

Action Plan for the Implementation of National Hazardous Waste Management Policy, 2022



**MINISTRY OF CLIMATE CHANGE AND
ENVIRONMENTAL COORDINATION
GOVERNMENT OF PAKISTAN**

Islamabad, Pakistan

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Hazardous Waste Management
Policy***

July, 2023

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List of Acronyms and Abbreviations

ADP	Annual Development Program
BAT	Best Available Techniques
BEP	Best Environmental Practices
CSOs	Civil Society Organizations
EAD	Economic Affairs Division
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EPAs	Environmental Protection Agencies
EPR	Extended Producer Responsibility
ESM	Environmentally Sound Management
FBR	Federal Board of Revenue
FPCCI	Federation of Pakistan Chambers of Commerce & Industry
GB	Gilgit-Baltistan
HW	Hazardous Waste
HWM	Hazardous Waste Management
IEE	Initial Environmental Examination
INGOs	International Non-Governmental Organizations
MoC	Ministry of Commerce
MoCC&EC	Ministry of Climate Change and Environmental Coordination
MoF	Ministry of Finance
M/o FE&PT	Ministry of Federal Education and Professional Training
M/o H&W	Ministry of Housing & Works
M/o I&P	Ministry of Industries and Production
M/o I&B	Ministry of Information and Broadcasting
M/o NFS&R	Ministry of National Food Security & Research
M/o NHSR&C	Ministry of National Health Services Regulations and Coordination
M/o PD&SI	Ministry of Planning, Development & Special Initiatives
M/o S&T	Ministry of Science and Technology
NHWMP	National Hazardous Waste Management Policy
OHS	Occupational Health & Safety
PPP	Public-Private Partnership

PSDP	Public Sector Development Program
PSBA	Pakistan Ship Breakers Association
SOPs	Standard Operating Procedures

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Summary

The existing situation of the issue of Hazardous Waste (HW) in Pakistan requires an urgent attention for its Environmentally Sound Management as it poses serious threats to human health and the environment. For this purpose, the Ministry of Climate Change and Environmental Coordination has prepared this Action Plan for Pakistan covering a three-year period from 2023 to 2026. The parent document of this Action Plan is the “National Hazardous Waste Management Policy, 2022” which indicates in its Section IX, the need for developing an Action Plan for the implementation of the Policy. This Action Plan sets out the priorities in terms of targets and actions to be pursued over the next three years and beyond to improve the prevention and management of HW in the country. The targets on which this Action Plan is based are derived from the following key strategic objectives of the National Hazardous Waste Management Policy, 2022:

- a) To facilitate the implementation of the relevant provisions of the Basel Convention, the Stockholm Convention, and the Minamata Convention at national level.
- b) To prevent, minimize and control HW being generated in the country.
- c) To control the transboundary movements of HW.
- d) To create an enforcement mechanism through effective regulatory framework and monitoring, inspection & verification system.
- e) To build capacity of all relevant stakeholders for Environmentally Sound Management of HW in Pakistan.

There are several key challenges and/or deficiencies regarding Hazardous Waste Management in the country. The absence of a clear classification system of HW, insufficient regulations, and weak, soft, or uneven enforcement of regulations discourage industries from reducing pollution streams that contain HW. The lack of awareness regarding Hazardous Waste Management across industry is another crucial issue in the country. In addition, there is less or no collection, storage, treatment, disposal sites and infrastructure available for HWM in the country. There is also dearth of HW recycling facilities and absence of waste exchange information/activities. Above all, inadequate and weak institutional and regulatory capacity of the provinces to manage HW exacerbates this issue in the country. Therefore, to adequately address solutions to the above shortfalls, this Action Plan and its parent document are the foundation steps for building a holistic system for managing HW in the country. The decided timeframe for executing the actions regarding the life cycle management of HW is three years for successfully constructing the initial structure for HWM in Pakistan.

The Action Plan sets out a set of targets to be actioned within its lifetime to strengthen protection of the environment and human health through best-practice management of HW in Pakistan. The actions are grouped under the targets on establishing an effective enforcement mechanism for HWM; controlling the transboundary movements of HW; reducing the generation; promotion of safe reuse and recycling practices; storage, treatment and disposal of all hazardous wastes including cleanup of contaminated sites; establishing specialized infrastructure for HWM; capacity building; and information dissemination regarding HWM. Each target is

accompanied by specific actions to be implemented within dedicated timeframes, indicators for monitoring, and responsible entities for implementation. The planned midterm review of the Action Plan will assess the progress of these actions and to revise them accordingly.

Chapter 1: Scope, Existing Situation and Methodology

1. Introduction

Hazardous Waste Management is important for the protection and sustainability of our environment, our economy, and our own wellbeing. In Pakistan, Hazardous Waste (HW) is being generated by several sectors of society, from large industry, healthcare, to small businesses, households, and agriculture. Other sectors such as construction and vehicle maintenance also produce HW including lead-acid batteries, waste electrical and electronic equipment, solvent-based paints and varnishes, and used oils. In- addition, the issue of import of waste in Pakistan and households across the country generate large quantities of several types of HW including plastic wastes, electronics waste, used batteries, solvent-based paints, and cleaning & gardening chemicals etc. This growing issue is of great magnitude that have potential negative impacts on human health and the environment of Pakistan.

In the National Hazardous Waste Management Policy (NHWMP), 2022 HW is “any waste which, by reason of its chemical activity is toxic, explosive, flammable, corrosive, radioactive, poisonous, infectious or other hazardous characteristics causes, or is likely to cause, directly or in combination with other matters, an adverse effect to human health and/or the environment”. While hazardous substances may, by their toxic nature, present risks to human health and/or the environment, some substances require particular attention due to the high, or in some cases unknown, levels of risks they pose. Solutions to challenges posed by the legacy issues of hazardous substances in waste are complex. So, strict regulations and life cycle management of HW are required to protect against the threat to people and the environment.

The Federal Legislative List, Part I, Entries No.3 and 32 read with Article - 70(4) of the Constitution of the Islamic Republic of Pakistan, 1973 gives the Federation the jurisdiction to make laws relating to the 'implementation of international treaties and Conventions'. Hence, efforts of the Ministry of Climate Change and Environmental Coordination (MoCC&EC), under the obligations of international conventions for the management of HW including Basel, Stockholm, and Minamata Conventions, resulted in the endorsement of the NHWMP, 2022 in Pakistan by the Federal Cabinet in June, 2022. It is the first cross sector Policy for HWM in Pakistan under the project on “Strengthening of National Legislation and Capacity Building of Stakeholders for Sound Chemicals and Hazardous Waste Management in Pakistan” which was supported by the UN Environment. This Policy sets a uniform direction for Environmentally Sound Management of HW in the country.

The NHWMP, 2022 reflects directions for ESM of HW from its generation to disposal based on principles of circular economy and polluter pays principle. The Policy provides a framework for a national action on HWM including on the transboundary movements of HW, its recycling, and resource recovery till 2026. It reflects new ways of thinking about HW as a resource, and it applies principle of circular economy to support better and repeated use of our resources. Under the provisions of Section IX of the NHWMP 2022, the MoCC&EC is required to develop an Action Plan for the Environmentally Sound Management of HW in the country, where this Action Plan represents the true framework for the implementation of the NHWMP in Pakistan.

In order to translate the Policy on ESM of HW, this Action Plan covers 8 targets divided into several actions which are to be achieved by all relevant spheres of the government and other private organizations by 2026. The Action Plan proposes measures related to the generation, handling, storage, treatment, disposal, and record keeping of HW. In-addition, it sets a combination of enforcement of regulatory instruments, promotion of 3R strategy to improve resource recovery through more sustainable resource use & increased use of recycled material, building HW facility infrastructure, disposal as a least priority, capacity building and information sharing among all stakeholders to strengthen the system of HWM in the country. These targets and actions will guide all relevant stakeholders about national efforts for ESM of HW till 2026 and beyond.

The implementation of the Action Plan will contribute to the progressive realization of the right to clean environment as a fundamental right of all citizens of Pakistan covered by the “right to life” and the “right to dignity” under Article 9 and 14 of the Constitution of the Islamic Republic of Pakistan, 1973. Actions in this Plan will be updated as new challenges arise and more information becomes available.

2 - Scope

The geographical coverage area of this Action Plan is Federal Government and all provinces of Pakistan including AJK and GB. The HW streams produced from different sectors will be controlled according to the directions prescribed in this Action Plan. As per provision of the NHWMP, 2022 this document excludes those radioactive wastes which are regulated by the Pakistan Nuclear Regulatory Authority.

The time duration of this Action Plan will be three years which will focus on the life cycle management of HW through the application of regulatory, technical, management and financial measures to be undertaken to improve environmentally sound preparing for reduction, reuse, recycling, recovery, treatment, disposal, and transboundary movements of HW.

3 - National Targets

Overall, the purpose of this Action Plan, 2023 is to protect the environment and human health in Pakistan through effective implementation of the objectives of the NHWMP, 2022. This Action Plan sets directions for the best-practice management of HW through the following targets:

1. To establish an enforcement mechanism through instituting effective regulatory framework including rules for licensing, permitting, monitoring and polluter pay principle for HWM in line with the NHWMP priorities;
2. To control the transboundary movements of HW;
3. To drive priority prevention actions by HW units and facilities to minimize and reduce the generation of HW in the country;

4. Recognizing the principle of circular economy through promotion of safe reusing and recycling practices;
5. Provision of a compliant and cost-effective HW collection, storage, transportation, treatment and disposal facilities including the cleanup of contaminated sites;
6. To endorse the proximity principle such that HW is treated as close to the point of production as possible;
7. Capacity building through human resource development, research and ensuring Occupational Health and Safety (OHS);
8. Strengthening communication and coordination among all stakeholders for information dissemination regarding HWM.

4 - Existing Situation

Hazardous Waste Management in Pakistan does not find any comprehensive legal document that can cover the life cycle management of HW in environmentally sound manner. The avoidance of the generation of HW by way of product changes (e.g., use of relatively less hazardous raw material), or source control (e.g., implementing process innovation by applying BAT and BEP) are not seen to be practiced in Pakistan. Whereas there are several sectors which are contributing to the production of HW in the country.

Although a few literature and government reports mentioned the production and existence of HW (e.g., e-waste and plastic waste) in the country, but due to the absence of a first level generation inventory and a classification system for HW it is extremely difficult to predict accurately the rate of HW generation in Pakistan. Even no HW list is available in the country, and it is not mandatory for HW units to report on their generation rates of HW. This means that generated HW could hardly be monitored by or reported to federal or provincial environmental departments or to the relevant Ministry.

The situation is exacerbated by the fact that so far disposal sites and treatment facilities are not legally permitted or registered by any local authority or government institution for HW operations in the country. Furthermore, the lack of procedure/practice for HW separation at source is one of the impediments to recycle or properly treat and dispose the HW streams. In addition, the existing inadequate HW recycling opportunities have not been supported with proper regulations which represent the under estimation of the value of produced waste. The HW streams generated by industry are very diverse for all sectors to be able to come together on their own and form a recycling facility independent of government support/initiatives.

In general, most HW generator units or facilities have no special storage areas. In most cases the HW are mixed and disposed of with municipal waste. Moreover, no environmentally sound treatment facilities exist for HW in the country. In industrial sectors, there are no

provisions of HW disposal facilities neither they have strategic disposal plans. The absence of any separation system between the solid waste and HW during collection by the municipality encourages HW generators not to think about finding special HW disposal methods and consequently disposed of their HW either in the front/back yard of their premises, or in the municipal solid waste containers. HW generators found it cheap to dispose of their HW in the solid waste container rather than treating or recycling it.

5 - Methodology

The methodology adopted for the formulation of Action Plan for the implementation of NHWMP, 2022 is mainly based on a participatory approach for a proactive stakeholder engagement at Federal and Provincial levels. This methodology is divided into three different stages as below:

Step-I: Preliminary Stage

A literature review was carried out for undertaking existing situation analysis on HWM in the country and problem mapping under this stage. Relevant HWM action plans of different countries having similar socioeconomic characteristics to that of Pakistan were also reviewed. A national multi-stakeholder Technical Committee has been constituted to guide the development of the Action Plan. Members of the Technical Committee are from concerned federal, provincial government agencies and other relevant stakeholder organizations.

Step-II: Baseline Assessment and Drafting Stage

This stage involved assessment of the NHWMP, 2022 for setting the structure of its Action Plan. The targets of Action Plan were derived through the objectives of the Policy while the actions were derived from the measures of different Sections (II - VIII) of the NHWMP, 2022. Eight targets and seventy actions were accumulated in the draft Action Plan for the consultation process at national and provincial levels. For convenience, objectives of the Policy were divided into eight national targets.

Step-III: Consultation and Validation Stage

The draft Action Plan was shared with relevant stakeholders across the country for their inputs, views, and comments. Accordingly, the relevant comments received from the stakeholders were incorporated in the Action Plan. Subsequently, a meeting of the Technical Committee on HW was convened to review and discuss the updated version of the Action Plan. The Action Plan was then revised and finalized considering the relevant inputs from the Technical Committee on HW.

Chapter 2 - Action Plan for Hazardous Waste Management

6 - Target 1

To establish an enforcement mechanism through instituting effective regulatory framework including rules for licensing, permitting, monitoring and polluter pays principle for HWM in line with the NHWMP, 2022 priorities.

Sr. No	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
	Strengthening of the regulatory framework					
1.	Development of classification system for the identification of HW in the country.	√			Classification system established	MoCC&EC
2.	Conduct periodical inventories of HW at the national level.	√			Report of the first level HW generation inventory conducted in the country	MoCC&EC
3.	Conduct surveys to identify existing generators and service providers of the HW.	√			Survey report	MoCC&EC, Federal/Provincial EPAs
4.	Enactment of legislations/regulations on HWM including the regulatory definition for HW, and procedures and penalties for efficient prosecution of environmental offenders.	√			Approved regulations/legislations	MoCC&EC, Federal/Provincial EPAs
5.	Prepare technical standards and procedures for pollution control certificate, registration, licensing, and monitoring of HW generators, transporters, facilities, brokers, and workers in scope of the legislation/regulation available.	√			Draft technical standards and procedures for pollution control certificate, registration, licensing, and monitoring	Federal/Provincial EPAs, and Local Government Authorities
6.	As part of EIAs /and IEE ensure that HWM is included in every project approved for	√			HWM integrated into EIA& IEE reports	Federal/Provincial EPAs

	implementation.					
7.	Documentation of informal sector involved in generation, collection, transportation and recycling of HW.	√	√	√	Survey reports on informal sector documentation	Federal/Provincial EPAs and Local Government Authorities
8	Integration of the relevant legal provisions of HWM in the legal frameworks of the sectors generating HW.		√		Guidelines/ Frameworks/Rules developed Relevant sectors sensitized	MoCC&EC, M/o NFS&R, M/o I&P, Ministry of Communications, Textile Division, Ministry of Energy, M/o H&W, Federal/Provincial EPAs and other relevant Ministries
Ensure compliance and enforcement by means of permitting, licensing, registration						
9.	Ensure permitting, licensing, registration, and pollution control certificates to HW Units, facilities and workers involved at all levels.		√		Lists of registered HW facilities, and workers	Federal/Provincial EPAs
10.	Registration of transport agency and persons or entities that transport hazardous waste as a waste carrier according to the legal provisions.		√		Number of registered transport agencies and persons	Local Government Authorities
11.	Conducting information campaigns for the HWM Units on the importance of certification of applicable Environmental Management System (EMS).	√	√	√	Number of conducted awareness and/or training campaigns	Federal/Provincial EPAs
Ensure compliance and enforcement by means of monitoring and auditing of HW Units and facilities						
12.	Prepare compliance, monitoring and auditing forms/procedures.	√			Prepared monitoring and auditing forms/procedures	Federal/Provincial EPAs
13.	Training of relevant staff on monitoring/inspection/auditing.	√	√	√	Training modules and number of trainings	Federal/Provincial EPAs
14	Conduct compliance monitoring and auditing of all generators, handlers, recyclers, treaters, and disposers as per provisions of the established by-laws/regulations.		√	√	Monitoring and auditing reports	Federal/Provincial EPAs
15.	Ensure an adequate and transparent monitoring, self-reporting and recording by the HW units and facilities	√	√	√	Evaluation programs developed	Registered/licensed HW Units and facilities, and M/o I&P

	through developing self-evaluation programs in scope of the established by-laws/regulations.					
16.	Regular self-reporting by the HW units and facilities on the type and quantity of HW generated, stored, transported, recycled, treated, or disposed with necessary proofs.	√	√	√	Number of submitted self-evaluation reports	M/o I&P, Registered/licensed HW Units and facilities
17.	Provide information on accidents, which have occurred during the movement and disposal of hazardous waste by HW units and other stakeholders.	√	√	√	Number of reported accidents	Concerned EPAs/ Local Government Authorities/ HW Units and facilities

7 - Target 2

To control the transboundary movements of Hazardous Waste

Sr. No	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
1.	In view of the updated inventory and established classification system of the HW update restrictions on the import & export of hazardous waste in respective legislations of the relevant government agencies as per provisions of the NHWMP, 2022.		√		Updated legislations	Ministry of Commerce and MoCC&EC
2.	Development and adoption of comprehensive Standard Operating Procedures (SOPs) for transboundary movement of hazardous waste in compliance with the relevant Prior Informed Consent procedure of the Basel Convention.	√			SOPs adopted for transboundary movement of HW	MoCC&EC
3.	Develop regulatory measures to combat illegal traffic of HW and special clauses should be included for strict actions against people/agency involved and enforcement of fines.		√		Regulatory measures in place including penalties/fines for the illegal traffic of HW	FBR, MoCC&EC, and Custom Authorities

4.	Training/education of Customs officials and inspectors on controlling transboundary movements of HW including illegal imports of HW.	√	√	√	Number of trainings	FBR
5.	Strengthen Customs departmental laboratory and scanning mechanism for imported HW with needed human resource and technology.	√	√	√	Trained human resource and needed technology available at Customs department	FBR
6.	Ensure proper record and maintenance of data for import, export, transit, and illegal traffic of HW.	√	√	√	Record/database of transboundary movement of HW	MoCC&EC, FBR

8 - Target 3

To drive priority prevention actions by HW units and facilities to minimize and reduce the generation of Hazardous Waste

Sr. No.	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
1.	Formulate specific working groups under the HW Technical Committee to identify and assess technologies for reduction and minimization of the HW from units and facilities.		√		Specific working groups established Assessment reports on BAT/BEP for HW Units and facilities BAT & BEP guidelines developed	MoCC&EC/NHWMP Implementation Committee and Technical Committee
2.	Promote and facilitate HW units, facilities and other relevant sectors to adopt green technologies including BAT & BEP guidelines developed.		√		Number of dialogue sessions conducted Number of units adopted BAT/BEP guidelines	MoCC&EC, M/oS&T, M/o I&P MoH&W, Federal and Provincial EPAs, HW Units, and Industrial Associations
3.	Selection of the most sustainable green alternative chemicals and capacity building on use of alternate		√		Green alternate chemicals identified,	M/o NFS&R, M/o S&T

	green chemicals instead of harmful pesticides and fertilizers.				and harmful pesticides and fertilizers reduced	
4.	Establish packaging and labeling schemes for the identification and classification of each type of HW generated/imported.		√		Packaging and labeling schemes developed	MoCC&EC, Federal and Provincial EPAs FBR and Custom Collectorates
5.	Develop and promote eco-labelling and awards programme to encourage the adoption of BAT & BEP by industries.		√		Eco-labeling and awards programmes developed	Federal and Provincial EPAs

9 - Target 4

Recognizing the principle of circular economy through promotion of safe reusing and recycling practices

Sr No.	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
1.	Establish specific working groups under the HW Technical Committee to explore the possible options and opportunities for safe reuse and recycling of hazardous waste to promote the practice of circular economy in HW units and facilities.	√			Specific working groups established	MoCC&EC, NHWMP Implementation Committee and Technical Committee
2.	Develop technical guidelines for safe reuse and recycle of hazardous waste generated at HW units and facilities.	√	√	√	Guidelines developed	MoCC&EC, NHWMP Implementation Committee and Specific working groups
3.	Develop management plans/guidelines for HW generated at research laboratories.	√	√	√	Waste management plans/guidelines developed	Academia and Research Institutions
4.	Ratify and implement the comprehensive Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships.	√	√		Hong Kong Convention ratified	Ministry of Maritime Affairs, MoCC&EC, Balochistan Development Authority, Concerned EPA and PSBA

10 - Target 5

Provision of a compliant and cost-effective hazardous waste collection, storage, transportation, treatment and disposal facilities including the cleanup of contaminated sites

Sr. No.	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
	Environmentally Sound Collection, Storage, Transportation and Disposal of HW					
1.	Direct industrial sector to separate HW from non-HW from the source as per regulations developed.		√	√	Guidelines Developed Number of awareness sessions	M/o I&P, Federal and Provincial EPAs, Industrial and Recycling Associations, Industries
2.	Ensure strict implementation of Hospital Waste Management Rules notified by the concerned governments (federal and provincial) for safe treatment and disposal of hospital waste.	√	√	√	Hospital Waste Management Rules implemented	Concerned EPAs and Health Departments
3.	Produce and implement identification/labeling methods for all safe and closed containers and vehicles used to store and transport HW.	√			Identification / labeling methods developed and implemented	Concerned EPAs, Local Government Authorities
4.	Make a plan to develop adequate collection facilities for small-scale quantities of HW from domestic and small businesses.		√		Plan developed	Concerned EPAs and Local Government Authorities
5.	Develop integrated citizen-friendly take back systems in order to achieve effective collection and management of HW such as, domestic HW, expired medicines, tyres, and e-waste.		√		Take back mechanism in place	Federal and Provincial EPAs, Local government Authorities, Industries and M/o I&P
6.	Develop schemes to provide facilities for municipal hazardous waste disposal including e-waste, used oil, and batteries etc.		√		Schemes developed	Concerned EPAs, Local Government Authorities
7.	Facilitate the development of Extended Producer Responsibility (EPR) schemes/guidelines.		√		EPR schemes/ guidelines developed	MoCC&EC, Federal and Provincial EPAs

8.	Implement EPR pilot projects in industrial areas.			√	Number of pilot projects	Federal and Provincial EPAs, Industries and M/o I&P
9.	Formulate specific working groups under the HW Technical Committee to explore the possible options and opportunities for treatment and disposal of the hazardous waste in an environmentally sound manner.	√			Specific Working groups established Number of coordination meetings held to develop manuals for treatment and disposal	MoCC&EC, NHWMP Implementation Committee and Technical Committee
10.	Prepare and adopt technical guidelines for the treatment and disposal of each kind of hazardous waste subjected to the Basel Convention (Appendix-I).	√	√	√	Guidelines developed	MoCC&EC, NHWMP Implementation Committee and Specific working groups, Industrial/Recyclers Associations and any other relevant body
Risk Identification and Management of Contaminated Sites						
11.	Conduct surveys to identify high-risk contaminated sites.	√			Survey reports	Federal and Provincial EPAs
12.	Develop and implement plan for remediation of high-risk contaminated sites as required.		√		Management Plan prepared	Federal and Provincial EPAs, Local Government Authorities, and Industries

11 - Target 6

To endorse the proximity principle such that hazardous wastes are treated as close to the point of production as possible

Sr. No.	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
Infrastructure for Treatment, Storage, Disposal and Testing Facilities						
1.	Prepare guidelines for setting up of environmentally sound operating facilities.	√			Draft guidelines for facilities infrastructure developed	MoCC&EC, NHWMP Technical Committee

2.	Projects for common TSDF sites must be approved after a study under Public-Private Partnerships (PPPs) near to the important urban centers/industrialized regions, where the HW generation is prominent.	√	√	√	Feasibility/assessment reports Approved projects	MoCC&EC, Federal/Provincial EPAs, Local Government Authorities, CSOs, NGOs, Industrial associations, and Industrialists
3.	Clarify ownership and site selection for the TSDF sites.		√	√	Ownership documents/papers	Concerned EPAs and Local Government Authorities
4.	Ensure the establishment of common treatment, storage facilities and/or disposal sites as per feasibility studies/assessments conducted.			√	Number of facilities developed	Concerned EPAs, Local Government Authorities, CSOs, NGOs, Industrial Associations, and individuals
5.	Strengthen and upgrade existing (government or private) testing facilities in the country for Hazardous Waste testing and develop new testing facilities.	√	√	√	Laboratory capacity developed and accredited	Federal and Provincial EPAs, and concerned approved laboratory

12 - Target 7

Capacity building through human resource development, research and ensuring Occupational Health and Safety

Sr. No.	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
	Human Resource Development for HWM					
1.	Development and adoption of educational materials and curriculum regarding HWM for schools and colleges.	√	√	√	Curriculum plan in place	MoCC&EC, Federal and Provincial EPAs and M/o FE&PT
2.	On-job-training of the concerned officials and experts working in the field at relevant Ministries and Agencies for HW management issues.	√	√	√	Training modules, Number of Trainings	MoCC&EC, Federal and Provincial EPAs, Ministry of Commerce, FBR
3.	Develop financing projects and programmes to strengthen the implementation of legislations/regulations developed.		√	√	Number of approved projects	MoCC&EC, Federal and Provincial EPAs and M/o PD&SI

4.	Training of stakeholders for HWM including on the application of HW list and waste classification.		√	√	Number of trainings	MoCC&EC, M/o I&P, Concerned EPAs, and Industries
5.	Training of personnel involved in the collection, storage, transportation of HW regarding general HW management.		√	√	No of trained persons	MoCC&EC, Concerned EPAs and Local Government Authorities
6.	Establish support for the transition to greener purchasing through guidance, awareness and training for purchasers & suppliers.	√	√	√	Number of training and awareness programmes	MoCC&EC, M/o I & B and Federal and Provincial EPAs
Research and Development in HWM						
7.	Promote research on HWM technologies and alternatives that replace highly toxic chemicals.	√	√	√	Research projects developed on alternatives assessment	MoCC&EC, Federal and Provincial EPAs, M/o S&T, HEC, Academia, and Research Institutes
8.	Encourage universities to establish industrial Hazardous Waste assessment and monitoring centers.	√	√	√	Number of engineering universities engaged	MoCC&EC, Federal and Provincial EPAs, M/o S&T, HEC, and relevant universities
9.	Strengthen national scientific and technical research capacity and infrastructure to gather, evaluate and exchange information on HWM for recycled materials to facilitate their reuse in replacing virgin materials in various industrial and commercial products.	√	√	√	Number of projects carried out	MoCC&EC, Federal and Provincial EPAs, M/o S&T, Academia, Research Institutes and any other relevant body
10.	Conduct inventories and researches on suitable waste minimization, reuse, recycling, reprocessing technologies/options, disposal approaches and methods for cleanup of contaminated sites in the country.	√	√	√	Number of inventories developed	MoCC&EC, Federal and Provincial EPAs, Academia, Cleaner Production Center and Research Institutes
Occupational Health and Safety Matters						
11.	Conduct trainings on OHS and emergency/spill response.		√	√	Number of trainings	Federal and Provincial EPAs, HW units, ILO, emergency services, Labour Departments and National and Provincial

						disaster management authorities
12.	Develop and implement plan for providing safety clothing, appropriate equipment, safe and secure sitting facilities, and social security compensations to the personnel involved in the collection, transportation, or storage of hazardous waste.			√	OHS plan developed	MoCC&EC, Federal and Provincial EPAs, Labour Departments and Industries
13.	Develop and implement periodical medical checkup plan for the personnel involved in the collection, transportation, or storage of hazardous waste.			√	Plans and procedure developed	Federal and Provincial EPAs, concerned Industry and M/o NHSR&C

13 - Target 8

Strengthening communication and coordination among all stakeholders for information dissemination regarding HWM

Sr. No.	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
1.	Develop and implement public and sector-specific awareness programmes on the ESM of hazardous waste including HW issues, risks associated and use of less hazardous material.	√			Development of awareness materials, Number of awareness sessions conducted	M/o I&B, MoCC&EC, and Concerned EPAs
2.	Initiate information desk in all stakeholders' Ministries, publish information leaflets, guidelines fact sheets (on HW of concern, recycling, in-situ treatment).	√			leaflets, guidelines and fact sheets on HW developed	MoCC&EC, Concerned EPAs and any other relevant ministry
3.	Direct HW units to publish annual reports on their performance in the general media including disclosing of information on generation, storage, and disposal of waste and that related to the use of hazardous chemicals and substances, their risks in products and waste and their management inside and	√			No of published performance report	M/o I&B, M/o I&P, Industries and concerned EPAs

	outside.					
4.	Inform the waste generators on treatment and disposal methods / facilities on the websites.	√			Websites updated	MoCC&EC, concerned EPAs
5.	Update the websites of MoCC&EC and all EPAs on information on inventory, monitoring or audit reports and regularly update it, atleast biannually.	√			Website pages updated	MoCC&EC, Federal and Provincial EPAs
6.	Conduct feasibility study on Waste Information Exchange Window to disseminate information to stakeholders regarding waste minimization opportunities.		√		Feasibility report available	MoCC&EC, M/o I&P, EPAs, FPCCI, Industrial/Recyclers Associations, relevant Industries
7.	Develop Waste Information Exchange Window system.		√		Waste Information Exchange Window/Platform developed	MoCC&EC, M/o I&P, EPAs, FPCCI, and Industrial/Recyclers Associations, relevant Industries
8.	Creation, adoption, and maintenance of Hazardous Waste Manifest System to ensure cradle to grave tracking of HW.		√		Manifest System developed and adopted	MoCC&EC, Federal and Provincial EPAs

14 - Financial Mechanism

Ensure the provision of adequate financial resources for effective implementation of this Action Plan. However, the general cost and source of funding will largely depend on the operational budgets of relevant departments and international funding.

Sr. No.	Actions	Timeline/year			Indicator	Responsible Entities
		1	2	3		
1.	Identify sources of funding including operational budget of relevant departments, as well as funding from national sources/programs (PSDP, ADP etc.) and international donors for the implementation of this Action Plan and Policy measures.	√			Funding sources identified and enlisted	MoCC&EC, MoF, EAD, Federal and Provincial EPAs, INGOs and CSOs

2.	Investigate the feasibility of establishing a Hazardous Waste Management Fund (HWMF).	√			Logical framework analysis workshop conducted Investigation report developed	MoCC&EC, MoF, Federal and Provincial EPAs, NHWMP Implementation Committee, INGOs and CSOs
3.	Facilitate the establishment of the HWMF.	√			Number of meetings of the Implementation Committee	MoCC&EC, MoF, Federal and Provincial EPAs, and NHWMP Implementation Committee
4.	Explore the option of economic instruments which support the “Polluter Pays Principle” i.e., waste related taxes, discharge fees and pollution charges etc.	√			Assessment report available	MoCC&EC, FBR, Federal and Provincial EPAs, and NHWMP Implementation Committee
5.	Developing and implementing Market-Based Instruments like economic incentives, tax rebates, reduced tariffs, tax concession, subsidies and low interest loans to strengthen the implementation of this Action Plan.		√		Incentive mechanisms in place	MoCC&EC, MoF, FBR, NHWMP Implementation Committee, and Federal and Provincial EPAs

Chapter 3: Monitoring and Review Mechanism

15 - Monitoring of Action Plan

Implementation of the proposed Action Plan must be monitored to assess its progress and adjust the targets and actions as needed. Monitoring is a critical process, the results of which informs strategic planning, financial and technical performance etc. Thus, monitoring and reporting on the implementation of the Action Plan will contribute towards the successful achievement of its targets.

Monitoring of the Action Plan implementation will be undertaken as part of the tasks of the Technical Committee during its ordinary meetings, based on the indicators agreed in the Action Plan. The Central Directorate for Chemical and Waste/IC wing at Ministry of Climate Change and Environmental Coordination shall make provisions for data collection, set formats for collecting the data for indicators on biannual basis, and consolidate the information in an annual report to compare with the targets that have been set. The Directorate will have to setup a budget with formats for monitoring activity, including the conduct of studies.

The Technical Committee will submit quarterly progress reports to the Implementation Committee for their approval. The monitoring will have to be coordinated with key stakeholders, sector institutions and concerned Ministries.

16 - Review of Action Plan

The reviewing of the Action Plan and its implementation will entail the critical assessment of delivery regarding its targets. This process will evaluate the appropriateness of the targets and actions and should provide an indication of whether they need to be amended or adjusted. In addition to monitoring of initiatives, the Action Plan should be treated as a dynamic document that is reviewed and amended periodically to ensure that it remains contemporary and relevant to emerging hazardous waste management issues and legislation/regulations.

The review of the Action Plan will be informed by the evaluation of monitoring reports, the evaluation of performance levels related to the implementation of the plan, public perceptions and opinions regarding hazardous waste management and its associated services, and evaluation of the effectiveness of prescribed targets and activities. The Action Plan will be reviewed by the Technical Committee on HW, MoCC&EC in consultation with relevant stakeholders every year.

List of Technical Guidelines and Guidance Documents

Sr. No.	Document	Timeline/ year			Responsible entity
		1	2	3	
1.	Prepare guidelines for setting up of operating facilities.	√			MoCC&EC Federal and provincial EPAs Local Governments
2.	Technical guidelines for the Environmentally Sound Management of wastes consisting of elemental mercury and wastes containing or contaminated with mercury.	√			MoCC&EC NHWMP Implementation Committee and Specific working group
3.	General technical guidelines for the Environmentally Sound Management of wastes consisting of, containing, or contaminated with Persistent Organic Pollutants (POPs).	√			MoCC&EC NHWMP Implementation Committee and Specific working group
4.	Technical guidelines for the Environmentally Sound Management of the full and partial dismantling of ships.	√			M/o Maritime Affairs, PSBA
5.	Technical guidelines for the identification and Environmentally Sound Management of plastic wastes and for their disposal.	√			MoCC&EC NHWMP Implementation Committee and Specific working group
6.	Technical guidelines on the environmentally sound co-processing of hazardous wastes in cement kilns.	√			MoCC&EC NHWMP Implementation Committee and Specific working group
7.	Technical guidelines on specially engineered landfill.	√			MoCC&EC NHWMP Implementation Committee and Specific working group
8.	Prepare guidelines for setting up of environmentally sound operating facilities.	√			MoCC&EC NHWMP Implementation Committee and Specific working group
9.	Technical guidelines for the Environmentally Sound Management of waste lead-acid batteries.		√		MoCC&EC NHWMP Implementation

				Committee and Specific working group
10.	Technical guidelines for the Environmentally Sound Management of used and waste pneumatic tyres.		√	MoCC&EC NHWMP Implementation Committee and Specific working group
11.	Technical guidelines on incineration on land.		√	MoCC&EC NHWMP Implementation Committee and Specific working group
12.	Guidance document on the Environmentally Sound Management of used and end-of-life mobile phones.		√	MoCC&EC NHWMP Implementation Committee and Specific working group
13.	Technical guidelines on the environmentally sound recycling/reclamation of metals and metal compounds.		√	MoCC&EC NHWMP Implementation Committee and Specific working group
14.	Technical guidelines on waste oils from petroleum origins and sources.		√	MoCC&EC NHWMP Implementation Committee and Specific working group
15.	Technical guidelines on used oil re-refining or other re-uses of previously used oil.		√	MoCC&EC NHWMP Implementation Committee and Specific working group
16.	Technical guidelines on hazardous waste from the production and use of organic solvents.		√	MoCC&EC NHWMP Implementation Committee and Specific working group
17.	Technical guidelines on hazardous wastes collected from households.		√	MoCC&EC Local Government
18.	Technical guidelines on hazardous waste physico-chemical treatment (D9) / biological treatment.		√	MoCC&EC NHWMP Implementation Committee and Specific working group
19.	Updated technical guidelines for the Environmentally Sound Management of wastes		√	MoCC&EC NHWMP

	consisting of, containing, or contaminated with polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs) or polybrominated biphenyls (PBBs).				Implementation Committee and Specific working group
20.	Technical guidelines for the Environmentally Sound Management of wastes consisting of, containing, or contaminated with 1,1,1trichloro 2,2 bis (4chlorophenyl) ethane (DDT).			√	MoCC&EC NHWMP Implementation Committee and Specific working group
21.	Technical guidelines on the Environmentally Sound Management of wastes containing or contaminated with unintentionally produced PCDDs, PCDFs, HCB or PCBs.			√	MoCC&EC NHWMP Implementation Committee and Specific working group
22.	Technical guidelines on the Environmentally Sound Management of wastes consisting of, containing, or contaminated with the pesticides aldrin, chlordane, dieldrin, endrin, heptachlor, HCB, mirex or toxaphene or with HCB as an industrial chemical.			√	MoCC&EC NHWMP Implementation Committee and Specific working group