

A SMART LEGAL INSTRUMENT IN THE FACE OF A GLOBAL DANGER: THE MINAMATA CONVENTION on Mercury 2013

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"Never repeat the tragedy of Minamata Disease"

Shinobu Sakamoto, Group Leader of the Minamata Victims and Citizens, when addressing the Mercury Treaty.

Abstract [It]: La Convenzione di Minamata sull'uso del mercurio è stata adottata alla Conferenza dei Plenipotenziari nell'ottobre 2013. Certamente, questo documento storico è considerato come il primo accordo multilaterale ambientale che si concentra specificamente su una sostanza pericolosa con effetti intossicanti per la salute umana e l'ambiente. Poiché milioni di persone in tutto il mondo sono esposte agli effetti tossici del mercurio, questa Convenzione aiuta a proteggere sia l'ambiente che il diritto alla salute. Pertanto, tale Convenzione - beneficiando del cd. sistema BRS dedicato alla categoria delle sostanze chimiche pericolose - regola l'uso del mercurio relativo a cinque aree diverse delle attività umane: commercio, estrazione mineraria, stoccaggio e smaltimento, estrazione mineraria d'oro su piccola scala. La Convenzione di Minamata è uno strumento legale innovativo ed ambizioso, che nel tentativo di regolare l'uso del mercurio a livello globale, obbliga sostanzialmente gli Stati a cercare alternative e, infine, a eliminare gradualmente l'uso di questa particolare sostanza. Questa Convenzione rappresenta un passo avanti nella regolamentazione del ciclo di vita del mercurio prevedendo misure rigorose. Tuttavia, si dovrebbe notare che l'efficacia della Convenzione dipende fortemente dalla volontà politica degli stati e delle organizzazioni di integrazione economica regionale che devono stabilire le misure adeguate a livello nazionale per consentire a sé stessi di adempiere ai propri obblighi a seguito del processo di ratifica. È necessario sottolineare che l'eliminazione graduale del mercurio, a livello nazionale e globale, significherebbe conciliare la protezione ambientale con lo sviluppo economico odierno.

Abstract [En]: The Minamata Convention on the use of mercury was adopted at the Conference of Plenipotentiaries in October 2013. Certainly, this historical document is considered as the first multilateral environmental agreement that focuses on one specific dangerous substance with poisoning effects for the human health and the environment. As millions of people worldwide are exposed to the toxic effects of mercury this Convention helps protect both environment and people's right to health. Thus, the Convention - benefiting from the BRS system that deals with the category of hazardous chemicals - regulates the mercury's usage in five different areas of human activities:

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trade, mining, storage and disposal, products and processes and artisanal small-scale gold mining. The Minamata Convention is a groundbreaking and ambitious legal instrument, regulating the use of mercury at the global level and binding States to seek alternatives and ultimately phase out the use of this particular substance. This Convention represents a step forward in regulating the mercury life cycle by providing for stringent measures. However, one ought to note that the Convention's effectiveness heavily relies on the political will of the state-parties and of the regional economic integration organizations that have to establish the proper measures at the domestic level in order to allow themselves to meet their own obligations upon the ratification process. It is necessary to highlight that phasing out mercury, at the domestic and global level, it would mean to reconcile environmental protection with development in our today's world.

SOMMARIO: **1.** Introduction. – **2.** Section I: MERCURY: Scientific and Historical Background. – **3.** Section II: Hazardous Chemicals Normative Context: BRS + Minamata Convention, an integrated system of regulation. – **4.** Section III: Legal Analysis of the Minamata Convention on Mercury. – **5.** Section IV: Final Remarks.

Introduction.

This paper analyzes the Minamata Convention on Mercury¹ negotiated under the patronage of the United Nations Environment Program (UNEP) and with the consistent collaboration of the World Health Organization (WHO) as well as with support of the International Labor Organization (ILO). The Convention was adopted at the Conference of Plenipotentiaries in Minamata (Japan) in October 2013, and it is currently open for signatures and ratifications. In point of fact, the Convention has been ratified by 128 countries to which Italy has now been added, precisely on 28th October 2020 following up the European Union' policies and regulations on chemicals, industrial risks and biotechnology.²

¹ The Minamata Convention on Mercury was adopted on 10th October 2013 in Kumamoto, Japan.

² “Dal 28 ottobre 2020 è in vigore la legge di ratifica della Convenzione di Minamata sul mercurio del 2013, diretta a proteggere salute e ambiente dal mercurio. La ratifica è avvenuta con legge 8 ottobre 2020, n.134. La Convenzione di Minamata sul mercurio è stata fatta il 10 ottobre 2013 ed è stata conclusa dall'Unione europea con decisione 11 maggio 2017, n. 2017/939/Ue cui è seguito il regolamento 2017/852/Ue su uso, stoccaggio e commercio del mercurio. L'obiettivo della Convenzione è la protezione della salute e dell'ambiente dalle emissioni e dai rilasci antropogenici di mercurio e di composti del mercurio. Il testo prevede misure per ridurre i livelli di mercurio nell'ambiente, contemperando l'esigenza di armonizzazione con le politiche di sviluppo nazionali. Sono previste misure per lo stoccaggio temporaneo del mercurio, per i rifiuti contenenti mercurio e i siti contaminati. La Convenzione del 2013 è stata implementata in una riunione delle Parti il 19-23 novembre

It is an opinion of the writer that the Minamata Convention is the first multilateral environmental agreement that focuses the attention on one specific dangerous substance with poisoning effects for the human health and the environment. This has to be considered has a substantial *paradigm change* in tackling the use and the general exploitation of this kind of material. Millions of people around the world are exposed to the toxic effects of mercury, and yet as noted by Juliane Kippenberg (Senior Researcher at the Human Rights Watch Organization) “this treaty will help protect both environment and people’s right to health”. The Minamata Convention is a global attempt involving and binding both Developed and Developing Countries to minimize the risks to human health and environment from different types of use (subsequently described) that is possible to do with mercury, also known as *quicksilver*. This Convention represents a step forward in regulating the mercury *life cycle* by providing with stringent measures. Thus, the analysis conducted throughout this paper will allow readers to get knowledge about the provisions of the Minamata Convention on mercury and the *ratio* behind this legally binding instrument. By way of background, Section I describes the scientific and historical problematic of mercury in several fields (e.g. research, industries, agriculture, medical). Then, Section II shows the *technical influence* of the legal heritage of the Minamata Convention particularly benefiting from the BRS system that deals with the category of hazardous chemicals. Starting from a critical insight of the preamble, Section III focuses on how the Minamata Convention regulates five different areas of mercury’s usage, namely: (i) trade, (ii) mining, (iii) storage and disposal, (iv) products and processes and (v) artisanal small-scale gold mining. Section IV provides with conclusions and a personal observation of the writer. However, from now on, one ought to note that the Convention’s effectiveness heavily relies on the political will of the state-parties and of the regional economic integration organizations that have to establish the proper measures at the domestic level in order to allow themselves to meet their own obligations upon the ratification process.

Section I

2018 aggiungendo tra le altre, le disposizioni sullo stoccaggio temporaneo del mercurio che non sia rifiuto. **Entro il 26 aprile 2021** (180 giorni dall’entrata in vigore della legge) con Dm Ambiente sono stabilite le modalità per assicurare il coordinamento delle attività di raccolta dei dati di monitoraggio, ai fini della piena ed efficace attuazione della Convenzione”, see Francesco Petrucci, ‘Convenzione di Minamata sul mercurio, Italia ratifica’ (*reteambiente.it*, 28 Ottobre 2020) <www.reteambiente.it/news/42954/convenzione-di-minamata-sul-mercurio-italia-ratifica/> accessed 19 November 2020. For further details, see, the European Union Council Decision 11th May 2017, no. 2017/939/EU, Regulation (EU) 2017/852 of the European Parliament and of the Council of 17 May 2017 on mercury (repealing Regulation (EC) No 1102/2008 (OJ L 137, 24.5.2017, pp. 1-21).

MERCURY: Scientific and Historical Background

A) Scientific profile of mercury as hazardous chemical substance:

It is necessary to begin by methodically define what mercury is and what dangers does it create for the environment and for human health. Mercury³ is commonly considered as a chemical element discovered in 1500 BC.⁴ It is identified in the periodic table⁵ by the symbol 80Hg referring to the Greek word Hydragyrum (hydra: water and argyros: silver) that means in the modern English language “quicksilver” (or “liquid silver”) and currently it is used as synonym for the word mercury. Because of its considerable weight (almost 14 times the volume of water), alchemists classified it as a heavy metal. Mercury is found in nature in the earth’s crust and chiefly in some rocks or minerals. Most of the times, it is also found in the form cinnabar⁶ (mercuric sulfide), while in some cases it is combined with other metallic materials, namely lead and zinc.

In order to have a better understanding of the dangers of mercury pollution, it is possible to make reference to a very significant document: the UNEP Global Mercury Assessment 2013.⁷ By adopting a global approach, this official report identifies different types of anthropogenic sources of mercury pollution. Accordingly, three main categories are singled out: 1) Natural sources of mercury emissions and releases (e.g. geogenic, biomass burning, soil and vegetation); 2) Anthropogenic sources of mercury emissions and releases (e.g. coal burning, mining, smelting and production of iron and non-ferrous metals, cement production, oil refining, artisanal and small-scale gold mining – ASGM, wastes from consumer products, dental amalgam, chlor-alkali industry); 3) Re-emission and re-mobilization of mercury (i.e., respectively, the process occurring when mercury deposited to plant surfaces is re-emitted during forest fires or biomass burning, and the process occurring when mercury accumulated in soils is remobilized by rain or other natural events).⁸

Asia (particularly China and India) is responsible for 50% of the global emissions, while Latin America, African countries and Oceania are among the biggest polluters,

³ For a definition of mercury refer to Merriam Webster Unabridged Dictionary: “a heavy silver-white poisonous metallic element that is liquid at ordinary temperatures and used especially in scientific instruments—symbol Hg; called also *quicksilver*”.

⁴ See, *Mercury and the environment — Basic facts*, Federal Government of Canada. 2004 or the website: <http://www.ec.gc.ca/mercure-mercury/default.asp?lang=En&n=9A4397AD-1>.

⁵ CRC Handbook of Chemistry and Physics, CRC Press, 92nd Edition, 2011.

⁶ An interesting description of mercury in *Mercury Time to Act 2013*, United Nations Environment Program, page 12 – 16.

⁷ International Program on Chemical Safety, *Methylmercury, Environmental Health Criteria 101*, Geneva, WHO, 1990.

⁸ For a detailed analysis of the current emissions and releases of mercury, see *United Nations Environment Program Global Assessment 2013*, Sources, Emissions, Releases and Environment Transport.

due to the development and execution of ASGM activities.⁹ Mercury possesses all the features essential to be considered as a global danger to human and environment well-being. For this reason, global and regional networks (e.g. MDN, EMEP, AMAP, GMOS) have been created in order to measure and monitor the level of mercury emissions and releases.

b) The use of mercury: an ancient global danger

Archeologists and historians have shown a first man-usage of mercury since the primitive era¹⁰ and across many civilizations, proving that this substance assumed several functions, being object of many legends and stories as well as tribe rituals.

In China, mercury was used under the fake belief that it could have extended the length of human life, producing actually tragic results. In the Hindu culture and technical science, mercury was considered as the fundamental chemical substance, considering other metals to be just an amalgam of mercury and other substances. In Europe, mercury was considered very important as well, believing that it could be used in order to produce gold. For that reason, its use was forbidden by the Roman Emperor Diocletian in order to preserve the value of the roman currency. At the same time, also other Mediterranean civilizations (for instance Greeks and Egyptians) used mercury in the cosmetic sector, particularly as a component for a balm to be applied on the skin or as a medicine. Historical data thus confirm that humanity used mercury for centuries, believing it to have beneficial properties without being aware of its actual dreadful effects.¹¹

Nowadays, as explained by the global assessment study carried out by UNEP in 2013, anthropogenic emissions and releases contribute to the so-called “mobilization of mercury into the environment”. The majority of these emissions and releases of mercury have been quantified in the period of the Industrial Revolution (1800), because of the increasing development of a “fossil-fuel-based energy” economic activity¹² (that implied coal burning).

Furthermore, mercury-based medical treatments have been used in medicine “with apparent benefits for at least five centuries to cure syphilis (a well-known sexual transmitted disease) until harmless alternative therapy (e.g. antibiotics) have been adopted”.¹³

⁹ *Ibid.*, page 11.

¹⁰ “Cinnabar (aka vermilion, mercury sulfide, HgS), was used as a bright red pigment by the Paleolithic painters of 30,000 years ago to decorate caves in Spain and France”, see the following website: <http://www.rsc.org/periodic-table/element/80/www.matvalue.com>

¹¹ L. Charles Masur, MD, *A Review of the Use of Mercury in Historic and Current Ritualistic and Spiritual Practices*, Environmental Medicine, Volume 16, n.4, 2011.

¹² UNEP *Global Assessment 2013*, *supra* n.7, page 4.

Of note, in 1941, the United States Public Health Service prohibited the use of mercury nitrate in the production of felt products. Indeed, it had been discovered in Danbury, Connecticut (known as the center of the America hat-making industry) that “mercury, once used extensively in the hat making process, caused a brain illness in many hatters”.¹⁴ At that time, thus, the health of the workers and of millions of people wearing hats was clearly in danger.

In 1959, the territory of Japan was the theatre of a mercury pollution disaster. At the Minamata Bay, on the Japanese Island of Kyushu, local people (at the beginning in a particular way fisherman and their families) were affected by many neurologic disturbances including paralysis and a series of irreversible brain damages including “tunnel vision” and blindness. All of these symptoms were recognized as the Minamata disease, caused by the spreading into the environment of chemical substances. Indeed, the CHISSO Corporation was discharging chemical wastes into the waters of the bay creating a critical impact on the environment. These wastes were present in the form of methyl-mercury able to produce irreversible damages to the health of the people living in the area, as the poisoning substance entered in the food marine chain (through algae and fishes). The methyl-mercury resulted to be a form of potent poison to the human health able to alter the DNA¹⁵, specifically, of the local Japanese community of the Minamata Bay. At that time, it was not so easy to immediately identify the presence of the methyl-mercury in the fishes and in the water.¹⁶ Due to a lack of scientific knowledge, this was a source of no few concerns for both the national and the local authority.

Unfortunately, the list of the cases related to mercury pollution seems to be endless. One worth-mentioning case is the mass mercury contamination happened in Iraq during the years 1971 and 1972. In contrast to a period of national famine, a group of nations (*inter alia* Mexico) distributed a huge amount of wheat seeds to create cultivation on the Iraqi territory. This operation, originally aimed at delivering alimentary aid, turned into a tragedy. In fact, around 500 people died, and many others were hospitalized in the toxicology department. After some investigations, it was discovered that the seeds (produced in Mexico) were treated with methyl-mercury - a powerful pesticide and fungicide - in order to preserve their quality. The Iraqi Toxicology department suggested “methyl-mercury, which readily crosses the

¹³ Carl Gustaf Lundin, IUCN Director of Global Marine Polar and Polar Program (interviewed on 28th of March 2014 in Gland (CH)).

¹⁴ “The state of Connecticut outlawed the use of mercury in hat making in the early 1940s. But there are signs that mercury remains in soil and river sediment not far from where factories once stood”. See, J. Varekamp, *Mad Hatters Long Gone, But The Mercury Lingers On*, Daily university Science News, 2002.

¹⁵ M. Harada, *Minamata Disease and the Mercury Pollution of the Globe*, EINAP project, Kumamoto Gakuen University, 1992.

¹⁶ Not surprisingly also indigenous people have been affected by eating mercury contaminated fishes. For instance, the indigenous people living in the territory of the eastern province of Québec, in Canada. Particularly well known it is the case of the James Bay project Hydro-Québec in 1979.

blood-brain-barrier, is converted to inorganic mercury remaining trapped in the brain".¹⁷

Despite its poisoning effects, mercury was intensely used as a component in thermometers and other devices without creating particular safety problems to the users. Unfortunately, a different situation occurred for. However, several health issues affected the workers of the STACO Thermometer Plant in Poultney (Vermont, USA), during the 1980s, with mercury being detected in the air of their workplace and in their bodies too. The mercury contamination affected not only the workers, but also their children, making this case sadly famous. The factory closed down in 1984, after paying a due amount of compensation for the irreversible physical damages caused to the harmed workers.

The widespread use of mercury raised a number of safety issues not only in relation to factories and industrial making processes, but also with reference to scientific and research activities carried out in laboratories specialized in heavy and toxic metals.¹⁸ Within this historical background, the Minamata Convention 2013 is a groundbreaking and ambitious legal instrument, regulating the use of mercury at the global level and binding States to seek alternatives and ultimately phase out the use of mercury.

SECTION II

Hazardous Chemicals Normative Context: BRS + Minamata Convention, an integrated system of regulation

In the field of the regulation of hazardous chemicals, at the global level, the most successful legal instruments are part of the so-called international environmental *hard law*¹⁹, i.e. the body of law encompassing multilateral agreements binding on State parties. They seem indeed to ensure a higher level of effectiveness and

¹⁷ "Following the outbreak of organomercury poisoning in Iraq, an investigation was carried out during the spring and summer of 1972 to evaluate environmental contamination by organomercury. See, A. Jernelöv, *Environmental contamination by mercury in Iraq*, Bulletin World Health Organization 1976; 53 (Supplement): 113 – 118.

¹⁸ The U.S. Department of Labor Occupational Safety and Health Administration Directorate of Technical Support and Emergency Management (formerly Directorate of Science, Technology and Medicine) Office of Science and Technology Assessment OSHA Hazard Information Bulletins Dimethylmercury February 15, 1991. See, Cathy Newman, *Pick Your Poison—12 Toxic Tales*, National Geographic Magazine, 2005.

¹⁹ It is interesting to note that the Rotterdam Convention 2004 incorporated two *soft law* instruments: the International Code of Conduct on the Distribution and Use of Pesticides (FAO Code) 2002 and the London Guidelines for the Exchange of Information on Chemicals in International Trade (UNEP) 1989.

implementation, having as goals, *inter alia*, a better protection of the human health and of the environment. Among a number of international conventions, three are considered to be the cornerstones of the international regulation of hazardous chemicals: the *Basel Convention on Transboundary Movements of Hazardous Wastes and their Disposal* 1989, the *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* 1998 and the *Stockholm Convention on Persistent Organic Pollutants* 2001.²⁰ Before delving into the Minamata Convention, in order to gain a more complete understanding of the relevant legal framework, it is necessary to briefly analyze these three instruments.

The first one, known simply as the Basel Convention²¹, entered into force in 1992. In order to protect human health and environment, the text of the convention puts the light on the environmental sound management of wastes ready to be disposed. As stated by Ms. Katharina Kummer Peiry (Executive Secretary of the Secretariat of the Basel Convention in January 2011): “*The provisions of the Convention center around the following principal aims: (i) the reduction of hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal; (ii) the restriction of transboundary movements of hazardous wastes except where it is perceived to be in accordance with the principles of environmentally sound management; and (iii) a regulatory system applying to cases where transboundary movements are permissible*”. This convention, thus, was groundbreaking at that time, especially considering the emergency in the developing countries where ordinarily some developed countries²² dumped dangerous substance. Therefore, the text of the Basel Convention focuses mainly on the prevention and control of the wastes and the associated activities, by establishing a system of obligations based on a precise procedure, institutionalized in article 6. This includes waste minimization, proximity of the disposal, environmental sound management of the waste and prior informed consent procedure, and covers the life cycle of the waste.

The second one, known simply as the Rotterdam or PIC Convention entered into force in 2004. The objective of this convention is clearly established in article 1: “*to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use, by facilitating*

20 “These three conventions together provide a cradle-to-grave framework for the environmentally sound management of hazardous chemicals and wastes throughout their life cycles”, Z. Lipman, *Pollution control and the regulation of chemicals*, Ed. Routledge, New York, USA, 2013.

21 J.E. Viñuales noted “The Basel Convention is also rooted in the environmental justice movement and its predecessor was also a non-binding instrument” referring to the *UNEP Environmental Guidelines and Principles no.8: Environmentally Sound Management of Hazardous Wastes* (Nairobi: UNEP, 1987).

22 According to P.B. Sahasranaman “in foreign nations view the dumping is more affordable than destroying waste within their own borders”, in *Handbook of Environmental Law*, Oxford University Press, II ed. 2012, page 259.

information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties”.

Since it pursued a trade regulation of chemicals, so protecting the interest of importing country in taking informed decisions, the Rotterdam Convention introduced a mandatory Prior Informed Consent (PIC) procedure over the so called *banned or severely restricted chemicals*. This implied moving away from the voluntary based procedure established by the FAO and UNEP soft law instruments in 1989, and in some way strengthening the effectiveness of the procedure as intended. Furthermore, in order to reach the mentioned goal, the PIC convention adopts a list regulatory technique by identifying the dangerous substances (listed in Annex III) that must be object of the PIC procedure (contained in article 5). This list of chemicals can be periodically updated by consensus²³ of the Conference of the Parties (COP) upon the recommendation of the Chemical Review Committee²⁴ and an earlier risk-assessment made by the Secretariat.

Articles 14, 15 and 16 of the Rotterdam Convention establish an advanced system of information exchange. According to article 14, State Parties have a general obligation of exchanging different types of information (e.g. scientific, technical, economic and legal²⁵) related to the chemicals. Article 15 promotes the adoption of national administrative measures to this purpose (e.g. establishment of a register and facilitating access to information concerning the chemicals and the safety). Furthermore, article 16 promotes cooperation by means of the conclusion of specific agreements among the Parties, with the purpose of guaranteeing technical assistance to be provided to the developing countries and economies in transition that lack capacity and expertise in the management and safety hazardous chemicals. Since the environmental sound management of the chemicals is one of the greatest challenges of our modern era, the Rotterdam Convention could be considered as one step ahead to the creation of a more comprehensive discipline of this field, through international cooperation.

²³ Due to the presence of enormous economic interests, it is very difficult to change the list by consensus of the COP to add new substances. Therefore, it was proposed by the ROCA ALLIANCE NGO that “the COP should allow decisions to be taken by two-thirds majority vote, when all efforts to reach consensus have been exhausted, and thus allow the Convention to be effectively implemented”, see *Position Paper of the Rotterdam Convention Alliance*, June 2011.

²⁴ The Chemical Review Committee has to follow the criteria established in Annexes I, II and IV of the Convention.

²⁵ According to the legal overview of the Rotterdam Convention (online open source) among the other provisions there are (i) the requirement for a Party to inform other Parties of each national ban or severe restriction of a chemical; (ii) the possibility for Party which is a developing country or a country in transition to inform other Parties that it is experiencing problems caused by a severely hazardous pesticide formulation under conditions of use in its territory. See the following website: <http://www.pic.int/TheConvention/Overview/tabid/1044/language/en-US/Default.aspx>

The third convention, known as the Stockholm or POPs Convention, entered into force in 2004 after a long period of negotiations started by the UNEP's Governing Council in 1995. It aims at protecting human health and the environment by banning the production, use, import and export of one of the most dangerous group of pesticides, the so-called persistent organic pollutants (POPs). Article 1 of the Stockholm Convention, unlike the two conventions shortly described above which are centered on the principle of prevention, puts emphasis on the principle of precaution consecrated in Principle 15 of the Rio Declaration on Environment and Development 1992, but reducing it to a mere "approach".²⁶

Methodologically, this convention created a differentiating treatment between *intentionally produced POPs* - listed in Annex A and Annex B (respectively the former lists chemical to be eliminated and the latter lists the ones to be restricted) - and the *unintentionally produced POPs* - listed in Annex C (chemicals to be minimized in their use or where it is possible their use has to be eliminated).

Some provisions provide however for particular exceptions and/or exemptions. Broadly speaking, the import and the export activities of the intentionally produced POPs are prohibited.²⁷ But article 3 (2) creates an exception to this rule, allowing import or export activity for the purpose of environmentally sound disposal. This practically will allow a developed country to import from a developing country (deficient of expertise and/or facilities) certain chemicals to carry out the operations related to the chemical disposal in a safer way.

Alongside the exception, there is also a regime of exemptions. In particular, article 3 (2) (a) (ii) provides for a *general exemption* that allows the import of the substances under Annexes A and B (e.g. substance produced or already in use prior to enter into force the POPs Convention). Article 4 establishes instead a *country-specific exemption*. The latter allows a Party to register for being exempted in using a specific substance for five years, renewable for other five years due to unique circumstances duly documented by the Party. In general, exemptions aim at permitting use of chemicals with a so-called *acceptable purpose*. On the contrary, as concerns the unintentionally produced POPs listed in Annex C,²⁸ the parties have the obligations to take measures to minimize and (when feasible) to eliminate their release.

²⁶ According to article 1 of Stockholm Convention: "Mindful of the *precautionary approach* as set forth in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Convention is to protect human health and the environment from persistent organic pollutants".

²⁷ Ibid., article 3 (1).

²⁸ Annex C defines the best available techniques (BAT) and the best environmental practices (BEP) in order to reduce the releases of these chemicals. Furthermore, throughout the text of the Convention there are other provisions related to: 1) the development of implementation plans (article 7); 2) information exchange (article 9); 3) public information, awareness and education (article 10); 4) research, development and monitoring (article 11); 5) technical assistance (article 12); 6) financial resources and mechanisms (article 13); 7) reporting (Article 15); 8) effectiveness evaluation (Article 16); 9) non-compliance (article 17).

Beyond the reference to the precautionary principle (or, better, “approach”) in the preamble, the POPs Convention contains a couple of legal innovations worth to be analyzed. First, there are significant considerations under the socio economic viewpoint contained in Annex F. Secondly, developing countries are to be financially assisted, *inter alia*, with the aim of providing information on chemical safety and adopting alternatives that are considered less harmful to the human health and the environment; and at the same time, the developed countries gained the advantage to protect human life from the elimination (e.g. in the food industry or agriculture) of the “dirty dozen”.

In light of these considerations, the POPs Convention can be considered as a progressive legal instrument in the framework of the international environmental law. Differently from the Basel and the Rotterdam Conventions, chiefly focused on the control and prevention of hazardous chemicals, the Stockholm one aims at the elimination of their production and use; in so doing it paved the way towards a more effective protection of human health and environment.

Despite the mentioned three conventions are the pillars of the international regulation of hazardous chemicals, one ought not to forget that also other conventions are part of such framework: the International Labor Organization’s Chemicals Convention and Recommendation (1990), the Bamako Convention on the Ban of the import into Africa and the Control of Transboundary Movement of Hazardous Wastes within Africa (1991), the Convention on Long-range Transboundary Air Pollution (LRTAP) and its Protocol on Persistent Organic Pollutants (1998), the Convention on the Transboundary Effects of Industrial Accidents (1992).

As noted by some scholars,²⁹ the Basel, Rotterdam and Stockholm Conventions created a unified treaty body (known as the BRS system) on the life cycle of the hazardous chemicals stating similar provisions. In fact, it is plausible to talk about a positive overlapping normative system instead of a mere clash among these three conventions. For that reason and for organizational efficiency, in 2009 a joint working group³⁰ (created by the Conference of the Parties of the three conventions) appointed a common Executive Secretariat starring a synergetic process to benefit from the progressive points contained in each convention. Potentially, this synergy can unblock the phenomenon of treaty congestion that is characterizing the modern international environmental law taken as a whole. This was captured by Edith Brown Weiss who literally observed: “*the existence of this treaty congestion in the form of*

29 P.M. Dupuy and J.E. Viñuales, *International Environmental Law: A Modern Introduction* (1st edn, Cambridge University Press, 2015).

30 Decision SC-4/34, *Enhancing cooperation and coordination among the Basel, Rotterdam and Stockholm conventions*, 8th May 2009, UNEP/POPS/COP.4/38; decisions BC.Ex-1/1, RC.Ex-1/1 and SC.Ex-1/1 on enhancing cooperation and coordination among the Basel, Rotterdam and Stockholm conventions.

separate negotiating fora, separate secretariats and funding mechanisms, overlapping provisions and inconsistencies between agreements, and severe demand on local capacity to participate in negotiations, meeting of parties, and associated activities".³¹ Thus, this synergetic process works within a cost-effective logic to ensure, *inter alia*, a better management of the limited economic resources and to maintain a high degree of effectiveness.

The year 2013 witnessed a welcome development in the global regulation of the hazardous chemicals: the adoption of the *Minamata Convention on Mercury*. This convention can be considered as a global legally binding convention on a specific³² hazardous substance causing concerns similar to those addressed by the BRS system. Consequently, an important dimension of this convention is its relationship with other legal instrument concerning hazardous substances. In particular, the presence of linkages³³ with the earlier conventions on hazardous substances establishes an interesting set of rules potentially representing an evolution for the entire discipline.

SECTION III

Legal Analysis of the Minamata Convention on Mercury:

- Preamble

The preamble of the Minamata Convention significantly expresses the commitment of the State Parties. First of all, due to the scientific profile of mercury (e.g. poisoning impacts, long-range atmospheric transport, persistence in the environment, bioaccumulation in the ecosystem), the preamble recognizes it as a global common concern³⁴ because of its ability to create negative effects, *inter alia*, on

31 E. Brown Weiss, *International Environmental Law: Contemporary Issues and the Emergence of a New World Order*, in *Georgetown Law Journal*, vol.81, 1995, page 675.

32 "The Minamata Convention continues the strategy of developing legally separate treaties covering different but partially overlapping issues" see, H. Selin, *Global Governance of Hazardous Chemicals: Challenges of Multilevel Management*, MIT Press 2010.

33 "Many governance and actor linkages with earlier treaties influenced the negotiation of the Minamata Convention, and such linkages will remain important during treaty implementation. Governance linkages include legal, policy, and management connections with other agreements on, for example, waste management, capacity building, and technology transfer. Actor linkages are facilitated by the fact that many of the same states, as well as IGO and NGO representatives, engage within multiple treaty processes", see H. Selin, *Global Environmental Law and Treaty-Making on Hazardous Substances: The Minamata Convention and Mercury Abatement*, *Global Environmental Politics* 14:1, MIT Press, 2014.

34 *The implication of common concern of mankind concept on global environmental issues*, Note of the Executive Director of UNEP, Dr. M.K. Toulba, to the Group of the Legal Experts meeting, Malta, December 13-15, Review IIDH vol.13, 1990.

human health and the environment. Consequently, it reminds the UNEP's political will to take action in order to carry out a sound environmental management of mercury with the cooperation of States and the civil society. Being quite sensitive to the thematic of the sustainable development particularly expressed at the RIO+20 Conference "The future we want" in 2012, the preamble declares that the convention is a legally binding instrument in order to successfully tackle the risks of mercury usage for the human health and the environment.

Of note, the preamble makes reference to the foundational principles of international environmental law. Urging for a global action, it evokes the Rio Declaration on Environment and Development 1992 as a whole and explicitly the principle of common but differentiated responsibilities of States (with special focus on developing countries and on economies in transition considering their financial, technological and capacity building resources).³⁵ Taking in consideration the condition of developing countries, the preamble recognizes the "States' respective circumstances and capabilities". Certainly, considering the unhealthy effects of mercury, the language of the preamble emphasizes the protection of human rights by mentioning in subsequent order the exposure of vulnerable populations and of future generations. Besides that, among the vulnerabilities, there is a particular acknowledgment of the Arctic ecosystems and of the indigenous people. In fact, through natural processes of bioaccumulation and biomagnification, mercury is able to enter the food chain contaminating, for instance, air, water and fishes living in the ecosystem, so endangering the human health and the environment.

Another distinctive element of the preamble is that - in order to avoid any *historical tragedies* similar to the *Minamata disease* - the text specifically deals with the prevention principle³⁶, but makes no reference to the principle of precaution.³⁷ On the

³⁵ See, Principle 7 of the Rio Declaration on Environment and Development 1992. Furthermore, T. Honkonen in *The Common but Differentiated Responsibility Principle in Multilateral Environmental Agreements*, Kluwer Law International, Law & Business, Vol. 5, Kurt Deketelaere, The Netherlands, 2009, conducts a relevant analysis on the CBDR.

³⁶ "The specificity of prevention lies in its rationale, content and spatial scope. 1. Rationale. Prevention is an anticipatory principle that seeks to avoid foreseeable risks. It operates distinctively from the curative approach that international law traditionally adopts to respond to wrongful acts and seeks to avoid the creation of harm in the first place. 2. Content. Prevention requires that States (and other subjects) exercise due diligence in the face of environmental risks. As such, States are not merely expected to exercise restraint vis-à-vis environmental harm but are required to take positive steps to protect the environment. 3. Spatial Scope. Prevention seeks to protect the environment irrespective of the location of the occurrence of harm. The principle moved away from the traditional concept of good neighborliness concerned with preserving territorial sovereignties to recognize environmental protection as an objective in itself" see, LA. Duvic-Paoli, *The Principle of Prevention in International Environmental Law*, Cambridge University Press, 2018. See, also, the Italian jurisprudence, TAR Lombardia (BS) Sez. I n.790 del 30 agosto 2019.

³⁷ "Scholars in philosophy, law, economics and other fields have widely debated how science, environmental precaution, and economic interests should be balanced in urgent contemporary problems, such as climate change. One controversial focus of these discussions is the precautionary principle, according to which scientific uncertainty should not be a reason for delay in the face of serious threats to the environment or health. While the

one hand, here it is important to recall the words of the chief negotiator of the INC5 (Geneva), Dr. Franz Xaver Perrez, affirming: “One explanation for this may be that as the risks and negative impacts of mercury are well established and do not involve scientific uncertainty, mercury does in fact not raise an issue of precaution but an issue of prevention - and prevention has to be seen as the underlying concept for the whole convention”.³⁸ In other words, it results that the issue of ensuring a proper management of mercury to prevent such incidents is adequately undertaken throughout the legal provisions of the Minamata Convention. On the other hand, the precautionary principle must not be completely excluded since references to precaution are contained in the significant part of the Convention’ *travaux préparatoires*, such as the UNEP General Council’s decision of 2001 calling for a global mercury assessment, and in the UNEP General Council’s decision of 2005 on strengthening UNEP’s Mercury program.³⁹

On the subject of mercury, it is possible to note the close linkage between man and nature with an ethical connotation oriented to avoid damages even in situation where there is an apparent high level of scientific knowledge. As it is commonly said caution is never too much, it is an opinion of the writer that, in addition to the prevention measures, the person responsible for the pollution, due to emissions of chemical materials such as mercury, must provide adequate emergency safety measures and, if necessary, the reclamation works in compliance with the precautionary principle and the polluter pays principle as well. Therefore, the precautionary principle, recognized as one of the cornerstones of international environmental law, plays also an important role within the context Minamata Convention, and it symbolizes an advancement of our civilization combining ethic and socio-economic development, although it is not expressly mentioned in the text of the convention itself.⁴⁰ Thus, the precautionary principle is a very *flexible* and

precautionary principle has been very influential, no generally accepted definition of it exists and critics charge that it is incoherent or hopelessly vague” see, D. Steel, *Philosophy and the Precautionary Principle: Science, Evidence, and Environmental Policy*, Cambridge University Press, 2014; J. Zander, *The application of the precautionary Principle in Practice: Comparative Dimensions*, Cambridge University Press, 2010.

38 H. Hallgrim Eriksen, F. X. Perrez, ‘The Minamata Convention: A Comprehensive Response to a Global Problem’ (2014) 23(2) *Review of European Community & International Environmental Law* 195, 201. L. Alessio, M. Campagna and R. Lucchini, ‘From Lead to Manganese Through Mercury: Mythology, Science, and Lessons for Prevention’ (2007) 50 *American Journal of Industrial Medicine* 779.

39 G. Futsaeter, S. Wilson, ‘The UNEP Global Mercury Assessment: Sources, Emissions and Transport’, 2013.

40 “La fluidità del principio di precauzione è del resto una realtà con la quale occorre fare i conti, strettamente legata ai contorni sfumati della sua definizione e al differente valore giuridico riconosciutogli nei singoli ordinamenti nazionali... Dall’analisi della giurisprudenza costituzionale italiana emerge pertanto come il principio di precauzione assuma rilievo in due differenti sedi, legislativa ed amministrativa, nell’ambito del procedimento che porta all’adozione di una legge (e nel suo eventuale sindacato di legittimità costituzionale) o di un provvedimento amministrativo (e nel possibile ricorso amministrativo promosso avverso di esso), quale l’autorizzazione all’esercizio di una determinata attività o un’ordinanza di necessità e urgenza” see, R. Bertuzzi, A. Tedaldi, ‘Il principio di precauzione in materia ambientale’ (tuttoambiente.it) <www.tuttoambiente.it/commenti-premium/principio-precauzione-materia-ambientale-tentativi-definizione-livello-sovrannazionale-esempi-italiano-francese/#_ftnref2> (accessed on 10 December 2020).

adaptable theoretical argument that can be considered within an unknown or not completely known environmental danger situation and yet, it can be placed at the basis of the criminal and civil liability of the subjects who have not adopted precautionary measures⁴¹; or, as most of the doctrine agreed, whenever they knew, they should have known, or they should have doubted the serious or irreversible risks associated with a given activity.⁴² By doing so, in the writer point of view, international law can be adequately applied to maintain good environmental standards through its important existing set of environmental principles and rules. Of note, in today's Minamata Convention context, the principles of non-regression⁴³ and *in dubio pro natura* could functionally work as an environmental guarantee to keep on adopting an environmentally safe approach to development.

At the top of that, the preamble implies recognition of the role of the WHO as responsible of the global health governance by acting ethically toward human life as well as by establishing rules and standards on critical issues.⁴⁴ The same paragraph underlines the importance of the multilateral environmental agreements: the

41S. Leoni, *Il principio di precauzione in diritto ambientale*, in *Diritto all'ambiente*, dirittoambiente.com. M. Marchese, *Il principio di precauzione tra luci ed ombre*, in comparazionedirittocivile.it, p. 3. L. Butti, *Principio di precauzione*, *Codice dell'Ambiente e giurisprudenza delle Corti comunitarie e della Corte costituzionale*, in *Riv. giur. ambiente*, fasc.6, 2006, pag. 809. G. Di Cosimo, *Corte Costituzionale, bilanciamento di interessi e principio di precauzione*, in forumcostituzionale.it, n. 3/2015; G. Di Cosimo, *Il principio di precauzione nella recente giurisprudenza costituzionale*, in federalismi.it, n. 25/2006; D. Lecourt, *Le principe de précaution engendre la peur et inhibe l'innovation*, 29 novembre 2016, in lefigaro.fr; M. Prieur, *Le principe de précaution*, in legiscompare.fr; E. Ewald, *La précaution, une responsabilité de l'État*, *Le Monde*, 11 marzo 2000.

42 “Le principe de précaution consiste à dire que non seulement nous sommes responsables de ce que nous savons, de ce que nous aurions dû savoir mais, aussi, de ce dont nous aurions dû nous douter” see, J.-M. Lavieille, *Les principes généraux du droit international de l'environnement et un exemple : le principe de précaution*, 2011. “The Treaty of Maastricht embodied both the concept of sustainable economic development and several principles of international environmental law, namely (i) prevention principle; (ii) polluter pays principle, (iii) precautionary principle” see, G. Poderati, ‘Brexit: challenges and opportunities in the EU-UK environmental law & policy framework’ (on file with the author, article forthcoming in 2021). L. Boy, ‘La nature juridique du principe de précaution’, in *Natures Sciences Sociétés*, 1999, vol. 7, n° 3, p. 5-11. M. Rémond-Gouilloud, *L'ère de la précaution*, Colloque sur “Vous avez dit progrès?”, *Revue Archimède et Léonard*, in *Carnets de l'association internationale des techniciens, experts et chercheurs*, n° 10, 1993-94, p. 63. The precautionary principle works to avoid further deterioration and when there is scientific uncertainty regarding measures to be taken for conservational purposes too, see the International Tribunal for the Law Of the Sea, *Southern Bluefin Tuna Cases*, Requests for provisional measures, order, 1999: “the court or tribunal may prescribe any provisional measures which it considers appropriate under the circumstances to preserve the respective rights of the parties to the dispute or to prevent serious harm to the marine environment”.

43 “The Rio +20 Conference reminded us of the necessity to secure commitments made during Rio1992. The notion of “non-regression” has thus been integrated into international law with an amendment presented by the Group of 77 during negotiations in New York (May 2012). Due to the efforts of Professor Prieur and many environmental legal experts, this safeguard was made possible. Although this amendment’s wording remains cautious and cannot yet be considered as a new principle of environmental law, it does guarantee the legal advances obtained at Rio 1992, based on which numerous countries have or will constitutionalize environmental law. However, the author reminds us of the necessity to enshrine the principle of non-regression in order to avoid circumvention—on the basis of the precautionary principle for example—still too frequently adopted as the “rule”, Prieur M (2013) ‘La non-régression, condition du développement durable’, *Vraiment Durable*, 3/1:179-184.

44 WHO *Engaging for Health 11th General Program of Work, 2006-2015 A Global Health Agenda*, May 2006.

Minamata Convention on mercury is benefiting, in particular from the earlier conventions on the hazardous substances.⁴⁵ Additionally, it is possible to combine two legal principles that feature contemporary international law: (i) the principle of no hierarchy⁴⁶ between the Minamata Convention on mercury and other international legal instruments and (ii) the principle of mutual supportiveness usually considered as a “legal tool to address tensions between competing regimes, namely trade and environment”.⁴⁷

A criticism should be done, within the context of the preamble of the Minamata Convention on mercury. Precisely, there is no specific legal provision related to the principle of pollutant pays.⁴⁸ The spirit of the negotiators probably was to take it in consideration simply by broadly reaffirming the linkages with the principles of the Rio Declaration 1992.⁴⁹ By the way, the absence of any specific provision related to this principle could be problematic in ascertaining the responsibility of the polluters. Last but not least, the preamble authorizes the governments *to take additional measures to protect the human health and the environment* at the domestic level keeping in mind the content of the Minamata Convention on Mercury.

- *Objective and Definitions*

Article 1 of the Minamata Convention plainly states that the objective is “to protect the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds”. Analyzing the terminology, there are marked similarities between the Minamata Convention and the Stockholm convention. Both of them are aimed at taking measures directed to the protection of the human health and the environment. Clearly, the Stockholm Convention is based on a precautionary approach while the Minamata Convention focuses on prevention. During the

⁴⁵ Minamata Convention, *supra* n.1, preamble para 9.

⁴⁶ M. Koskenniemi refers to the “Legal reason is a hierarchical form of reason, establishing relationships of inferiority and superiority between units and levels of legal discourse”, in *Hierarchy in International Law: A Sketch*, in *The European Journal of International Law*, EJIL, 1997, pages 566-582.

⁴⁷ R. Pavoni, *Mutual Supportiveness as a Principle of Interpretation and Law-Making: A Watershed for the ‘WTO-and-Competing-Regimes’ Debate?*, in *The European Journal of International Law*, Vol. 21 no. 3, EJIL, 2010.

⁴⁸ See, Principle 16 of Rio Declaration 1992 refers to the internalization of environmental costs based on pollutant pay principle.

⁴⁹ F.X. Perrez, (on file with the author) “The polluter pays principle received throughout the negotiations support by several government delegations and from NGOs in the context of the discussions of the preamble, mercury containing wastes, contaminated sites, storage, and finance. However, it remained unclear how the polluter pays principle could and should be operationalized and no concrete wording proposal was submitted during the negotiations. Delegations were similarly satisfied with the general reaffirmation of the Rio Principles”. See, IISD, *Earth Negotiation Bulletin (ENB)*, 28:6.

negotiations⁵⁰ of the Minamata Convention, it was debated whether to specify or not in this article the ways to achieve this objective, e.g. by means of the reduction or elimination of the anthropogenic emissions or releases. However, by targeting these emissions and releases, the convention provides a discipline for the entire *life cycle* of mercury merely excluding the quantities of mercury used for research activity and mercury added products as well as the natural amounts of mercury that are persistent in the environment.⁵¹

The definitions listed in article 2, namely those related to the “Best available techniques” and “Best environmental practices” (similarly outlined before in the earlier conventions, specifically within BRS system, on hazardous substances), show once again that the Convention’s main target is the prevention by minimizing the use of mercury and by doing socioeconomic considerations.⁵² With this purpose, article 2 (b) declares that: “Best available techniques means those techniques that are *the most effective to prevent* and, where that is not practicable, *to reduce emissions and releases of mercury* to air, water and land and the impact of such emissions and releases on the environment as a whole, taking into account economic and technical considerations for a given Party or a given facility within the territory of that Party”. As for the “best environmental practices”, it is intended to operationalize the principle of prevention through “the application of the most appropriate combination of environmental control measures and strategies” (Article 2 (c)).

In the line with the BRS conventions, the regional economic integration organizations are also defined in the text of the Minamata Convention. This definition is always regarded with great interest particularly taking in consideration the position of the European Union (beside the others organizations: ASEAN, NAFTA, EFTA, MERCOSUL) as party of the convention and the today’s globalization of trade.

- *Mining*

It is successfully stated in article 3 (3) – (4) of the Minamata Convention that the so-called primary mining will be definitively banned. That could be considered as a

50 “Other options discussed during the negotiations have focused on the minimization and, where feasible, ultimately elimination of anthropogenic mercury releases, on the prevention of the risk or of adverse effects on human health and the environment, or on the recognition of the life-cycle approach”, IISD, *Earth Negotiation Bulletin (ENB)*, 28:6.

51 F. Petrucci, ‘Il mercurio nel nuovo panorama normativo internazionale ed europeo’ (*reteambiente* 11 December 2020) <www.reteambiente.it/normativa/29144/il-mercurio-nel-nuovo-panorama-normativo-internazionale-ed-e/> accessed 14 December 2020.

52 In this context, the scientific definitions of mercury provided in the text (referred in articles 2 and 3) are methodologically important, namely mercury compounds and mercury added products.

good provision keeping in mind the objective to reduce the use of mercury at the global level. With the sole intention to facilitate some countries⁵³ namely China, Kyrgyzstan, Chile in closing their mercury mines, the provision allows existing mining to continue for a period up to fifteen years after the ratification process of the convention is concluded. This provision certainly is the outcome of very hot interest-based negotiations among the Parties due to the fact that this kind of restriction will really support the minimization of the use of mercury. However, the same article established that over this *tolerance or grace period* (after the ratification) the quantity of mercury could be used only for determined purposes: (i) in manufacturing of mercury-added products in accordance with article 4 and (ii) in manufacturing processes in accordance with article 5. Furthermore, the parties have to take measures to implement two specific obligations. First, they must “identify individual stocks of mercury or mercury compounds exceeding 50 metric tons, as well as sources of mercury supply generating stocks exceeding 10 metric tons per year, that are located within its territory”. Second, whereas there is an excess of mercury this has to be considered as waste and consequently to be treated in accordance with the set of rules established in the Basel Convention, mainly following⁵⁴ the principle of environmental sound management of the toxic wastes. Interestingly, there is an integrative technique for which Parties to the Basel Convention can follow the definitions of wastes and the norms related to their disposal, while non-Parties to the Basel Convention (e.g. United States of America) must follow article 11 of the Minamata Convention without changing effects in terms of implementation and effectiveness.

- *Trade of mercury*

The Minamata Convention shaped the discipline on the trade of mercury on the base of the Prior Informed Consent (PIC) procedure derived from the Rotterdam Convention. According to article 3 (6), the export of mercury is authorized to a Party exclusively by the written consent of the importing country, particularly, in two exceptional cases: (i) when the importing country will make a use of mercury that is allowed under the convention or (ii) when the use of mercury is linked to reasons related the environmental sound *interim* storage as it is disciplined with reference to article 10 of the same Convention. At the same time, an importing country non-Party must authorized by a written consent the exporting country providing also a certification on the base of which it must be showed that the non-Party, beyond ensuring a use allowed (under the Convention), has taken measures in order to

⁵³ H. Selin, *supra* n.32, page 8.

⁵⁴ Minamata Convention, *supra* n.1, article 11.

ensure the protection of human health and the environment and to ensure its compliance with article 10 and 11 of the Convention. On the same line to ensure an equal treatment between Party and non-Party of the Convention, article 3 (8) prescribed that the exporting country non-Party⁵⁵ to the Convention has to certify that such mercury is not produced from new mercury mining or from the decommissioning of chlor-alkali facilities considered “not allowed sources” in article 3 (3) – (5) of the Convention.

It will be very interesting to see if these provisions will function for instance with reference to the fair trade gold certifications⁵⁶ involving trade and mining sectors. To this extent the Minamata Convention did not mention any specific norm or juridical link and this gap probably would be filled at the domestic level unilaterally by each governments.

- *Storage and Disposal*

The protection of the human health and the environment gains effectiveness by managing - in an environmentally sound manner - the storage of mercury and mercury compound. In accordance with article 10 of the Minamata Convention, the parties have the obligation to guarantee this by following all the related standards or requirements contained in the guidelines given by the Conference of the Parties or others elaborated in the context of the Basel Convention. Further, there is an express option - for the Conferences of the Parties - to create other specific scientific and technical standards by adopting an additional annex to the convention (following the procedure in article 27).

As it is highlighted through specific references in article 11 (1) – (2), the Minamata Convention on mercury is benefiting from the legal framework of the Basel Convention also in the particular field of disposal operations of mercury waste. Specifically, article 11 (3) established a set of precise rules for the Parties to the Convention. First, as it is stated for the storage of mercury and mercury compounds, the parties have to manage in an environmentally sound manner the mercury waste, paying attention to the guidelines of the Conference of the Parties and to the Basel Convention. Secondly, Parties can put in place technical operations of recovering, recycling and re-using are authorized exclusively for the use allowed or for waste management disposal of mercury. Thirdly, transboundary movement of mercury waste is exceptionally permitted in order to conduct environmental sound disposal

⁵⁵ H. Selin stated, “Based on a US proposal, however, a party submitting a general notification of consent to the secretariat can decide to not require such certification for each separate import from non-parties. This option is available until the second conference of the parties to the convention (COP-2), unless extended by the parties at that time”, *supra* n.32, page 9.

⁵⁶ E. Blackmore, C. Holzman, A. Buxton, *Scaling up certification in artisanal and small-scale mining Innovations for inclusivity*, IIED Linking Worlds Working Paper No. 2, UK, 2013.

activities, and the Parties can apply the PIC system of the Basel Convention.⁵⁷

Thus, scientific and technical cooperation at intergovernmental level and between the Conferences of the Parties with the bodies of the Basel Convention assumed a very significant importance in order to develop capacity building in developing countries, in countries with economies in transitions as well as in small developing islands, especially through active partnerships that are able to include the private sector. A similar kind of cooperation has to be realized to identify and to manage the so-called contaminated site too.⁵⁸

- *Mercury discipline: products and processes*

Once again, in one of its key provisions, the Minamata Convention is technically benefiting from the BRS system on hazardous chemicals. With particular regards to the discipline related to the use⁵⁹ of mercury-added products, it is possible to assert that it is adopted the listing technique (similar to the mechanism of the Stockholm Convention). Particularly, the discipline incorporated in article 4 makes reference to the Annex A that is divided in two parts, respectively: (i) List of the products to be phased out within a specific timeline set for 2020 and (ii) Products subject to restrictions (it refers exclusively to the category of dental amalgam).

For what it is concerned to the first category, it is important to clarify that the Parties can register for a specific exemption following the procedure established in Article 6. With reference to some countries (e.g. China, India), this possibility, theoretically, should facilitate the implementation of the provisions which imply an almost radical change in several sectors of their own economies (that not only concerns the use but also the production of these products); consequently, these countries can have sufficient time to upgrade and to adequate their own standards. Furthermore, article 4 (2) allows the parties (alternatively to what it is stated in article 4 (1)) to “implement different measures or strategies to address products listed in Part I of Annex A. A Party may only choose this alternative if it can demonstrate that it has already reduced to a *de minimis* level the manufacture, import, and export of the large majority of the products listed in Part I of Annex A and that it has implemented measures or strategies to reduce the use of mercury in additional products not listed in Part I of Annex A”. For instance, as it was showed this is the case of the United States of America.⁶⁰

⁵⁷ P.M. Dupuy, J.E. Viñuales, *supra* n. 29.

⁵⁸ Article 12 of the Basel Convention contains procedural obligations to take a risk assessment.

⁵⁹ As for the word use, it is intended the manufacture, import and export.

⁶⁰ F.X. Perrez, *supra* n. 38 “The US however could not accept the prohibition of the manufacture, import or export of mercury-added products listed in Part I of Annex A of the Convention. The US had argued that while they are effectively implementing stringent policies to address mercury-containing products, it couldn’t adopt

Conversely, for the second category established in Part II of the Annex A - i.e. dental amalgam⁶¹ - the Convention is stirring towards a reduction instead of an elimination of the use of mercury in harmony with the WHO political considerations.⁶² However, Part II of the Annex A also provides for a set of specific measures in this regard. *Two or more* of those listed measures (e.g. restricting the use of dental amalgam to its encapsulated form or promoting the use of best environmental practices in dental facilities to reduce releases of mercury and mercury compounds to water and land) have to be taken into account by the Parties at the domestic level in order to effectively proceed towards a minimization of the use of mercury in dental amalgam. For many practical aspects, this is a critical point because the text of the Convention is very tolerant allowing the Parties to assume *at least* two measures of those listed.⁶³

The discipline related to the *manufacturing processes in which mercury or mercury compounds are used* is the outcome of the functional normative link between article 5 and Annex B. In principle, the use of mercury is prohibited in any manufacturing processes. The parties can request specific exemptions (like in the situation of mercury-added products) following the procedure established in article 6. Alongside that, it is necessary to specify that Annex B Part I contains a list of processes where mercury must not to be used, namely: (i) the chlor-alkali production by 2025 and (ii) the acetaldehyde production in which mercury or mercury compounds are used as a catalyst by 2018. But at the same time, the Minamata Convention is moving towards a systematic reduction of the use of mercury too, by establishing singular measures in order to reach the minimization goal for three kind of processes listed in Annex B Part II, namely: (i) Vinyl chloride monomer production⁶⁴, (ii) Sodium or Potassium Methylete or Ethylete and (iii) Production of polyurethane using mercury containing

legislation at the national level not allowing the import of such products. Finally, a compromise could be found which was again targeted to the specific legal situation in the US: in principle, no Party shall allow the manufacture, import or export of listed mercury-added products, but a Party may, as an alternative, indicate that it will implement different measures or strategies to address listed mercury-containing products”.

61 “Dental fillings are exempt from the 2020 ban. Countries agree to a phasedown of mercury in fillings by promoting alternatives, creating dental programs to minimize the need for fillings or taking other steps”, B. Bienkowski, *The Minamata Convention: 12 things it does (or doesn't do)*, in Environmental Health News, October 2013.

62 F.X. Perrez (interviewed on 27th April 2014, in Berne (CH)) “The WHO was not in favor of a complete elimination of the use of mercury in medical devices: e.g. dental amalgam”.

63 J.T. Contreras, T.K. Mackey, B.A. Liang, *Global Amalgam Governance: The Need for Clinician Leadership*, Inside Dentistry, Volume 10, Issue 1, AEGIS Communications, January 2014,

64 F.X. Perrez, *supra* n. 38 “The restrictions on VCM production was particularly hard to agree on since the use of mercury in this production is only used in China, and they were not willing to agree on a fixed phase-out date, but to make a phase-out dependent upon a decision of the Conference of the Parties that that mercury-free catalysts based on existing processes have become technically and economically feasible. Another hard part in the negotiations was setting the phase-out date for the use of mercury in the chlor alkali production. Since it is a process that is being already phased out internationally, most countries considered that 2025 was unnecessary late. However, Russia insisted on this late phase-out date and it was finally was agreed upon at the INC5”.

catalysts.

In this disciplinary context, it is essential to highlight the role of the Secretariat. In fact, with reference to article 5 (4), the Secretariat has to gather and manage information and make them publicly available. In so doing, the Minamata Convention attempts to facilitate an exchange of information⁶⁵ among the parties concerning the *new technological developments*.

e) Special Focus: on emissions, release and Artisanal Small-Scale Gold Mining (ASGM)

Before analyzing and commenting the relative discipline of this sector contained in the Minamata Convention 2013, it is necessary to conduct a very important preliminary observation. Predominantly, mercury today, through the Minamata Convention, is recognized as a global danger⁶⁶ because of its scientific properties and characteristics and overall for its capacity to produce long-range transboundary pollution as well as to be transported in the atmosphere by anthropogenic emissions as assessed in the UNEP Mercury Global Assessment 2013. With regards to this particular ability, it is important to put the light on the International Convention on Long-range Transboundary Air Pollution 1979, and specifically on the VIII Protocol on Heavy Metals. As a matter of fact, mercury found its initial international regulation in this protocol together with other two heavy metals, namely lead and cadmium.

The Heavy Metals Protocol (adopted in 1998 and entered into force in 2003) has the main objective to “control emissions of heavy metals caused by anthropogenic activities that are subject to long-range transboundary atmospheric transport and are likely to have significant adverse effects on human health or the environment”.⁶⁷ In order to reach this main goal, it established a regulation encouraging the parties to take certain measures. By differentiating between existing and new stationary sources, Article 3 identifies two *basic obligations* that the parties have to implement: (i) to use the best available technologies (BAT) and the best environmental practices (BEP) as defined in Annex III; (ii) to reduction the level of emissions under the limits specified for *each stationary sources* in Annex V. Thus, it is important to logically combine each and every time article 3 with the Annexes that contain the appropriate details and information.

Furthermore, article 5 established a set of measures that the parties *may take or apply*, for instance: (i) measures to phase out certain heavy metal emitting processes

⁶⁵ Minamata Convention, *supra* n. 1, art. 5 paras 8 and 9.

⁶⁶ “The work to reduce mercury pollution cannot be accomplished by individual countries alone”, see *Mercury management in Sweden*, Swedish Environmental Protection Agency, 2013.

⁶⁷ Heavy Metals Protocol, art. 2.

where substitute processes are available on an industrial scale; (ii) measures to develop and employ cleaner processes for the prevention and control of pollution. From a linguistic point of view, article 5 asserts that the parties are not required to take measures⁶⁸ considered as rigorous or better to say more stringent.

Having regard to this specific aspect, the Minamata Convention represents an evolution in the international regulation of mercury. In fact, realized in the form of a convention plus annexes, it aims at the adoption and implementation of more stringent and specific measures in order to reduce or to eliminate the emissions and releases of mercury in the environment to protect human health. This intent of the parties can be noted in the preparatory works of the convention, precisely in the documents reporting information about “the first session of the Intergovernmental Negotiating Committee (held in Stockholm in 2010) that have marked the formal launch of negotiations”.⁶⁹ Moreover, the Minamata Convention has a global scope and it is designed to be legally binding at the global level considering both developed countries and developing countries. Conversely, the CLRTAP is centered on the transboundary air pollution inherent to macro-areas site in industrialized countries (chiefly in Europe) and correspondingly excluding the developing countries. The road taken by the Minamata Convention implements an important idea: in order to face a global danger like mercury, it is necessary to find a global solution through a cooperation that involves the highest number of countries possible.

Appropriately, the Minamata Convention has been defined as a compromise with potential,⁷⁰ providing for a more comprehensive international regulation on mercury by technically distinguishing among ASGM (article 9), emissions (article 8) and releases (article 9) and by making reference to the corresponding Annexes.

Briefly analyzing, for what concerns the ASGM (considered as the largest source of global atmospheric mercury emissions) the main objective is to realize a gradual reduction of “to reduce, and where feasible eliminate, the use of mercury and mercury compounds in, and the emissions and releases to the environment of mercury from, such mining and processing”.⁷¹ Hence, it is essential to develop under the supervision of the Secretariat a national action plan mandatory following the requirements provided in Annex C. The Parties⁷² have to cooperate spontaneously

⁶⁸ Ibid., art. 6.

⁶⁹ INC1_4 and INC1_5.

⁷⁰ “The result is a compromise that falls somewhat short of European expectations in terms of two of the most significant sources of emissions, but which establishes clear targets in other areas. Further negotiations are planned to close the remaining gaps in the agreement. In the coming years, the agreement could be gradually expanded and its provisions tightened—objectives that Europeans should actively promote”, N. Simon, *The UN Minamata Convention on mercury, A compromise with potential*, GIISA, 10 March 2013.

⁷¹ Minamata Convention, supra n.1, art. 7, para 2.

⁷² F.X. Perrez *supra* n. 38 “Although being a very large and socially very complex source of mercury emissions, and action in the area having clear trade and developmental implications, the area was one of the

making use of existing information exchange mechanisms to share any relevant information regarding the adoption of the best available technologies and best environmental practice.

The Minamata Convention has a proper legal framework regulating the emissions of mercury (also known as *total mercury*) to move globally towards a control and reduction. According to article 8, the Parties have to fulfill the obligation to control the emissions and at the same time for this purpose they can adopt, under the supervision of the Conference of the Parties, a national plan to organize their action orienting that towards specific *expected targets*. Importantly, the Parties have to fulfill the general obligation of establishing and maintaining an inventory of the emissions from the relevant sources within the time limit of five years *after the date of entry into force of the Convention*.⁷³ Once again following the article 8 (4) – (5), it is visible a definite linkage with the CLRTAP in differentiating this kind of sources of emissions, namely (i) new sources and (ii) existing sources. As in the CLRTAP (called before new stationary sources), for the new sources the Parties have to adopt BAT and BEP; in this case, it is not mandatory but just voluntary the preparation of a national plan. This time the provision seems to be more stringent because these have to be adopted within the time limit of five years *after the date of entry into force of the Convention for that Party*.

While regarding the existing sources, there is a different regime. With reference to article 8 (5), the Parties have to prepare a national plan and have to take one or more of the listed measures (precisely, *a quantified goal, emission limit, use of BAT and BEP, a multi-pollutant control strategy and alternative measures to reduce emissions*) within the time limit of ten years *after the date of entry into force of the Convention*. In this context, it is relevant the role of the Conference of the Parties in producing guidance for the use of BAT and BEP as well in supporting the implementation of the measures taken into account by the Parties.

Similarly, the Minamata Convention contains a specific provision⁷⁴ with the objective to simply reduce “releases of mercury and mercury compounds, often expressed as *total mercury*, to land and water from the relevant point sources not addressed in other provisions of this Convention”. For achieving this goal, the Convention established a normative quite similar to the one related to the emissions. The peculiar difference (not mentioned in the context of the emissions) consists in settling the general obligation for the Parties to identify the relevant point source

early ones to finish - basically there was an agreement at INC 3. However, this was only after the issue of banning trade in mercury for the purpose of ASGM was set aside for the discussions on trade. In the latter discussion on trade for the purposes of ASGM, it was decided not to include an overall ban on trade, but export of mercury from primary mining and chlor-alkali facilities is not allowed for ASGM”, by referring to the ENB, 28:8 and to the Minamata Convention, art. 3 paras 4 and 5.

⁷³ Minamata Convention, *supra* n.1, art. 8 para 7.

⁷⁴ Minamata Convention, *supra* n.1, art. 8 para 1.

categories within the time limit of three years *after the date of entry into force of the Convention*.

Section IV

Conclusions

Due to the considerable potential damages that mercury can cause to human health and environment due to its scientific profile, this subject has taken a central position in the world's consciousness being now addressed as a global concern.

Many economic and medical activities are centered on the use of mercury at the domestic level, such as trade, mining and ASGMs as well as operating storage and disposal facilities. Today as in the past are able to put in danger human health and environment affecting entirely the ecosystem. These activities have the peculiar characteristic of being able to produce transboundary pollutant effects both in the air, soil as well as water out from the jurisdiction of the sovereign states.⁷⁵ The nature of this issue requests the adoption of globally binding agreements because the unilateral or bilateral (even regional) action of States otherwise would be ineffective.

On a personal note, the mere existence of the Minamata Convention itself is a success. Hence, it can be considered as the outcome of many international efforts in tackling multilaterally the use of mercury. It gives an enormous contribution in establishing certain common rules, *inter alia*, to harmonize the regulations of certain activities phasing out mercury at the domestic level and to prevent global environmental degradation reconciling environmental protection with development. In achieving this objective States (both developed and developing countries) dealt in a number of intergovernmental negotiations with socio-economic aspects and legal issues for keeping themselves in line with their sustainability efforts.

Of note, this Convention is somewhat *limited* in regulating the use of mercury. Inappropriately, it does not specifically address the issues of the liability of the polluters⁷⁶ and it is too tolerant *inter alia* in determining the phase out of mercury e.g., dental amalgam⁷⁷ and in seeking to minimize ASGM's emissions (considered as main

⁷⁵ Conference on *Mercury Rising in the Arctic* held in March 2012 by Nilandri Basu at the University of Michigan in occasion of 125th Anniversary of the Department of Environmental Science.

⁷⁶ E. Johnston, *Minamata mercury treaty finds skeptics*, Japan Times, 07th October 2010.

⁷⁷ A.V. Tibau, International Advocate Californians for Green Dentistry (interviewed *online* on 22nd of May 2014) stated "If we allow mercury to be continued to be used in any application in the human body, it is criminal...No longer can the long held excuses be used, i.e. for dental mercury, it is cheap and easy to use and is long lasting - it is the most toxic non-radio active material known to man...it is an absolute in science that it is a poison and will always be toxic to any living creature. The continued use of mercury in any product or process is indefensible in 2014...The fact that a specific treaty was created due to the horrific dangers that this element poses should be enough to simply ban it, as it has been done in the Nordic region and this can be replicated

source of mercury pollution).

Against these two limits, a real novelty of the Convention is the wording of article 16 on Health Aspects, an innovative legal technique in dealing with the public health⁷⁸ impact of global environmental problems. This provision represents a fundamental step in linking the two spheres of health and environment, since it expressly invites the Parties to (i) set programs and strategies to protect a specific part of population that could be at risk by offering health care services, (ii) organize educational plans in managing mercury, (iii) foster the institutional health care system by inviting the COP to cooperate exchanging information with particular reference to WHO and ILO.

As mentioned in the introduction of this paper, the Minamata Convention has been ratified by Italy in October 2020. It is important to highlight that the Italian Council of Ministries, under EU laws⁷⁹, recently drafted a proposal of a Dlgs embodied with sanctions for the violations of the regulations on the use of mercury. This is an important progress in the normative development giving meaningful signs of enforcement of the environmental law at the European and domestic levels with special reference to contaminated sites.⁸⁰

As a final note, the whole text of the Convention (for instance see the part regarding products and processes) is somehow shaped by the so-called *holistic approach* of UNEP⁸¹ towards a *cleaner production*, seeking to reduce environmental and health impacts by increasing the *eco-efficiency* of the preventive measures.

In the framework of international environmental law, the Minamata Convention is a smart legal instrument addressing human health⁸² and environment by regulating a specific substance. Now it will be up to the States to sign and ratify the convention

globally". Also, A.V. Tibau *The future of dentistry in a world without mercury: An NGO's perspective*, Dental Tribune, 7th October 2013.

78 M. Neira, WHO Director Public Health and Environment, (interviewed on 28th March 2014, Geneva (CH)). Also, see the article *Health is the key in motivating to solve environmental problems*, published in the WHO's website: http://www.who.int/quantifying_ehimpacts/publications/previdsvideo/en/

79 Regulation 2017/852/UE.

80 "Il Consiglio dei ministri il 10 dicembre 2020 ha licenziato in via preliminare uno schema di DLGS recante le sanzioni per violazione del regolamento 2017/852/UE sul mercurio... In particolare, si prevede l'arresto da tre a 9 mesi o l'ammenda da 50.000 a 150.000 € per violazioni alle restrizioni all'esportazione e all'importazione di mercurio, dei composti del mercurio e delle miscele di mercurio. lo schema DLGS or affronta l'esame della Conferenza Stato regioni e delle commissioni parlamentari competenti prima di tornare sul tavolo del Consiglio dei ministri per l'approvazione definitiva" see, F. Petrucci, 'Regolamento UE su mercurio, in arrivo sanzioni nazionali' (*reteambiente.it* 14 December 2020) <www.reteambiente.it/news/43385/regolamento-ue-su-mercurio-in-arrivo-sanzioni-nazionali/> (accessed 15 December 2020)

81 *UNEP Sustainable production and consumption, Industry and the environment*, vol. 19/3, 1996, pages 4 – 5.

82 G.L. Burci discussing the emergence of a right to a healthy environment asserted, "Environmental problems have consequences that go beyond the public health impact involving the ecosystem. By the way, health and environment go hand in hand within an intimate relationship"(Lecture on Global Health Law, 19th of May 2014 at the IHEID – Geneva (CH)). Reference to an article written by S. Atapattu, *The Public Health Impact of Global Environmental Problems and the Role of International Law*, American Journal of Law and Medicine, 30, Boston University School of Law, 2004, pages 283 – 304.

and to take the adequate measures at the domestic level by paying attention not only to the socio-economic aspects, but also to the ones concerning the global public health.