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**UNEP Global Mercury Partnership
Advisory Group
Twelfth meeting**
Virtual meeting, 11 and 14 March 2022

Report on activities undertaken within the United Nations Environment Programme Global Mercury Partnership

Note by the secretariat

The Overarching Framework of the UNEP Global Mercury Partnership outlines that one of the functions and responsibilities of the Partnership Advisory Group is to report on activities undertaken within the Partnership.

The annex to the present note sets out a report on such activities during the period from December 2020 to February 2022. The report provides an overview of overarching activities undertaken by the Partnership. On the basis of input received from the leads and co-leads of each Partnership area, it also presents highlights of Partnership area activities during the reporting period, as well as of future work planned.

Annex

Report on activities undertaken within the United Nations Environment Programme Global Mercury Partnership (December 2020 to February 2022)

I. Introduction

Initiated in 2005 by a decision of the United Nations Environment Programme (UNEP) Governing Council¹, the Global Mercury Partnership (hereinafter referred to as the “Partnership”) focuses on supporting timely and effective implementation of the Minamata Convention on Mercury, on providing state of the art knowledge and science on mercury, and on delivering outreach and awareness raising towards global action on mercury.

The Partnership is structured around eight priorities for action or so-called “Partnership areas”, namely: artisanal and small-scale gold mining (ASGM), mercury cell chlor-alkali production, mercury air transport and fate research, mercury in products, mercury releases from coal combustion, mercury waste management, mercury supply and storage, and mercury releases from the cement industry.

The present report provides an overview of overarching activities undertaken by the Partnership during the period from December 2020 to February 2022, including on work conducted in a cross-cutting manner amongst Partnership areas pursuant to decisions of the Partnership Advisory Group (PAG), as well as intersessional work for the fourth meeting of the Conference of the Parties to the Minamata Convention. On the basis of input received from each Partnership area, it also presents highlights of Partnership areas activities during the reporting period, as well as some of the future work planned.

II. Overview

Participation

The number of partners of the Global Mercury Partnership is steadily growing:

- As of 1 March 2022, there were 236 members of the Partnership, including 37 governments, 11 international organizations, 77 non-governmental organizations, 58 industry/private sector as well as 53 academia and others.
- Some partners are global industry associations or federations of civil society organizations that collaborate with and represent a larger number of national entities/associations. In addition, the Partnership works with a number of stakeholders that have not yet officially joined. The Partnership also closely collaborates with the Secretariat of the Minamata Convention as well as with a number of UN agencies.

Organisation

Leads of individual Partnership areas are:

- **Artisanal and small-scale gold mining (ASGM):** The Natural Resources Defence Council (NRDC), the United Nations Environment Programme (UNEP) and the United Nations Industrial Development Organization (UNIDO)
- **Mercury cell chlor-alkali production:** The Environmental Protection Agency of the United States and the United Nations Industrial Development Organization (UNIDO)
- **Mercury air transport and fate research:** The National Research Council (CNR)² - Institute of Atmospheric Pollution Research, Italy, the Biodiversity Research Institute (BRI) and the Dartmouth College
- **Mercury in products:** The Environmental Protection Agency of the United States
- **Mercury releases from coal combustion:** The International Centre for Sustainable Carbon (ICSC) and the Macquarie University (Australia)

¹ UNEP Governing Council Decision 23/9

² Consiglio Nazionale delle Ricerche

- **Mercury waste management:** The Ministry of the Environment of Japan and Misuzu Asari, Graduate School of Global Environmental Studies, Kyoto University (Japan)
- **Mercury supply and storage:** The Ministry for the Ecological Transition³ of Spain and the Ministry of Housing, Territorial Planning and Environment⁴ of Uruguay
- **Mercury releases from the cement industry:** The Global Cement and Concrete Association (GCCA) and the Ministry of Climate Change of Pakistan

Partnership Advisory Group

The Overarching Framework of the Partnership establishes a Partnership Advisory Group (PAG) to, amongst others, serve the Partnership and encourage the work of its Partnership areas. Its membership includes Partnership area leads, partners nominated by the Partnership areas and other representatives. Observers may also attend meetings of the PAG.

During the reporting period, the PAG held its eleventh meeting (PAG-11) on 15 and 16 December 2020 in an online setting⁵, under the leadership of the PAG co-chairs, Rodges Ankrah, Environmental Protection Agency of the United States, and Teeraporn Wiriwutikorn, Ministry of Natural Resources and Environment of Thailand, further to their designation at PAG-10 (23 November 2019, Geneva)⁶.

III. Highlight of overarching activities

A number of awareness-raising, information dissemination, experience-sharing as well as cross-cutting activities have been conducted during the current reporting period, including pursuant to decisions of the Partnership Advisory Group at its the tenth and eleventh meetings. Responding to decisions of the Conference of the Parties to the Minamata Convention at its third meeting (COP-3), the Partnership also supported intersessional work in preparation for its fourth meeting (COP-4).

Awareness-raising, information dissemination and experience-sharing activities

Webinars to support sharing of information and experience: the Partnership continued to roll out a series of webinars to support sharing of information and experience. Interests and priority topics were identified through needs expressed in the context of meetings of the PAG and of Partnership areas, as well as through an online survey conducted by the Secretariat of the Partnership in April 2020. The following events have been organized during the current reporting period⁷:

- In the context of the 2020 deadline for phase out under the Minamata Convention, and in follow up to online sessions organized in 2020 on mercury-containing medical devices and mercury in skin-lightening products in cooperation with the World Health Organization (WHO), the Partnership and its areas of work on mercury in products and on mercury waste management jointly organized an online information-sharing session dedicated to the phase out of mercury-containing lamps in December 2021.
- In relation to ASGM, the Partnership and its area of work on ASGM organized an online webinar to discuss gender mainstreaming into National Action Plans (NAPs) in June 2021, and together with the planetGOLD Programme, jointly organized an online session dedicated to best management practices in the use of cyanide in January 2022.
- The Partnership and its waste management area organized an online information-sharing session dedicated to mercury wastes management for the implementation of Article 11 of the Minamata Convention in February 2022, which introduced available resources and technologies for treating mercury wastes, featuring experience in different parts of the world.
- The Partnership also contributed to several “Minamata Online” sessions⁸, and a session on mercury emissions from coal was co-organized by the Partnership area on mercury releases from

³ “Ministerio para la Transición Ecológica”

⁴ “Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente”

⁵ The report of the meeting as well as other meeting documents may be found at:

<https://www.unep.org/globalmercurypartnership/events/unep-event/partnership-advisory-group-meeting-11>

⁶ <https://www.unep.org/globalmercurypartnership/events/unep-event/partnership-advisory-group-meeting-10>

⁷ Further information about these events may be found on the Partnership website at:

www.unep.org/globalmercurypartnership/events

⁸ <http://www.mercuryconvention.org/Resources/MinamataOnline/tabid/8527/language/en-US/Default.aspx>

coal combustion together with the Secretariat of the Minamata Convention and the International Conference on Mercury as a Global Pollutant in November 2021.

- Side events were organized in November 2021 in the margins of the first segment of COP-4 (1 to 5 November 2021). The Partnership area on ASGM and the Secretariat of the Minamata Convention co-hosted a side event on the sound management of mercury-containing tailings in ASGM and the Partnership area on mercury air transport and fate research together with the Biodiversity Research Institute (BRI) organized a side event on the Guidance on monitoring of mercury and mercury compounds to support the effectiveness evaluation of the Convention.

The Partnership Newsletter launched in 2020 in order to enhance communication and outreach was rolled out on a quarterly basis. The Newsletter features highlights by Partnership areas and partners, relevant resources and publications, introduction of new partners, upcoming and past events, and is being circulated to all partners and interested stakeholders.

In the framework of the third Round of applications to the Specific International Programme of the Minamata Convention, the Secretariat of the Partnership also contributed to the review process of project proposals submitted by Parties through the provision of technical input and the participation in Cross-Secretariat Task Team meetings, together with the secretariats of the Minamata Convention, Global Environment Facility (GEF) and the Special Programme.

The Partnership website was migrated to a new content management platform in the last quarter of 2021. The new site is accessible at www.unep.org/globalmercurypartnership and offers new features to showcase information in a dynamic and user-friendly manner.

Cross-cutting work on mercury from oil and gas and from non-ferrous metals

The Partnership Advisory Group decided at its tenth meeting (Geneva, 23 November 2019) to initiate work on mercury from non-ferrous metals mining and smelting and from oil and gas, which it had identified as cross-cutting topics amongst several Partnership areas.⁹

In follow up to expert consultations in April 2020, which gathered interested partners and stakeholders, Partnership area leads agreed to guide a process for developing study reports on the two topics. Amongst others, the aim of the study report on mercury from non-ferrous metals mining and smelting was to provide a better understanding of the mercury mass balance globally between supply, storage, and waste treatment related to non-ferrous metals mining and smelting operations. With respect to mercury from oil and gas, the aim of the study report was, amongst others, to better understand potential releases of mercury from the sector, as well as possibly how wastes are treated and accounted for and may be entering the market for other uses.

Draft annotated outlines of the study reports were presented for consideration by the Partnership Advisory Group at its eleventh meeting (online meeting, 15 and 16 December 2020)¹⁰. Together with the information collected, the finalized annotated outlines were used as a basis to develop draft study reports, which were subsequently made available for written comments and input. Expert consultations were also held in April and May 2021¹¹. The revised draft of the study reports were subsequently shared with the groups of experts for any last major comment. The study reports, in its final pre-print version for the report on mercury from non-ferrous metals mining and smelting and in its latest draft version for the report on mercury from oil and gas are presented to the PAG at its twelfth meeting in documents UNEP/ Hg/PAG.12/4 and UNEP/ Hg/PAG.12/5 for consideration and discussion on way forward and possible next steps.

Cooperation on intersessional work for COP4

The third meeting of the Conference of the Parties to the Minamata Convention (Geneva, November 2019) called for cooperation with the Partnership on intersessional work on customs codes and on the management of tailings from ASGM in preparation for its fourth meeting. The Partnership area on mercury in products has hence collaborated with the Secretariat of the Minamata Convention to respond to the COP mandate on the issue of customs codes, in the development of a guidance document on their use in the context of the Convention (decision MC-3/3, documents

⁹ The report of the tenth meeting of the Partnership Advisory Group (document UNEP/ Hg/PAG.10/5) is available at: <https://www.unep.org/globalmercurypartnership/events/unep-event/partnership-advisory-group-meeting-10>

¹⁰ The report of the eleventh meeting of the Partnership Advisory Group (document UNEP/ Hg/PAG.11/7) is available at: <https://www.unep.org/globalmercurypartnership/events/unep-event/partnership-advisory-group-meeting-11>

¹¹ Further information on this work may be found at: <https://www.unep.org/globalmercurypartnership/expert-consultations-mercury-non-ferrous-metals> and at <https://www.unep.org/globalmercurypartnership/expert-consultations-mercury-oil-and-gas>

UNEP/MC/COP.4/27 and UNEP/MC/COP.4/INF/5), and the Partnership area on ASGM has worked with the Secretariat of the Minamata Convention to update the ASGM National Action Plan Guidance Document regarding management of tailings (decision MC-3/5, documents UNEP/MC/COP.4/6 and UNEP/MC/COP.4/INF/6). The Partnership also collaborated with the Secretariat of the Minamata Convention on developing tools to assist countries in the use of remote sensing to support ASGM policy development and implementation.

IV. Activity Report by Partnership area

1) Artisanal and small-scale gold mining (ASGM)

- a) The objectives of the Partnership area are the continued minimization and elimination, where feasible, of mercury uses and releases in artisanal and small-scale gold mining.

Lessons learnt and ways forward: Creating alternatives to mercury amalgamation remains a key challenge, one that is being tackled by many partners, as described in the section below. Alternatives should be affordable, cleaner and more efficient at extracting gold, a combination that is well recognized by international agencies, governments, NGOs and academics. However, such a major change in processing requires continuous efforts in formalization, access to finance, education and organization of miners. Bottom-up approaches, involving the miners, are essential.

- b) Key activities in the Partnership area include: (*The Partnership area chose to report on key activities by partners. Below are activities undertaken by partners during the reporting period. Joint work is displayed per project, in order to avoid repetition.*)
- GEF planetGOLD programme:
 - In early 2019 UNEP, UNIDO and NRDC launched the GEF GOLD programme, funded by the Global Environment Facility (GEF) and led by UNEP, in collaboration with a range of partners. The programme, now branded as planetGOLD, is helping gold miners replace toxic mercury with cleaner techniques, improving access to finance and facilitate formalization of the sector. The Programme works in eight countries (Burkina Faso, Colombia, Guyana, Indonesia, Kenya, Mongolia, Peru and the Philippines), and has a global knowledge management and communications component. UNEP, UNIDO and NRDC have been working on the main elements of the global project, including outreach to the investment sector, development of knowledge management tools and materials and a communications strategy, including the launch of the planetGOLD.org website. Other partners are participating as executing agencies for individual country projects. For example, the Artisanal Gold Council is executing the planetGOLD projects in Burkina Faso, Mongolia and the Philippines; Conservation International is executing planetGOLD Guyana, and UNDP is carrying out the projects in Colombia, Indonesia, Kenya, and Peru. Pact supported planetGOLD Indonesia assessment and capacity development of business and financial products in the ASGM sector. Pure Earth has supported with capacity building of government stakeholders in the ASGM sector and the empowerment of artisanal women miners in Indonesia, with building the financial capacity of miners and the development of modules for ASGM formalization. Also, Pure Earth in Colombia has developed a new Index Mercury Contamination methodology to prioritize the intervention of contaminated sites affecting vulnerable communities.
 - In June 2020, the GEF Council approved an expansion of the planetGOLD programme, adding eight countries: Bolivia, Ghana, Honduras, Madagascar, Nigeria, Republic of the Congo, Suriname, and Uganda. In June 2021, it was extended to an additional seven countries: Sierra Leone, Zambia, Mali, Guinea, Cote d'Ivoire, Nicaragua, Ecuador. Led by Conservation International, the expanded programme will continue to focus on reducing the use of mercury, formalization, financial access, and responsible supply chains in the ASGM sector. It will also pilot jurisdictional approaches, which are place-based approaches to sustainability that focus on areas defined by (local) administrative boundaries, and that reconcile social, economic and environmental objectives through multi-stakeholder participation and government engagement. Some partners are involved in project preparation for this expansion.
 - The Government of Madagascar started the mobilization of stakeholders at national level for the elaboration of the Project Preparation Grant (PPG) submitted to the GEF in December 2021. Preparation of the other child projects is also on-going.

- GEF-funded National Action Plans on artisanal and small-scale gold mining

UNEP has provided technical support to 30 countries developing National Action Plans on ASGM. Twelve of these have been completed. In addition to providing implementation support to individual country teams, UNEP also engaged in activities to benefit countries more broadly, including for example:

- Launching of the “Quick Start Guide for managing mercury trade in artisanal and small-scale gold mining”;
- Launching of the NAP specific gender guidelines “Incorporating gender dimensions into national strategy setting in chemicals management”;
- Using in house experts and utilizing peer review system, providing technical comments on the draft NAP documents; and providing “help desk” services and consultations on the development of NAP to participating countries.
- Organizing periodic webinars/regional meetings on specific aspects of NAP development/implementation and/or lessons learned.

UNIDO supported six countries in completing their National Action Plan projects and is still providing support to an additional seven countries.

- Artisanal Gold Council (AGC)

AGC has continued its work addressing ASGM in the core areas of policy, improved practices, finance, supply chain, and outreach. AGC continued to conduct research and development programmes on technical and training solutions for ASGM, including:

- In its last year, the Sustainable Development of Artisanal Gold Mining in Indonesia project, funded by Global Affairs Canada was successfully handed over, with mercury free processing facilities installed in beneficiary ASGM cooperatives at three project sites. Prior to the transfers, a mentorship program trained selected members from the communities to manage day to day operations of the mercury free processing facilities.
- In Guyana, with funding from the US Department of State (USDoS), the AGC began work on the project: “Roadmap to Responsible Gold”.
- In Papua New Guinea, with funding from the US Department of State (USDoS) the AGC continued work on the project: “Reducing Mercury Use in Papua New Guinea’s Artisanal and Small-scale Gold Mining Sector”.
- In Peru, with funding from the USDoS, the AGC continued work on the project: “Increased Transparency and Control of Mercury”. One product that the project has developed and will soon be distributed in preparation for COP4, are a set of practical Guidelines for the Interim Storage, Transportation and Handling of Mercury (Basic and Comprehensive Guidelines), including liquid mercury and mercury wastes, in particular, wastes consisting of used elemental mercury and mercury contaminated materials.
- In Sierra Leone, with funding from the German Association for International Cooperation, the AGC continued working on the project: “Demonstrating Responsible Artisanal and Small-scale Production and Trade of Gold in Sierra Leone”.
- In Suriname, with funding from the USDoS, the AGC continued work on the project: “Abating Mercury Emissions via Mobile Processing Units for Small-Scale Gold Processing”.
- In Burkina Faso, AGC began work on the Scalable Trade in Artisanal Gold (STAG) project funded by the European Partnership for Responsible Minerals (EPRM). STAG is a partnership with RESOLVE and RMI and has Ford, CISCO, and ABB as industrial partners. A goal is formal mercury free gold trade.
- AGC also began a new project funded by the World Bank in Burkina Faso “Supporting the Training and Capacity Building of Artisanal and Small-Scale Gold Miners in Burkina Faso.” A series of trainings are planned, including on more productive and mercury-free gold recovery.
- In Colombia, AGC participated in the ASGM component of the EU funded project via UNIDO “Rural development and empowerment of the Communitarian Councils of the Chocó Department through the sustainable use of natural and mineral resources”.
- Internationally, AGC began a project with the Organisation of American States entitled: “Promoting International Cooperation to Improve OAS Member States “Systems to Monitor and Control the Illegal Trade and Use of Mercury for ASGM in the Americas”.
- In the context of the Global component of planetGOLD, AGC produced the draft “Technical Report Writing Guide”, which elaborates the scientific and technical information about mineral properties needed by potential investors in ASGM projects. This Guide sets out the content, requirements and format needed for qualified persons to complete a Technical

Report in compliance with certified standards developed by the professional mineral's sector such as Canada's National Instrument 43101.

- In response to COVID-19, AGC developed COVID-19 awareness posters, training materials as well as safety protocols for all projects and continuously adapted those to ensure safe interactions with mining communities and other stakeholders. AGC continues to develop communications on the health and livelihood impact of COVID-19 on ASGM communities.

- Alliance for Responsible Mining (ARM)

ARM supported the following mining entities in the improvement of their processing methods:

- Coodmilla cooperative, Colombia: improving the gold recovery mechanism with innovative solutions such as Goldstrike©
- La Gabriela cooperative, Colombia: the organization switched to a gravimetric only processing plant, but also improved its yield.
- Mercury assessment in 4 mining areas in the Cauca area, Colombia. This led to the definition of actions plans to use mercury-free plants and start a decontamination plan in the most affected areas.
- The first free-mercury mobile processing plant in Colombia, located in Cauca.
- Cruz Pata cooperative, Peru, is using mercury on concentrates, and ARM supported the organization in defining an action plan towards mercury elimination in their process.
- ARM is supporting various other mining organizations in Colombia and Peru to achieve either access to legal market or Fairmined certification, and this support includes strategies to reduce the use of mercury, with the finality to eliminate completely its use.

ARM also implemented activities in the following projects/programs:

- Based on funding from WWF/FFEM, ARM started a viability assessment to select pilot sites in Guyana and Suriname as a first phase of a three-year project, which aims at contributing to reduce mercury contamination in the Guianas by phasing-out mercury use in the gold mining sector and reducing mercury emissions from mining deforestation by 2025.
- In Burkina Faso, preparation of the establishment of a "clean gold" supply chain, based on the pilot experiment, funded by CIEDEL in Zorgho and associated municipalities (Ganzourgou Province) that allowed the identification and test of alternative solutions to the use of mercury in mineral processing.
- In Burkina Faso, ARM is also executing the project "Sanu Kura: Support for the creation of responsible and legal gold mining in Burkina Faso", aiming at the progressive formalization of 10 ASM sites and the elimination of mercury in 6 of them.
- ARM also contributed with a study on Burkina Faso to the IUCN report "Opening the black box: Local Insights into the formal and informal global mercury trade revealed"¹².

- Appelglobal

Appelglobal together with two other Danish companies (Elplatek and FLSchmidt) obtained a grant from the Danish Government to clean rivers draining small-scale gold mining communities from mercury. Appelglobal and partners have evaluated test sites for the cleaning operation in the Philippines and are presently evaluating test sites in South America.

AppelGlobal, in close collaboration with the Honduran Ministry of Environment and the GEF-Gold Program, completed a preliminary screening in June 2021 of forty-two geo-referenced sites along an 11-mile segment of the Sampile river and wetlands. Samples are presently being analysed for metallic and total mercury, together with pertinent ancillary parameters. Once the analytical results are available, a suitable site in the Sampile river will be identified to install a large machine for processing river sediments and mercury during the dry season. Recovered mercury will be shipped to Switzerland and stored in salt mines in Germany. The project will also train small-scale gold miners to extract gold without using mercury and will establish a scientifically rigorous baseline data platform to help the government and its partners measure development impacts from the project over time.

- Carbone Guinée (member of the European Environmental Bureau / Zero Mercury Working Group (EEB/ZMWG)) conducted the following activities under a project part of the Small Grants Programme funded by the GEF:

- Raising awareness among gold miners about the environmental and health risks associated with the use of mercury in gold mining, to support the adoption of good environmental and health practices.

¹² https://www.iucn.nl/files/groene_economie/lr_mercury_brochure_digitaal_gebruik.pdf

- Training local craftsmen in the production of retorts and promoting them to enable gold miners use alternative methods and techniques.
- Support to the acquisition of retorts.
- Worked to make the SDGs more understandable in connection with the Minamata Convention (Article 7) and the Guinean mining code.
- Making a documentary film on the testimony of gold miners and residents of the sites on operating conditions, the use of mercury and the risks to their health.
- Capitalizing on knowledge, lessons learned from the project's approach and experience.
- Diálogos has several ongoing projects involving mercury-free ASGM, including:
 - Uganda (with Appelglobal) “Free Your Mine, 2018-2021”. UNACOH, NAPE. The project aims to train around 1000 small-scale miners in the mercury-free extraction method; to increase knowledge of mercury toxicology for local health care workers, teachers and school children; and to empower civil society stakeholders to support the miners in their transition to mercury-free mining techniques.
 - Mozambique “Artisanal Mining: Ambitions and culture in Cabo Delgado 2016-2020”. Medicus Mundi, Céntrico de Vila. In March 2018 during a Diálogos’ miner-to-miner training session with scientific monitoring, the mercury-free method yielded up to 78 % more gold than the locally used method. In 2020, one mining community had gone totally mercury free using only borax to extract the gold.
 - Bolivia “Mercury Free Gold Mining (2020-2022)”. Plagbol. This project aims to train 300 ASGM miners, as well as 60 miners to act as trainers, in mercury-free method; increase knowledge of mercury toxicology for 20 health care workers and 50 teachers; and build capacity and empowerment of 50 civil society stakeholders, Miners' Unions with 900 cooperatives and the Ministry of Mining and Metallurgy to support the miners in their transition to the mercury-free method. Indirect beneficiaries will be 50,000 in the local population.
 - Tiira summit (planned 2021 but postponed due to COVID-19 pandemic). UNACOH, Busitema University, DASAM. A summit will be held with invited stakeholders from UNEP, Uganda Government, Dialogos etc. Presentation of miner-training in the mercury-free extraction method. There will also be a workshop at the University of Uganda on the prospects and challenges for promoting mercury-free extraction method to ASGM miners.
- Futura Jewelry has worked on the following actions:
 - Awareness raising activities: Futura website as well as social media activity provide information that support the work of the Partnership area. Futura enlists the support of social media influencers to grow the reach of its responsible gold message; participates in podcasts that help communicate the message on the elimination of mercury emissions in small scale gold mining and educate the public; and appeared on several jewellery webinars devoted to the need for better practices in the jewellery industry.
 - Futura is working with the TV program “Viewpoint by Dennis Quaid” to provide content for a five-minute public television segment about the worldwide threat of mercury emissions, the small-scale mining industry and how one may help solve the problem. The segment will start to appear during the fourth quarter of 2021.
 - Futura participated in the charity event for Have a Heart that resulted in its event specific mercury-free gold jewellery being marketed to the 2 million followers of the on-line retailer Moda Operandi.
- IMPACT Transforming Natural Resources Management (IMPACT) implemented a number of projects and activities to contribute to the elimination of the worst practices and support innovative market-based approaches:
 - IMPACT documented its learnings from the Just Gold project in north-eastern Democratic Republic of the Congo (DRC), funded by Global Affairs Canada, in the report “The Just Gold Project: Lessons for the Future of Artisanal Gold in Democratic Republic of Congo” in March 2021. The report documents the lessons learned throughout the implementation of the project, including the provision of technical assistance to miners, and identifies critical barriers for the future of conflict-free, responsible artisanal gold in the DRC. IMPACT is now working with various stakeholders in DRC to address these barriers, most notably on reforming the fiscal regime for the artisanal gold sector which, in its current form, serves as a disincentive for legal trade and threatens the commercial viability of conflict-free, responsible artisanal gold supply chains.
 - Continued implementation of the Just Gold project in Côte d'Ivoire with funding from the European Union. The project had regular exports of legal and traceable artisanal gold from

- the cooperative to a European refiner, while providing technical assistance to miners including the installation of mercury free gold processing equipment.
- IMPACT began implementation of the Gender Equality and Women's Empowerment in Artisanal Mining project, known as the Digging for Equality, funded by Global Affairs Canada. The project is implemented in DRC, Uganda and Zimbabwe over a three-year period and supports women miners to improve their environmental practices. The project supports installation of gravimetric mercury free processing in South Kivu, DRC. Environmental Assessments and strategies for reducing mercury exposure amongst women miners have been developed.
 - IMPACT began a new project in partnership with the Colorado School of Mines and I.R. Consilium entitled "Understanding and Disrupting Key Convergence Nodes of the Illicit Gold and Mercury Supply Chains in Latin America and Africa". The project will contribute to a better understanding of illicit supply chains and the ability to detect, disrupt, and disable them through an examination and comparison of key convergence nodes in the global supply chains for illicit gold and mercury in Latin America and Africa, with a focus on Peru and Kenya. The 5-year project is funded by the National Science Foundation.
 - With the support of Global Affairs Canada, IMPACT developed and launched a Gender Impact Assessment Toolkit for Projects and Policies Related to ASM in December 2020. This is the first gender impact assessment tailored to the sector and which can be used by policymakers or project developers, including those implementing projects to reduce mercury use. The toolkit is currently in use by IMPACT's partners in DRC, Zimbabwe and Uganda. It is available in Spanish, English, and French.
 - IMPACT launched its Foundations for Peace project in Burkina Faso, which aims to support a more responsible artisanal gold sector, while increasing security in mining communities.
 - Continued development and digitization of IMPACT's Planning, Monitoring and Learning System for impact monitoring, to improve understanding of interventions on formalisation, mercury reduction, traceable supply chains, and due diligence initiatives.
- Marcello Veiga (Professor Emeritus University of British Columbia). In 2021, professor Veiga participated in several projects on ASGM:
 - Chief Technical Advisor of projects implemented by Solidaridad in Pamaka, Suriname. One project aimed at improving techniques used by Artisanal Gold Miners through training of 200-300 people in chemical analyses, mineral processing, and elimination of mercury from operations. The other aimed at developing strategies to reduce environmental impacts, improve quality of life of miners and their communities, and introduce reclamation measures and economic diversification of 200 artisanal gold miners and their families.
 - Technical assistance to small companies processing gold from tailings in Sudan and in Costa Rica.
 - Participation in projects aimed at training trainers, miners and Government employees on Artisanal Gold Mining in Mauritania and in Colombia-Indonesia.
 - Participation in a project of assessment of Coexistence of Artisanal Miners with Conventional Mining Companies in Brazil, implemented by EGPS – World Bank.
 - McGill University, Montreal, Canada, in collaboration with Ghana Health Service, published new research to demonstrate that mercury exposures are about 3-fold higher in ASGM miners working in un-registered sites versus those working in registered sites in Tarkwa, a gold mining town in Ghana. The study compares mercury exposures and neuropsychological test results between miners from registered and unregistered ASGM sites. The research also found that ~30% of artisanal miners indicated some degree of associated health challenges in relation to reduction in appetite, hair loss or excess salivation.
 - Pact's Mines to Market programme has undertaken the following activities in support of ASGM's sustainable transformation:
 - In Mali and Ghana, Pact commenced two new projects with the US Department of State on "Reducing Mercury Use and Strengthening Responsible Supply Chains in [Mali's/Ghana's] Artisanal and Small-scale Gold Mining (ASGM) Sector". Kick-off for the Projects occurred in 2021, and project teams have engaged with stakeholders through a beneficiary selection process and conducted mine site assessments to identify gold miners who will act as project partners. Key beneficiaries have been selected in the regions/districts of Keneiba (for Mali) and in Western and Ashanti Regions (in Ghana).
 - In Colombia, Pact has continued long standing relationship working with US Department of Labor / ILAB, on a project called Pilares, which focuses on building the capacity of civil society to combat child labor and improve working conditions. In a separate project with

- USAID called SCIOA, Pact is strengthening the capacity of indigenous peoples' organizations in the Amazon (Brazil, Colombia, Ecuador, Peru, and Suriname).
- In Sierra Leone, Pact has commenced the "Piloting NAP Implementation in Sierra Leone" project in 2021, funded by GIZ. The Project supports implementation of Sierra Leon's NAP by reducing mercury use and supporting the formalization of ASGM communities in Tonkilili District.
 - In Mauritania, Pact commenced the "Business Pilot for Responsible Mauritanian ASM Gold" in 2021, a three-year project funded by the European Partnership for Responsible Minerals (EPRM) which aims to establish a formal gold supply chain of responsible produced and traded mercury-free gold. The project includes connecting ASGM gold to gold buyers based in Europe.
 - In Zimbabwe, 2020/2021 Pact and UNDP partnered to support the establishment of a mercury-free mineral processing plant at Umbrella Mine in Makaha, including training miners on its operationalization.
 - With funding from PlanetGOLD, Pact has collaborated with NRDC and the International Cyanide Management Institute, and others - to produce a Guidance document on *Best Management Practices for Cyanide Use in the Small-Scale Gold Mining Sector*. The guidance is directed at policymakers, ASGM practitioners, and SSM professionals.
 - At the global level, Pact has established and coordinated a COVID-19 working group through its Delve platform with the World Bank, which has included coordination of assessments on COVID-19 impacts on ASGM communities in Colombia, Kenya, Nigeria and Myanmar.
 - Pact developed and partnered with the University of Delaware to publish a comprehensive Policy Assessment concerning ASM's contributions to the SDGs (de Haan, Jorden; Dales, Kirsten; and McQuilken, James. 2020. Mapping Artisanal and Small-Scale Mining to the Sustainable Development Goals).
- **Pure Earth** is currently working in Peru, Colombia and Indonesia on projects addressing mercury pollution associated with artisanal gold mining.
 - In Peru, Pure Earth has been working since 2019 with small-scale miners in Madre de Dios to reduce mercury-use and promote ecological mine closures. With the Center for Amazonian Scientific Innovation (CINCIA), Pure Earth holds training for miners in restoration and has reforested 8.5 hectares of degraded land. Pure Earth also works with CITE Minería y Medio Ambiente, a Peruvian institution dedicated to cleaner mining technologies, to study local ore characteristics and train miners in the use of shaking tables.
 - In Colombia, Pure Earth has actively contributed to various projects with different approaches, but which are complementary, achieving a comprehensive management of ASGM operations. (1) Under funding from the United States Department of State a technical protocol was developed for the management of mercury-contaminated tailings and an economically viable technique to recover mercury from tailings using silver-plated copper plates. The protocol is intended for use by the government and stakeholders in Colombia and globally. (2) The Pure Earth team also contributed to the implementation of planetGOLD through UNDP. Colombia office investigated 30 contaminated sites and 35 tailings piles in Colombia and developed a mercury contamination index that quantifies and ranks the health risks of a contaminated site using environmental samples and population demographics to help prioritize interventions. Also, in the treatment of 90 tons for the recovery of mercury and gold, adding complementary techniques to silver-plated copper plates. (3) With funds from the national government through the Ministry of Mines, the characterization of 140 tailings in 8 departments is completed.
 - In Indonesia, Pure Earth contributed to the implementation of planetGOLD projects relating to an improved policy/regulatory framework for mercury-free ASGM, financing for mercury-free processing equipment and capacity building for mercury-free ASGM. In collaboration with the Pact Institute, the team completed assessment and capacity development of businesses and financial products in the ASGM sector. In collaboration with Yayasan Tambuhak Sinta (YTS), the team completed capacity building of government entities and stakeholders in the ASGM sector, as well as projects to empower artisanal women miners to eliminate mercury use and establish a women miners cooperative in the only alluvial mining site of planetGOLD's six project sites in Indonesia, i.e., Kuantan Singingi, Riau. Pure Earth also teamed up with YTS to write six modules relating to ASGM formalization, comprising: (1) Procedures for Establishing Cooperatives and Village-Owned Enterprises in ASGM Sector; (2) Leadership in ASGM Sector; (3) Procedures for Obtaining ASGM People's Rights; (4) Procedures for Applying for Permits and Operating Processing Facilities; (5) Mineral Processing and Waste Management in ASGM Sector; and (6) Technical Rules for Community Mining Permit. Training of trainers (ToT) on ASGM formalization has been

conducted in four project sites throughout 2021 and will be conducted in one project site in 2022.

- Satoshi Muraio (Professor, Daiichi Institute of Technology). Since he joined GMP, Professor Muraio has continued his work addressing ASGM in the core areas of science, technology, improved practices, supply chain, and outreach. For example, his team found that water-soluble mercury is increased in concentration after forest fire in ASGM areas (Takenaka et al., in print).
 - “Contributed scientific and technological information to the development of the document: “Sound Tailings Management in Artisanal and Small-Scale Gold Mining – Technical Document (UNEP,2021)”
 - Initiated in April 2021, with Waseda University, a three-year project “Interdisciplinary Research on Mercury Pollution by the ASGM, Using the Varved Lacustrine Sediments” to understand long distance mercury transported from ASGM sites. The project is funded by the Japan Society for the Promotion of Science and will study lake sediments in the Philippines and Indonesia as well as a historic ASGM site in Japan.
 - In November 2021, Geological and Environmental Research Methodologies for ASGM " Present Status of Observation and Monitoring Technology Towards Risk Management of Mercury" was jointly held by GMP and the Japanese Society of Geo-Pollution Science, Medical Geology and Urban Geology.
 - He worked with the Ministry of the Environment, Japan, mainly through its series of international ASGM webinars to share Japan’s experience and knowledge on mercury and presented in Indonesia and Myanmar.
- Solidaridad Guyane and Minamata Disease Research Institute collaborated on a mercury intoxication project in the French Department of Guyane and provided the population with information on the type of fish they should focus their diet on.
- Sustainable Alluvial Mining Services (SAMS)
 - Esa'ala ASGM pilot project in Papua New Guinea initiated by a local government authority to achieve sustainable rural development driven by revenue generated from responsible ASGM activities. The first phase (out of four) of the project included the organization of local miners into legal mining entities and the establishment of ASGM desks. So far, registrations include two Small Scale Mining Associations, an ASGM desk created at the district level and a female small-scale Mining Association;
 - SAMS Technical experts based in Australia have also created a simple gold recovering equipment, which eliminates almost entirely the risk of spillage or loss, the risk of inhaling mercury vapour, and the risk of environmental contamination;
- Universidade Federal do Pará (UFPA), Belém, Brazil: The Molecular Pharmacology Lab of UFPA, located in the Brazilian Amazon, carried out actions aiming the following goals:
 - Understand state-of-art of mercury impact in the Amazon region: a scoping review evaluating data on neurological consequences of human exposure to mercury in the Amazon, with critical insights and recommendations, was performed to improve future epidemiological surveys and prevention strategies (Ecotox. Environ. Saf. 208, 111686; doi: 10.1016/j.ecoenv.2020.111686).
 - Contribute to the international discussion about the future consequences and studies in the Amazon: a comprehensive review alerting about the most recent events that amplifies ASGM impact in the Amazon was published in the journal Environment International (doi: 10.1016/j.envint.2020.106223). Also, the combination of salivary markers and neuropsychological tests has been discussed and proposed as accurate, non-invasive, and low-cost strategies for evaluating vulnerable populations (Environ. Res. 200, 111432; doi: 10.1016/j.envres.2021.111432).
 - Divulgate information and provide support to judicial and legislative decisions to reduce ASGM impact in the Amazon: elaborated an *Amicus Curiae* for the Supreme Court of Brazil explaining the dangers of the Roraima State law on ASGM activities in protected lands, in collaboration with the Universidade Estadual do Amazonas and the Pontifícia Universidade Católica do Paraná. This *Amicus* was accepted by the Court and supported its final decision against the law. Also, participated in the public hearing to decide whether ASGM activities would be allowed in the Tucuuruí region (State of Pará), providing epidemiological data that demonstrated human exposure to mercury.
 - Increase technical expertise and qualified human resources in the Amazon: led the creation and implementation of the first PhD program in toxicology and biochemistry in the Brazilian Amazon including specific research projects on mercury and ASGM impacts that will allow to reinforce the healthcare system and the technical capacity to deal with the problem *in loco*.

- Develop proposals for nudge interventions, tailored to the characteristics of the Amazonian remote/isolated populations affected by ASGM (Foods 10, 1015; doi: 10.3390/foods10051015)
 - University of British Columbia, Vancouver, Canada. Activities included:
 - Part of the Consultant Group studying for the Government of Ghana the feasibility of implementing a Training Center for Artisanal Miners in Tarkwa and produced a report which encompasses design of the center, list of equipment, suggestions of sources of income, strategy of teaching, personnel, business plan, cashflow, etc.
 - Laboratory studies of unconventional methods to extract gold from gravity and flotation concentrates using bitter cassava, simplified cyanidation and organic extraction (no water). Results are very promising ranging from over 50% to 100% extraction. Students are searching for bitter cassavas with higher levels of glycosides in the Amazon.
 - Elaboration of an extensive review article on Gravity Concentration Methods in Artisanal Gold Mining explaining the pros and cons of each procedure.
 - Elaboration of detailed inventory of coexistence of Artisanal Gold Mining (AGM) and Conventional Gold Mining (CGM) companies.
 - Elaboration of a list of problems faced by many projects when trying to eliminate the use of mercury in AGM, published at: Veiga, M.M. and Fadina, O. (2020). A review of the failed attempts to curb mercury use at artisanal gold mining and a proposed solution. *Extrac. Ind. Soc.* 7, 1135-1146.
 - Consulting for UNDP Indonesia and the Government of Indonesia on methods to eliminate mercury in AGM.
 - Classes to the Association of Small-scale miners of Peru on mercury-free methods to extract gold.
 - Elaboration of a study on the legislations related to AGM in the 9 Amazonian countries. This is pointing out the hurdles to formalize AGM.
 - University of Illinois at Chicago, Great Lakes Center for Occupational and Environmental Health
 - Developed a curriculum for primary healthcare providers on mercury poisoning and other adverse health effects related to ASGM, which is available on the Partnership website¹³.
 - Currently working on a biosensor system for mercury testing in biological fluids that will hopefully become a point-of-care test in 1 to 2 years.
- c) Planned future activities include:
- As some countries are finalizing the development of their NAPs, the Partnership area will focus on activities that support implementation of these plans, as well as continue to support sharing of NAP experience among governments, including through the planetGOLD programme and numerous bilateral activities.
 - The Partnership area has had some success attracting more private sector partners and will continue to foster their greater collaboration and engagement.
 - The Partnership area will continue to act as a critical information-sharing mechanism amongst Parties to the Convention.

2) Mercury cell chlor-alkali production

- a) The objectives of the Partnership area are to:
- Prevent the construction of new mercury-cell chlor-alkali production facilities;
 - Reduce mercury emissions and use from existing mercury-cell facilities;
 - Encourage conversion to non-mercury processes;
 - Reduce or eliminate mercury releases from waste generated by chlor-alkali production facilities including waste from conversion to non-mercury processes; and
 - Promote environmentally sound options for storage of surplus mercury to limit downstream releases from surplus mercury generated by the conversion, phase-out, or closure of mercury-cell chlor-alkali facilities.

¹³ <https://www.unep.org/globalmercurypartnership/resources/tool/artisanal-and-small-scale-gold-mining-curriculum-health-sector>

- b) Key activities in the Partnership area are presented below.
- UNEP and Mexico's Secretariat of Environment and Natural Resources (SEMARNAT), and CYDSA, S.A de C.V (private sector) continue to refine final details of a potential GEF-funded project to convert/decommission two remaining mercury cell chlor-alkali facilities in Mexico, including plans for the management of mercury waste and contaminated sites related to the two facilities. The GEF approved the project in June 2020. Project development has experienced some delays due to COVID-19.
 - ABICLOR and CLOROSUR, on behalf of the chlor-alkali Partnership area, have been coordinating efforts to assist the remaining four chlor-alkali plants in Brazil to phase-out mercury from their operations. These efforts have included facilitating the search of funds for both replacement with membrane facilities and treatment, as well as stabilization and disposal (storage) of the mercury wastes. COVID-19 has complicated project financing, delaying further development of the project.
 - The Partnership area participated in a contaminated sites workshop hosted by Mexico's Instituto para la Protección Ambiental de Nuevo León where they presented on topics related to the managing mercury contaminated sites in the chlor-alkali sector.
 - The Partnership area held its annual meeting in February 2022, amongst others to consider the Business Plan, update on Partnership area activities, and identify Partnership area priorities for 2022.¹⁴
- c) Planned future activities include:
- Reviewing and updating the chlor-alkali business plan for 2022 to reflect the current global landscape as it relates to the chlor-alkali sector;
 - The Partnership areas on mercury cell chlor-alkali production and on mercury waste management are considering hosting joint webinars to address the needs and challenges faced by chlor-alkali producers both for financing of the conversion process and for addressing the management and disposal of mercury wastes;
 - Continuing to collect more information from countries on ongoing and potential conversion projects;
 - Providing technology advice for potential chlor-alkali conversions;
 - Facilitating the acquisition of financing for promising potential conversion projects;
 - Increasing focus on collecting and sharing current knowledge and best practices in the management and disposal of stocks for converted facilities, for example by increasing cross-partnership collaboration, especially with the Partnership areas on mercury supply and storage and on mercury waste management.

3) Mercury air transport and fate research

- a) The main objective of the Partnership area is to increase global understanding of international mercury emissions sources, fate and transport, by:
- Accelerating the development of sound scientific information to address uncertainties and data gaps in global mercury cycling and its patterns (e.g., emission sources, air concentrations and deposition rates, source-receptor relationships, hemispheric-global air transport/transformation, mercury in biota and spatial and temporal variations driven by ecosystem sensitivity);
 - Enhancing compilation and sharing of such information among scientists as well as between them and policy makers.

The specific objectives are:

- To support the implementation of the Minamata Convention and the development of a globally coordinated database and monitoring system for measuring mercury levels in air, marine and terrestrial ecosystem, which may contribute to assess the effectiveness of measures taken;
- To assist relevant stakeholders involved, including Parties to implement the necessary actions to fulfil the requirements of the Convention and its objectives;
- To gather up-to-date information on mercury contamination worldwide and support capacity building activities to transfer knowledge on mercury monitoring and best practices to all relevant stakeholders involved;

¹⁴ <https://www.unep.org/globalmercurypartnership/events/unep-event/partnership-area-mercury-cell-chlor-alkali-production-2022-meeting>

- To facilitate the dialogue between the scientific community, policy makers and other relevant stakeholders.

b) Key activities in the Partnership area include:

To support the preparation of the Mercury Monitoring Guidance Document for COP4 (activities led by BRI):

- Support the generation of Chapter 6 (on biota mercury) of the Mercury Monitoring Guidance Document in preparation for COP4 and assist with other Chapters as requested by the Secretariat of the Minamata Convention. The Global Biotic Mercury Synthesis (GBMS) is a data basis for this report.
- Support by Partnership area members as expert reviewers for Chapter 6.

To support countries and intergovernmental organizations to improve mercury assessment and monitoring capabilities (activities led by BRI):

- Coordinate and assist countries with their Minamata Initial Assessments (MIAs) - 26 out of 37 have been completed.
- Review completed MIAs under contract with UNEP, before their onward submission to the Secretariat of the Minamata Convention and provide feedback to the Implementing Agencies and focal points of the Country.
- Develop country projects where the use of skin-lightening products is reduced and their sale and import in line with obligations of the Minamata Convention in coordination with the Partnership area on mercury in products. One GEF project is being implemented with UNEP as the implementing agency and WHO as a co-executing agency with BRI;
- Assist with the initiation of regional networks in the context of projects supported by the Specific International Programme, such as the Caribbean Region Mercury Monitoring Network – overseen by Antigua and Barbuda and potentially others in central Africa and southern Asia;
- Provide add-on value support to countries that may want to initiate preliminary mercury monitoring efforts with Passive Air Samplers, biota and human biomonitoring;
- Generate communication pieces to enhance the understanding of policymakers of scientific findings, on topics such as mercury monitoring of air, biota, humans and certain products.

To facilitate the dialogue between the Partnership area and on-going programmes such as GEO Flagship on “Global Observation System for Mercury - GOS4M” (activities led by CNR):

- Increase the availability and quality of Earth Observation data and information to contribute to the tracking of mercury released to the global environment and, where appropriate, anticipate changes to the environment;
- Harmonize metadata production, archiving and sharing data from existing mercury monitoring networks; and develop advanced services (e.g., access to air mercury monitoring data) in support of policy mandate through the Minamata Convention;
- Develop automated robotic systems for monitoring Hg, among other parameters, in air, topsoil and top-water microlayer to better understand the cycle of this pollutant at the air-water/topsoil interfaces;
- Facilitate cooperation of governments and institutions tracking persistent pollutants;
- Foster the adoption of advanced sensors in monitoring mercury and its compounds;
- Prepare, archive and share metadata.

To promote continuous studies on mercury contamination in air and marine compartments with reference to several ad-hoc field campaigns organized and carried out in different parts of the world (activities led by CNR):

- In this framework, the I-SEED project (<https://iseedproject.eu>) FET PROACT-EIC-08-2020 Environmental Intelligence Research and Innovation Action - Grant Agreement n. 101017940) is aimed to develop robotic system made with biodegradable materials able to provide continuous monitoring data of Hg, CO₂, RH and T in air and topsoil. The project is part of GOS4M and is aimed to support the goal of the MCM and its global monitoring plan implementation.
- ERA-PLANET is an ERA-NET Co-funded action under the EU H2020, started in 2016, as part of the Group on Earth Observations (GEO) and Copernicus (www.copernicus.eu). It will end in

January 2022. A final project meeting was held on 20-21 October 2021 to present its major outcomes to stakeholders and policy makers.

- Within ERA-PLANET programme, the projects iGOSP (www.igosp.eu) and iCUPE (www.atm.helsinki.fi/icupe) have been developed and are under implementation. Within iGOSP a fully interoperable knowledge hub (GOS4M KH, www.gos4m.org) was developed (De Simone et al. 2021a, b – in Env. Sci. & Policy) to better understand the dynamic processes affecting the fate of mercury emissions to the atmosphere to ecosystems and leaving organisms and ultimately its impact on human health. This platform built-in GOS4M Knowledge Hub will make available all mercury data gathered from ongoing mercury monitoring programmes.

To develop a global web-based platform for existing and new mercury data (activities led by BRI):

- The overarching goal of this project is to provide contributions toward advancing guidance on monitoring data and harmonized, comparable information on mercury concentrations in the environment, which may support the effectiveness evaluation discussions under the Minamata Convention;
- Project objectives are to: (1) Establish a Science-Policy Advisory Panel to guide the project, support quality control, and facilitate outreach, while working through the Partnership area with member participation; (2) Assess web-based Global Knowledge Platforms that best fulfil the needs of Parties and associated stakeholders of the Minamata Convention; (3) Generate a centralized database for existing mercury concentrations in biota (based on GBMS); (4) Identify a suite of queries collated from Parties and other stakeholders of the Minamata Convention; (5) Work with data providers, information technology experts, end-users, and other stakeholders to design and develop a functional online platform that meets identified interests; (6) Conduct testing of the platform capabilities, including data acquisition, data ingestion, data quality control, information synthesis, data query, and data visualization and implement any needed improvements based on the testing, leading to the development of a final version of the knowledge platform. Approvals and consultations are still pending with GEF-STAP and UNEP.
- Consultations with the Minamata Secretariat are expected.

Passive air sampling for mercury on a global scale. Activities included and led by Environment and Climate Change Canada (ECCC):

- ECCC is leading a global passive air pilot study for the collection of atmospheric mercury concentrations. The intent of this study is to assess the feasibility and comparability of new sampling technology on a global scale in conjunction with currently deployed active and passive mercury sampling investigations by other research/monitoring groups. This project is employing the MerPAS® sampler produced by Tekran Instruments Corp. This technique collects gas phase mercury on a sulfur-impregnated activated carbon sorbent. The samplers are shipped to site locations and are deployed for 3-month time periods. Following deployment, they are shipped back to the laboratory at ECCC for analysis. Results from this study will be openly available to the public and housed on the ECCC Open Data Portal.
- While considerable mercury monitoring in the atmosphere has taken place in the past two decades, there remain many regions where there is little to no information. The intent of this study is to attempt to fill the gaps in monitoring information by collaborating with currently operating air monitoring networks to initiate or continue atmospheric mercury monitoring using this passive sampling technology. The intent is not to create new networks in various regions but to use the current facilities and infrastructures that exist to add this type of sampling. In essence, creating a “global network of networks”. The current networks that we have partnered with and deployed samples to include the Environment and Climate Change Canada Arctic Network, the Global Atmospheric Passive Sampling (GAPS) network, the Asia Pacific Mercury Monitoring Network (APMMN), and the National Atmospheric Deposition Network (NADP). In the future, other known networks will be approached to explore possible partnership, including the Caribbean Mercury Monitoring Network (CMMN), the Latin American Passive Air Sampling Network (LAPAN), the Global Mercury Observation System network (GMOS), the RECETOX driven Monitoring NETWORK (MONET) programme in Africa, the European Monitoring and Evaluation Programme (EMEP) and the Arctic Monitoring and Assessment Programme (AMAP). To date, we have partners with 55 sites around the world in 28 countries and deployed 285 samplers.

- c) Planned future activities are as follows:
- Partners of the Partnership area are working on projects that can contribute specifically to Articles 1, 19 and 22 of the Minamata Convention but are not limited to these Articles. Such activities include the development of data collection and synthesis, field assessments, and the development of mercury monitoring networks that can contribute toward a global understanding of mercury, as well as towards discussions on effectiveness evaluation under the Mercury Convention.
 - Efforts are particularly well established for air mercury data collection and monitoring through the GOS4M Flagship of the Group on Earth Observations and biota mercury monitoring based on the Global Biotic Mercury Synthesis (GBMS) database that will be published and also made available through a web-based interactive platform. GBMS is the only database that synthesizes over 1,400 peer-reviewed publications about mercury in biota that contributes to nearly 800,000 mercury data points for taxa identified in Article 19 (e.g., fish, sea turtles, birds and marine mammals).
 - The newly established Caribbean Mercury Monitoring Network could be an example of regional network that members of the Partnership area could develop, especially in areas that have been identified with major data gaps yet have identified or projected elevated environmental mercury loads that may infringe on ecological and human health.
 - The Partnership area, through BRI, is also exploring cooperation with the academic sector through a research project aimed at the identification and spatiotemporal visualisation of the impacts of mercury contamination (threat) on the environment and human health through a characterisation of ecosystem sensitivity and risks contamination of biota. The project would comprise in-depth field investigations and sampling, in Gabon and potentially Cameroon, to enable data production and analysis for the development of an interactive database and communication tool, supporting informed decision-making to implement the Minamata Convention.

4) Mercury in products

- a) The objectives of the Partnership area are to phase-out and eventually eliminate mercury in products and to eliminate releases during manufacturing and other industrial processes via environmentally sound production, transportation, storage, and disposal processes.
- b) Key activities in the Partnership area include:
- **Report on the Harmonized Commodity Description and Coding System:** COP-3 Decision MC-3/3 directed the Partnership area, as well as relevant experts, to draft a guidance document for consideration at COP 4 on the use of customs codes for monitoring the import and export of mercury-added products, including: (1) for the mercury-added products listed in Annex A to the Convention, a list of possible customs nomenclature codes of more than six digits that could be used by Parties; (2) for mercury-added products not listed in Annex A to the Convention, a compilation of examples provided by national experts of customs nomenclature codes of more than six digits currently in use by Parties; (3) examples of good practice where the use of customs nomenclature codes at the national level has been supplemented by the use of other control tools for the purpose of implementing trade provisions, such as those found in Article 4 to the Convention.; and (4) an assessment of whether the subsequent development of six-digit harmonized codes would be a useful complement to codes of more than six digits. That decision also requested the Secretariat of the Minamata Convention to circulate an open call to all Parties, non-Parties and other stakeholders, including relevant organizations, to identify experts familiar with the use of national customs codes to participate in the open-ended process.

A draft guidance document (UNEP/MC/COP.4/27) and an information document (UNEP/MC/COP.4/INF/5) on the use of more mercury-specific customs codes have been developed as requested at COP3. This guidance describes the use of customs codes for monitoring and controlling the import and export of mercury-added products pursuant to Article 4 of the Convention. The document builds on the previous report (submitted to COP-3), and, pursuant to the discussion of the Parties at COP-3, proposes a mechanism, once finalized, for countries wishing to use common customs codes for the implementation of Article 4. In the submissions from various Parties there were very few ten-digit statistical codes proposed or already in use for these products (eight-digit tariff codes were provided in most cases). Considering relevant product descriptions, the 2021 report proposes ten-digit customs nomenclature codes for Annex A products in cases where none had been indicated by Parties.

The ten-digit codes have been proposed in the report both for consistency and to minimize the need for Parties to reconsider their current eight-digit codes. The overarching goal of this initiative, if implemented, is to help facilitate the phase-out of the mercury-added products listed in Part 1 of Annex A of the Convention.

In addition, enhancing the quantity and quality of data generated by the Harmonized System could allow for the collection of information distinguishing between mercury-added and non-mercury added products, which would facilitate implementation of Article 4, ease and improve overall reporting, assist compliance and foster better communication among trading partners.

- **Mercury in Products-Specific Webinars:** In a continuing effort to provide outreach on the challenges and lessons-learned in global efforts to assess mercury-added product phase-out potential, including discussions of mercury-free alternatives, the Partnership areas on mercury in products and waste management, as well as interested partners conducted a webinar on mercury-added lamps in December 2021. A future webinar on dental amalgam is currently being considered. These efforts would seek to build on the successes of the Partnership area webinars on mercury-added medical devices and cosmetics conducted in 2020 in cooperation with WHO and the Zero Mercury Working Group.
- **Mercury-Added Product Reduction Projects in Kenya, Ivory Coast, India, Bangladesh and the Philippines (European Environmental Bureau/Zero Mercury Working Group (EEB)/ZMWG):** EEB/ZMWG and partner organizations in Kenya, Ivory Coast, India, Bangladesh, and the Philippines supported efforts by their governments to carry out mercury-added product reduction and phase out projects, including the following:
 - Conduct of studies of alternatives to mercury-added products;
 - Outreach/workshop to customs officials on Article 4 provisions;
 - Procurement of mercury-free alternative products in hospitals and assistance to hospitals vis-à-vis the environmental management of storage/disposal of mercury added measuring devices.
 - Development of draft “road maps” to phase out mercury-added products;
 - Identified importance of Article 4 awareness raising activities, particularly for traders, manufacturers and producers;
 - Support for development of legal gap analysis for mercury-added products; and
 - Support towards ratification.
- **Skin-Lightening Cream Campaign (ZMWG):** ZMWG collaboration with NGOs worldwide has continued and a third regional testing hub was established in Antigua and Barbuda (to cover North, Central and Latin America), in addition to the two existing regional testing hubs in the Philippines (to cover Asia), and Ivory Coast (to cover Africa) in order to facilitate the testing of online products previously determined by the government analysis to have high mercury levels.
 - The results of the last sampling round carried out in 2019¹⁵ showed some progress toward compliance with the Minamata Convention when internet platforms Amazon, eBay, Lazada, Jumia (Africa), and Daraz (Asia) responded positively to a request to take down the high-mercury creams containing levels well over 1 part per million.
 - A new round of sampling of skin-lightening cream products for mercury started in November 2020 and was completed in 2021. Samples have been collected and tested from 17 countries, with the assistance of the ZMWG network. Results will be presented in 2022.
 - Monitoring work was completed in 2021, building on prior results from 2019, including checking availability of skin lightening products on e-platforms on a bi-monthly basis. It also included highlighting the enforcement report¹⁶ and identifying national capacity-needs in terms of enforcement. A questionnaire and a complementary supportive information document were developed to assist this work. Most important to highlight is the continuous presence of potentially high mercury creams in the e-platforms and the necessity to reform the on-line platforms’ third-party liability regime.
- **Capacity building related to Multilateral Environmental Agreements (MEA) in African, Caribbean and Pacific (ACP) Countries - Phase 3 (ACP-MEA's) project:** Under this new project which began at the end of 2020, the EEB/ZMWG is focusing its work on the formulation of specific strategies in selected ACP countries for addressing the mercury-added product phase

¹⁵ <https://www.zeromercury.org/wp-content/uploads/2019/11/Dangerous-mercury-laden-and-often-illegal-skin-lightening-products-readily-available-for-online-purchase.pdf>

¹⁶ <https://www.zeromercury.org/wp-content/uploads/2019/11/Enforcement-measures-to-restrict-high-mercury-cosmetic-products-under-the-Minamata-Convention.pdf>

out provisions under Article 4 of the Minamata Convention. Activities are targeted mainly in the Caribbean and African regions. In the Caribbean EEB/ZMWG is collaborating with CARICOM and BCRC.

- The EEB/ZMWG under the ACP MEAs III programme has established memorandum of understanding with the governments of Trinidad and Tobago (TTO), Antigua and Barbuda (ATG) and St. Kitts and Nevis (SKN), to carry out work towards phasing out mercury added products. In summary the activities, which are in their early stages of development, will focus on the following areas:
 1. Developing a roadmap for phasing out mercury-added products
 2. Carrying out market studies of mercury-free alternatives
 3. Assessing/focusing institutional capacity
 4. Developing a strategy on mercury-free product procurement
 5. Developing a pilot project on single stream product management
 6. Supporting the development of the National Implementation Plan
- In Africa, activities have been ongoing with NGO partners from Kenya and Nigeria in supporting the implementation and enforcement of Article 4 provisions.

c) Planned future activities include:

- Continuing to support efforts related to the report on HS codes initiative (including through coordinating meetings and assisting in sharing materials);
- Exploring organizational modifications to enhance operations of the Partnership area;
- Continuing to identify and promote viable, available and cost-effective alternatives to mercury-added products;
- Compiling a list of projects and other publicly available resources on mercury-added products and alternatives; and
- Sharing the progress of the U.S. mercury inventory and the U.S. Food and Drug Administration recommendations for certain high-risk populations regarding mercury-added dental amalgam¹⁷.

5) Mercury releases from coal combustion

- a) The objective of the Partnership area is the continued minimization and elimination of mercury releases from coal combustion where possible. It also aims to provide technically sound information on cost effective approaches for enhancing reductions of mercury emissions, particularly for developing countries and countries with economies in transition. No numerical targets are established for the Partnership area.
- b) Key activities in the Partnership area include:

The International Centre for Sustainable Carbon (ICSC, formerly IEACCC; Co-lead of the Partnership area) won a US State Department NOFO project to evaluate and reduce mercury emissions from the coal combustion sector in India and Indonesia¹⁸.

For Indonesia, the project is comprised of three phases:

- Phase 1: evaluation of mercury emissions from all coal-fired plants, current and impending, in order to rank the plants and identify three for closer investigation with respect to emission reduction strategies. This Phase is now complete, and the results have been published in a report, which is available from the ICSC website¹⁹. The three selected plants have agreed to collaborate with the project, along with the Ministry of Minerals and Energy Resources (MEMR) and Ministry of Environment and Forestry (MOEF).
- Phase 2: calling on the Partnership area and other interested Parties to focus on the configuration of the three selected plants in order to collate a “catalogue” of potential mercury reduction techniques and technologies, especially options which can be replicated across the rest of the

¹⁸ Further information on this work is available from the website: <https://www.sustainable-carbon.org/outreach-programme/>

¹⁹<https://www.sustainable-carbon.org/outreach-programme/>

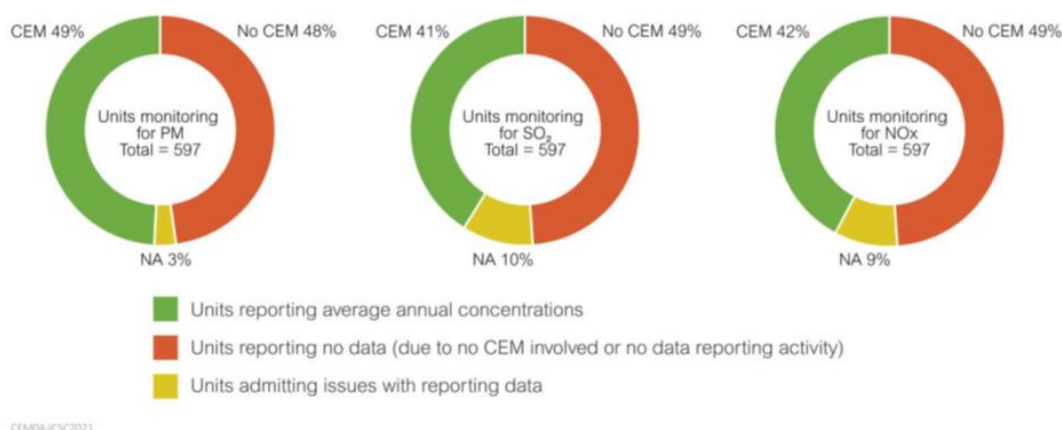
coal fleet. Delivery of mercury monitoring and training workshops to Indonesian stakeholders and plant operators, with partners providing some of this training and insight. This phase of work will proceed as soon as COVID-19 related travel limitations are lifted.

- Phase 3: determination of potential funding and cost-leveraging options available to move mercury reduction policies and projects into practice in Indonesia. This may be the most challenging phase of the project since it is clear that most international funding agencies are moving away from funding fossil fuels. However, it is hoped that some funding and co-finance can be identified to help actualise at least one full-scale retrofit. Members of the Partnership area proposed a USTDA project to further develop bankable demonstration projects for mercury reduction in Indonesia. The proposal has passed the first round of review and the Partnership area will be updated if and when the project is given full approval.

For India, the project focuses on capacity building and training on mercury emission monitoring and control through three pillars of work:

- Pillar 1 – Emissions monitoring at coal plants. The new emission limits for particulate matter (PM), SO₂, NO_x and mercury in India require associated means to ensure that plants comply with these limits. The National Pollution Control Board (NPCB) in India now requires that individual coal-fired units install CEM (continuous emission monitoring) systems on all units to report emission data electronically, in real-time, to the State Pollution Control Boards (SPCB). Guidelines have been issued, which require CEM systems to be installed in such a way that remote calibration can confirm CEM performance and data tampering is avoided. This is, in theory, a good way to ensure that plant emissions can be policed, and appropriate actions can be taken swiftly to curb exceedances. However, in practice, the system faces several challenges.

The figure below shows the status of installation of CEM systems across the coal power fleet in India, based on data reviewed by the ICSC.



For all pollutants, fewer than half of the coal units have CEM systems in place. Over and above this, between 3 and 10% of the fleet are reporting technical issues with the systems they have in place for PM, SO₂ and NO_x (there are few, if any, plants with emission monitoring for mercury in place).

In practice, this means that well over half of the coal-plants in India are unable to determine whether they are in compliance with the emission standards. If the emission standards are to achieve the desired reduction in emissions and improvement in air quality, then it is imperative that steps are taken to resolve these monitoring and reporting challenges.

- Pillar 2 - Reducing emissions and improving ash management.
- Pillar 3 - Flexibility in operating coal plants. This pillar builds upon a previous project between the USDOE, USAID, EPRI and NTPC in India which developed a toolkit to maximize the flexibility of coal-fired power plants. The current project has identified the potential for the flexibility toolkit in India and has designed a programme to deliver hands-on training.

The Partnership area is now working with Indian stakeholders to deliver training and capacity building on emissions monitoring. It is hoped that four regional workshops can be held in India over the next 12-18 months. More details will be provided on the ICSC website once these events are finalised.

In April 2021, the GEF CEO approved a medium-scale UNEP project entitled: “Assessment of existing and future emissions reduction from the coal sector toward the implementation of the Minamata and Stockholm Conventions” to be executed by the Partnership area leads, Macquarie University and the ICSC, with expertise and input from the Partnership area. Uniquely this new project will address implementation of the Minamata and Stockholm Conventions, and also be aligned with the commitments countries make under the UN Framework Convention on Climate Change (UNFCCC). This project commenced in October 2021, and consists of two components:

- A comprehensive coal sectoral analysis, which will review scientific data on mercury/POPs/GHGs from the coal sector and estimate future emissions in the light of the UNFCCC Paris Agreement commitments and targets.
- The synthesis of strategies, including policy guidance, for the coal sector’s emissions reduction contribution to the Stockholm and Minamata Conventions.

The project will engage extensively with international stakeholders, including UNEP, the UNEP Global Mercury Partnership, the International Centre for Sustainable Carbon, Parties and Secretariats to the Stockholm and Minamata Conventions, and relevant civil society groups. A project initiation workshop is planned for March 2022.

The Partnership area held its annual meeting in September 2021, in an online setting. Amongst others, the meeting welcomed new partners, discussed recent and upcoming activities, events and projects. Participants were also provided with an overview of the above-mentioned GEF project and exchanged on potential contribution by the Partnership area and partners. The meeting also offered a deep dive into the Interactive Process Optimization Guidance (iPOG)²⁰.

Outreach: The Partnership area contributed to the Minamata Online series of event, and co-organized with the Secretariat of the Minamata Convention and the International Conference on Mercury as a Global Pollutant a Webinar on “Mercury emission from coal”, providing amongst others a summary of the project work in Asia, in November 2021²¹.

c) Planned future activities include:

- Contribution of the Partnership area to a plenary on “Mercury Emissions from Industrial Sources” at the 15th International Conference on Mercury as a Global Pollutant (ICMGP-15) to be held online in July 2022.
- Hosting of a half-day workshop ahead of the ICMGP online event in July. This workshop will focus on giving hands-on training with the iPOG mercury emission estimation tool. However, there may also be time for short presentations relating to mercury emissions monitoring in flue gases. Relevant partners will be invited to contribute to this event.

6) Mercury waste management

a) The objective of the Partnership area is to promote the environmentally sound management of mercury wastes by developing and disseminating relevant materials, enhancing capacities and awareness and providing specific solutions at the global, regional and local levels.

b) Key activities under this Partnership area include:

Partnership area meetings: The mercury waste management area (WMA) held three meetings during the period of December 2020 to February 2022. The primary objectives of these meetings were to review ongoing activities by the Partnership area and consider future ones; identify technologies and services on mercury waste management that partners can provide and challenges on mercury waste management that countries have faced in order to promote matchmaking; explore opportunities for collaborative works with other Partnership areas and develop the WMA activity plan for 2021-2023²².

Catalogue of Technologies and Services on Mercury Waste Management: The Catalogue has been developed to disseminate information on technologies, products and services of partners

²⁰ <https://www.unep.org/globalmercurypartnership/events/unep-event/partnership-area-mercury-releases-coal-combustion-2021-meeting>

²¹ <https://www.unep.org/globalmercurypartnership/events/unep-event/minamata-online-season-2-webinar-mercury-emission-coal>

²² Further information on meetings held may be found at: <https://www.unep.org/globalmercurypartnership/events>

related to mercury waste management. It has been updated annually and the latest version is available on the Partnership website²³.

Survey to identify the needs for technologies and services on mercury waste management:

In considering future activities, the WMA conducted a survey in 2021 to mainly identify specific types of treatment operations and processes of mercury waste and relevant measures that require enhanced actions for the environmentally sound waste management. The questionnaire was circulated among WMA Partners and other Partnership areas through the Secretariat of the Partnership in January and February 2021. As a result, 41 responses from governments, industries, NGOs, IGOs, and academia were received.

The responses to the survey highlighted that the management of wastes containing mercury or mercury compounds, particularly waste from fluorescent lights and from measuring devices, was the utmost challenge among the three types of mercury wastes defined under Article 11 of the Minamata Convention. In addition, respondents indicated challenges at every phase of the mercury waste management process, especially at collection. Types of support requested from the WMA included capacity-building, technical assistance, regulatory arrangement, development of guidance and tools, financial resources and project development.

The results of the survey were shared at the Partnership area meeting in March 2021 to consider future activities of the WMA²⁴.

Waste Management Area Activity Plan (2022-2024): At its March 2021 meeting, the Partnership area agreed to develop its Activity Plan for 2022-2024, taking into account the results of the survey. After the meeting, leads developed a draft activity plan including a “Response List” which describes needs identified through the survey and corresponding resources already available in order to explore gaps that the WMA could potentially fill. The draft WMA activity plan also includes prospective activities that the WMA will implement in the area of capacity-building, update of currently available resources and solution exchange.

Working Group to promote the management of mercury wastes: At its July 2021 meeting, the Partnership area agreed to establish three working groups focusing on “development and/or refinement of currently available resources”, “capacity-building and awareness-raising” and “solution-exchange” under the WMA. Accordingly, members of each working group nominated leader(s) and developed draft work plans for 2022-2024, taking into account the Waste Management Area Activity Plan (2022-2024).

As part of the deliverable of the working group on “capacity-building and awareness-raising”, the Partnership area organized an online information-sharing session in February 2022 entitled “Treating Mercury Wastes: Tools and Technologies”²⁵. The event presented available resources and showcased technologies for treating mercury wastes, featuring experience in different parts of the world.

Collaboration with other Partnership areas: The WMA and Mercury in Products area jointly organized an online information-sharing session dedicated to the phase out of mercury-containing lamps on 7 December 2021 to explore options for an effective transition away from these products, their substitution as well as management and disposal once they become waste²⁶.

c) Planned future activities for 2022 – 2024 include (but are not limited to):

- Development of Factsheets on the Environmentally Sound Management of Mercury Wastes in collaboration with the International Solid Waste Association (ISWA) intended to provide for specific types of mercury wastes a practical and comprehensive overview of the different measures at every step of the waste management process, while complementing the technical guidelines for the environmentally sound management of mercury wastes under the Basel Convention.
- Mapping or developing a list of mercury wastes treatment facilities around the world.
- Organization of joint webinars with other Partnership areas, especially mercury supply and storage to address excess mercury from the decommissioning of chlor-alkali facilities.

²³ <https://web.unep.org/globalmercurypartnership/catalogue-technologies-and-services-mercury-waste-management-2021-version>

²⁴ <https://wedocs.unep.org/bitstream/handle/20.500.11822/35795/WMAP.pdf?sequence=3&isAllowed=y>

²⁵ <https://www.unep.org/globalmercurypartnership/events/unep-event/webinar-treating-mercury-wastes-tools-and-technologies-15-february-2022>

²⁶ <https://www.unep.org/globalmercurypartnership/events/unep-event/webinar-phasing-out-mercury-added-lamps-7-december-2021>

- Formulation and implementation of a solution exchange platform including its pilot phase related to challenges on mercury waste management, where stakeholders can inquire for solutions and receive corresponding feedback from identified relevant resource-providers to facilitate matchmaking.

7) Mercury supply and storage

- a) The overall objective of the Partnership area is to minimize and where feasible, eliminate mercury supply considering a hierarchy of sources, and retire mercury from the market for environmentally sound management. In practice, it aims to:
 - Eliminate the production and export of mercury from relevant mercury supply sources;
 - Determine how much mercury will become available from primary mining, decommissioning of mercury chlor-alkali plants and the quantity of by-product mercury generated from non-ferrous metal processing, gold mining as well as oil and gas production; and
 - Collect and disseminate information on options and technologies for storage or final disposal of excess mercury supply from the different sources.
- b) Key activities in the Partnership area include:

Study report on “Mercury from Oil and Gas”. The International Society of Doctors for the Environment (ISDE), commissioned by the Secretariat, is preparing the final version of this report. Spain and Uruguay, as Partnership area leads, have collaborated in the preparation of this report. This work identifies possible sources and releases of mercury derived from these activities and the fate of mercury, including considerations on the amount of mercury from this sector that could enter the informal market.

Mercury Supply and Storage Area Meeting 2021. Held on 25 February 2021, the meeting was an opportunity to exchange information and identify the needs and future activities of the Partnership area²⁷. Participants were provided an update by the Partnership Secretariat on overall activities under the Partnership as well as by the Secretariat of the Minamata Convention on issues related to mercury supply sources and storage under the Convention. Participants subsequently engaged in an information-sharing session on mercury supply sources as well as on options and availability of infrastructures and techniques for the management, storage and final disposal of surplus mercury. Discussions were then held on the priorities of the Partnership area as well as on possible future workshops and meetings.

GEF-7 Proposal: “Accelerate Minamata Convention compliance through improved understanding and control of mercury trade in Latin America”. The leads of the Partnership area provided technical contributions and comments to UNEP in the development of a project proposal dedicated to understanding and reducing the flow of mercury in the Latin American and Caribbean region.

Participation in meetings organized by other Partnership areas. The Partnership area has attended to a number of other area meetings to which it provided input and information.

Technical Protocol for Managing Contaminated Tailings with Mercury in Colombia. Pure Earth Colombia has been working, together with the principal governmental agencies of the country, on a protocol that addresses important aspects of the handling and storage of mercury.

Development of Capacity for the Substitution and the Environmentally Sound Management (ESM) of Mercury-containing Medical Measuring Devices. Implemented by the Asian Institute of Technology in the ASEAN Member States, this project aims at preventing the adverse impacts of mercury contained in used thermometers and sphygmomanometers.

The Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean (BCRC-Caribbean) has been involved in planned activities through the following projects:

- GEF 10472: Implementing Sustainable Low and Non-chemical Development in Small Island Developing States (ISLANDS) Child Project. Pending approval, tentative activities include the assessment of the storage mechanisms for mercury previously used at chlor-

²⁷ <https://web.unep.org/globalmercurypartnership/mercury-supply-and-storage-partnership-area-2021-meeting>

alkali plants in Cuba and determining whether the mechanisms are adequate to prevent environmental contamination in The Bahamas, Cuba and Dominica.

- GEF 10153: Development of National Action Plan for Artisanal and Small-scale Gold Mining in the Co-operative Republic of Guyana (Guyana NAP). Activities included an assessment to identify the sources and supply of mercury used in the national ASGM sector.

c) Planned future activities include:

- Organize an area meeting to organize a set of workshops with Partners.
- Collaborate with industry for the environmentally sound management and storage of mercury in the sectors of chlor-alkali, non-ferrous and gas production.
- Collaborate with the Partnership area on mercury waste management to further consider the issue of the sound disposal of mercury waste generated by the oil and gas and non-ferrous metals smelting sectors and how much (if any) of this waste may enter the informal mercury market.
- Collaborate with relevant stakeholders in developing guidance to ensure the mercury requisitioned by local authorities is safely disposed of and remains properly stored.
- Enhance the collaboration between members of the Partnership area and welcome new members by holding an online meeting at the beginning of 2022, with the collaboration of the Secretariat.
- Promote the replication of successful workshops.
- Promote transparency and traceability throughout the whole life cycle of mercury, including supply source, trade and export, to address potential illegal sources of mercury supply.

8) Mercury releases from the cement industry

- a) The objective of the Partnership area is to minimize mercury releases to the environment from cement manufacture. It aims to supplement existing programmes in key, strategically selected ways to ensure that reductions are globally significant.

Partnership area work was kicked off at the annual meeting held on 8 December 2021, where Zaigham Abbas (Ministry of Climate Change, Pakistan) was designated to serve as co-lead together with Claude Lorea (Global Cement and Concrete Association - GCCA). Participants considered the currently identified priorities of the Partnership area, namely, to support the establishment of sectoral mercury inventories; to encourage the use of most appropriate techniques to reduce or minimize mercury emissions and releases; and to reach out and raise awareness on the topic.

- b) While key objectives and priorities of the Partnership area had remained unchanged since its establishment in 2013, the Business Plan required update on a number of items, including with regards to partners efforts and timelines, opportunities, resource mobilization, business planning process, linkages as well as the list of potential partners. The Partnership area will be reviewing the Business Plan in 2022.
- c) Amongst others, the following areas for future work were raised by participants of the annual meeting:
- Capacity building, including with respect to monitoring, identification of mercury, upgrading and training at facility and university levels;
 - Awareness raising of the cement industry on the topic of mercury, in addition to CO₂, currently a major focus of the sector;
 - Improving estimates of mercury from the sector, in particular from developing countries;
 - Sharing of information on certain topics, including with respect to:
 - mercury emissions and releases from the sector, including at regional level
 - technical solutions to measure and remove mercury
 - co-processing of waste in cement kilns
 - fate of mercury from the cement sector
 - mercury mass balance from cement plants
 - Enhancing the understanding of mercury emitted/released from the cement sector, and its distribution through long range emission vs. in oxidized form close to the plant;
 - Establishing an online library or reference centre containing test data, technical papers, and regulations;
 - Exploring opportunities for synergistic efforts in addressing mercury as well as other pollutants, such as dioxins and furans.

As immediate next steps, technical information sessions will be convened in 2022, with a focus on (1) mercury inventories, including at facility level, and on (2) best practices and dissemination of available guidance, including the Minamata Convention guidance on Best Available Techniques and Best Environmental Practices to control emission of mercury and mercury compounds to air from point sources²⁸ as well as the “guidance in measuring, controlling and reducing mercury emissions from cement manufacturing” developed by the Global Cement and Concrete Association²⁹.

²⁸ <https://www.mercuryconvention.org/en/documents/guidance-best-available-techniques-and-best-environmental-practices-taking-account-any>

²⁹ https://gccassociation.org/wp-content/uploads/2019/10/GCCA_Guidelines_Emissions_v05_AMEND.pdf