Proposed Action Plan on Implementation of Circular Economy in Toxics and Hazardous Industrial Wastes

In order to drive overall goal of achieving Circular Economy in toxics and hazardous wastes, various action points would be important in various fronts including policy, strategy, capacity building, formalization of informal sector, outreach and advocacy, R&D for new technologies for recycling of HW, technology upgradation & proliferation, standardization etc. The proposed action plan is a multi-disciplinary approach which is aimed to provide holistic and integrated methods to effectively promote CE in Toxic and HW management. It is necessary to effectively monitor and evaluate the success of each of the steps on a regular basis, so that suitable restructuring is possible along with removal of specific bottlenecks. The action plan identifies various actions with an emphasis on research and development and information-based policy action. Though the action plan gives specific time frame for each of action, it is expected that the nodal agency would take steps in expeditious manner considering the severe adverse impacts of toxics and hazardous industrial waste on human health and environment. The action plan would need further translation in actions in field and practice through detailing of various tasks to be carried out by identified nodal agency, and firmed up with specific programs and financial allocation required. The effective and expeditious implementation of action plan would lead to sustainable development with competitiveness and compliance for the industrial sector, and also, overall improvement of the baseline ambient environmental quality. The proposed action agenda is mentioned below:

S.No.	Aspect	Action Points	Description	Implementation strategy: Agency and actions	Time frame and costs
1.	Policy perspective	Annual inventory of HW through proper quality checks, mass balance-based audits and third-party review, as per HW Rules 2016 as amended. This will improve the understanding of actual type and quality of HW generated so as to plan information-based policy initiatives.	• The by-products as defined in rules needs to be identified and tracked for its designated use. • Common HW treatment and disposal facilities need to be developed based on market potential for scientific disposal of wastes. • Centralised online system for tracking the manifest, particularly for interstate transport should be developed • The development of inventory can trigger best practices and environmental benchmarking in sectoral industries.	• CPCB/SPCB needs to take a lead in this direction. This is already mandated through HW rules and NGT directions. CPCB/SPCB may take assistance of academic and research institutions for such extensive research work. • Such audits may not require special resources as the audits needs to conducted on `polluter pays principle'. • Common Infrastructures like CHWTSDF are already covered under central assistance scheme. • This is an immediate activity as reliable and credible data would be basis of any policy decisions. • This is a continuous activity and SPCB/CPCB needs to take a lead, with the technical assistance of academic/research institutes.	• One year • Regulatory work and no separate cost required.
		Promotion of Reuse and	• Promoting common HW	• Rule-9 implementation	• One year

		recycle of HW. HW Rule 9 provides for scientific and well tracked reutilisation of HW subject to following SOPs.	processing and recycling plants like common solvent recovery plants. • Promoting the industries to adopt the Rule 9 SOPs published by CPCB. • Facilitating the industries to easily adopt and follow the reutilisation of waste, and streamline the process of approval • Advocacy and promotion of the best practices and success stories of reuse/recycle through sustained campaign. • Promoting non-burn technologies and solutions for management of HW.	mechanism needs to be simplified and promoted through various non-fiscal incentives. • SPCB/CPCB need to publicise the success stories and best practices as part of awareness and advocacy. • Even Industry associations, may be sectoral associations, can take a lead. • Regular training and awareness program for industries attracting Rule-9 needs to be conducted by associations and also SPCBs. IF necessary, help of Academic institutions can be taken for the purpose. • Require separate funding at Ministry level for this activity.	• Regulatory work and no separate cost required.
		Control and regulation of Hazardous chemicals, which are likely to release in environment either through products and/or	• Toxics inventory. • Design of a strategy, plan and regulation to reduce use of some identified chemicals that are carcinogenic and toxic, in manufacturing and other uses and finally released in environment	• A specific program to reduce use of targeted chemicals needs to be designed at Central level with the help of industry associations, academic institutes. Such program needs to consider BAT and	• Three years • It will require fiscal support at least for top 5 chemicals identified,

		waste	through different routes. • This may be in line with 33/50 program of USEPA (???) • Annual assessment of Hazardous chemicals released through CETPs and other waste stream which finally enter in environment. CPCB and some SPCBs have conducted some assessment in this regard, however, the finding s need to be taken to logical end. Initially the hazardous chemicals listed in CEPI report can eb taken as basis of such assessment. • Annual assessment of new and emerging pollutants in ambient air and also reaching sewage treatment plants.	also specific economic incentives for adopting the timelines of the program. This can be undertaken by Ministry of Chemicals and Fertilisers with active support of MoEFCC. • All major sources of Hazardous chemicals in environmental needs to be monitored more frequently. CPCB is already conducting CEPI monitoring at selected location which includes HC monitoring. These efforts need to be formally done annually and reports be published in public domain.	Rs. 100 cr each
		Devising Green Logo and Circular Economy Index for the manufacturers	• Design a scheme for specific indexing the efforts of industries for Circular economy initiatives to reduce toxics and HW in order to recognise the efforts. • Would help in recognising the Champion manufacturer/	• MoEFCC can lead the scheme with the support of all sectoral ministries.	• One year • Regulatory work and no separate cost required.

			producers (complying the best practices) • For toxics in particular, initiatives like Just-in-time can be recognised and adopted.		
		Developing new industrial areas especially for the industries which are practicing CE with special incentives	• The cluster of industries practicing CE would help the organic growth of various types on industries which will lead to sustainable development (For example China has such industrial areas reserved for CE industries)	• Special scheme can be launched by MoCF in consultation with MoEFCC.	• Three years • Rs. 100 cr for each industrial area • May be 5 industrial areas in beginning
		Sustainable consumption and procurement; best practices	• Development of Life-Cycle database on all key manufacturing technologies and its access to industries for planning future improvement. • Support for extending adoption and certification for ISO 14001:2015 standard by all chemical industries /industries engaged in	• Formulation and adoption of National resource efficiency policy by target industries as per NREP 2019. • Launch of National Waste Synergy Portal for providing information on all aspects of Green manufacturing; hazardous waste recycling; list of	• One year • No separate budget required

			hazardous waste generation. • Assistance and access to indigenously developed green technologies with focus on waste minimization by local industries. • Target allocation and Incentivization to large metal manufacturing industries for internal recycling of their waste streams	technologies and technology providers.	
2	Regulatory framework	Create a regulatory framework which promote and facilitate the circular economy with compliance and competitiveness of the industries	• There is a need of, initially a regulation, and after some time may be 2-3 years a specific law on circular economy. • Such a Circular Economy Promotion Law can be enacted for secondary resource recovery based on best international practices and its feasibility and applicability in India • Update/amend the HW regulations to encourage and facilitate the circular economy approach, by reuse and recycle of the	• Draft of Resource Efficiency policy is already notified. The same needs to be adopted with more focus on circular economy approach, may be more on voluntary basis.	• One year • No separate budget required.

			HW. There are several opportunities for the same and they can be listed separately by the nodal agency.		
		Clarity of HW regulation in terms of Rule-9 application	• There are several new innovative reuses and recycle initiatives proposed by industries. It would be necessary that certain time-bound decisions are communicated with specific conditions. Moreover, such decisions need to be in public domain and needs to be treated as applicable for all cases, and not individual based decisions.	• CPCB along with SPCBs • Need stakeholders consultations at various levels to streamline the entire regulation as science driven regulation rather than process driven regulation.	• Six months • No separate budget required
		Standards: The regulatory standards are required for quality criteria for reuse, recycle and reutilisation of HW in a scientific manner. This would promote more scientific approach while promoting CE.	• Development and adoption of guidelines on standards for use of toxics and Hazardous chemicals in products and product manufacturing (fire-crackers, PVC pipes) • Policies and guidelines for adopting designs which are eco-friendly, and best available technologies and processes which will reduce HW and toxic generation. (green chemistry) • Promotion of use of	• MoEFCC with the support of sectoral ministries. • GoI has already notified the Draft Chemicals (Management & Safety) Rules, 20xx. It would be expedient to finalise these rules including the toxics and hazardous waste aspects • A dedicated law on Circular Economy should be developed.	• One year • Research studies be initiated and budgetary provision of 50 cr is initially kept.

			secondary resource thus enabling lower use of virgin resources through recycle/ extraction of resources from the HW.		
		Technology related standards, with focus on Rule 9 of HW rules	• Include End of waste use definition for maximize recycling of hazardous waste. • Inclusion of Pre-identified technologies for hazardous waste recycling in existing legislation. • Fixing Stringent limits and highest fee for landfilling of hazardous waste. This would encourage exploring of waste minimization/recycling. • Mandate achieving eco-labelling of industrial products with minimum environmental impacts as per ISO 14021 standard. For certain category of industries. • Modify existing hazardous waste rules with focus on resource conservation and circular economy, based upon RCRA Act of USA.	• Explore and allow multi-waste mixed incineration including incinerable hazardous waste with dry residual fractions of MSW	• One year • No separate budget required.

			• Ensuring good data is maintained by all technologies deployed. Blockchains to be promoted and advocated to maintain data.		
3	Technology	Promotion of BAT on sectoral basis for benchmarking the manufacturing processes adopting cleaner technologies Developing a scheme to provide fiscal and other incentives for adopting cleaner technologies and best practices for reducing the toxics and HW	• To improve process technology and resource efficiency • Bench-marking of indigenous technology on sectoral basis as well as specific process wise • Develop a scheme with economic incentives for adoption of cleaner technology which would promote and facilitate reduction of HW and also improve operational efficiency • Developing a national level data-base on such cleaner technologies and success stories for awareness and advocacy. (GCPC) • Promotion of research and development to develop such technologies in India under Aatmanirbhar India scheme. • Adopting and promoting	• Ministry of Chemicals and MoEFCC shall jointly formulate such schemes to promote cleaner production technologies, benchmarking, and best practices in CE. • MoCF and MoEFFCC promote specific research in technology aspects of CE mainly in chemical industries, but also in other sectors like steel, mining etc in order to reduce the toxics and waste, and more particularly the rare and precious metals. • A task force in MoCF with representatives from MoEF, DST, CSIR and other academic institutes can be nodal agency for bench-marking and process standardisation of processes generating toxic and HW wastes.	• MoEFCC and SPCBs to take lead. No specific funds earmarked.

			green chemistry principles	• The task force can support research and development, show case success stories, and work as advocacy group to promote CE.	
		Bench-marking of indigenous technology	• To improve process technology and resource efficiency. (This will facilitate the cleaner technologies with lesser pollution foot print and lesser HW/ toxic generation.)		
		Process standardisation	• To improve process technology and resource efficiency • Information dissemination of such good practices through publications and stakeholders engagements.		
		Business models leading to proliferation of technology adoption by the informal sector to formalise and retain livelihoods	• Understanding the key asks of the informal sector and development of a business model and business plan		
4	Incentives	• Fiscal Incentives • Non-financial incentives to the industries implementing circular economy and demonstrating results in waste reduction/resource conservation. eg:	• Exemption of Import Duty on waste recycling technology and related equipment. • Tax Holiday for Establishing facilities for waste recycling technology and related equipment. • Extending tax incentives for	• Zero GST exemption on waste recycling technology and related equipment. • Market based instrument formulation for Green chemistry certified units for Industries with demonstrated waste	• Initially 100 industries can be supported apart from MoEFCC and SPCB schemes of pollution

		One more year validity for Consents • Prioritisation of industries with CE in EC/consent clearance. • Priority or additional weightage for industries with CE in government schemes and procurements.	achieving hazardous waste reduction by industries through internal process improvement/adoption of new technology. • Mandating preferred disposal of incineration waste at Cement Kilns, instead of Stand-alone incineration facilities. • Incentivise involuntary eco-labelling of industrial products with minimum environmental impacts as per ISO 14021 standard. The eco-labelling can be considered for mandatory nature in next 2 years times based on readiness of the scheme. Extending Central and State Subsidy for setting up of Common Hazardous waste Mgt. and Recycling facilities to developers with minimum land requirements and maximum recycling targets. This may be fixed for availing financial grants. • Extending incentives for industries to shift from Red	reduction. • Task force referred above can recommend such initiatives to ministry.	control. Initial budget Rs. 100 cr.

			to Orange and Gradually green category as per CPCB categorization.		
5	Research and Development	• Promoting sponsored research on CE for toxic and HW through academia and industry interactions. • Specific short term research on CE in selected product manufacturing where toxic and hazardous chemicals are used. Joint funding of projects on Circular Economy by Industries & Academia with support from CSIR lab network.	• Evidence based research studies for minimisation of toxics and Hazardous waste from process industries	• The task force with the support of DST, DBT and other academic institutes can be nodal agency for such R&D. There is need of sufficient seed money for such research activities, where government needs to support in the initial period. • Establish a national knowledge network on circular economy in MoEFCC to collect and collate information, coordinate research, dissemination of information, research projects, evaluate technologies etc to take this action plan in mission mode	•
			• Collection and collation of success stories in improved HW management in sectoral industries for reduction and better reutilisation of HW, and further use this information for setting sectoral environmental benchmarks for HW generation and disposal.		•
			• Studies related to conservation of the critical raw material (CRM) for future manufacturing (red mud-Aditya Birla group research project)		•
			• To track products with most hazardous materials for appropriate data and information to assess the CE options and need of policy and regulations in specific sectors.		•
6.	Skill,	• High level	• To train informal operators	•	• This is

	Awareness, and advocacy	brainstorming at the core industry associations on the CE in selected industry sectors, in order tos et the tone. • Capacity building of informal and formal actors in safe handling and disposal of toxic and hazardous waste	(30 lakhs India) who are the best collectors, on safety, health hazardous and best practices. Adequate safety tools and training could utilize them in the entire value chain. • • Institutionalisation of awareness as a mechanism for capacity building • Organising 10-12 Regional workshops with in 6 months on circular economy involving all stake holders- industries, authorities, NGOs • Authorising Trainers Training- Considering huge number of Industry persons involved, it is suggested to develop 10-25 trainers every state within 6 months. • Trainers will impart training on basics of circular economy to industries during the next one year.		important activity and require close collaboration of all stakeholders. A detailed plan needs to be prepared. Initially Rs. 10 cr earmarked for 1st year
		Creation of outreach and advocacy on health and environmental challenges of toxic and hazardous			•
		Development of audio-visual training modules for training purpose which can be used on various ongoing platforms and also skill development programs.			•

			• Compilation of successful case studies involving industries associations- Time period 3 months		
7.	Infrastructure	Development of sufficient number of Common facilities for HW recycling, reutilisation and disposal.	• Provide fiscal and technical support to such facilities to ensure that the HW remains in manifest loop. • Include common solvent recovery as common facility and provide technical and fiscal support to them.	• CPCB/SPCB to identify the requirement of CHWTSDF considering waste volumes and characteristics, reuse and recycle potential and distance between the facility and industry. • There is already a central scheme under MoEFCC to provide fiscal support to these common facilities.	• There is already scheme of MOEFCC to provide 50% grant and hence no separate financial provision required.
		Developing special Eco-industrial parks with industries involved in circular economy with special fiscal scheme and also technical support, in line with bulk drug industrial parks.	• There is need to have few Eco-industrial parks in country where industries adopting circular economy principles can be accommodated. There are documents of World bank on EIP which can be used to design such parks.	• The concept note and feasibility needs to be checked. These EIP can bring the focus on circular economy and help to propagate the principles of circular economy.	• An initial budget for concept note an feasibility studies of Rs. 5 cr is provided for first year. Subsequently, specific capital support can be given to EIP.

8.	Informal Sector	Adoption of social protection measures, basic human rights, and non-discrimination policy for the waste handlers/pickers along the waste value chain,	Being the most marginalized, unstructured, informal section of the society, the Safai Sathis (waste pickers/handlers) constitute the informal sector and are often deprived of fundamental rights. In the Waste Value Chain, the approach for social inclusion for the waste pickers' (Safai Sathis) community needs to focus on the following. ▪ Organising them through self-help groups (SHGs), getting them ULB identity cards, transport cards and later linking them to several government schemes so that they have an organized economic and social set up. Also, aligning with Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as amended in 2019. ▪ Financial security –	• The guidelines of the CPCB/SPCBs need to make this mandatory and the Waste management agencies to ensure that the compliance is met. Regular reporting and verification processes will ensure this to be implemented.	•

			Opening of bank accounts for Safai Sathis and using Direct Bank Transfer (DBT) for receiving their salaries, linking them to self-help groups (SHGs) for an alternate source of income. ▪ Food Security – Access to ration cards and allied benefits for Safai Sathis ▪ Health Security – Getting Safai Sathis enrolled for health and life, medical, general, pension insurance schemes. ▪ Education – Supporting their children to get access to education through various government schemes of scholar ships etc. ▪ Others as per the laws and the evolving schemes ▪ Women rights need to be equally respected with equality.		