small-scale gold mining takes place. These activities were carried out in the field during 2023 and 2024 in the municipalities of Tarazá, Caucasia, Zaragoza, and El Bagre (Antioquia); Marmato (Caldas); Barbacoas (Nariño); Guapi and Santander de Quilichao (Cauca); and Quibdó, Magüí Payán, Roberto Payán, Istmina, Río Quito, Medio Atrato (Beté), and Unión Panamericana (Chocó).

Under the leadership of the Ministry of Mines and Energy, and within the framework of the National Action Plan for Artisanal and Small-Scale Mining (ASM), actions have been underway in accordance with its responsibilities and with resources allocated in investment projects to fulfill the various strategies outlined, such as:

training for small-scale and subsistence miners with support from SENA (National Learning Service);

and resources for the development of guides by the Colombian Geological Survey to continue characterizing deposits in geological, mineralogical, and metallurgical aspects, focusing on gold recovery without the use of mercury in the departments of Bolívar, Chocó, and Antioquia.

International Cooperation: "Planet GOLD" project – funds provided by the Global Environment Facility (GEF) for the project "Integrated Management for Mercury Elimination from Small-Scale and Subsistence Mining in Colombia," focused on 11 municipalities in the departments of Antioquia, Bolívar, and Cauca, with a five-year duration, beginning operations in 2019.

International Cooperation: COMUNICA, by the Agre Team Foundation with the Canadian government, seeking knowledge management, education, and communication, resulting in the e-learning course "Challenges and Actions for Integrated Mercury Management in Colombia."

Creation of the Mining Learning Center, an e-learning strategy of the Ministry of Mines and Energy aimed at applying the best standards in the mining sector.

Promotion of project submissions to the General Royalties System, a financing instrument with three (3) options for submitting projects to promote mining in three areas:

- i) Strengthening infrastructure for the provision of mining promotion services.
- ii) Construction of community plants for the processing of gold ore
- iii) Development of a methodological guide for improving productivity in the gold ore processing stage.

Access to state resources for territorial entities that have identified low levels of clean gold ore production in mining operations to improve environmental conditions and optimize the use of gold ore in their territories through the design of a model project for technological conversion and productivity improvement.

Agreements for tailings characterization, secondary use, and mercury recovery through inter-institutional agreements such as the one developed with the University of Córdoba.

Support from the Swiss government for projects with gold miners in the 2024–2025 fiscal years.

The Sinchi Institute through the project "Transformative Scientific Research to Enhance Well-being, Conservation, and Environmental Governance in the Colombian Amazon." The departments of Amazonas, Caquetá, Guainía, Guaviare, Meta, Putumayo, and Vaupés receive funding from the National General Budget (PGN), part of which is allocated to actions that contribute to generating information on the physicochemical and microbiological quality of water, aquatic biodiversity, and the quantification of heavy metals, specifically mercury (Hg), in environmental matrices and fish.

The GEF project, aimed at "Accelerating compliance with the Minamata Convention through a better understanding and control of mercury trade in Latin America," has been managed during the reporting period, and its agreements will be finalized in 2025 for implementation until 2027.

13.2: Supplemental: Has the party, within its capabilities, contributed to the mechanism referred to in paragraph 5 of article 13?

☐ Yes

☒ No

Please provide comments, if any.

It does not apply because the question is whether the country has contributed to the Mechanism to facilitate financial resources to support developing countries

13.3: Supplemental: Has the party provided financial resources to assist developing-country parties and/or parties with economies in transition in the implementation of the Convention through other bilateral, regional and multilateral sources or channels?

☐ Yes

☒ No

Please specify

This does not apply because the question is whether the country has provided financial resources to assist developing countries through bilateral, regional, and multilateral channels.

Please provide comments, if any.

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Part E – Additional comments on this article

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▼ ART. 14: CAPACITY-BUILDING, TECHNICAL ASSISTANCE AND TECHNOLOGY TRANSFER

14.1: Has the party cooperated to provide capacity-building or technical assistance, pursuant to article 14, to another party to the Convention?

☒ Yes

☐ No

Please specify

The country has developed and participated in various events and activities to share its experience on mercury-related issues. These include:

At an international event in Bolivia, the Ministry of Mines and Energy presented the paper “Towards Responsible and Mercury-Free Gold Mining in Colombia.” This presentation provided context and historical background on the socio-environmental problems surrounding mercury use in artisanal and small-scale mining (ASM) in Colombia, identifying its sources through research studies and outlining best practices for gold separation without mercury.

Through the GEF project “Accelerating Compliance with the Minamata Convention through a Better Understanding and Control of Mercury Trade in Latin America,” the aim is to strengthen regional cooperation towards better control of major mercury flows by developing coordinated strategies among Bolivia, Colombia, Ecuador, Honduras, Mexico, and Peru.

14.2: Supplemental: Has the party received capacity-building or technical assistance pursuant to article 14?

☒ Yes

☐ No

Please specify

YEAH. The following describes the technical assistance the country has received under the Minamata Convention:

Several projects have been developed with PlanetGOLD, including training on formalization for 266 miners in the Bajo Cauca region, 128 miners in the Northeast region of Antioquia, and 306 miners in the Cauca region, as well as training on the use of clean technologies for gold processing for 123 miners in the Bajo Cauca region of Antioquia (Caucasia, Cáceres, and El Bagre), all in 2021.

Through funds provided by the GEF, the project "Integrated Management for the Elimination of Mercury from Small-Scale and Subsistence Mining in Colombia" was developed. Its objective was to eliminate and/or prevent the use of 20 tons of mercury in the subsistence and small-scale mining sector, located in 11 municipalities in the departments of Antioquia, Bolívar, and Cauca. This project had a duration of 5 years, beginning Actions in 2019.

In 2022, more than 57 women artisanal miners, peace activists from the municipality of Suarez, received training and knowledge in the use of clean technologies through the PlanetGOLD project. This included a mercury-free gold processing plant for clean production, which they can operate using a mobile plant that concentrates gold solely with water, gravity, and centrifugal force.

The National Mining Agency (ANM) received the knowledge and experience of the PlanetGOLD project through funding from the Global Environment Facility (GEF) in 2024, donating scale models of equipment used in gold processing, such as a fines hopper, conveyor belt, flotation cell, centrifugal concentrator, separator table, Chilean mill, ball mill, magnetic separator, agitator, and precipitation tank. These educational tools are used to disseminate knowledge about clean technologies that replace mercury use and their effectiveness to small-scale mining communities in a pedagogical manner.

The Ministry of Mines and Energy, in collaboration with the German international cooperation agency GIZ, conducted two (2) training workshops on technical policy guidelines for best practices regarding tailings dams. These workshops, aimed at public entities in the mining sector, mining companies, trade associations, and titleholders, took place on November 16 and 18, 2021.

In 2022, the Directorate of Mining Formalization established alliances with international partners. Through agreements and strategies, three cooperation programs were developed: Horizonte Minero – USAID, the Swiss Responsible Gold Initiative, and the GEF-funded international cooperation project – PlanetGOLD – UNDP.

SWISS RESPONSIBLE GOLD INITIATIVE The overall objective of the Swiss Responsible Gold Initiative is to reduce poverty and improve the productive, environmental, and social conditions under which artisanal and small-scale gold mining (ASM) takes place in Colombia, mitigating the effects of climate change. This resulted in the design and creation of two online courses in partnership with the Comunica program, the Ministry of Energy, the Ministry of Environment, the Ministry of Health, and SENA (National Learning Service).

MINING HORIZON PROJECT – USAID: OBJECTIVE Technical assistance from the Government of Colombia to strengthen the formalization of the mining sector and train miners in best practices. This resulted in a learning platform: Creation of ten (10) new online training modules.

MINING LEARNING CENTER: The Mining Learning Center offers a catalog of 220 programs.

In 2024, two knowledge transfer and technical assistance initiatives were organized and developed: a webinar and an in-person training session in Bogotá on Contaminated Site Assessment. The webinar was supported by the U.S. government and several agencies, facilitating the transfer of knowledge and technical assistance related to personal protective equipment, portable air monitoring equipment, radiation detection and safety, Lumex and Hermes mercury monitoring, the portable fluorescent X-ray analyzer, site assessment and risk assessment, and mercury emission measurement and monitoring. The goal was to strengthen national technical capacities within the framework of integrated mercury management. Topics related to asbestos and oil contamination were also included.

During this first day of training, 38 hours of instruction were certified, with the participation of representatives from Peru, Costa Rica, the United States, Bolivia, and Colombia. Colombian participants included representatives from environmental authorities (16), National Natural Parks, IDEAM, SINCHI, IIAP, and IAVH, the Attorney General's Office, the Senate, the Army, the National Police, the Prosecutor's Office, the Ministry of Health and Social Protection, the Ministry of Mines and Energy, the Ministry of Agriculture, UPRA, academia, WWF, USAID, and other consultants.

The second knowledge transfer and technical assistance workshop took place between May 27 and 30, 2024, with the participation of experts from the United States Environmental Protection Agency (US EPA). This workshop addressed practical and conceptual topics such as contaminated site assessment, Law 2327 of 2023 (Colombia), and mercury contamination review and measurement. The sessions included presentations by US EPA technical experts such as Dr. Duane Newell and Dr. Molly Patterson, among others.

Equipment used during the workshop included the MultiRAE Pro, the Ohio Lumex (mercury vapor analyzer), the Ludlum (field radiation monitoring equipment), and the Delta XRF Analyzer (a portable X-ray fluorescence (XRF) analyzer used to identify and quantify elements in a wide range of materials).

Please provide comments, if any.

{Empty}

14.3: Has the party promoted and facilitated the development, transfer and diffusion of and access to, up-to-date environmentally sound alternative technologies?

☐ Yes

☒ No

☐ Other

Please specify

It does not apply because the question is whether the country has provided technical capacity to other countries.

Part E – Additional comments on this article

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▼ ART. 16: HEALTH ASPECTS

16.1: Have measures been taken to provide information to the public on exposure to mercury in accordance with paragraph 1 of article 16?

☒ Yes

☐ No

Supplemental: If yes, describe the measures that have been taken.

Colombia has implemented educational programs aimed at eliminating mercury exposure, primarily in the context of technology transitions, the effects of mercury exposure, and prevention in mining activities.

Within the framework of the GEF-funded "Planet GOLD" project, "Integrated Management for Mercury Elimination from Small-Scale and Subsistence Mining in Colombia," strategies and programs were promoted to identify and protect at-risk populations, especially those vulnerable to the effects of mercury in mining, in 11 municipalities across 3 departments.

Training campaigns were conducted in the department of Chocó during 2023–2024 to promote the prevention of occupational risks and illnesses. These "Safe Miner Has a Future" workshops, developed by the Occupational Risk Management Directorate, took place in Quibdó, Atrato, Istmina, and Unión Panamericana. The workshops provided in-person training to mine workers on topics such as risk identification and assessment, occupational diseases, and the Occupational Health and Safety Management System (OHSMS). Employers and stakeholders from the general occupational risk system participated through national, departmental, and municipal institutional coordination.

In 2023, over 1,000 gold mining workers across the country received training in municipalities such as Marmato and Riosucio, Caldas, focusing on priority risks and hazardous chemicals.

In the first half of 2024, the Occupational Risk Management Directorate held a workshop titled "Safe Mining Has a Future" in Marmato, Caldas, one of the priority municipalities within the Small-Scale Mining (MASE) program. The workshop, held on May 7, 2024, was attended by 60 people and served to present the MAPE plan to local artisanal gold miners.

Additionally, the Occupational Risk Management Directorate and the Directorate of Inspection, Surveillance, Control, and Territorial Management of the Ministry of Labor carried out actions to identify risks and verify workers' exposure to mercury, in accordance with the obligations and responsibilities of the stakeholders in the Occupational Health and Safety Management System (SGSST). Actions such as virtual training on topics such as Mercury poisoning in work environments (June 2021), Mitigation of risks derived from mercury (July 2021), Webinar Good practices for occupational safety and health in the mining sector for Gold Companies (August 2022), Mining (May 2023), Globally Harmonized System GHS (August 2023) (Mercury Action Plan Work Sector 2018–2023 (Excerpt of response given to the Attorney General's Office).

Two macro-regional meetings have been held nationwide to train stakeholders involved in the processes of identifying, characterizing, and providing care to vulnerable children and adolescents, through the development of a diagnostic assessment. These events, which reached more than 300 people, are part of an intersectoral collaboration effort, supported by the Bancolombia Foundation and Aurelio Llano, and in partnership with the Directorate of Occupational Risks. The objective is to strengthen the capacities of key stakeholders in the protection of working adolescents, ensuring comprehensive and effective intervention.

Between 2018 and 2023, the Ministry of Labor identified companies in the formal sector that use mercury in their production activities. It also monitored and controlled the light bulb manufacturer Havells Sylvania Colombia, which was found responsible for exposing seven of its employees to mercury vapor. Likewise, in 2021, information on worker exposure to mercury and lead was compiled based on data provided by Occupational Risk Insurers, and a report on worker exposure to mercury in the mining sector was prepared.

Source: Directorate of Occupational Risks, Consolidated Excel Spreadsheet on Hg and Pb Exposure, May 2021.

According to the database submitted by the Occupational Risk Insurers in 2021, the activity with the highest number of exposed workers is precious metals mining, with 5,731 workers. (Source: Directorate of Occupational Risks, Consolidated Excel Spreadsheet on Hg and Pb Exposure, May 2021).

The department with the highest number of workers exposed to mercury in this case is Antioquia, with 2,832 workers in precious metals mining, followed by 1,159 workers in outpatient dental care and treatment.

The second department with workers exposed to mercury is Cauca, with 482 workers in precious metal mining, followed by 15 workers in companies dedicated exclusively to galvanizing, nickel plating, and chrome plating.

The third department with workers exposed to mercury is Caldas, with 470 workers in precious metal mining, followed by 105 workers in dental outpatient clinics providing consultations and treatments.

16.2: Have any measures been taken to protect human health in accordance with article 16 beyond the provision of information to the public on exposure to mercury (referred to in question 16.1)?

☒ Yes

☐ No

Supplemental: If yes, describe the measures that have been taken.

As part of the “Planet GOLD” project—with international cooperation from the Global Environment Facility (GEF) in partnership with the Ministry of Mines and Energy, the “Integrated Management for Mercury Elimination from Small-Scale and Subsistence Mining in Colombia” survey on job retraining was conducted in the department of Chocó, specifically in the municipalities of Quibdó, Atrato (Yuto), Istmina, and Unión Panamericana, during October and November 2024. Thirty-one participants with the potential to enter the job retraining program were surveyed; 61% of them were between 18 and 39 years old, and 58% were female. The results of this survey led to the creation of a guidelines document for managing social participation and mobilizing communities and organizations regarding issues related to small-scale and subsistence mining.

In order to strengthen the characterization of children, youth, women, and pregnant women working in artisanal and small-scale gold mining (ASGM), evaluate current regulations, identify gaps related to child labor, forced labor, and human rights violations, and protect vulnerable populations affected by ASGM, technical assistance was provided. The vulnerable population included children and communities with Indigenous and Afro-descendant settlements, creating an ethnic differential in their exposure to the socio-environmental impacts of this type of mining. Health effects from mercury exposure have been documented, considered a high health risk according to the World Health Organization (WHO, 2016).

Progress has been made in developing the Targeting Guide for the Socioeconomic Diagnosis of Areas Affected by Child Labor at the Municipal Level, which aims to identify and analyze the areas affected by child labor. This process will be carried out through the SIRITII platform, a tool that will allow for the collection and processing of key data for precise targeting aimed at improving socioeconomic conditions in the most vulnerable areas. Within the reporting system, all municipalities in the prioritized departments are invited to participate in the various technical assistance sessions that will enable the creation of user accounts, review of diagnoses, and the targeting of children and adolescents within the SIRITI platform. As part of the actions undertaken with the Ecuadorian team within the framework of binational cooperation, a survey format was jointly created and applied in 2024 in the border region between Colombia and Ecuador.

The Labor Protection Sub-Directorate held National CIETI Committee meetings in Apartadó in 2024, providing technical guidelines for developing strategies to prevent and eradicate child labor. Technical assistance was also provided in the departments of Chocó and Nariño to strengthen the capacity of local committees to collect and process relevant data. This will allow for a better understanding and response to the problem in these regions, as well as ensure the accuracy and quality of information on child protection.

Technical assistance is being provided to all municipalities in the department of Nariño, in accordance with the Public Policy on Child Labor. Coordination is also underway with the education secretaries of the municipalities of La Llanada, Santa Cruz, and Samaniego to provide specific assistance related to mining work. Similarly, technical assistance is being provided to mining workers in the priority municipalities of Chocó (Quibdó and Atrato (Yuto)).

The Ministry of Labor is holding technical meetings with various sectors to contribute to the modification of Resolution 1796 of 2018 regarding hazardous work, as well as the creation of a draft decree for Chapter X of Title 9 of Part 2 of Book 2 of Decree 1072 of 2015, the unified decree for the health sector. The Ministry is also adopting the “Public Policy for the Prevention and

In 2024, within the framework of the "Safe Mining Has a Future" workshops, the issue of gender equality was addressed, and work was carried out in the department of Chocó with artisanal gold miners. The ancestral technique for separating gold without the use of mercury was promoted in Unión Panamericana with women artisanal gold miners in the department of Chocó.

Part E – Additional comments on this article

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▼ ART. 17: INFORMATION EXCHANGE

17.1: Has the party facilitated the exchange of information referred to in article 17, paragraph 1?

☒ Yes

☐ No

If yes, the Party may wish to indicate in the space provided below the exchange of information it has facilitated, such as:

☒ Scientific, technical, economic and legal information concerning mercury and mercury compounds, including toxicological, ecotoxicological and safety information

Scientific, technical, economic and legal information concerning mercury and mercury compounds, including toxicological, ecotoxicological and safety information

There is also an exchange of scientific information on mercury ecotoxicity through an inter-institutional agreement between the Sinchi Institute and the Biodiversity Research Institute (BRI – USA), a US non-governmental organization whose purpose is to assess emerging threats to wildlife and ecosystems through collaborative research. With the objective of “combining technical, administrative, and financial efforts in the technical and scientific training of BRI staff at the Humboldt Institute to build a standardized methodological approach for evaluating and understanding mercury flow in ecosystems impacted by mining through the use of bioindicators,” a pilot project will be developed in the Caribbean region of the country, where the presence of mercury will be evaluated in birds, fish, and bats from recent catches, as well as in specimens from the Humboldt Institute’s biological collections on the Colombian coast.

☒ Information on the reduction or elimination of the production, use, trade, emissions and releases of mercury and mercury compounds

Information on the reduction or elimination of the production, use, trade, emissions and releases of mercury and mercury compounds

Colombia has been prepared to facilitate the exchange of information to protect human health and the environment from mercury emissions and its compounds. Accordingly, it has participated in various initiatives and cooperation projects at the regional and international levels.

Since 2019, the Andean Community countries (Bolivia, Colombia, Ecuador, and Peru) have been working together to exchange information on the production, import, export, trade, transport, and use of elemental mercury within the framework of the Andean Mercury Observatory, established by Regulation 844 of 2019 and regulated nationally by Resolution 2197 of 2021.

Regional exchange platforms have been developed, such as the binational cooperation with Ecuador on characterizing vulnerable populations exposed to mercury, with applications to transboundary territories. This has been made visible on the SIRITI platform for children and adolescents. A presentation titled “Towards Responsible and Mercury-Free Gold Mining in Colombia” was given at an international event in Bolivia. The Colombian Ministry of Mines and Energy provided context and historical background on the socio-environmental issues surrounding mercury use in artisanal and small-scale mining (ASM), identifying its sources through research studies and outlining best practices for gold separation without mercury.

Furthermore, through participation in international cooperation projects, Colombia has sought to

exchange information to facilitate the achievement of the Convention's objectives. For example, the Integrated Management of the Putumayo–Içá River Basin project aims to promote the integrated management of natural resources in the Putumayo–Içá River Basin, shared by Brazil, Colombia, Ecuador, and Peru. This project focuses on governance, informed and participatory decision-making capacity, and the management of key interventions aimed at shared and integrated basin management, and has been actively involved in securing GEF funding since 2021. Colombia also participates in the United Nations project on monitoring POPs, and plans are underway to include passive air sampling of mercury under the Stockholm and Minamata Conventions in the Latin American region. Likewise, efforts are expected to strengthen regional cooperation toward better control of major mercury trade flows by developing coordinated strategies among Bolivia, Colombia, Ecuador, Honduras, Mexico, and Peru through the GEF project “Accelerating compliance with the Minamata Convention through a better understanding and control of mercury trade in Latin America,” which received funding approval in 2024.

Finally, the country's implementation of the Pollutant Release and Transfer Register (PRTR) is highlighted, which responds to the OECD strategy of implementing a mechanism for companies to report emissions and transfers of pollutants, helping countries to comply with the OECD's recommendations and guidelines for the management of chemicals and the prevention of pollution, including the pollutant of concern mercury.

☐ Information on technically and economically viable alternatives to:

☐ Epidemiological information concerning health impacts associated with exposure to mercury and mercury compounds, in close cooperation with the World Health Organization and other relevant organizations, as appropriate. (Art. 17.1 (a)–(d))

Part E – Additional comments on this article

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▼ ART. 18: PUBLIC INFORMATION, AWARENESS AND EDUCATION

18.1: Have measures been taken to promote and facilitate the provision to the public of the kinds of information listed in article 18, paragraph 1?

☒ Yes

☐ No

If yes, the party may wish to indicate in the space provided below, the measures it has to promote and facilitate information to the public, such as:

(a) Provision to the public of available information on:

☒ The effects of mercury and mercury compounds on human health and the environment

The effects of mercury and mercury compounds on human health and the environment

During the period covered by this report, the Colombian Geological Survey (SGC) produced five publications as part of the Mercury in Coal Baseline project. These publications contain information on the toxicology and health effects of mercury, compiled from bibliographic sources. This type of information may be associated with the provisions of paragraph 1 of Article 18 (subparagraph a, paragraph i), regarding the effects of mercury and mercury compounds on health and the environment, and its publication implies that it is freely accessible. The following links to these publications correspond to official information:

1. Mercury in Coal Baseline of the Checua–Lenguazaque Coal Basin, Cundinamarca and Boyacá Departments. 2021 Version. Product
<https://miig.sgc.gov.co/Paginas/Resultados.aspx?k=340120101069455641000000000>

2. Mercury baseline in coal for the Tunja–Paipa–Duitama area, Boyacá department. 2021 Version. Product
<https://miig.sgc.gov.co/Paginas/Resultados.aspx?k=340120101068663308000000000>

3. Mercury baseline in coal for the Llanos region, Casanare, Boyacá, Cundinamarca, and Meta departments. 2021 Version. Product

<https://miig.sgc.gov.co/Paginas/Resultados.aspx?k=3401201010687353130000000000>

4. Mercury baseline in coal from the Ciénaga de Oro – Planeta Rica coal mining area, Córdoba Department. 2022 Version. Product

<https://miig.sgc.gov.co/Paginas/Resultados.aspx?k=3401201010695277090000000000>

5. Mercury baseline in coal from the Sogamoso, Jericó coal mining area, Boyacá Department. Version 2023. Product

<https://miig.sgc.gov.co/Paginas/Resultados.aspx?k=3401201010744542800000000000>

The Sinchi Institute has disseminated information on mercury (Hg) research (The effects of mercury and mercury compounds on health and the environment) in the Colombian Amazon through scientific publications in indexed journals and book chapters. The methodologies for the analysis of total mercury, methylmercury, and SEP have been shared with the National Natural Parks (PNN) and the Ministry of Environment and Sustainable Development, specifically the Directorate of Environmental, Sectoral, and Urban Affairs.

☐ Alternatives to mercury and mercury compounds

☐ The topics identified in paragraph 1 of article 17

☐ The results of its research, development and monitoring activities under article 19

☒ Activities to meet its obligations under the Convention

Activities to meet its obligations under the Convention

Colombia, as a party to the Minamata Convention, developed the National Action Plan in 2023, in compliance with Article 7, Annex C, and the guidelines of the Minamata Convention. This plan was submitted to the Convention Secretariat and approved on January 15, 2024. It is publicly accessible on the Minamata Secretariat's website:

https://minamataconvention.org/sites/default/files/documents/national_action_plan/Colombia-ASGM-NAP-2024-SP.pdf

Colombian Geological Survey Guides: To continue characterizing deposits in geological, mineralogical, and metallurgical aspects, four guides for gold recovery without the use of mercury are being developed for the departments of Bolívar, Chocó, and Antioquia. These guides include, among other things, environmental and economic aspects related to the technical guidance that miners in each area should have on their processing. The information is publicly available on the SGC website: <https://www2.sgc.gov.co/Noticias/Paginas/Conoce-las-Guias-para-eliminaci%C3%B3n-del-uso-del-Mercurio-en-la-actividad-minera.aspx>

International Cooperation Project “Planet GOLD” – Funds provided by the Global Environment Facility (GEF): Through GEF funding, the project “Integrated Management for the Elimination of Mercury from Small-Scale and Subsistence Mining in Colombia” is being developed. Its objective is to eliminate and/or prevent the use of 20 tons of mercury in the subsistence and small-scale mining sector, located in 11 municipalities in the departments of Antioquia, Bolívar, and Cauca. This project has a duration of 5 years, beginning in 2019. The project results are available on the Planet Gold Colombia website. <https://www.planetgold.org/colombia>

(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.

Activities to meet its obligations under the Convention

Within the framework of the actions being carried out by the Ministry of Mines and Energy, together with its affiliated entities, to fulfill the National Action Plan, strategies have been created to disseminate information, such as:

Creation of the Mining Learning Center: The Mining Learning Center strategy was launched, a space on the Ministry's website that seeks to leave a legacy in education for the sector; promoting legal mining activity with training programs aimed at improving the application of the best standards in the mining sector.

<https://www.minenergia.gov.co/es/micrositios/centro-de-aprendizaje-minero/>

International Cooperation COMUNICA, by the Agre Team Foundation: The Ministry of Mines and Energy signed an agreement with the Canadian government, through the Agre Team Foundation, seeking to join efforts aimed at knowledge management, education, and communication, generating the e-learning course "Challenges and Actions for the Integrated Management of Mercury in Colombia."

The Ministry of National Education –MEN–, within the framework of the Educational Policy that is articulated with the National Environmental Education Policy, is strengthening the implementation of Environmental Education in Formal Education (understood as that which is taught in approved educational establishments, in a regular sequence of school cycles, subject to progressive curricular guidelines, and leading to degrees and titles) throughout the national territory.

The Ministry of National Education (MEN) has jurisdiction over this issue since Constitutional Court Ruling T622 of 2016, in which the Constitutional Court "RECOGNIZES the Atrato River, its basin, and tributaries as an entity subject to rights to protection, conservation, maintenance, and restoration under the responsibility of the State and ethnic communities," by recognizing it as a Linked Entity. The Ruling identifies illegal mining and the use of mercury as major problems that have deteriorated the Atrato River basin and its tributaries, for which reason the Constitutional Court "DECLARES the existence of a serious violation of the fundamental rights to life, health, water, food security, a healthy environment, culture, and territory of the ethnic communities that inhabit the Atrato River basin and its tributaries." Based on the foregoing, the Ministry of National Education is part of the Intersectoral Commission for the Department of Chocó (CICH), created by Decree 749 of 2018. This Commission's purpose is "to coordinate and articulate the actions of the different entities of the national government to focus efforts aimed at strengthening and addressing the shortcomings in overcoming the humanitarian, social, economic, and environmental situation facing the Department of Chocó in the short, medium, and long term" (Article 2. Purpose, Decree 749 of 2018).

Therefore, the Ministry of National Education is currently developing an assistance process to strengthen Environmental Education with the certified education secretariats within the jurisdiction of the Atrato River Basin, specifically those of Chocó, Quibdó, Antioquia, and Turbo.

This process of guiding, advising, and supporting aims to ensure that entities and actors in the education sector recognize human rights, as well as the conflicts and socio-environmental problems of the Atrato River, such as illegal mining, the use of mercury and its derivatives, among others.

****Interinstitutional Technical Committees for Environmental Education –CIDEA–****

The Ministry of National Education (MEN) co-leads, with the Ministry of Environment and Sustainable Development (MADS), the implementation of the first strategy of the National Environmental Education Policy: Interinstitutional Technical Committees for Environmental Education (CIDEA).

In accordance with the Policy's mandate, the MEN guides, advises, and supports the CIDEAs at the departmental, capital city, and district levels. Therefore, the MEN has carried out the aforementioned functions with the CIDEAs of Chocó, Antioquia, and Turbo, with whom it has:

disseminated the National Environmental Education Policy.

The T-622 ruling, which recognizes the ecosystemic problems identified in the ruling, was disseminated from the educational and systemic approaches established by the National Environmental Education Policy. This was done so that the members of the CIDEAS (Local Committees for the Development of the Atrato River Basin and its tributaries) could understand the origins of the socio-environmental problems and conflicts.

The CIDEAS were provided with conceptual, normative, methodological, and operational guidance to strengthen their structure, ensuring they recognize the ruling, as well as their missions, functions, and responsibilities.

This guidance was also provided to the CIDEAS in the formulation of their current work plans, so that the problems identified in the ruling are integrated into their policies and into existing departmental policies.

Regarding the municipal CIDEAS (Integrated Centers for Environmental Education), it is important to

clarify that their formation is the responsibility of each non-certified municipality, a function that falls to each mayor. These centers must be guided, receive training, and be advised and supported by the departmental CIDEAS. Therefore, strengthening the CIDEAS of non-certified municipalities is the responsibility of the departmental CIDEAS.

With respect to Quibdó, the Ministry of National Education (MEN) plans to begin the guidance and strengthening process this year.

****School Environmental Projects –PRAES–****

As part of its mission, the Ministry of National Education leads the second strategy of the National Environmental Education Policy: the formulation of School Environmental Projects (PRAES). These projects are recognized as the methodological tool for integrating the environmental dimension into Institutional Educational Projects (PEI) and the curriculum of public and private educational establishments.

In this response, it is important to clarify that, given the decentralized nature of the education sector, the Ministry of National Education (MEN) is responsible for implementing the National Education Policy by guiding, advising, and supporting the Certified Education Secretariats (SECs), which are tasked with guiding educational institutions in the formulation, implementation, and reinterpretation of the Environmental Education Projects (PRAES). In the case of this ruling, the focus is on the education secretariats located in the Atrato River basin: Chocó, Quibdó, Antioquia, and Turbo.

For the implementation of the PRAES, the MEN has provided

technical assistance to the departmental education secretariat of Chocó and the district education secretariat of Turbo. An initial meeting was held with the Antioquia education secretariat to agree on the MEN's support strategy for strengthening the implementation of environmental education. The Quibdó secretariat is scheduled to begin the assistance process this year.

The National Environmental Education Policy was disseminated to the Certified Education Secretariats (SECs).

The T-622 ruling, which recognizes the ecosystemic problems identified in the ruling, was also disseminated to the SECs. This was done from the educational and systemic perspectives established by the National Environmental Education Policy, so that the Certified Education Secretariats (SECs) understand the origin of the socio-environmental problems and conflicts in the Atrato River basin and its tributaries and formulate strategies to support educational institutions in the development and reinterpretation of their Environmental Education Projects (PRAES).

Conceptual, regulatory, methodological, and operational guidance was provided to educational institutions in Turbo so that they recognize the ruling and strengthen and/or reinterpret their PRAES.

Actions of the Ministry of National Education (MEN)

at the Territorial Level:

Continue providing technical assistance to the education secretariats to guide them in strengthening Environmental Education, with the objective that they support the educational establishments in their jurisdictions in the redefinition of School Environmental Projects (PRAE), in relation to the provisions of ruling T622.

Provide technical assistance to the Inter-institutional Technical Committees for Environmental Education (CIDEA) of the departments of Chocó and Antioquia, as well as to the municipal committees of Quibdó and Turbo, so that they update or redefine their Departmental and Municipal Environmental Education Policies or Plans, which must recognize the socio-environmental problems of the Atrato River, including illegal mining and the contamination of water sources with mercury and its derivatives.

At the Institutional Level,

support education secretariats in guiding educational establishments to begin the process of redefining School Environmental Projects (PRAE). These projects must address the socio-environmental problems of the Atrato River, including illegal mining and the contamination of water sources with mercury and its derivatives. The mission of these PRAEs is to contribute to the formation of ethical and responsible citizens, equipping them with the knowledge, skills, attitudes, and behaviors necessary for the sustainable management of the environment. These citizens will be prepared to make informed decisions regarding environmental management, respecting themselves, others, and their surroundings.

Through a 360-hour supplementary course, "Construction, Operation, and Maintenance of Gold Mineral Processing Equipment Using Cleaner Production Techniques," SENA has trained 320 small-scale and legal subsistence miners in six gold-producing departments: Antioquia, Bolívar, Cauca, Nariño, Santander, and Caldas. This initiative aims to strengthen the miners' technical skills.

In 2020, SENA also offered the in-person supplementary program "Entrepreneur in Construction, Operation, and Maintenance of Equipment for Sustainable Gold Mining," which trained 30 apprentices in the Department of Antioquia, providing an alternative to the use of mercury in mining activities. In 2021, complementary training programs related to the elimination of mercury use were offered both virtually and in person. These programs included: promoting actions to mitigate the impacts and eliminate mercury use; mechanical maintenance of gold ore processing equipment; operation of crushing and grinding equipment for gold ore processing; and technical training in mineral processing. This was done to contribute to policies related to the elimination of mercury use.

A total of 333 places were offered in these training programs, distributed across departments as shown in Table 7. There were 197 male and 136 female apprentices. SENA programs were also offered in the Department of Antioquia, with 101 apprentices enrolled in the in-person program and 80 in the virtual program.

The Ministry of Labor has made publicly available information on the health and environmental effects of mercury and mercury compounds. An informational brochure on raising awareness about the elimination and eradication of mercury use in artisanal and small-scale mining (ASM) has been produced.

Informational brochures on the harmful effects of mercury exposure and a culture of prevention have also been created.

Development of a Guide for the Prevention of Mercury Exposure in Artisanal and Small-Scale Gold Mining in Colombia has begun. This guide is currently in draft form, and a preliminary version is expected by February 2025 for review by the Ministry of Health and the Colombian Institute of Family Welfare (ICBF). The final layout, publication, and distribution are planned for 2025.

Furthermore, a proposed schedule was developed for the Occupational Safety and Health (OSH) awareness campaigns, #MinerNoToMercury, YesToLife, to be held in October and November 2024. Four campaigns are planned in the department of Chocó: Campaign 1: October 8, Quibdó, Chocó; Campaign 2: October 9, Atrato, Chocó; Campaign 3: November 6, Itsmina, Chocó; Campaign 4: November 7, Unión Panamericana municipality; in conjunction with the Ministry of Mines and Energy. This complements the previously mentioned "Safe Miners Have a Future" campaigns organized by the Directorate of Occupational Risks.

In order to design and formulate a plan for the dissemination and social appropriation of knowledge regarding the action plan on mercury in artisanal and small-scale mining (ASM), priority territories were identified within the framework of Decree 0977 of August 2, 2024. This plan focuses on the dissemination and social appropriation of knowledge about best available techniques and best environmental practices without the use of mercury, including ancestral artisanal practices, formalization processes, mine safety, incentives, and the health and environmental impacts of ASM.

In the second half of the year, at the Pan-American Union event, women artisanal gold panners presented the ancestral technique for separating gold without the use of mercury. This presentation took place during the "Safe Mining Has a Future" event held on November 20, 2024, in the department of Chocó, as part of the promotional and dissemination campaigns on technical, environmental, health, and social issues.

The Ministry of Transportation is conducting awareness-raising activities through various initiatives

established in its dissemination strategy (webinars, regional workshops, among others). Additionally, the Ministry of Transport maintains a section on its website (Hazardous Goods Portal (mintransporte.gov.co)) dedicated to hazardous goods/mercury transport, offering various publications on the topic and applicable regulations available to the public. Within the Ministry of Transport's hazardous goods portal, there is a module on mercury transport where relevant regulations and documents are published. Information on the effects of mercury and mercury compounds on health and the environment is publicly accessible, and an informational brochure on raising awareness about the elimination and eradication of mercury use in artisanal and small-scale mining (ASM) has been produced.

Starting in 2022, the socialization and dissemination strategy on the transport of hazardous materials was implemented. This strategy has various components and activities, including the dissemination of information on the Strategic Sectoral Plan for Mercury Elimination in the Transportation Sector. During 2022 and 2023, regional workshops were held in 14 cities: Bogotá, Pereira, Villavicencio, Cartagena, Medellín, Cali, Bucaramanga, Aguazul, Barrancabermeja, Pasto, Buenaventura, and Leticia. Other virtual strategies were also employed to disseminate information on the Strategic Sectoral Plan for Mercury Elimination in Colombia within the Transportation Sector, in accordance with the Minamata Convention, with the aim of protecting human health and aquatic life from intentional and unintentional releases of mercury.

(Art. 18 (1) (a) and (b))

Part E – Additional comments on this article

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▼ ART. 19: RESEARCH, DEVELOPMENT AND MONITORING

19.1: Has the party undertaken any research, development and monitoring in accordance with paragraph 1 of article 19?

☒ Yes

☐ No

If yes, the party may wish to indicate in the space provided below, the research, development and monitoring it has undertaken, such as:

☒ Inventories of use, consumption, anthropogenic emissions to air and releases to water and land of mercury and mercury compounds

Inventories of use, consumption, anthropogenic emissions to air and releases to water and land of mercury and mercury compounds

Colombia promoted and facilitated the transfer and dissemination of technologies for detecting mercury in the environment. This was achieved through workshops jointly led by the United States Environmental Protection Agency (US EPA) and the Colombian Ministry of Environment and Sustainable Development, and was primarily aimed at officials and professionals from the country's environmental authorities. A central aspect of the workshops was the presentation and technical demonstration of the "Ohio Lumex" portable mercury vapor analyzer, used by the US EPA for the in-situ detection of mercury in air. Its technical characteristics, operating principles, practical applications, and operational advantages in the field were addressed, highlighting its importance in supporting environmental monitoring, emissions control, and risk assessment in areas with potentially polluting activities. This exchange of experiences and technologies represents a significant step forward in consolidating an international cooperation network aimed at strengthening environmental management in Colombia, in accordance with the commitments made under the Minamata Convention on Mercury, particularly regarding Article 19 on research, development, and monitoring.

During the period covered by this report, the Colombian Geological Survey (SGC) produced five publications as part of the Mercury in Coal Baseline project. These publications contain primary information on mercury content in coal and could be used to estimate anthropogenic air emissions. This information was shared with the Ministry of Environment and Sustainable Development at the

working group of the National Plan to Control Unintentional Mercury Emissions into the Atmosphere (Plan CENI-Hg) and could be related to the provisions of paragraph 1 of Article 19 (subparagraph a), regarding the development or improvement of the emissions inventory. These publications also contain information on the biogeochemical cycle of mercury, compiled from bibliographic sources, which could be related to the provisions of paragraph 1 of Article 19 (subparagraph e), regarding the environmental cycle, transport (including long-range transport and deposition), transformation, and fate of mercury and mercury compounds in a range of ecosystems. Links to these publications were provided in question 18.1.

☒ Modeling and geographically representative monitoring of levels of mercury and mercury compounds in vulnerable populations and in environmental media, including biotic media such as fish, marine mammals, sea turtles and birds, as well as collaboration in the collection and exchange of relevant and appropriate samples

Modeling and geographically representative monitoring of levels of mercury and mercury compounds in vulnerable populations and in environmental media, including biotic media such as fish, marine mammals, sea turtles and birds, as well as collaboration in the collection and exchange of relevant and appropriate samples

In 2024, the Ministry of Mines and Energy entered into an agreement with the University of Córdoba (currently underway) with the objective of “joining efforts to analyze mineral and mercury concentrations in tailings and hotspots, as well as identify opportunities for secondary use under mining process optimization techniques and mercury recovery from tailings” in the municipalities of Buenos Aires, Guapi, and Timbiquí (Cauca); Atrato – Yuto, Cértegui, and Lloró (Chocó); and Andes – Sotomayor, La Llanada, and Mallama (Nariño).

As indicated in the preceding sections of this form, the ANLA's MONITORING STRATEGIES, which are used for the control, monitoring, and tracking of projects, works, and activities under its jurisdiction, include information on mercury monitoring in matrices such as air, water, and sediments, based on periodic Environmental Compliance Reports (ECRs). It is reiterated that, given the context of the territory, informal mining activities are carried out, which can contribute to the release of mercury used by communities to separate gold from the ore.

In the geometallurgical studies conducted by the Colombian Geological Survey, whose objective is the processing of gold without the use of toxic substances such as mercury and cyanide, a chemical–environmental characterization is performed to quantify the presence of mercury in soils, sediments, water, and tailings. Additionally, the TCLP test (a characteristic toxicity leaching procedure) is performed to evaluate mercury mobility under simulated acidic conditions. These measurements cover the studied areas (Vetas, California, and Suratá, Santander; Santa Isabel and Libano in the department of Tolima in 2021; Puerto Berrio, San Roque, and Santodomingo in the department of Antioquia in 2022; and El Bagre, Antioquia in 2023 and 2024).

Furthermore, the Colombian Geological Survey, through its Inorganic and Environmental Geochemistry Group, has promoted and facilitated the development, transfer, and implementation of environmentally sound analytical technologies for characterizing chemical mercury species. Specifically, a methodology was implemented for the differentiation and quantification of the most relevant inorganic (Hg^{2+}) and methylated (CH_3Hg^+) mercury species using reversed-phase liquid chromatography coupled to inductively coupled plasma mass spectrometry (HPLC-ICP-MS). This technology allows for the generation of key information on the chemical speciation of mercury, essential for assessing its toxicity, mobility, and environmental risk.

The implementation of this methodology demonstrates the laboratory's technical capacity for detecting mercury species. This capacity is being developed in accordance with the guidelines of the internal management system, specifically ISO/IEC 17025:2017, particularly sections 5.3, 6.2, 6.3, 6.4, and 7.1. Currently, the method's performance evaluation is in the consolidation phase, through its systematic application in environmental assessment projects related to alluvial gold mining in the Lower Cauca region of Antioquia. These processes are aimed at ensuring future accreditation under international standards, thereby strengthening the generation of reliable information for mercury management in contexts of high environmental vulnerability.

In addition, the laboratory holds current ONAC accreditation from 2022 to 2027 for the determination of total mercury in rocks, soils, and sediments, which increases confidence levels and substantially improves the quality of information generated for both internal and external users. This accredited capacity provides key technical support for environmental monitoring, risk analysis,

and decision-making processes within the framework of integrated mercury management.

Furthermore, the developed technologies are available to be shared and adapted by other Parties to the Convention that require strengthening their analytical capacities for mercury monitoring and control, thus contributing to regional cooperation and compliance with the collective commitments established in the Minamata Convention.

The Humboldt Institute is making progress in training researchers to detect mercury levels in wild fish, birds, and bats, as well as in specimens from biological collections. However, a monitoring and surveillance model for mercury presence in the study area(s) has not yet been established.

The Sinchi Institute has shared information related to Hg releases into water, sediments, and soil, as well as measurements in fish, through the scientific publications cited in section 8.1.

✓ Assessments of the impact of mercury and mercury compounds on human health and the environment, in addition to social, economic and cultural impacts, particularly in respect of vulnerable populations

Assessments of the impact of mercury and mercury compounds on human health and the environment, in addition to social, economic and cultural impacts, particularly in respect of vulnerable populations

Within the framework of this Consulting Contract “PROTOCOL FOR REMEDIATION, REHABILITATION AND/OR RESTORATION OF AREAS DEGRADED BY MINING ACTIVITY IN THE FORESTS OF THE QUITO RIVER BASIN WITHIN THE FRAMEWORK OF COMPLIANCE WITH SENTENCE T-622 OF 2016” of 2021, a participatory monitoring (inclusion of leaders and the community in general) of metals and metalloids was carried out in 15 sampling zones with 1,200 samples distributed in the soil, sediment and water matrices in the main channel of the Quito River and its main tributaries, in order to establish the presence of concentrations of heavy metals, such as mercury (Hg), lead (Pb), cadmium (Cd) and arsenic (As), to determine the impact of mining pollution. The physicochemical analyses of metal concentrations in the analyzed environmental matrices did not show a potential toxicological risk to environmental health in the surrounding ecosystems, according to the reference values established by national and international regulations. This project was carried out with the Bioparque Corporation, monitored by the Fondo Acción (Action Fund), and supported by the Directorate of Integrated Water Resource Management, with additional funding from the Forest Cooperative Fund (FCPF) in Colombia to support REDD+ readiness. As a follow-up to the Quito River project, an agreement was also established between the Fondo Colombia en Paz 2019 (Colombia in Peace Fund 2019) consortium, acting as spokesperson and administrator of the Fondo Colombia en Paz autonomous trust, and the University of Córdoba.

Among the results achieved in the agreements for the rehabilitation of the Quito River basin, a continuous digital terrain model was developed, including the river channels, along with a high-resolution image and orthophoto with a 20 cm resolution, covering an area of 23,497.9 hectares around the river channel. A geomorphological, hydrological, and hydraulic study serves as a baseline for the ecological restoration design, delimiting the area occupied by sands removed from the riverbed by gold mining activity and deposited, causing a complete alteration of the channel's morphology. Progress has been made on the hydrological and hydraulic models, taking into account the restoration scenarios required by the Ministry.

The development of baseline indicators related to water quality, sediments, and land use and cover involved fieldwork to collect 200 samples of water, sediments, and soil at two different times. This work complemented and validated the characterization carried out in the Biopark Corporation study (2022). A study of the resuspension and remobilization of mercury and other heavy metals in the sediments of the Quito River was conducted. The results of the heavy metal characterization found in the collected samples, as well as those from the analyzed studies, were analyzed. A characterization of the suspended solids load transported by the river and its possible association with heavy metal content was also performed. Finally, a physicochemical analysis of the sands was conducted, along with an evaluation of the sand mixing process optimization for concrete production and an assessment of its potential toxicity.

Furthermore, theoretical and practical workshops were conducted to strengthen capacities and promote the social appropriation of knowledge related to strategies for the rehabilitation and/or recovery of the Atrato River channel. A pedagogical model was developed for the social

appropriation of knowledge about river channel rehabilitation and/or recovery, adapted to a "Guardian's Manual."

This allowed progress in a pilot project for the restoration/remediation of 8 hectares along the channel of one of the Quito River's tributaries. A restoration process was also carried out on one (1) hectare, a plot defined by the community, according to technical requirements. This process was presented by the University of Córdoba to the communities of the Quito River basin on September 21 and 22, 2023.

Another region where work has been done on the restoration of degraded areas is La Mojana. During the period 2023–2025, within the framework of Agreement 1018–2023 MINAMBIENTE–UNDP, two technical products have been developed that contribute to the provisions of article 19 (Research, development and monitoring) of the Minamata Convention, in this strategic area of the country highly impacted by contamination with mercury and other potentially toxic elements:

Product D6 – Document updating the baseline of contamination by heavy metals (including mercury) in La Mojana.

This report, although published in April 2025, updates the available information through a systematic review of more than three decades of studies and the execution of recent sampling of water, sediments, soils, aquatic plants and food in the prioritized municipalities of the region. This includes the application of standardized field and laboratory methodologies (atomic absorption spectroscopy, bioassays, water quality indices –WQI– and pollution indices –PII–), the determination of current concentrations of total mercury and methylmercury in environmental matrices and food, as well as the estimation of health risk indices from the consumption of contaminated fish and rice. These results provide an updated inventory of mercury releases and bioaccumulation in different compartments, constituting a technical input for monitoring international commitments.

Product D7 – Action Plan for the Remediation and Restoration of Areas Contaminated by Heavy Metals (Including Mercury) in La Mojana.

This document, delivered in December 2024, proposes a comprehensive roadmap of applied research measures, the development of remediation technologies, and ecological restoration strategies validated at both the technical and social levels.

Among the techniques evaluated and prioritized are: phytoremediation, bioremediation with rhizobacteria, the use of organic amendments, constructed wetlands, and active ecosystem restoration. Additionally, a comprehensive intervention model (MIIR) with field pilots and community participation is included.

The plan integrates environmental management with public health, establishes criteria for selecting appropriate technologies, and generates technical bases for the transfer and adaptation of environmentally sound technologies, in line with the Minamata Convention.

Both products constitute concrete evidence that Colombia has undertaken environmental research, development, and monitoring in compliance with Article 19, by integrating:

- updated inventories of mercury releases and associated risks;
- development and adaptation of remediation and restoration technologies;
- monitoring strategies through environmental and health quality indicators; and
- participation of local communities in monitoring and risk management processes.

Consequently, the country is considered to have taken substantial steps in the research and monitoring of mercury pollution, generating high-level technical information that supports the report to the Minamata Convention for the period 2021–2024 and will serve as a baseline for subsequent phases of implementing control, mitigation, and restoration measures.

Regarding water releases, IDEAM manages the national water quality reference network, which has 160 monitoring points. Its objective is to "understand the state of water quality in surface waters at the monitoring points through analysis that will guide decision-makers at the national level and help identify needs at the regional and local levels."

The network analyzes approximately 46 water quality variables in water and sediment, including mercury in water and sediment. The data analysis presented by IDEAM focuses on evaluating the state of water quality based on the concentration of these variables. This evaluation is published in the National Water Quality Bulletin and the National Water Study. These documents can be consulted

at the following links:

<https://www.ideam.gov.co/sala-de-prensa/boletines/Bolet%C3%ADn-de-calidaddel-agua>
, <https://www.ideam.gov.co/sala-de-prensa/informes/Estudios%20nacionales%20del%20agua>

☐ Harmonized methodologies for the activities undertaken under subparagraphs (a), (b) and (c) of paragraph 1 of article 19

☐ Information on the environmental cycle, transport (including long-range transport and deposition), transformation and fate of mercury and mercury compounds in a range of ecosystems, taking appropriate account of the distinction between anthropogenic and natural emissions and releases of mercury and of remobilization of mercury from historical deposition

☒ Information on commerce and trade in mercury and mercury compounds and mercury-added products

Information on commerce and trade in mercury and mercury compounds and mercury-added products

Regarding the illegal trade in mercury, the Ministry of National Defense, through its various departments and with the support of other entities, has identified potential mercury trafficking routes, its use in illegal mining, and the related national security impacts.

The Ministry of Transportation maintains a system for tracking information on the transport of hazardous materials by companies providing public transportation services within the country, called the National Cargo Dispatch Registry (RNDC).

It is anticipated that information on illegal mercury trade routes, controls, and regulatory assessments will be expanded through the regional project funded by the GEF (Global Economic Development Fund) entitled “Accelerating Compliance with the Minamata Convention through a Better Understanding and Control of Mercury Trade in Latin America,” allowing for a more detailed understanding of this illegal mercury trade flow.

☒ Information and research on the technical and economic availability of mercury-free products and processes and on best available techniques and best environmental practices to reduce and monitor emissions and releases of mercury and mercury compounds

Information and research on the technical and economic availability of mercury-free products and processes and on best available techniques and best environmental practices to reduce and monitor emissions and releases of mercury and mercury compounds

With the support of the “Planet GOLD” International Cooperation project – funds provided by the Global Environment Facility (GEF) and implemented by the Ministry of Mines and Energy – the project “Integrated Management for the Elimination of Mercury from Small-Scale and Subsistence Mining in Colombia” was developed. Its objective was to eliminate and/or prevent the use of 20 tons of mercury in the small-scale and subsistence mining sector, located in 11 municipalities in the departments of Antioquia, Bolívar, and Cauca. This project had a duration of 5 years, beginning in 2019. Within the framework of this project

(Art. 19 (1) (a)–(g))

Part E – Additional comments on this article

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▼ COMMENTS REGARDING POSSIBLE CHALLENGES IN MEETING THE OBJECTIVES OF THE CONVENTION

Part C: Comments regarding possible challenges in meeting the objectives of the Convention

Challenges exist in implementing the Minamata Convention, particularly in the following area: Combating illegal mining, the main driver of mercury use and release in the country. The main difficulties identified are:

1. Lack of capacity for managing seized mercury: As previously stated, the absence of a government entity with the operational, technical, and financial capacity to receive, store, transport, and dispose

of seized mercury and its compounds in an environmentally sound manner is the greatest obstacle. This creates a constant risk to Defense Sector personnel and the environment, and hinders the traceability and proper final disposal of seized mercury. Often, mercury must be guarded by law enforcement under conditions that do not meet international safety standards, also causing administrative strain on the Force.

2. There is insufficient availability of adequate personal protective equipment (PPE) and standardized protocols for the safe handling of mercury by Military Forces and National Police personnel during seizure operations. This exposes uniformed personnel to significant health risks.

3. Although there is goodwill, inter-institutional coordination for the comprehensive management of the mercury cycle (from source identification to final disposal) is deficient. A clear protocol and a chain of responsibility must be established between seizure (custody, temporary storage, and judicial proceedings), the Ministry of Environment (regulations and final disposal), and regional environmental authorities.

4. Seized mercury becomes hazardous waste with no clear destination. The lack of treatment, recycling, or long-term safe storage options in the country, in accordance with the principles of environmentally sound management, is a significant barrier to compliance with Article 11.

5. The lack of access to and promotion of alternative technologies to mercury amalgamation in areas affected by illegal mining remains a challenge. This facilitates the mercury use cycle, despite interdiction efforts.

6. The geographic extent and clandestine nature of illegal mining hinder the comprehensive identification and control of all mercury sources and stockpiles, especially those below the thresholds established by the Convention.

7. The lack of identification of an entity responsible for its final disposal facilitates the recurrence of the phenomenon, since the substance is handed back to the person from whom it was seized.

To overcome these difficulties, coordinated and unified action is required from all state entities with jurisdiction in this area, with the support of international cooperation. It is urgent to establish a clear policy and allocate the necessary resources for the management of seized mercury, thus ensuring that the Ministry of Defense's efforts in combating crime translate into a positive environmental impact and effective compliance with the Minamata Convention.

There is a lack of funding for the geographically representative characterization and monitoring of mercury contamination in Amazonian ecosystems. Studies conducted by the Sinchi Institute have covered a very small percentage of the region. It is recommended that sampling and monitoring of mercury (Hg) continue in the Amazon region, including not only soils, sediments, and water, but also phytoplankton and zooplankton. This is necessary to understand biomagnification at different trophic levels. Furthermore, it is recommended that background concentrations of Hg in Amazonian soils be determined, which requires taking samples from sites where mining is not reported. Furthermore, to determine bioavailable mercury (Hg) and the actual risk it poses to biomagnification, it is recommended to continue evaluating sequential mercury extraction.

On the other hand, given the importance and role of microorganisms in the mercury cycle, it is recommended to continue evaluating their functions at the ecosystem level (reduction, demethylation, and methylation) and their microbial composition as an indicator of mercury transformation potential in ecosystems, as well as the impact of this metal on the diversity and selection of highly resistant microbial groups. Understanding the functional attributes of the microbial community will allow for the selection of potential groups for bioremediation. Finally, it is recommended to evaluate the application of these microorganisms as a mercury bioremediation strategy in different matrices, along with biochar amendments and/or phytoremediation/bioaugmentation, which promote and enhance the mercury transformation process, as well as the recovery of degraded areas.

The findings of mercury in fish and environmental matrices such as water, sediments, and soils demonstrate the need for continued monitoring and intensified sample collection and analysis throughout the hydrological regime. It is also necessary to determine the environmental dynamics of mercury in Amazonian environments to understand its transport through water and air, and its

accumulation in sediments, soils, and aquatic and terrestrial organisms. Furthermore, studies should be promoted to determine mercury toxicity and its histopathological effects on the gills, brain, and liver of native fish in the basin, as well as in other hydrobiological resources of interest for consumption by the human communities inhabiting the region. Likewise, regional studies should be undertaken on the impact of heavy metal contamination on the Amazon, whether as a result of mining activities, discharges from other human activities, or illegal deforestation.

▼ COMMENTS REGARDING THE REPORTING FORMAT AND POSSIBLE IMPROVEMENTS, IF ANY

Comments regarding the reporting format and possible improvements, if any

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