



Minamata Convention On Mercury

INITIAL ASSESMENT REPORT FOR BANGLADESH

June 2019



Table of Contents

MESSAGE	v
FOREWORD	vi
EXECUTIVE SUMMARY	vii
LIST OF ABBREVIATIONS	xi
INTRODUCTION	1
 CHAPTER 1: NATIONAL BACKGROUND INFORMATION	3
1.1 Geography and population.....	3
1.2 Economic and political profile	5
1.3 Profiles of the energy sector	6
1.4 Profiles of the agricultural and industry sector	7
1.5 Overall environmental status in Bangladesh and condition of waste management	8
1.6 Environmental risk profile	9
 CHAPTER 2: MERCURY INVENTORY AND IDENTIFICATION OF EMISSIONS AND RELEASES IN BANGLADESH.....	10
2.1 Summary of mercury releases, stockpiles, supply and trade.....	10
2.1.1 Mercury release source types present	10
2.1.2 Summary of mercury inputs to society	14
2.1.3 Summary of mercury releases	15
2.2 Inventory on energy consumption and fuel production	22
2.3 Inventory on domestic production of metals & raw materials	25
2.3.1 Primary metal production.....	25
2.3.2 Other materials production.....	25
2.4 Data and inventory on domestic production and processing with intentional mercury use	26
2.4.1 Production of chemicals	26
2.4.2 Production of products with mercury content.....	26
2.4.2.1 Hg thermometer (medical, air, lab, industrial etc.).....	26
2.4.2.2 Electrical switches and relays with mercury	26
2.4.2.3 Production, use and disposal of light sources with mercury (LFL, CFL)	26
2.4.2.4 Batteries with mercury.....	29
2.4.2.5 Manometer and gauges with mercury	29
2.4.2.6 Biocides and pesticides with mercury	30
2.4.2.7 Production of paints with mercury	30
2.4.2.8 Skin lightening creams and soaps with mercury chemicals	30
2.5 Data and inventory on waste handling and recycling.....	32
2.5.1 Production of recycled metal mercury and ferrous metals	32

2.5.2 Waste incineration.....	33
2.5.2.1 Incineration of municipal/general waste	33
2.5.2.2 Incineration of hazardous waste.....	33
2.5.2.3 Incineration/burning of medical waste.....	34
2.5.2.4 Open fire municipal waste burning and dumping.....	35
2.5.2.5 Waste deposition/landfilling and waste water treatment.....	35
2.6 Data and inventory on general consumption of mercury	35
2.6.1 Dental amalgam fillings	35
2.6.2 Thermometers	37
2.6.3 Electrical switches and relays with mercury.....	38
2.6.4 Light sources with mercury	38
2.6.5 Batteries with mercury	39
2.6.6 Polyurethane (PU, PUR) produced with mercury catalyst.....	41
2.6.7 Paints with mercury preservatives	41
2.6.8 Skin lightening creams and soaps with mercury chemicals	42
2.6.9 Medical blood pressure gauges.....	42
2.6.10 Other manometers and gauges with mercury.....	42
2.6.11 Laboratory chemicals	42
2.6.12 Other laboratory and medical equipment with mercury.....	42
2.7 Data and inventory on crematoria and cemeteries	42
2.8 Implications of inventory findings with respect to the different provisions of the Minamata Convention	43

CHAPTER 3: POLICY, REGULATORY AND INSTITUTIONAL

FRAMEWORK ASSESSMENT 44

3.1 Legal instruments for managing and regulating hazardous chemicals (including mercury).....	44
Environment Conservation Rules (ECR) 1997	45
Hazardous Waste and Ship-breaking Waste Management Rules, 2011	45
Bangladesh Labor Act, 2006	46
Bangladesh Export Policy, 2015-2018 and Import Policy Order, 2015-2018.....	46
The Bangladesh Standards and Testing Institution Ordinance, 1985	46
Right to Information Act 2009.....	46
Bangladesh Consumers Right Protection Act 2009	46
3.2 Non-regulatory mechanisms for managing chemicals (including mercury).....	47
National Environmental Policy 2013.....	47
National 3R Strategy for Waste Management 2009	47
Bangladesh Standards and Guidelines for Sludge Management 2015	47
National Health Policy 2011	47
National Industrial Policy 2010.....	48
3.3 Institutional framework for managing chemicals (including mercury)	48
Department of Environment Bangladesh Standards and Testing Institution	48
Import and Export Control Department	49
National Board of Revenue (NBR)	49

Directorate General of Health Services (DGHS)	49
Directorate of National Consumer Rights Protection (DNCRP)	49
Bangladesh Medical Research Council (BMRC) and other Research Institutions	49
Information Commission of Bangladesh	50
3.4 International Treaties	50
Basel Convention	50
3.5 Summary of gaps identified with different provisions of the Minamata Convention	50
 CHAPTER 4: IDENTIFICATION OF POPULATIONS AT RISK AND GENDER DIMENSIONS	 52
4.1 Introduction	52
4.2 Identification of populations at risk	52
4.2.1 Populations at risk from waste management activities	52
4.2.2 Populations at risk from dental amalgam use in dentistry	54
4.2.3 Populations at risk from mercury-added products	55
4.2.4 Mercury ingestion from fish-dependent diet	57
4.2.5 Mercury exposure in urban areas	58
4.2.6 Mercury exposure in shipbreaking industry	58
4.3 Implications of the assessment results for Bangladesh as a future party to the Minamata Convention	60
 CHAPTER 5: AWARENESS RAISING PLAN AND ACTIVITIES	 61
 CHAPTER 6: PRIORITY AREAS FOR IMPLEMENTATION	 70
 CHAPTER 7: MAINSTREAMING NATIONAL MERCURY PRIORITIES	 78
7.1 Linkage with the 7th five year plan	78
7.2 The way forward	82
 BIBLIOGRAPHY	 84
 ANNEXES	 88
Annex A: Policy and regulatory framework mapping with the provisions of the Minamata Convention	88
Annex B: Institutional framework mapping with the provisions of the Minamata Convention	104
Annex C: Data sources used for preparing the Minamata Initial Assessment report	115
Annex D: Mercury output pathways	122
Annex E: Summary of mercury releases	124
Annex F: Present source categories and summary of mercury input to society	128



Secretary

Ministry of Environment, Forest and Climate Change
Government of the People's Republic of Bangladesh

Message

Mercury is a global threat to health and environment worldwide. Recognizing that Bangladesh could be affected in various ways due to use and disposal of mercury-containing products and mercury emissions and releases, Bangladesh signed the Minamata Convention on 10 October 2013. The Government of Bangladesh has the intention of actively proceeding towards the ratification of the Minamata Convention on Mercury and has undertaken the Minamata Initial Assessment (MIA). The Ministry of Environment, Forest and Climate Change (MOEFCC) is mandated to look after the environment issue in Bangladesh and take necessary actions to safeguard the environment against harmful and toxic substances. The Bangladesh Government will aim to protect human health and environment by adopting measures for the reduction of mercury emissions and releases.

I express my sincere thanks to the Department of Environment (DoE) for publishing the MIA report for the interest of all the stakeholders. I acknowledge the support of Bangladesh University of Engineering and Technology (BUET) for providing technical assistance in preparing the MIA report on behalf of DoE and MoEFCC. My thanks to the stakeholders of different ministries, NGOs, academia and research institutions for their contribution in the report.

I hope that that this document will aid in the ratification process.


(Abdullah Al Mohsin Chowdhury)



Director General
Department of Environment
Government of the People's Republic of Bangladesh

Foreword

I am delighted to present the Minamata Initial Assessment (MIA) report of Bangladesh which has been prepared to disseminate our current understanding and inventory of mercury use and emissions in the environment. The Department of Environment, as the environmental regulatory agency of Bangladesh, has a mandate to protect the environment from the adverse effects of hazardous substances to safeguard health and well-being of the people. The Minamata Initial Assessment (MIA) report contains the baseline account of mercury use in the society as well as a roadmap on mitigation, reduction or elimination of mercury use. All this information can feed into the national planning process and help us formulate strategies for definitive action.

A series of consultations with relevant stakeholders of various ministries, research institutions, regulatory authorities, civil societies, and NGOs have been undertaken to validate the findings of the report. A Mercury Coordination Committee (MCC) was set up in DoE to oversee the preparation of MIA and planning of awareness raising campaigns. Various awareness activities are already taking place in the form of dissemination workshops and seminars and these activities are being reported and highlighted in print and electronic media. The DoE is playing a central role in all these activities.

I highly appreciate the efforts taken by Dr. Masud Iqbal Md Shameem, the Project Director of the MIA project of DoE, for coordinating the process of the preparation of the document. I acknowledge the contribution of Professor Dr. Tanvir Ahmed for leading the BUET team in this study. My sincere thanks to UNITAR and UNDP for their generous support throughout the process of MIA document preparation.

I hope that this document will serve as a useful guide for regulating mercury emissions in the national context as well as paving the way for the ratification process of Minamata Convention.

A handwritten signature in blue ink, appearing to be 'A.K.M. Rafique Ahammed', is written above a small blue mark.

(Dr. A.K.M. Rafique Ahammed)

EXECUTIVE SUMMARY

The Minamata Convention on Mercury is a global treaty designed to protect human health and the environment from the adverse effects of mercury. Bangladesh signed the Minamata Convention on 10 October 2013 and is actively proceeding towards ratification. The Bangladesh Government will aim to protect human health and environment by adopting measures for reduction of mercury emissions and releases. In this regard, the Global Environmental Facility (GEF) has developed a set of pre-ratification activities, called Minamata Initial Assessments (MIA), designed to prepare countries for treaty ratification and implementation. The MIA project in Bangladesh was developed with the support of the United Nations Development Programme (UNDP) as implementing Agency and the technical assistance and capacity-building provided by the United Nations Institute for Training and Research (UNITAR).

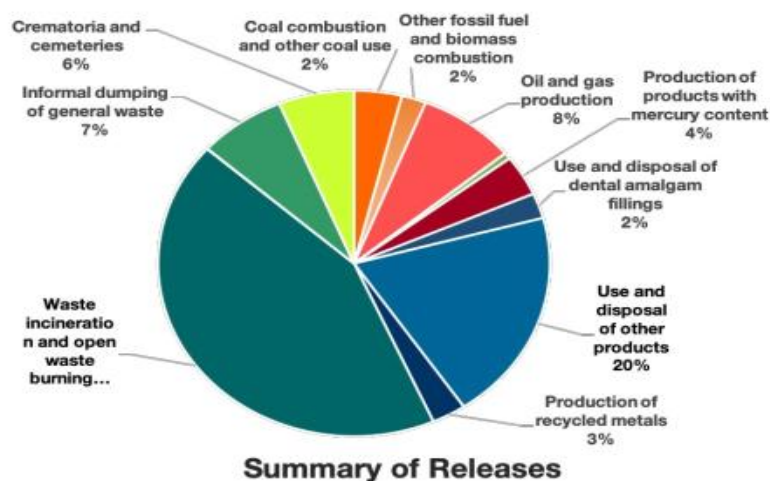
In Bangladesh, major mercury emission sources are use and disposal of products with mercury content, production of mercury-added products, open fire waste burning, informal dumping of general waste, production of oil and natural gas, and coal combustion. Bangladesh manufactures three consumer products (lamps, paint and cosmetic products) that potentially contain mercury, while all other consumer products are imported, such as dental amalgam, that remains the preferred restorative material in dental practice.

The national mercury inventory was prepared as a part of the Minamata Initial Assessment (MIA) project. This inventory analysis was performed using UN Environment's Toolkit for identification and quantification of mercury releases. Both levels 1 and 2 were utilized to prepare this inventory. From the inventory, the total mercury releases in Bangladesh are approximately 32,660 kg per year with major mercury emissions from the following sources (Figure ES-1(a)):

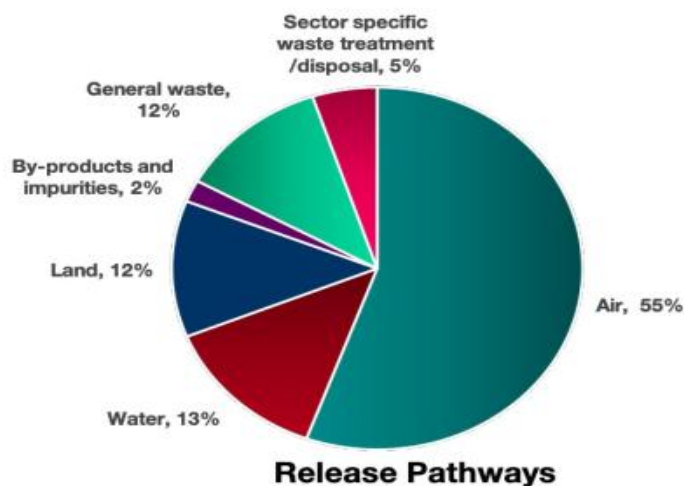
1. Waste incineration and open waste burning: 44 per cent (14,323 kg Hg/y),
2. Use and disposal of other products (including thermometers, paints with mercury preservatives (/pigments), other laboratory and medical equipment with mercury, polyurethane produced with mercury catalysts, and switches and relays): 20 per cent (6,564 kg Hg/y),
3. Oil and gas production: 8 per cent (2,675 kg Hg/y),
4. Informal dumping of general waste: 7 per cent (2,397 kg Hg/y),
5. Crematoria and cemeteries: 6 per cent (2,066 kg Hg/y),
6. Coal combustion and other coal use: 2 per cent (781 kg Hg/y), and
7. Production of products with mercury contents (thermometers, paints, cosmetics, light, battery): 4 per cent (1,258 kg Hg/y).

In Bangladesh, most of the mercury is released to air (55%) followed by water (13%). Figure ES-1(b) presents the summary of the main release pathways in Bangladesh.

Figure ES-1: (a) Summary of mercury releases in Bangladesh; (b) Release pathways in Bangladesh



(a)



(b)

With respect to the national policy and legislation on chemicals and waste management, there are different regulations on environment protection, conservation, waste management, among others; as well as institutions for testing and maintaining standards of products, yet more specific and detailed policies and institutional strengthening need to be developed to address the potential threat released by mercury to the environment and human health.

The existing rules do not state clearly the management strategy for mercury or do not directly limit the use of mercury in relevant processes. The descriptive review on existing policies and regulatory bodies of Bangladesh has been performed and an assessment has been made regarding the gaps that need to be filled to bring the national system into conformity with the articles of the Convention.

This report assessed and identified the legal instruments that can be utilized to regulate the sound management of mercury as well as the management strategies that need to be incorporated into the national legislations to ensure compliance of the Convention. A series of actions has been proposed to meet the obligations provided by the Minamata Convention in order to mitigate mercury emissions and releases from anthropogenic sources. Table ES-1 shows a summary of proposed actions, convention articles, lead institutions and prioritization of actions.

Table ES-1: Summary of proposed actions, convention articles, lead institutions and prioritization of actions

Plan	Title and Components	Articles Addressed	Lead Institutions	Priority
1	Legal and institutional arrangements to implement the convention at the national level	3, 4, 5, 8, 11, 14, 17, 18, 19, 21	DoE, ~~MoI~~ , NBR	High
2	Phasing down of dental amalgam	4, 11, 14, 18	DoE, DGHS, Bangladesh Dental Society, NBR	Moderate
3	Phasing out of mercury-added products	4, 11, 14, 17, 18	DoE, DGS, BSTI	High
4	Environmentally sound management of solid and hazardous wastes	11, 14	City Corporations and municipalities, DGHS, DoE	Moderate
5	Research and development, information dissemination and mass awareness	14, 16, 17, 18, 19	Technical and scientific institutions, DoE	High

The Mercury Coordination Committee (MCC) headed by the Director General of the Department of Environment (DoE) was formed to oversee the development of the MIA Project. The MCC includes members from Governmental and non-governmental entities such as the Ministry of Health, Bangladesh Dental Society, BSTI, private sector, academia and other NGOs.

The primary purpose of the MCC is to oversee the preparation of the MIA and coordinate progress on the MIA activities. When the Minamata Convention is ratified by Bangladesh, the Ministry of Environment, Forest and Climate Change will set up a Mercury Management and Co-ordination Cell (MMCC) at the Department of Environment (DoE). The MMCC will be headed by a Director of DoE who will also serve as the national focal point for the Minamata Convention. The MMCC will be staffed by relevant DoE officials and/or consultants to support the implementation of activities for mercury management. The activities and responsibilities of the MMCC focal point will be the following:

- Ensure that the obligations of the Minamata Convention are taken seriously at senior government levels of the concerned Ministries.
- Foster inter-ministerial collaboration and formulate joint strategies with other sectors involved in the Action Plan.
- Propose and undertake programmes associated with the activities under the Mercury Action Plan, monitor and track progress of the programmes that are being implemented.
- Keep track of the national development planning schedule and process (e.g. the 8th Five Year Plan, FYP), and seek the inclusion of the mercury priorities in Bangladesh into relevant sections of the FYP or other planning documents.
- Updating the national mercury inventory, whenever required, ensuring lessons are learnt from the inventory process of this MIA report and other, similar inventory processes that may be undertaken in the future.
- Report on the national status of programmes implemented with regard to mercury management in national and international meetings.

