Indicative Roadmap for the Sound Management of Chemicals (SMC)

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Executive Summary

This roadmap offers decision-makers an illustrative, six-phase sequence for establishing or upgrading a national system for the sound management of chemicals (SMC). It synthesizes guidance from the OECD/IOMC draft modular approach, the VWG-SMC-LA roadmap, the IOMC Toolbox, and WHO, UNECE, ILO, FAO and UNEP reference materials, while mapping every action to the 28 targets of the Global Framework on Chemicals (GFC). Countries should adapt the timelines, institutional detail and financing mechanisms to local priorities and capacities.

- Six modular phases cover the full spectrum of capacity and legal coverage. While presented in a logical sequence for ease of navigation, countries may advance modules in parallel according to their priorities, resources, and existing capacities.
- Governance and sustainable financing are tackled first to avoid downstream bottlenecks and ensure the polluter-pays principle is embedded from day one.
- Hazard communication (through the Globally Harmonised System for Classification & Labelling of Chemicals (GHS)) and a national chemicals inventory create the common language and evidence base for all later decisions.
- Transparent prioritization and tiered risk assessment ensure limited resources are focused on the highest-priority substances.
- Facility-level safeguards, public release registers and poison centres translate policy into day-to-day protection for workers, consumers, communities and emergency responders.
- Life-cycle measures (chemicals-in-products, contaminated sites, circular-economy roadmaps) address downstream exposure and legacy liabilities.
- Continuous monitoring, digitalization and regional cooperation keep the system adaptive and internationally aligned.

1. Introduction

The SMC is essential for healthy people, thriving ecosystems and a strong economy. A well-designed chemicals management scheme enables countries to protect citizens, stimulate safer innovation, meet trade expectations and satisfy multilateral environmental agreement (MEA) obligations.

Why should countries set up a chemical management system?

A national chemicals-management system is not a regulatory luxury—it is a strategic investment in public welfare and economic resilience.

- **Protect human health and the environment** – Toxic exposures contribute to ~1.6 million premature deaths each year and drive costly ecosystem damage. A well-designed system prevents or, where prevention is not feasible, minimizes releases throughout the life-cycle. OECD
- **Promote innovation and safer substitution** – Clear, predictable rules and access to evaluation data encourage industry to invest in green or sustainable chemistry, process optimisation and safer products, creating domestic value and jobs. OECD
- **Reduce technical barriers to trade** – Alignment with international instruments (e.g. OECD MAD/GLP, UN GHS) lowers compliance costs for exporters and reassures trading partners that products meet equivalent safety standards. OECD
- **Optimise public resources** – Shared test data, joint evaluations and cost-recovery fees avoid duplicative studies and implementation costs, freeing scarce budgets for enforcement and innovation support.

Operational sub-objectives

1. **Know what is on the national market** – Inventories and registration systems generate an authoritative list of substances, volumes and uses—an essential baseline for risk-prioritisation.
2. **Inform every actor in the supply chain** – GHS labels and 16-section Safety Data Sheets transmit hazard information from manufacturers to workers, retailers and consumers.

3. **Enable proportionate risk-management** – Tiered assessment frameworks match regulatory effort to hazard/exposure potential, avoiding unnecessary burdens on low-risk substances.

4. **Protect confidential business information (CBI)** – Robust CBI procedures allow authorities to obtain full composition data while shielding legitimate trade secrets from public disclosure.

5. **Generate measurable socio-economic benefits** –Well-designed chemicals management frameworks deliver substantial socio-economic returns, reducing national health burdens while unlocking productivity and sustainable growth

Objective of this document

This roadmap is a **high-level strategic guide** that:

1. **Maps the architecture of an effective chemicals-management system** – It lays out six inter-locking modules (Governance through Monitoring) and shows how actions within one module enable progress in the others.

2. **Provides a flexible, staged pathway –** The modules are presented in a suggested sequence to illustrate how capacities interlink. However, countries can initiate work on multiple modules in parallel, selecting the order and depth of implementation according to their priorities, existing capacities, and opportunities for quick wins.

3. **Serves to operationalize the GFC and its Implementation Programme 1**

4. **Defines scope and limitations** –

    - Focuses on chemicals through their life-cycle.

    - Excludes specialised regimes for **radioactive substances, pharmaceuticals used in clinical settings, food additives and veterinary products**, except where explicitly referenced for coherence.

    - Provides summary descriptions only; detailed methodologies (e.g. risk-assessment protocols, analytical methods) remain in the domain of technical manuals and Toolbox resources.

By offering a common vocabulary, clear module interfaces and direct GFC linkages, the roadmap helps governments, industry and civil society **work from the same blueprint** while tailoring depth and timing to national circumstances.

2. Key Acronyms

- SMC – Sound Management of Chemicals
- GFC – Global Framework on Chemicals
- IOMC – Inter-Organization Programme for the SMC
- GHS – Globally Harmonised System for Classification & Labelling
- MAD – Mutual Acceptance of Data (OECD)
- PRTR – Pollutant Release and Transfer Register
- OSH – Occupational Safety & Health
- CiP – Chemicals-in-Products information programme
- CBI – Confidential Business Information
- CAPPR - Chemical Accident Prevention, Preparedness & Response
- IPPC - Integrated Pollution-Prevention & Control
- BAT – Best Available Techniques

3. Modules, Elements and GFC Alignment

Note: Modules are interlinked and can be advanced simultaneously. Numbering reflects a suggested reading order, not a required sequence.

Module 0 – Governance, Financing & Cooperation

No.	Element	Explanation	Main GFC targets link
0.1	**Framework Legislation & Interministerial Committee**	A single “umbrella” chemicals act (or coherent package of acts) that: sets the legal mandate for regulating the whole life-cycle of chemicals; designates leading ministry/ies; establishes an inter-ministerial committee to coordinate activities, among others.	Target **A1**
0.2	**Cost-recovery mechanisms**	Establishes mechanisms (e.g., EPR levies, pollution taxes or fees on registrations, licences, imports or tonnage) and earmarks them in a ring-fenced fund for the sound management of chemicals, e.g., inspections, risk-management, laboratories, poison centre operations. Aims to shift costs from the State to market actors. Can include subsidy reform.	Target **E5**

No.	Element	Explanation	Main GFC targets link
0.3	**Good Regulatory Practices and Stakeholder dialogue mechanisms**	Promotes the use of Good Regulatory Practice (GRP) instruments—including Regulatory Impact Assessments (RIA), transparent public consultations, and continuous evaluation—to strengthen governance and improve the quality of regulations. Key elements include transparency, clarity of language, evidence-based decision-making, and international cooperation to harmonize regulations and facilitate trade and investment. It also entails establishing a multi-stakeholder council (comprising government, industry, civil society, and other actors) to oversee implementation, review draft regulations, and monitor progress in the development and execution of national chemicals action plans.	Target **E2**
0.4	**Integration of multilateral environmental agreements (MEAs)**	Basel, Rotterdam, Stockholm, Minamata and other present and future MEAs are written directly into the framework legislations	Targets **A4, A5**

No.	Element	Explanation	Main GFC targets link
0.5	**Regional & Global Cooperation Platforms**	Active participation in global and regional collaboration schemes —such as the GFC Implementation Programmes, LARCF, UNEP Regional Centres, and mechanisms promoted under free trade agreements—; sharing of inspectors, labs and e-tools; joint projects on emerging issues of concern.	Targets **E2**

Module 1 – Harmonized Hazard & Data Quality Frameworks

No.	Element	Explanation	Main GFC targets link
1.1	**GHS in all sectors**	A United Nations framework that sets uniform criteria for identifying chemical hazards and prescribes standardized hazard pictograms, signal words, precautionary statements, and Safety Data Sheet formats. Each country should formally incorporate the GHS requirements into its national legal framework.	Target **B6**
1.2	**MAD/GLP accreditation**	Establish and maintain a national Good Laboratory Practice (GLP) compliance monitoring programme and adhere to the OECD Mutual Acceptance of Data (MAD) system. This ensures that safety studies on chemicals are generated to internationally recognised quality standards, enabling data to be accepted across OECD and adhering countries, reducing duplicative testing, saving costs, and supporting regulatory decision-making.	Target **B4**

Module 2 – Chemicals Information and Risk-Approach

This module is replicated for each category**—industrial and consumer chemicals, pesticides, biocides, others**—with proportionate depth.

No.	Element	Explanation	Main GFC targets link
2.1	**National Chemicals Inventory**	Manufacturers and importers declare substance'sidentification, tonnage put on market in a certain period, main uses and GHS	Targets **B1, B3**

No.	Element	Explanation	Main GFC targets link
		classification, creating a systematic source of information for decision-making	
2.2	**Substance Prioritization**	Apply science-based screening (hazard, exposure, socio-economic factors) to identify substances that are considered a priority or of interest for more in-depth assessment of adverse effects to health or the environment	Target **B4**
2.3	**Risk-Assessment**	Conduct or request risk-assessments of the prioritized substances, taking into account the specific conditions of each country. Whenever possible, make use of **existing assessments and data generated by recognized regulatory agencies** to avoid duplication of efforts. New assessments should be developed only when **local exposure scenarios differ** from those already evaluated internationally. While much of the data generated by registrants may be confidential, **countries should promote mechanisms to make safety information publicly available**, ensuring transparency and informed decision-making	Targets **B4**
2.4	**Risk-Management**	Select proportional risk-management measures (e.g., codes of practice, restrictions, authorizations or phase-outs) based on the results of the risk assessment and the socio-economic analysis of the measures	Targets **A3, B4**
2.5	**Confidential Business Information (CBI)**	Establish a clear and transparent framework for handling confidential business information (CBI) in chemicals management. Robust CBI provisions enable authorities to obtain the full composition of substances and mixtures while ensuring that legitimate trade secrets are not disclosed inappropriately.	Targets **B1, B3, E3**

Module 3 – Facility Safeguards & Emergency Preparedness

No.	Element	Explanation	Main GFC targets link
3.1	**Occupational Safety & Health (OSH) Requirements**	Aligns with ILO Convention 170: mandatory workplace risk-assessments, substitution hierarchy, exposure monitoring, Personal protection Equipment (PPE) standards, worker training and right-to-know provisions.	Target **D7**
3.2	**Chemical Accident Prevention, Preparedness & Response (CAPPR)**	"Seveso-type" rules: threshold-based major-hazard controls, safety reports, land-use planning, off-site emergency plans, mandatory incident reporting and root-cause analysis.	Target **D7**
3.3	**Pollutant Release & Transfer Register (PRTR)**	The PRTR is a tool that allows countries to collect and systematize information on emissions and transfers of pollutants generated by industrial establishments and other sources. Facilities must report their off-site emissions and transfers annually. This information is used to determine the quantities released, strengthen environmental management, and publish data in GIS-compatible formats to inform communities and support enforcement actions.	Target **B3**
3.4	**Integrated Pollution-Prevention & Control (IPPC) Permitting**	A licence is issued to industrial installations, setting emission limits and operating conditions across all relevant media (air, water, soil, energy) based on Best Available Techniques (BAT). By requiring operators to adopt, document, and periodically upgrade to BAT	Target **D2**

No.	Element	Explanation	Main GFC targets link
		benchmarks, permits minimise routine pollution at the source and embed continuous improvement within facility management.	
3.5	**Public Health Surveillance, Poison Centres & Incident Response**	Operate a national network that (i) provides 24/7 medical advice on chemical exposures, (ii) monitors poison-centre calls with hospital and laboratory data to detect exposure trends, and (iii) triggers coordinated incident reporting and health-protection alerts.	Target **A6**

Module 4 – Product & Supply Chain Measures

No.	Element	Explanation	Main GFC targets link
4.1	**Chemicals-in-Products (CiP) & Supply-chain Due Diligence**	This element aims to ensure **traceability and transparency** of chemical substances contained in products and across the entire supply chain. It requires manufacturers and importers to **disclose the presence of chemicals (**e.g., of concern or above defined thresholds) in articles, and empowers authorities to **restrict or prohibit** such substances in specific product categories (e.g., toys, food-	Targets **B2, B6**

No.	Element	Explanation	Main GFC targets link
		contact materials, electronics). Companies are also required to **track chemicals through all tiers of their value chain** and to provide **structured, machine-readable data** on substance content, hazards, and sustainability attributes. This enables regulators and customers to **verify compliance** and **identify or eliminate chemicals of concern**, for instance through **Digital Product Passports**.	
4.2	**Circular-economy Roadmaps & BAT/BEP**	Develop sector-specific circular economy roadmaps (e.g., construction, textiles, plastics) that integrate safer-by-design principles, non-toxic material cycles, and Extended Producer Responsibility (EPR). Issue Best Available Techniques (BAT) and Best Environmental Practices (BEP) guidance to ensure recycling and recovery processes do not reintroduce legacy substances of concern into the supply chain.	Targets **D2, D6**
4.3	**Customs e-permitting & Illegal Trade Controls**	Digital linkage between chemical licences and customs codes; identify/flag shipments of banned or restricted chemicals; joint operations with custom officers, police and INTERPOL.	Target **A4**

Module 5 – Environmental & Legacy Measures

No.	Element	Explanation	Main GFC targets link
5.1	**Environmental & Biomonitoring Network**	Long-term sampling of air, water, soil, biota and human tissues (sentinel populations) to detect trends and evaluate policy effectiveness; data shared via open dashboards.	Target **B7**
5.2	**Contaminated Site Inventory & Remediation**	National register that screens industrial/legacy sites; prioritises remediation based on risk to human health/ecosystems; secures polluter funding or applies public "orphan site" funds.	Targets **A1**

4. Self-Assessment Checklist

See document attached

5. References

- OECD (2020). Benefits from Implementing a Chemicals Management System.
- OECD (1981, 1995). Council Decisions on Mutual Acceptance of Data and Good Laboratory Practice.
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- IOMC (2024). Toolbox for Decision-Making in Chemicals Management.
- IOMC (2025). Strategic Approach to a Modular Chemicals-Management System – Draft.
- Global Framework on Chemicals (2023). Text adopted at ICCM5.