

Baseline analysis of existing incentive mechanisms for industrial wastewater management (Output III)

Final report

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Abbreviations

BEE	Bureau of Energy Efficiency
BIS	Bureau of Indian Standards
BOD	Biochemical oxygen demand
BOT	Build-operate-transfer
CAG	Comptroller and Auditor General of India
CETP	Common effluent treatment plant
CFC	Common facility centre
CGWA	Central Ground Water Authority
CLCSS	Credit-linked Capital Subsidy Scheme
CLRI	Central Leather Research Institute
COD	Chemical oxygen demand
CPCB	Central Pollution Control Board
CPMU	Central Project Management Unit
CREP	Corporate Responsibility for Environment Protection
CRIS	CRISIL Risk and Infrastructure Solutions Ltd
CTE	Consent to establish
CTO	Consent to operate
DBFOT	Design Build Finance Operate Transfer
DC-MSME	Development commissioner, Micro, small and medium enterprises
DFR	Detailed feasibility report
DGHS	Directorate General of Human Settlements
DPIIT	Department for Promotion of Industries and International Trade
DPR	Detailed project report
DRI	Direct reduced iron
DSR	Diagnostic study report
EAF	Electric arc furnace
EIF	Electric induction furnace
EMB	Environmental Management Bureau
EMS	Environmental management systems
ENVIS	Environmental information system
EOP	End of pipe
EPA	Environmental Protection Act, 1986, for India
EPC	Engineering Procurement and Construction
ESG	Environment Social Governance
ETP	Effluent Treatment Plant
EU	European Union
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GPCB	Gujarat Pollution Control Board
ID	Infrastructure development
IETP	Individual effluent treatment plant
ILDS	Integrated Leather Development Scheme
IIUS	Industrial Infrastructure Upgradation Scheme

INR	Indian rupees
IPDS	Integrated Processing Development Scheme
ISO	International Organization for Standardization
HIIEPP	Heavy Industrial Investment and Employment Promotion Policy
ICC	Indian Chemical Council
IDC	Industrial development corporation
ILDIP	Integrated Leather Development Programme
IPCP	Industrial Pollution Control Programme
ISS	Indian Standard Specification
MIIP	Mega Industrial and Investment Policy
MIIUS	Modified Industrial Infrastructure Upgradation Scheme
MOEFCC	Ministry of Environment, Forest and Climate Change
MOMSME	Ministry of Micro, Small and Medium Enterprises
MSE-CDP	Micro and Small Scale Enterprises - Cluster Development Program
MSME	Micro, small and medium enterprise
NEP	National Environment Policy, 2006
NER	North-eastern region of India
NGT	National Green Tribunal
NISST	National Institute of Secondary Steel Technology
NMCG	National Mission for Clean Ganga
NMIU	National Monitoring and Implementing Unit
NPC	National Productivity Council
NRCD	National River Conservation Directorate
OECD	Organisation for Economic Co-operation and Development
PAC	Project Approval Committee
PCC	Pollution Control Committee
PERT	Program evaluation review technique
PLI	Primary lending institution
PMA	Project Management Agency
PMC	Project Management Committee/ Project management consultant
PMS	Project management service provider
PPP	Public private partnership
PSC	Project Scrutiny Committee
QCI	Quality Council of India
QMS	Quality management standards
QPR	Quarterly progress report
QTT	Quality technology tools
RM	Rolling mill
SEIP	Sustainable and environment-friendly industrial production
SIA	State Implementing Agency
SIDA	State Industrial Development Authority
SIIDCUL	State Infrastructure and Industrial Development Corporation of Uttarakhand Limited
SMAU	SIIDCUL Manufacturers' Association of Uttarakhand
SME	Small and medium-sized enterprises

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SPCB	State Pollution Control Board
SPMG	State Project Monitoring Group
SPV	Special purpose vehicle
SSI	Small-scale industries
STI	Scheme of Testing and Inspection
SWOT	Strength, weaknesses, opportunities and threats
TRA	Trust and retention account
UAM	Udyog Aadhaar Memorandum
UEPPCB	Uttarakhand Environment Protection and Pollution Control Board
ZED	Zero effect zero defect

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1 Introduction

1.1 Introduction to SEIP

Sustainable and environment-friendly industrial production (SEIP) is a project undertaken by the Ministry of Environment, Forest and Climate Change (MOEFCC) with support from Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, as part of Indo-German technical cooperation. The SEIP project aims at enabling public and private stakeholders in India to come together for efficient, as well as environment and climate-friendly industrial development.

The first phase of SEIP, began in 2015. From 2015 to 2019, over 100 demonstration projects were carried out at industrial units and common effluent treatment plants (CETPs) in five industrial estates across Uttarakhand, Delhi and Gujarat. Outputs of this phase included demonstration of resource efficiency and cleaner production in industries, improvements to ETPs and CETPs voluntary action by industries and industrial associations, publication of draft sustainability standards for industrial areas, development of digital platforms for industrial estates, as well as training and skill development for the ETP and CETP operators.

1.2 SEIP II

SEIP II has been planned for a duration of three years, from 2019 to 2022, with **sustainable industrial wastewater management. The objective of this phase is to strengthen the strategic governance structures in India to effectively combat water pollution from industrial wastewater.** This phase looks at enabling scaling-up of best practices identified and documented under SEIP I. While SEIP I was focused on select industrial estates and individual industrial units, SEIP II focuses on national and state-level interventions. The SEIP phase II focuses on four key outputs i.e. (i) legal & regulatory frameworks, (ii) capacity of the concerned government institutions in terms of procedures and processes, (iii) incentive framework and (iv) availability of the necessary knowledge products. The strengthening of each of these components has been defined as the output for SEIP II.

1.3 Output III of SEIP II: Strengthening incentive mechanisms

The third output under SEIP II focusses on the strengthening of the incentive mechanisms for sustainable industrial wastewater management. Under SEIP II, the incentive framework is being looked at in a comprehensive manner, both at the national and state levels, to strengthen the existing incentive mechanisms and develop new ones, if required.

This third output of strengthening incentive mechanism under SEIP II is interlinked with the other three outputs of SEIP II. Incentive mechanisms may be used to strengthen regulatory, institutional and knowledge frameworks. However, modifying the existing incentive framework may require legal & regulatory changes, institutional strengthening of relevant government organisations and the need for accessible knowledge products.

1.4 Baseline assessment study for output III

CRIS has been appointed to undertake a baseline assessment study for the third output under SEIP II. The objective of the study is to develop an inventory of the existing relevant incentive mechanisms, identify key gaps and formulate a broad set of recommendations to resolve them. The study, which will focus on the incentive framework at the state level in Uttarakhand, as well as at the national level, is expected to be completed by November 30, 2019.

1.5 Objective and structure of the final report

Further to report on gap analysis submitted by CRIS team this report attempts to identify measures to bridge those gaps and create an incentive framework to encourage sustainable industrial wastewater management. A stakeholder workshop to present the proposed recommendations was organised by GIZ at Delhi. The inputs received at the workshop have been incorporated in this report.

1.5.1 Objective of the final report

The objective of this report is to identify gaps in the existing incentive framework for industrial wastewater management, with broad recommendations to bridge them. In order to study these gaps, the existing incentive mechanisms in India have been reviewed and mapped other potential incentive mechanisms implemented globally.. Based on the mapping, desk review, stakeholder consultations and past learnings from the implementation of incentive mechanisms, the appropriateness of potential incentive mechanisms for application in the Indian context has been evaluated.

Further, based on learnings from other countries, extensive literature study, meetings with several stakeholders, inputs from Industry experts and CRIS's analysis, a set of recommendations has been formulated to improve the existing incentive mechanisms and introduce new ones. This report has been produced based on an extensive literature study and meetings with several stakeholders. It draws from interactions with Ministry of environment, forest and climate change (MOEFCC), Central pollution control board (CPCB), Ministry of Textiles, Department for Promotion of Industries and International Trade (DPIIT), Chamber of Commerce, State Infrastructure and Industrial Development Corporation of Uttarakhand Limited (SIIDCUL), Uttarakhand Environment Protection and Pollution Control Board (UEPPCB), SIIDCUL Manufacturers Association Uttarakhand, as well as the interactions with the GIZ team, including the joint consultant's meeting on September 25, 2019, and stakeholder workshops on October 22, November 1 and November 22, 2019.

1.5.2 Structure of the report

The rest of the report is structured into five chapters, beginning with the context of incentives in relation with industrial wastewater management in India. This is followed by an introduction to the various types of incentives, a review of the existing incentive framework in India and analysis of gaps in the existing framework. The final chapter summarises the major gaps observed and the scope for improvement.

- Chapter 1: Introduction
- Chapter 2: Industrial wastewater in India and incentives- Describes the existing regulatory approach to industrial pollution control and highlights the need for incentives, in the context of challenges faced by industries in managing their effluents and emerging sectoral trends that need to be widely promoted
- Chapter 3: Incentive mechanisms- Introduces and analyses various types of incentive mechanisms for environment protection in the context of global and domestic industrial wastewater management
- Chapter 4: Existing incentive mechanisms in India- Maps thirteen current incentive schemes in India against their primary objective, promoting institution, nature of the incentive used and response to the scheme
- Chapter 5: Analysis of gaps in existing incentive schemes- Analyses gaps in existing schemes, based on their coverage of the value chain, stakeholders, monitoring frameworks and focus on industrial wastewater management
- Chapter 6: Recommendations and suggestions- Offers broad recommendations to improve the existing incentive schemes and introduce new ones, as well as guidance on implementing the recommendations

2 Context setting

2.1 Water pollution, a by-product of industrialisation

Post-Independence, successive governments in India have promoted industrial development through a number of policy initiatives. At both the national and state level as in Uttarakhand, a number of incentive packages and schemes have been launched to incentivise and promote industrial development. These incentives are in the form of trade benefits, subsidies on capital investments, concessions in electricity charges, etc.

While industrial development is important to a country's economic development, it also has negative repercussions on the environment. Improper disposal of solid wastes and discharge of industrial effluents contribute to pollution, leading to issues with air quality, among others. Industrial effluents are considered much more hazardous than sewage as they can release toxic pollutants into the receiving waterbodies if not treated properly. The release of industrial effluents have resulted into pollution of many rivers in the country. Examples include the pollution of the Ganga by tanneries in Kanpur, pollution of the Noyyal by textile units in Tamil Nadu and pollution of the Sabarmati by industries in Gujarat.

The CPCB undertakes an inventory of polluted river stretches in the country at regular intervals. Studies by the CPCB highlighted 150 polluted river stretches in the country in 2012 (CPCB, 2012). These polluted stretches increased to 302 in 2015 (CPCB, 2015) and to 351 in 2018 (CPCB, 2018).

2.2 Environmental regulations pertaining to industrial wastewater management

While environment protection is enshrined in the Constitution of India, the formulation of environmental regulations followed the Stockholm Conference of 1972, starting with the formulation of the Water (Prevention and Control of Pollution) Act, 1974. Today, various aspects of industrial wastewater management are also covered under the Environment Protection Act, 1986, and the National Green Tribunal Act, 2010.

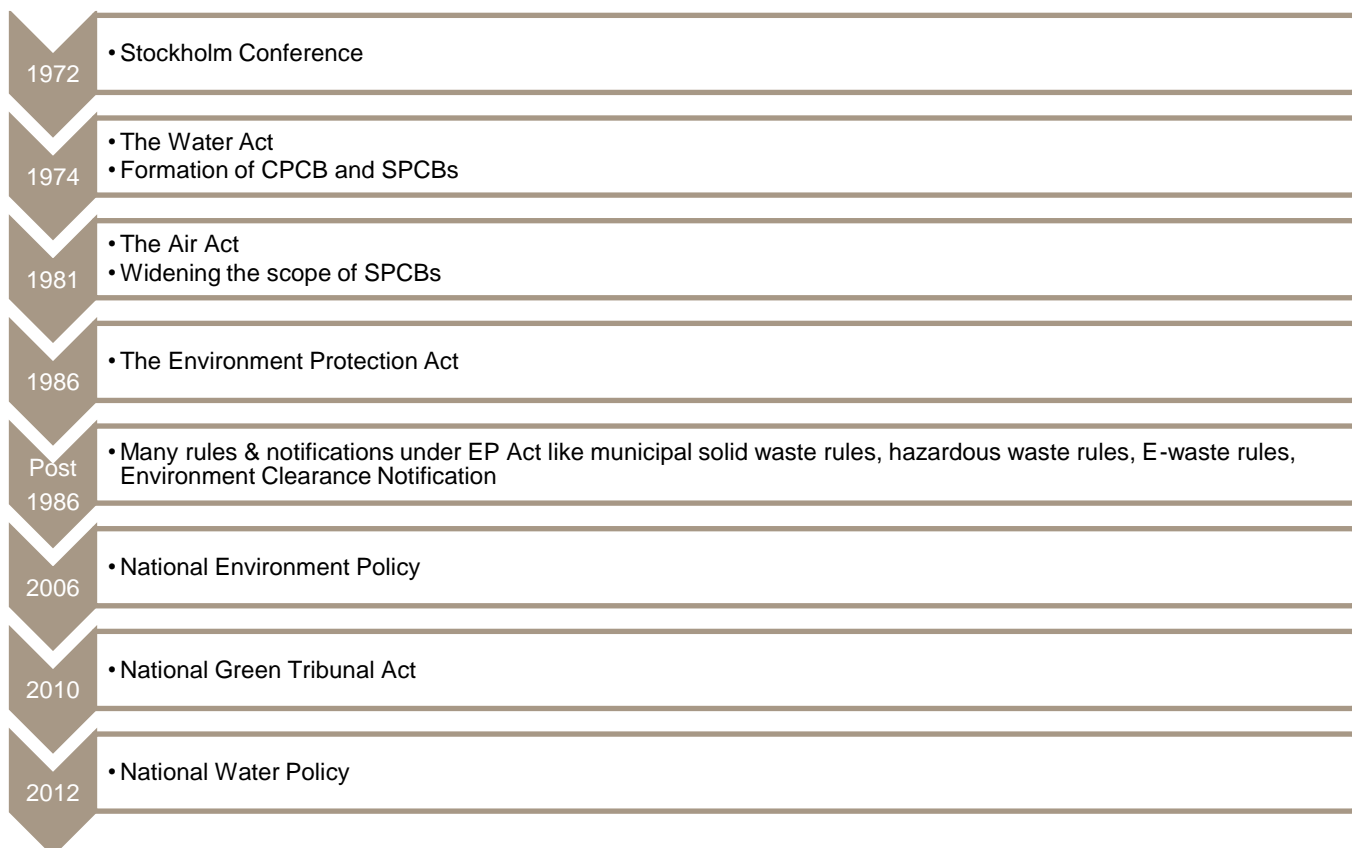
The Water Act provided for the establishment of the CPCB and State Pollution Control Board (SPCB) as regulatory authorities with functions including the regulation of industrial effluents in the country. Under the Water Act, industries have to **obtain two kinds of pollution permits for their effluent discharge**. Prior to the establishment of the industrial unit, a **'consent to establish' or CTE is required**. Further, prior to commencing, a **'consent to operate' or CTO is required**. The CTO may be for a period of 5 to 15 years, depending on the industry category. These permissions are issued for a specific production process. For any change in the production process or the product being manufactured, the **industries need to seek additional permits**.

The Environment Protection Act, 1986, has provided for environmental impact assessment and the Central Ground Water Authority (CGWA). Projects requiring environmental clearance may be required to submit an environmental impact assessment report proposing how they would mitigate the risk of polluting water sources and how they would manage their waste. The CGWA has mapped areas in terms of condition of available groundwater and regulates extraction of groundwater by industries. It requires industries to recycle the wastewater they generate and ensure aquifers are recharged as a precondition to groundwater extraction.

The National Green Tribunal Act, 2010, has led to the setting of a tribunal to speedily dispose of cases pertaining to environment protection, conservation of forests and compensation for damage caused to people or property due to violation of environmental laws or conditions specified while granting permissions. The National Green Tribunal (NGT) has been empowered with wide civil powers, equivalent to those of the High Courts. Communities and environmental activists affected by industrial pollution have filed a number of legal cases. The judgements by the

higher courts and more recently by the NGT on environmental issues have been quite strict on the polluters and the authorities responsible for environment protection.

Figure 1: Chronology of environmental legislation in India



2.3 Challenges in industrial wastewater management

Despite various legal and regulatory measures, industrial pollution continues to be a challenge for India. Of the 100 industrial areas across India found to be polluting in 2018, two industrial estates, Haridwar and Uddham Singh Nagar, were in Uttarakhand.¹

One of the reasons for continued pollution from industries is the **cost of pollution control**. Chemicals, basic metals, non-metallic minerals, rubber, petroleum & coal products, food & beverages were estimated to contribute to more than 93%² of total pollution in the country in fiscal 2011. This means that cost of effluent treatment would be higher for these industries as compared with others. Challenges in effluent management vary not only by the sector but also size. Also, in cases where more stringent regulations apply (as in the case of industries located in the Ganga basin), the creation of a distorted playing field will affect the competitiveness of industries. Hence the need of incentives for industries to reduce their expenditure on pollution control.

The issue of pollution control with smaller industrial units is more severe. Manufacturing industries in India have been categorised into large, medium, small and micro industries, by the Ministry of Micro, Small and Medium Enterprises (MoMSME), based on the investment in plant and machinery. These definitions have been provided under the MSME Development Act, 2006. The table below provides the definition for manufacturing industry categories. As per the

¹ NGT order dated July 10, 2019, original application no. 1038/2018

² Maria Khan, Md. Tarique, AMU, Aligarh, *Industrial Pollution in Indian Industries: A Post Reform Scenario*, Journal of Energy Research and Environmental Technology (JERET), 2015

National Sample Survey (NSS) 73rd round during fiscal 2016, 19.7 lakh micro, small and medium enterprises (MSMEs) were found to be in the manufacturing sector.

Table 1: Definition of industry categories by size in India

S.No.	Type	Investment in plants and machinery
1	Large	More than Rs 100 million
2	Medium	Rs 50 million to Rs 100 million
3	Small	Rs 2.5 million to Rs 50 million
4	Micro	Less than Rs 2.5 million

Source: Ministry of MSME website

MSMEs are pollution-intensive, costly to regulate and far more environmentally harmful than large enterprises (Beckerman (1995), as cited in Dasgupta et al., 1998). MSME units do not normally budget for the resources to meet regulatory standards, and do not have the financial and technical capabilities to install Individual effluent treatment plants (IETPs), whereas large-scale units have the resources to treat their industrial effluents. In addition, there are space constraints in setting up the IETPs. As per the Organisation for Economic Co-operation and Development (OECD) (2006), MSMEs account for ~40% of industrial production, employ limited pollution control technologies and are responsible for an estimated 70% of the total industrial pollution load nationwide. As per the Comptroller and Auditor General of India (CAG) report of 2015 (CAG, 2015: 63), 'the quantum of pollutants emitted by the micro and small scale clusters may be more than equivalent to a large-scale industry, since the specific rate of generation of pollutants is generally higher because of the less efficient production technologies adopted by the small scale industries.' MSMEs generally find it difficult to establish and operate individual effluent treatment plants due to their limited size, technical know-how and financial capabilities.

2.4 Emerging trends in industrial wastewater management

The Supreme Court in the writ petition (c) no. 375 of 2012 issued a direction to state government to undertake setting up of CETPs on an urgent basis. Furthermore, it held that the onus of running these facilities rests on the local bodies. It has gone to the extent of saying that industries without treatment systems of their own or which are not members of any CETP should be closed down by the regulator.

The concept of the CETPs was even promoted by the World Bank in the 1990s under its Industrial Pollution Control Programme (IPCP). The setting up of the CETPs for an industrial cluster has also been promoted in the National Environment Policy (NEP), 2006, for abatement of water pollution. The reason for promoting CETPs is that the cost of treating industrial effluents in CETPs is much lower than that incurred by individual industrial units due to economies of scale. The monitoring and enforcement of a CETP as a single pollution source is also easier for regulatory agencies as compared with the monitoring of a large number of ETPs of individual MSME units. The CETPs can address the constraints faced by MSMEs in treating industrial effluents, while it is assumed that large-scale industries are capable of treating industrial effluents on their own as they do not face the constraints of the MSMEs. As a result, a number of CETPs have been set up in the country.

Zero liquid discharge (ZLD), clean technology (CT) and self-monitoring are emerging as new trends in the sector. The CETPs have been promoted as an end-of-pipe (EOP) solution to treat industrial effluents from small-scale units. Earlier, the aim was to treat the industrial effluents to meet with the prescribed standards and then discharge them into receiving waters. More recently, the incentive schemes have been encouraging ZLD from the treatment facilities. In these kind of EOP solutions, pollution prevention or cleaner production are not the primary objectives. However, to be sustainable, any potential solution should encourage pollution prevention at source and forge linkages between environmental resources and economic growth.

In addition to the treatment or reduction of industrial effluents, there also has been a focus on improving the monitoring of industrial effluents. CPCB has launched a project on online continuous effluent monitoring system (OCEMS) under which several large polluters across the country have now set up online effluent monitoring systems. Real-time data on effluent quantity and quality is shared with CPCB. CETP operators have also begun installing flow-meters at large industrial units to obtain real-time information.

2.5 Key aspects of industrial wastewater management

The following are the six key aspects of industrial wastewater management:

1. **Adoption of environment management systems (EMS):** In order for industries to ensure that they act in an environmentally responsible manner at all times, they need to have **robust monitoring mechanisms** for their pollutants, processes for maintenance of pollution control equipment, and plans for the achievement of the desired environmental performance. Thus, adoption of EMS could help industries be consistent with and aware of their environmental performance. However, given that EMS is not a regulatory requirement, industries which are not compelled to adopt ISO 14001 by their buyers may choose not to adopt it.
2. **Treatment of effluents using the best available technology & techniques, including ZLD:** By adopting the best available technology, industries can reduce their pollution levels below compliance requirements, thereby contributing to better ambient water quality. Proactive adoption of modern technology can also reduce the lead time required for industries to adapt to upgrades in environmental norms. However, given the higher cost of such technology, industries may not be keen to improve their performance beyond meeting compliance norms.
3. **Water conservation, including wastewater recycling:** Industries can reduce their water consumption through improvements in **process efficiencies and by reuse and recycling of wastewater**. Recycling and reuse of wastewater would require investments for **tertiary treatment**. While water is a scarce resource, there are no mechanisms to **price it currently, particularly in the case of groundwater**. The cost of water conservation, thus tend to exceed the cost of water extraction (at least in the short term), limiting the need for industries to be sensitive to their water consumption.
4. **Resource efficiency through waste minimisation & material recovery:** Many of the pollutants present in effluents could be recovered and reused in industrial production. Industries could also **improve their process efficiency and reduce wastage of production inputs**. These could have the twin benefits of reducing both the cost of resources as well as the pollution load in the effluent stream. However, the benefits of such improvements may not be realised in the short term as compared with the cost of process improvements, thus making it unattractive for industries to pursue.
5. **Adoption of clean technology:** As an alternative to EOP treatment, industries could relook their production technology and make changes such as **substitution of the materials used to reduce or change the nature of the resulting waste**. Such measures could improve production efficiency, reduce the costs associated with effluent treatment and consequently reduce the resulting pollution load. However, these may require capital investments that may not appear attractive to industries in the short term.
6. **Proactive public disclosure of environmental information** (such as **quantity and quality of pollutants released, water consumption, investments in pollution control technology, etc.**): By publicly disclosing environmental performance information, **industries can substantiate their claims of being responsible towards the environment**. The public availability of such information can help industries to benchmark among themselves and improve their environmental performance. It also allows the media, civil society and citizens at large to complement the efforts of the environmental regulator in monitoring environmental compliance. However, the risks associated with such **disclosure and costs** involved in reporting may dissuade even those industries which have sustainable practices.

While the six aspects discussed are important for ensuring sustainable industrial wastewater management (and also sustainable production in general), the costs associated with these measures tend to outweigh their perceived benefits at present.

2.6 Incentivising industrial wastewater management in India

The National Environmental Policy, 2006, encourages the use of incentives, in addition to existing regulations, so as to protect the environment and abate pollution. It recognises that an exclusive reliance on regulatory instruments does not allow individual actors to minimise their cost of compliance, and identifies it as a cause for non-compliance and diversion of societal resources from other pressing needs. At the same time, the policy also recognises that the use of economic instruments, in some cases, may lead to high societal cost through the need for intensive monitoring. Hence, it recommends a judicious use of incentives and regulatory instruments. The policy recommends the use of incentive instruments to minimise wasteful use and consumption of natural resources, for the adoption of clean technologies by industry and to encourage the adoption of ISO standards for EMS.

The Water Policy 2012 recommends the use of economic incentives to reduce pollution and promote efficient use of water. With respect to industrial pollutants, the policy recommends the usage of subsidies and incentives to encourage recovery, recycling and reuse of industrial pollutants. For the efficient use of water, it recommends incentive mechanisms such as a tariff regime, minimising over-drawl of ground water by regulating the use of electricity for its extraction, and in water-scarce regions, it recommends that industries be allowed to either draw only the makeup water or be obliged to return treated effluent of a specified standard back to the hydrologic system.

A number of incentive schemes have been promoted in India which either entirely or partly look at industrial wastewater management. The incentive mechanisms look at subsidising capital costs incurred, recognising environmentally responsible behavior and encouraging industries to take advantage of advances in the effluent management sector. These include:

- Ministry of Micro, Small and Medium Enterprises or MOMSE's Credit-linked Capital Subsidy Scheme (CLCSS), Micro and Small Enterprises – Cluster Development Scheme (MSE-CDP), and Financial Assistance for Zero Effect-Zero Defect certification (ZED certification)
- Department for Promotion of Industries and International Trade's Modified Integrated Industrial Upgradation Scheme (MIUS) and the Leather Technology, Innovation and Environmental Issues sub-scheme under the Integrated Leather Development Programme (ILDIP)
- MOEFCC's Common Effluent Treatment Plan Scheme (CETP Scheme) and National Award for Prevention of Pollution and Rajiv Gandhi Environment Award for Clean Technology (National and Rajiv Gandhi Awards)
- Bureau of Indian Standards (BIS) and MOEFCC's Eco Mark product labelling scheme
- Ministry of Textile's Integrated Processing Development Scheme (IPDS)
- Ministry of Steel's Prime Minister's Trophy, Steel Minister's Trophy and Secondary Steel Producer Award (Steel Awards)
- Indian Chemical Council's Responsible Care
- Gujarat Cleaner Production Center's Cleaner Production Awards
- Uttarakhand's Mega Industrial and Investment Policy (MIIP) and Heavy Industrial Investment and Employment Promotion Policy (HIIEPP)

3 Incentive mechanisms

In order to encourage polluters to make more environmentally-responsible decisions, a number of incentives have been discussed and implemented across the world. This chapter lists the broad types of such incentives and evaluates them in the Indian context. A distinction has been made in this chapter between incentives (the benefits or costs by themselves) and the mechanisms to deliver them. The former is dealt with in sections 3.1 to 3.3, while the latter is discussed in the remainder of the chapter.

3.1 Incentives for environment protection

Incentives can be both financial and non-financial in nature. Five broad types of incentives have been identified. These have been drawn from literature on environment protection as well as various incentive packages that are offered to attract industries.

1. **Financial incentives:** These could in the form of grants, income tax benefits (accelerated depreciation, tax holidays, provisions for deduction, etc.), trade benefits (reduction in custom duty), discounts in fees (reduction in consent fee charged by SPCBs), etc. Capital grants have been traditionally provided in India for environmental investments. An income tax benefit in the form of accelerated depreciation is also provided for investments in air & water pollution control equipment. However, the rate of depreciation that one could claim against these investments was reduced from 100% to 40% in fiscal 2018.
2. **Pricing:** Polluting activities can be priced at the input (through differential GST rates) or linked to polluting outputs (via charges linked to pollution emission).
3. **Ease of doing business:** A reduction in the time and effort for complying with environmental regulations could be offered an incentive. Industries are required to obtain a consent to operate from the SPCBs and renew it from time to time. The incentives could be in the form of an extended validity period, automatic renewal, lower frequency of inspections by SPCBs or fast-tracking of the consent applications.
4. **Preferred sourcing:** Firms could be provided an edge over their competitors as an incentive in the case of public sector procurement. This could be in terms of providing an advantage in competitive bidding processes or by reserving a portion of the procurement budget. While 'Make in India' incorporates the former to promote indigenous firms, the latter is used in certain sectors to promote MSMEs.
5. **Recognition:** This could be in the form of publicly acknowledging a firm's achievements, **allowing use of branding rights, etc.** While recognition incentive attributes to the **marketing promotion activities of an industry**, the benefits of this incentive are rather subjective & intangible as compared to the other kinds of incentives.

3.2 Industry preference for incentives

Discussions with various industry representatives on incentives offered the following insights:

1. Direct financial incentives are typically not preferred. This is attributed to indirect costs (such as time) of accessing capital grants and subsidies.
2. Indirect incentives such as reduction in consent fees, tax or trade benefits, interest subsidy, etc. are preferred amongst financial incentives.
3. Incentives which lead to ease of doing business would be preferred. For example, extension in the validity period of consent, fast-tracking of consent applications or reduced frequency of inspections by the SPCB.
4. Recognition should be specific to sectors, industry size and geography, and based on transparent mechanisms.

3.3 Precedence of incentives in the Indian context

Some of these incentives, though attractive to industry, may be relatively difficult to roll out. One **key hurdle could be a lack of precedence for their use in the environmental context**. Past instances of the use of the listed incentives are as follows:

- A reduction in the **consent fee charged by** the SPCB to the tune of 50% had been proposed by Madhya Pradesh for industries which were certified under Eco Mark.
- An **income tax benefit in** the form of **accelerated depreciation** is presently provided for water pollution control equipment. These assets can be depreciated at an accelerated rate of 40% as compared to 15% for the purposes of income tax assessment. It should be noted, though, that the quantum of this benefit has been recently reduced. Prior to 2018, a depreciation of 100% for water pollution control equipment was permissible.
- Capital subsidies for setting up CETPs have been provided by various industry ministries as well as MOEFCC. These have been discussed in the following chapters.
- Subsidy for technical assistance has been provided under Ministry of MSME's MSE-CDP scheme for preparation of the detailed project report as well as the ZED certification scheme for industries to improve their ZED rating.
- Relaxations in the consent to operate (issued by the SPCB) in the form of extended validity period and fast-tracking of consent applications have been provided in Gujarat for industries which have an ISO 14001 certification or which are recognized under the Responsible Care program of the Indian Chemical Council.
- Recognition as an incentive has been provided in the form of ratings in the Eco Mark and ZED certification scheme and in the form of awards under MOEFCC's National Awards and Rajiv Gandhi awards.

Another hurdle could be **if the mandate of the responsible institution in India is not aligned with environment protection**. This would particularly apply where the provision of the incentive may have a financial impact. While the impact of delivering capital subsidies in the environmental context is well understood, there may concerns surrounding the larger impact of other financial incentives. . The implementation of some of the incentives may also require a legal amendment.

Table 2: Precedence of incentives in India

S. No.	Incentive type	Delivering institution	Precedence	Institutional alignment	Financial impact
1	Subsidies				
	a. Reduction in consent fee	SPCB	Yes	Yes	Yes
	b. Income tax benefits	Ministry of Finance	Yes	-	Yes
	c. Trade benefits	Ministry of Commerce	-	-	Yes
	d. Capital subsidies	Various (incl. MOEFCC)	Yes	Yes	Yes
	e. Subsidy for technical assistance	Various (incl. MOEFCC)	Yes	Yes	Yes
2	Pricing of pollution				
	a. Input pricing (differential GST)	Ministry of Finance	-	-	Yes
	b. Output pricing (effluent charges)	MOEFCC, CPCB, SPCB	-	Yes	Yes
3	Ease of doing business				
	a. Relaxations in consent to operate	SPCB	Yes	Yes	-
	b. Relaxations for other compliances	Various	-	-	-
4	Preferred sourcing	DPIIT, MoMSME	-	-	-
5	Recognition	Various (incl. MOEFCC)	Yes	Yes	-

Source: CRIS analysis and secondary research

3.4 Mechanisms for delivering incentives for environment protection

In order to effectively deliver the incentives, a variety of mechanisms popularly used for environmental protection could be leveraged. Based on a review of available literature, a global mapping of incentives has been undertaken and six types of mechanisms identified:

1. Government grants-in-aid schemes: These are usually voluntary publicly-funded programmes through which projects which meet certain pre-defined criteria are supported. These are typically used to deliver incentives in the form of capital subsidies (refer section 8.1 Capital subsidy schemes).
2. **Certifications or ratings:** Beneficiaries are evaluated and, upon meeting certain benchmarks, are provided a certificate, rating or ranking. These are typically used to deliver incentives in the form of recognition.
3. **Awards:** Beneficiaries are evaluated and a select number of top performers identified and recognised.
4. **Effluent charges:** Here, charges are imposed on the **polluter in proportion to the pollution caused by them**. This allows for delivering an incentive in the form of pollution pricing (refer section 9.1 Wastewater charges/taxes) .
5. **Tradeable permits:** Here, the **pollution permits issued to the polluters can be traded on the open market. Industries which pollute less can trade their excess permits with those who pollute more.** Thus, similar to effluent charges, a price is set on pollution, the difference here being that the price is set by the market rather than a government regulator.
6. **Environmental liability:** Here, an **upfront guarantee is obtained from each polluter at the time of issuing the pollution permit.** The guarantee is in proportion to the potential environmental impact of the polluter. Depending upon the track record of the polluter, this guarantee amount may be reduced or increased. This too is a mechanism to deliver pricing of pollution.

An incentive could be delivered by **one or more mechanisms**. Similarly, more than one incentives could be linked to a given mechanism. Potential combinations of incentives and mechanisms have been illustrated in the table below.

Figure 2: Potential incentives which can be mapped to mechanisms

S. No.	Mechanism	Potential incentives
1	Grants-in-aid schemes	<ul style="list-style-type: none"> Financial incentive (capital subsidies, trade benefits, subsidy for technical assistance)
2	Certifications or ratings	<ul style="list-style-type: none"> Financial incentives (reduction in consent fee, income tax benefits, trade benefits) Ease of doing business (relaxations in consent to operate, relaxations for other compliance) Preferred sourcing Recognition
3	Awards	<ul style="list-style-type: none"> Financial incentives (reduction in consent fee, income tax benefits, trade benefits) Ease of doing business (relaxations in consent to operate, relaxations for other compliance) Recognition
4	Effluent charges	<ul style="list-style-type: none"> Pricing of pollution (output pricing)
5	Tradeable permits	<ul style="list-style-type: none"> Pricing of pollution (input pricing, output pricing)
6	Environmental liability	<ul style="list-style-type: none"> Pricing of pollution (output pricing)

Source: CRIS analysis

3.5 Potential for impact and ease of implementation of mechanisms in the Indian context

An evaluation of the various mechanisms reveals the inherent strengths and limitations with respect to their potential for impact and challenges in their implementation in the Indian context. The **easiest of the schemes to roll out with a high potential for impact could be certification or rating schemes**. They have potential for high beneficiary coverage and can be oriented to achievements. While they are typically **linked to recognition as an incentive**, also linking them to more tangible incentives may allow for a higher impact. **Effluent charges** is another mechanism with a high impact potential, but it has **implementation challenges** which need to be overcome. The implementation of effluent charges would require strengthening of monitoring mechanisms for reliable, high-frequency data on the effluent discharged, an amendment to the Water Act, building the capacity of the state pollution board for billing & collection activities and managing potential resistance from industries.

Table 3: Evaluation of incentive mechanisms in the Indian context

S. No.	Mechanism	High beneficiary/ polluter coverage	Outcome orientation	Legal amendment required	Probability of resistance from stakeholders	Need for improved monitoring systems
1	Grants-in-aid schemes	No	No	No	Moderate	No
2	Certifications or ratings	Yes	Yes	No	Low	No
3	Awards	No	Yes	No	Low	No
4	Effluent charges	Yes	Yes	Yes	High	Yes
5	Tradeable permits	No	Yes	Yes	High	Yes
6	Environmental liability	No	Yes	Yes	High	Yes

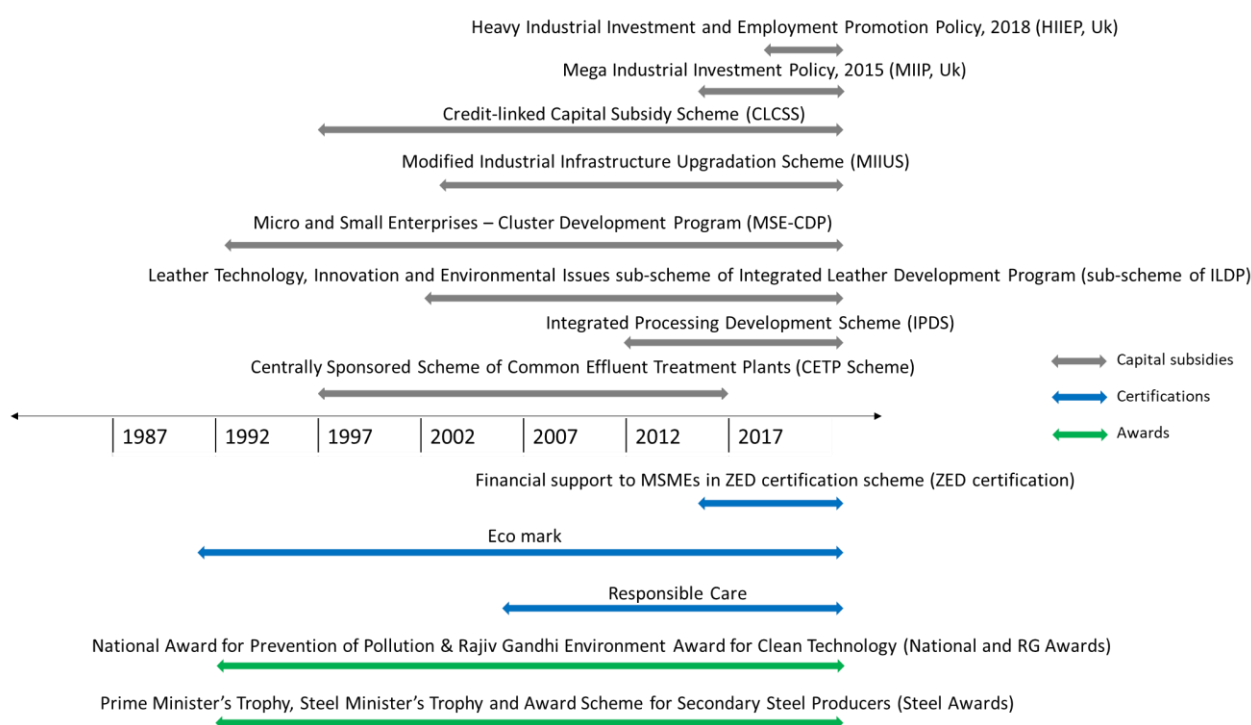
Source: CRIS analysis

4 Existing incentives in India

4.1 Introduction to existing incentive schemes at the national level and in Uttarakhand

A number of incentive schemes have been launched in India since 1990 offering some form of incentive for industrial wastewater management. These incentives have typically been in the form of capital subsidies, certifications and awards. All these incentive schemes continue to be active, except for the CETP scheme which was discontinued in 2017. Detailed profiles of each of these schemes can be found in the annexures.

Figure 3: Timeline of incentive schemes in India



Source: Scheme guidelines, CRIS analysis and stakeholder consultations

4.2 Types of incentives for industrial wastewater management at the national level and by Uttarakhand

Only two types of incentives – 1) subsidies and 2) recognition - have been used in India at the national level in the context of industrial wastewater management.

Pricing of pollution has not been applied anywhere in India with respect to industrial effluents. A limited example can be founded where CETP operators charge industries in proportion to the quantity and quality of effluent produced by the individual industries. However, since the charges are designed to cover cost of treatment and not to internalise environmental impact, they are not perceived to be an adequate enough incentive for industries to be sensitive to the way they manage their wastewater.

Ease of doing business has been used in the state of Gujarat in the form of extension in the period of consent provided by the SPCB to industries. These incentives are linked to ISO 14001 certification, accreditation with Responsible Care and for winners of the Cleaner Technology Awards. The support provided by Gujarat government

to the Responsible Care initiative is also an example of voluntary covenants. The Responsible Care initiative is managed by the Indian Chemical Council.

Incentives promoted at the national level are all applicable in the state of Uttarakhand. Additional incentives promoted by the state government are in the form of capital subsidies for setting up effluent treatment plants under the Mega Industrial Investment Policy, 2015, and the Heavy Industrial Investment and Employment Promotion Policy, 2018.

Details of the incentives used in India as well as Uttarakhand can be found in Annex 1.

4.3 Promoters and objectives of the existing incentive schemes

All the existing schemes have been promoted by the government, with the exception of Responsible Care, which is promoted by the Chemical Council of India.

As many as 11 of the 13 existing incentive schemes have been launched at the national level. The ministries involved in launching these schemes include the MOEFCC, Ministry of MSME (through Development Commissioner, MSME), Ministry of Commerce (through the Department for Promotion of Industry and Internal Trade or DPIIT), Ministry of Textile, and the Ministry of Steel. In Uttarakhand, there are two incentive schemes, both of which have been launched by the Department of Industries (through the Directorate of Industries).

Of the 13 existing schemes half were launched with the objective of improving industry competitiveness and attracting new investments. Of the remainder, three were launched to enable industries to meet regulatory norms for industrial effluent treatment. The other perspectives include promoting eco-friendly manufacturing, encouraging innovation in pollution control, and enabling the adoption of responsible management practices by industries.

Table 4: Promoters of and the objective behind existing incentive schemes

No.	Existing incentive scheme	Promoter	Scheme objective
1	CETP Scheme	MOEFCC	To assist small scale industry to comply with regulatory norms for industrial effluent
2	IPDS	Ministry of Textile	To assist the textile industry to comply with regulatory norms for industrial effluent
3	MSE-CDP	Ministry of MSME	To improve competitiveness of MSMEs in terms of infrastructure availability
4	Modified IIUS	DPIIT (Ministry of Commerce)	To improve competitiveness of industries in terms of infrastructure availability
5	CLCSS	Ministry of MSME	To improve competitiveness of MSMEs in terms of technology used
6	Sub-scheme of ILDS	DPIIT (Ministry of Commerce)	To assist the leather industry to comply with regulatory norms for industrial effluent
7	MIIP (Uk)	Directorate of Industries, Uttarakhand	To attract industrial investments in Uttarakhand
8	HIIEPP (Uk)	Directorate of Industries, Uttarakhand	To attract industrial investments in Uttarakhand
9	ZED certification	Ministry of MSME	To improve competitiveness of MSMEs in terms of quality control and environmental responsibility
10	Eco mark	MOEFCC	To promote eco-friendly manufacturing
11	Responsible Care	Chemical Council of India	To promote responsible management of chemical industries
12	National & RG Awards	MOEFCC	To promote innovation in pollution prevention and clean technology
13	Steel awards	Ministry of Steel	To promote operational improvements in the steel sector

Source: Scheme guidelines, CRIS analysis

4.4 Design of incentives in relation to industrial wastewater management

The type of incentives under the existing schemes include capital subsidies, recognition and, in some cases, a cash prize or concessions on loans. Most of the capital subsidies cover 75% of the project cost for setting up effluent

treatment plants. These subsidies also have upper limits which have been documented in the annexures. The forms of recognition offered as incentives include trophies or citations, certifications and license for use of logos for branding.

In relation with industrial wastewater management, the incentive schemes promote capital investments, environment management systems, compliance with regulatory requirements, and innovation. In terms of capital investments, the schemes typically support both conventional CETPs as well as ZLD.

Beneficiaries of the incentives under these schemes are industrial units and, in case of a couple of incentive schemes, the state government agencies (state industrial development corporation). Among industries, there is a focus on incentivizing smaller-scale industries (MSMEs or MSEs) and industries in polluting sectors such as textile, leather, chemical, and steel.

Table 5: Design of incentives with respect to industrial wastewater management in the existing schemes

No.	Existing scheme	Incentive	Aspect of industrial wastewater management incentivized	Beneficiary of the incentive
1	CETP Scheme	Capital subsidy of up to 75%	• Construction of CETP/ ZLD	MSE industries
2	IPDS	Capital subsidy of up to 75%	• Construction of CETP/ ZLD	Textile industries
3	MSE-CDP	Capital subsidy of 70%-80%	• Construction of ETP	MSME industries
		Capital subsidy of 60%-70%	• Construction of allied infrastructure	State government agency
4	Modified IIUS	Capital subsidy of 75%	• Construction of CETP/ ZLD	State government agency
		Capital subsidy of 50%	• Construction of allied infrastructure	State government agency
5	CLCSS	Capital subsidy of 15%	• Construction of CETP	MSME industries
6	Sub-scheme of ILDP	Capital subsidy of 70%	• Construction of CETP/ ZLD and allied infrastructure	Leather industries
7	MIIP (Uk)	Capital subsidy of 30%	• Construction of ETP	Large industries
8	HIIEP (Uk)	Capital subsidy of 30%	• Construction of ETP	Large industries
9	Clean Technology	Capital subsidy of 75%	• Adoption of clean technology	SMEs
10	ZED certification	Recognition in the form of graded ratings	• Implementing systems for waste reduction, pollution control and maintenance of pollution control equipment • Achieving outcomes in terms of resource efficiency and pollution control	MSME industries
		80%, 60% and 50% for micro, small and medium enterprises respectively for rating and hand-holding assistance		
		25% concession in loan processing charges at SBI and Yes Bank for gold or higher rating		
		0.25% reduction in interest on loans from SBI for diamond and platinum rated MSMEs		
11	Eco-mark	License for use of Eco mark logo on products	• Compliance with effluent standards	Consumer product manufacturing industries
12	Responsible Care	License for use of Responsible Care logo	• Comprehensive management of wastewater collection, treatment and disposal	Chemical industries
13	National & RG awards	Recognition and cash prize of Rs. 1 lakh (0.1 mn)	• Innovation in pollution control	Industries from the 17 polluting categories
		Recognition and cash prize of Rs. 2 lakh (0.2 mn)	• Innovation in clean technology	
14	Steel awards	Recognition and grant of Rs. 1 crore (10 mn) for labour welfare	• Adoption of ISO 14001 and any other innovation in industrial wastewater management	Steel industry
15	Green Rating Project	Graded rating of industry	• Environmental sustainability – meeting global benchmarks	Large scale industries

Infrastructure Advisory

Source: Scheme guidelines, CRIS analysis

5 Analysis of gaps in the existing incentive framework

The various incentive schemes identified in chapter 4 have been analysed based on their focus, coverage, performance, and design. A set of seven gaps have been identified in the existing incentive framework as elaborated in the chapter.

5.1 Focus of the existing incentive framework on industrial wastewater management is weak

While each of the existing incentive schemes includes a focus on industrial wastewater management, the degree of focus varies. To this end, the focus on the schemes has been analysed by evaluating whether industrial wastewater management:

- (1) Is a mandatory aspect in accessing the incentive under the scheme
- (2) Is a major or significant component of the incentive scheme
- (3) Forms one of the primary objectives of the scheme

There are only three schemes which primarily focus on industrial wastewater management. These include the CETP Scheme (discontinued), IPDS and the sub-scheme of ILDP. Apart from these, Responsible Care has a strong focus on pollution control with industrial effluent being a key aspect. In case of half of the existing incentive schemes, industrial wastewater management is an optional component of the scheme.

Table 6: Degree of focus on incentive schemes on industrial wastewater management

Type	Existing incentive scheme	Degree of focus on industrial wastewater management		
		Mandatory	Major component	Primary objective
Subsidy	CETP Scheme*	✓	✓	✓
	IPDS (for textile clusters)	✓	✓	✓
	MSE-CDP	-	-	-
	Modified IIUS	-	-	-
	CLCSS	-	-	-
	Sub-scheme of ILDP (for leather clusters)	✓	✓	✓
	MIIP (Uk)	-	-	-
	HIIEPP (Uk)	-	-	-
	Clean Technology scheme	-	-	-
Marketing promotion	ZED certification	✓	-	-
	Eco mark	✓	-	-
	Responsible Care (for chemical industries)	✓	✓	-
	National & Rajiv Gandhi Awards	-	-	-
	Steel awards	-	-	-
	Green Rating Project	✓	✓	-

Source: Scheme guidelines, CRIS analysis

*As reported the annual report of MOEFCC, the CETP Scheme has been discontinued. However, it has been retained in the baseline assessment since it is only example of a scheme dedicated to industrial wastewater management which spans across industrial sectors.

5.2 Entire activity chain for wastewater management is not covered

The coverage of the existing incentive mechanisms in terms of the industrial wastewater management value chain has been analysed. The value chain is studied in five major steps: (1) resource efficiency (which includes wastewater re-use), (2) pre-treatment by individual industries, (3) conveyance of the pre-treated effluent (where industries are connected to a CETP), (4) effluent treatment (at an ETP or at a CETP), and (5) disposal of sludge generated. The value chain has been analysed considering capital investments as well as their operational aspects.

Most existing incentive schemes **involving subsidies focus on capital investments for effluent treatment**. Schemes involving incentives for marketing promotion focus on the operational aspects of effluent treatment. **None** of the existing **schemes provide incentives for pre-treatment** by individual industries where they are connected to a CETP. Also, there are no incentives for the operational aspects of conveying pre-treated effluent to the CETP. In case of sludge disposal, only the sub-scheme of ILDP provides capital subsidies for sludge disposal infrastructure. None of the existing schemes focus on the operational aspects of sludge disposal, except for Responsible Care.

Table 7: Coverage of activity by the incentive schemes

Type	Existing incentive scheme	Activities in value chain incentivized									
		Resource efficiency		Pre-treatment*		Conveyance		Effluent treatment**		Disposal of sludge#	
Subsidy	CETP Scheme	-	-	-	-	-	-	✓	-	-	-
	IPDS	-	-	-	-	-	-	✓	✓	-	-
	MSE-CDP	-	-	-	-	✓	-	✓	-	-	-
	Modified IIUS	-	-	-	-	✓	-	-	-	-	-
	CLCSS	✓	-	-	-	-	-	✓	-	-	-
	Sub-scheme of ILDP	-	-	-	-	-	-	✓	-	✓	-
	MIIIP (Uk)	-	-	-	-	-	-	✓	-	-	-
	HIIEP (Uk)	-	-	-	-	-	-	✓	-	-	-
Marketing promotion	ZED certification	-	✓	-	-	-	-	-	✓	-	-
	Eco mark	-	-	-	-	-	-	-	✓	-	-
	Responsible Care	-	-	-	-	-	-	-	✓	-	✓
	National & RG Awards	-	✓	-	-	-	-	-	✓	-	-
	Steel awards	-	-	-	-	-	-	-	✓	-	-
	Green Rating Project	-	✓	-	-	-	-	-	✓	-	✓

* In case of CETP

** Includes discharge, ZLD, recycling, recovery, etc.

Includes resource recovery, secure landfill, etc.

Infrastructure development

Operation and maintenance

Source: Scheme guidelines and CRIS analysis

5.3 All water polluting industrial sectors are not covered and the ones covered are not effective

The existing incentives do not span the water polluting industrial sectors. Capital subsidy schemes such as MSE-CDP, MIIUS and CLCSS cover all sectors. However, industrial wastewater management is not their prime focus. The CETP scheme covered all sectors, but it has now been discontinued. Even when it was operational, the scheme achieved limited results. In terms of currently active subsidy schemes which focus on industrial wastewater management, only the leather and textile sectors are catered to through the IPDS and ILDP. However, even for these sectors, the effectiveness of these schemes and their reach is limited.

Table 8: Coverage of water polluting sectors³ by capital subsidy schemes

S. No	Industry Sector	WPI	CETP					
			Scheme	IPDS	MSE-CDP	MIUS	CLCSS	ILDPA
1	Textiles	40						
2	Chlor Alkali	40						
3	Thermal Power Plants	40						
4	Ferrous and Non-ferrous metals	40						
5	Fertilizer	40						
6	Petrochemicals Manufacturing	40						
7	Pharmaceuticals	40						
8	Pulp & Paper	40						
9	Distillery	40						
10	Chemicals	30						
11	Tanneries	30						
12	Food Processing	30						
13	Sugar	30						
14	Paints	30						
15	Pesticides	30						

Source: Scheme guidelines, CRIS Analysis

In the case of reputational schemes such as ratings and awards, only the ZED rating and the National and Rajiv Awards cater across the sectors. However, the ZED rating is limited to MSMEs and does not cater to large-scale industries. Also, the effectiveness of these two schemes is limited as evident from their low uptake.

Table 9: Coverage of water polluting sectors by ratings and awards schemes

S. No	Industry Sector	WPI	ZED	Eco	Responsible	National &	Steel	Green
			certification	Mark	Care	RG Awards	Awards	Rating
1	Textiles	40						
2	Chlor Alkali	40						
3	Thermal Power Plants	40						
4	Ferrous and Non-ferrous metals	40						
5	Fertilizer	40						
6	Petrochemicals Manufacturing	40						
7	Pharmaceuticals	40						
8	Pulp & Paper	40						
9	Distillery	40						
10	Chemicals	30						
11	Tanneries	30						
12	Food Processing	30						
13	Sugar	30						
14	Paints	30						
15	Pesticides	30						

Source: Scheme guidelines, CRIS Analysis

5.4 Stakeholders such as CETP operators and other service providers are not covered

The coverage of stakeholders by existing incentive schemes has been mapped taking into consideration industrial units; CETP operators; solution providers including engineering, procurement and construction (EPC) contractors

³ The water polluting sectors have been identified based on Water Polluting Industries(WPI) of CPCB

and technology vendors; and state development agencies such as state industrial development corporation (state IDC).

The existing schemes provide incentives for industries and state industrial development corporations. However, none provide incentives for CETP operators or for solution providers in the sector. Incentives in the form of recognition, such as ratings and awards, only cover individual industries not industrial clusters or parks.

Table 10: Coverage of stakeholders by the incentive schemes

Type	Existing incentive scheme	Beneficiary for industrial wastewater related incentives				
		Industries	Industrial clusters	CETP operator	Other solution providers	State agency
Subsidy	CETP Scheme	-	✓	-	-	-
	IPDS	-	✓	-	-	-
	MSE-CDP	-	-	-	-	✓
	Modified IIUS	-	-	-	-	✓
	CLCSS	✓	-	-	-	-
	Sub-scheme of ILDP	-	✓	-	-	-
	MIIP (Uk)	✓	-	-	-	-
	HIIEPP (Uk)	✓	-	-	-	-
	Clean Technology Scheme	✓	✓	-	-	-
Marketing promotion	ZED certification	✓	-	-	-	-
	Eco mark	✓	-	-	-	-
	Responsible Care	✓	-	-	-	-
	National & Rajiv Gandhi Awards	✓	-	-	-	-
	Steel awards	✓	-	-	-	-
Green Rating Project	✓	-	-	-	-	

Source: Scheme guidelines, CRIS analysis

5.5 Reputational incentives are not linked to substantial tangible benefits

The existing rating and award schemes typically only provide recognition as an incentive to industries. In case of the ZED certification scheme, a tangible benefit in the form of loan concessions is provided. The National and Rajiv Awards provide cash prizes, but the quantum is rather small in proportion other awards. Awards for industries in the steel sector are linked to a substantial reward of ~Rs 1 crore. Such rewards are not available for industries in other sectors.

Table 11: Existing reputational schemes and linked incentives

No.	Existing scheme	Incentive	Aspect of industrial wastewater incentivized	Beneficiary of the incentive
1	ZED certification	Recognition in the form of graded ratings	<ul style="list-style-type: none"> Implementing systems for waste reduction, pollution control and maintenance of pollution control equipment Achieving outcomes in terms of resource efficiency and pollution control 	MSME industries
		80%, 60% and 50% for micro, small and medium enterprises respectively for rating and hand-holding assistance		
		25% concession in loan processing charges at SBI and Yes Bank for gold or higher rating		
		0.25% reduction in interest on loans from SBI for diamond and platinum rated MSMEs		
2	Eco-mark	License for use of Eco mark logo on products	<ul style="list-style-type: none"> Compliance with effluent standards 	Consumer product manufacturing industries
3	Responsible Care	License for use of Responsible Care logo	<ul style="list-style-type: none"> Comprehensive management of wastewater collection, treatment and disposal 	Chemical industries
4	National & RG awards	Recognition and cash prize of Rs. 1 lakh (0.1 mn)	<ul style="list-style-type: none"> Innovation in pollution control 	Industries from the 17 polluting categories
		Recognition and cash prize of Rs. 2 lakh (0.2 mn)	<ul style="list-style-type: none"> Innovation in clean technology 	
5	Steel awards	Recognition and grant of Rs. 1 crore (10 mn) for labour welfare	<ul style="list-style-type: none"> Adoption of ISO 14001 and any other innovation in industrial wastewater management 	Steel industry
6	Green Rating Project	Recognition in the form of a graded rating	<ul style="list-style-type: none"> Compliance with norms 	Large scale industries

5.6 Uptake of incentives has been limited

The most popular among the incentive schemes appears to be the MSE-CDP and CLCSS given the large number of beneficiaries they have covered. However, these schemes include components other than industrial wastewater management as well. Thus, their effectiveness in relation to industrial wastewater management is not known. Among the capital subsidy schemes with a definite focus on industrial wastewater, the CETP scheme has covered most beneficiaries, with 119 CETPs across a 20-year period. Among schemes using certifications and awards, the ZED certification scheme appears to have performed better, with 266 MSMEs within a three-year period.

Table 12: Uptake of incentive schemes

No.	Existing incentive scheme	Time period	Number of beneficiaries
1	CETP Scheme	1997-2017 (20 years)	119 CETPs (estimated)
2	IPDS	2012 – present (7 years)	7 CETPs
3	MSE-CDP	1994 – present (25 years)	141 common facilities + 240 infrastructure projects (3 in Uttarakhand)
4	Modified IIUS	2003 – present (16 years)	52 industrial clusters*
5	CLCSS	2000 – present (19 years)	14,155 MSE units*
6	Sub-scheme of ILDS	2002 – present (17 years)	6 CETPs
7	MIIP (Uk)	2015 – present (4 years)	0
8	HIIEPP (Uk)	2018 – present (1 year)	0
9	ZED certification	2016 – present (3 years)	266 MSMEs
10	Eco mark	1991 – present (28 years)	12 products across 10 companies until 2007
11	Responsible Care	2006 – present (13 years)	48 industries
12	National & RG Awards	1992 – present (27 years)	Information not available
13	Steel awards	1993 – present (26 years)	Information not available

*No. of beneficiaries utilising the scheme for industrial wastewater management is not known

Source: Desk research and consultations with implementing agencies

5.7 Incentive scheme are not output/ outcome-oriented and monitoring framework is inadequate

The monitoring frameworks incorporated in the existing incentive schemes have been analysed on the basis of the point of monitoring. The various points of monitoring across the project life-cycle include development (construction), operations of the wastewater treatment facility, output in terms of effluent quality, and outcomes in terms of improvement in the ambient water quality or quantity of water reused.

The existing schemes which provide subsidies largely focus on monitoring during the construction phase. Schemes offering incentives in the form of marketing promotion focus on monitoring of operations. Monitoring of the effluent output is part of the scheme design in only a few cases, such as the CETP Scheme, IPDS, the sub-scheme of ILDP, and Eco mark.

None of the existing incentive schemes involve monitoring and evaluation of scheme in terms of environmental improvements.

Table 13: Monitoring framework under the incentive schemes

Type	Existing incentive schemes	Point of monitoring (Present)			
		Development	Operations	Output	Outcome
Subsidy	CETP Scheme	✓	-	-	-
	IPDS	✓	✓	-	-
	MSE-CDP	✓	-	-	-
	Modified IIUS	✓	-	-	-
	CLCSS	✓	✓	-	-
	Sub-scheme of ILDP	✓	-	-	-
	MIIIP (Uk)	✓	-	-	-
	HIIEPP (Uk)	✓	-	-	-
Marketing Promotion	ZED certification	-	✓	-	-
	Eco mark	-	✓	-	-
	Responsible Care	-	✓	-	-
	National & Rajiv Gandhi Awards	-	✓	-	-
	Steel awards	-	✓	-	-
	Green Rating Project	-	✓	-	-

Source: Scheme guidelines and CRIS analysis

6 Recommendations and suggestions

6.1 Summary of gaps and industry preference for incentives

In the earlier chapter, a variety of key gaps in the existing incentive framework were identified. The existing incentive mechanisms were found to be limited in their effectiveness. Consequently, an attempt has been in this chapter to identify potential changes that would ensure success.

Gaps identified in the existing incentive framework

1. Sustainable industrial wastewater management is **not a prime focus**
2. The **entire activity chain** for wastewater management is not covered
3. All **water-polluting industry sectors** are not covered
4. Stakeholders such as **CETP operators** and other service providers are not covered
5. **Reputational incentives** are not linked to **substantial tangible benefits**
6. Uptake of incentives has been limited
7. **Monitoring framework** is not outcome-oriented

In the course of this study, a number of stakeholders from the public sector (regulators, industrial promotion agencies, etc.) as well as private sector (industry representatives, CETP operators, solution providers, etc.) were consulted through interviews as well as workshops. The object of these consultations was to understand their perspectives on what aspects need to be incentivised, key issues in the existing incentive framework, and the kind of incentives which are preferred by private sector industries.

Perceptions shared by the public sector

1. Incentive mechanisms are needed to complement the traditional command and control regulations for pollution control.
2. Incentives should be provided for industries which go beyond compliance requirements, and not for enabling compliance.
3. Incentives with a precedence for their application in the environmental sector may be easier to implement.

Perceptions shared by private sector

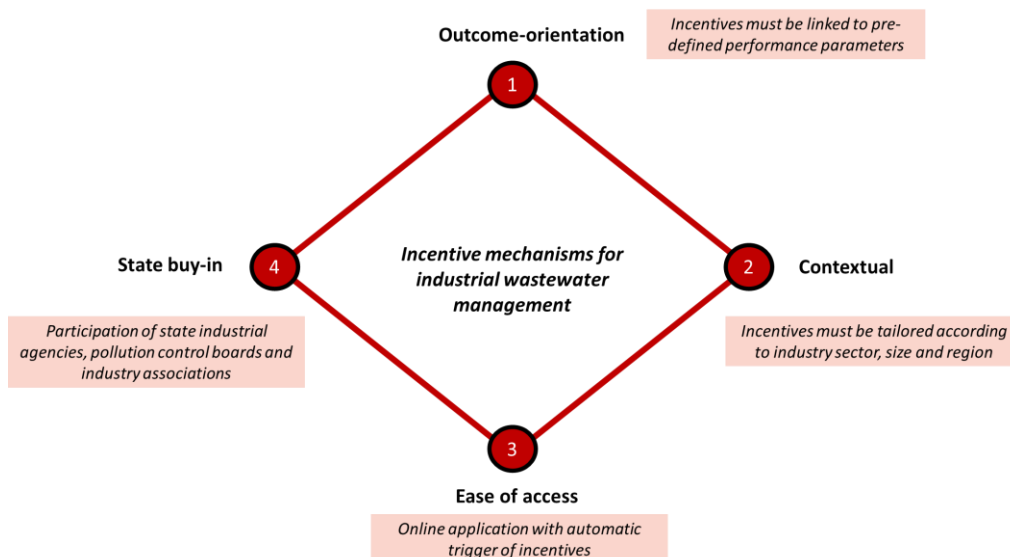
5. Direct financial incentives are typically not preferred. This is attributed to indirect costs of accessing capital grants and subsidies.
6. **Indirect incentives** such as reduction in consent fees, **tax** or trade benefits, interest subsidy, etc., are preferred among financial incentives.
7. Incentives which lead to **ease of doing business** would be preferred. For example, extension in the validity period of consent to operate, fast-tracking of consent application or reduced frequency of inspections by the state pollution control board.
8. **Recognition** should be specific to sectors, industry size and geography, and **based on transparent mechanisms**.

6.2 Key principles for improving the incentive framework

In formulating the recommendations, four essential attributes for incentive mechanisms have been considered.

1. Firstly, the incentives need to be **oriented towards outcomes**. This is **required so there is a focus on achieving desired outcomes** (reduced pollution, conservation of water resources, etc.) **rather than mere creation assets** such as effluent treatment plants.
2. The incentive must be **designed according to the beneficiary (industry sector and size) as well as the region** in which the beneficiary is located. The industry **sector, size and location** may influence the nature of pollutants released, the extent of pollution control needed, as well as the **cost of pollution control**. Regional differences may also be present in the form of industry supply chains, the institutional capacity of government agencies and the financial capacity of industries. To ensure the incentives are attractive to a large number of beneficiaries, easy to deliver and target the needed aspects of wastewater management, it is important they are tailored to these differences.
3. The **incentives must be easy to access**, both in terms of **applying for the benefits and in obtaining them**. The attractiveness of an incentive may be marred owing to the costs incurred in accessing them. Such costs could be in the form of lead time for approval of the incentive, time and effort for follow-ups, costs for preparatory work (or studies) required to access the incentives, etc. **A high transaction cost could limit the uptake of incentives**.
4. Finally, the incentives must have the **buy-in of the state government and state pollution control board**. Water is a state subject and pollution control too is implemented at the state level. In addition, it is easier for the beneficiaries to access state governments in comparison with national agencies. Thus, state governments have a **crucial role to play in marketing as well as implementing the incentives**. In addition, ensuring buy-in from local industrial associations would also be important to effectively mobilise industries for taking up the incentives.

Figure 4: Key principles for formulating incentive mechanisms



Source: CRIS analysis

6.3 Proposed incentive framework

Based on the gaps identified in the earlier chapter and in line with the four key principles stated, we have formulated a broad policy framework. It could guide the design of incentives by government stakeholders in the future. This framework and other proposals provided in this chapter have been developed through extensive consultations with

stakeholders from diverse backgrounds. The stakeholders consulted include national-level agencies such as MOEFCC, CPCB, state agencies including the UEPPCB, industry associations (at the national and state level), solution providers and CETP operators, sector experts, etc. These consultations were conducted through interviews as well as workshops held at the national level and in Uttarakhand. The proposed incentive framework maps aspects of industrial wastewater management to incentive types and incentive mechanisms. This framework could be built upon and translated into a policy document to guide state pollution control boards in using incentives as a complement to the traditional command and control regulations for pollution control.

The proposed incentive framework covers six key aspects of industrial wastewater management as identified in section 2.5.

1. Adoption of environment management systems
2. Treatment of effluent using best available technology and techniques including ZLD
3. Water conservation including wastewater recycling
4. Resource efficiency through waste minimisation and material recovery
5. Adoption of clean technology
6. Proactive public disclosure of environmental information by industries

While the six aspects discussed are important for ensuring sustainable industrial wastewater management (and also sustainable production in general), the **costs associated with these measures tend to outweigh its perceived benefits presently**. As part of the incentive framework, these six aspects have been mapped against the various types of incentives and delivery mechanisms which have earlier been discussed in chapter 3.

Table 14: Proposed incentive framework

Aspect to be incentivized	Types of incentive	Incentive mechanism
Adoption of EMS	<ul style="list-style-type: none"> • Ease of doing business • Preferred sourcing • Recognition 	<ul style="list-style-type: none"> • Certifications or ratings • Awards
Advanced effluent treatment	<ul style="list-style-type: none"> • Pricing of pollution • Financial incentive • Ease of doing business • Recognition 	<ul style="list-style-type: none"> • Effluent charges • Tradable permits • Environmental liability • Grants-in-aid scheme • Certifications or ratings • Awards
Wastewater recycling, ZLD	<ul style="list-style-type: none"> • Pricing of pollution • Financial incentive • Ease of doing business • Recognition 	<ul style="list-style-type: none"> • Effluent charges • Tradable permits • Environmental liability • Grants-in-aid scheme • Certifications or ratings • Awards
Resource efficiency	<ul style="list-style-type: none"> • Recognition • Financial incentive 	<ul style="list-style-type: none"> • Certifications or ratings • Awards • Grants-in-aid scheme
Adoption of clean technology	<ul style="list-style-type: none"> • Recognition • Financial incentive 	<ul style="list-style-type: none"> • Certifications or ratings • Awards • Grants-in-aid scheme
Self reporting and public disclosure	<ul style="list-style-type: none"> • Ease of doing business • Preferred sourcing 	<ul style="list-style-type: none"> • Certifications or ratings • Awards

Source: CRIS analysis

6.4 Prioritising incentives and implementation mechanisms

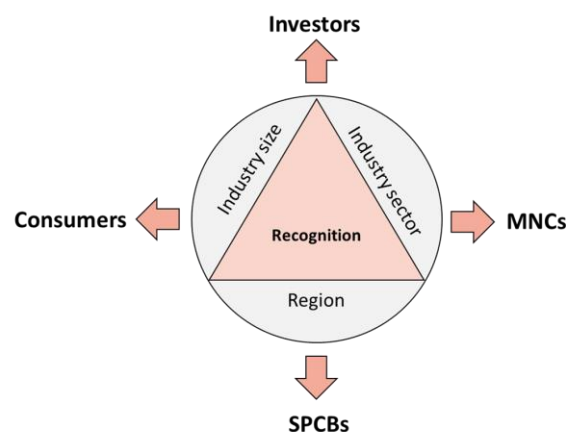
To effectively encourage industries to adopt sustainable wastewater management, an appropriate choice of incentives as well as the mechanisms to implement them is necessary. The incentive framework provided earlier shows the long list of measures which could be taken up. Based on the evaluation carried out in chapter 3, a prioritisation of the incentives as well as mechanisms for their delivery is provided in this section.

6.4.1 Incentives to be prioritised

As per the evaluation of incentives in section 3.2 and 3.3, three kinds of incentives could be prioritised: 1) **recognition**, 2) **ease of doing business** in the form of **relaxations** in **consent issued** by state pollution control boards, and 3) **financial incentives** in the form of **capital subsidies provided by various ministries**.

1. **Recognition**: Recognition as an incentive works by allowing the beneficiary to **better market themselves to various stakeholders in the business eco-system**. For recognition to work as incentive, two aspects need to be considered:
 - a. The various stakeholders in the eco-system must be aware of the recognition, be assured of its legitimacy and understand its relevance to their self-interests. These stakeholders include the **customers** to whom the industry sells its products, **investors** and the **environmental regulator**. Customers could include retail consumers (in consumer product industries) or larger industries (in India or abroad) in whose supply chain the beneficiary industry falls. In case of retail consumers, the recognition could indicate alignment of the industry's environmental practices with their personal convictions. For large industries, the recognition could match the beneficiary with environmentally responsible supply chain requirements or represent a lower supply risk arising from regulatory investigations. The relevance of such recognition to an environmental regulator could be in the form of lower risk of non-compliance. In case of investors, the recognition could either indicate alignment of the beneficiary with their environment, social, governance (ESG) goals or represent a lower environmental risk.
 - b. The recognition must be **specific to the industry size, sector and region**. As discussed earlier in the section on key principles, these factors can **influence the cost of pollution control**. Hence the recognition must be appropriately designed to allow for **meaningful comparison**. Further, for beneficiary industries whose market is limited to the district or the state, **recognition at the regional level may be more meaningful than at the national level**.

Figure 5: Key considerations for recognition as an incentive



Source: CRIS analysis

2. **Relaxations in consent:** Relaxations in consent can be delivered as an ease-of-doing-business incentive through extensions in the consent period, **enabling auto-renewal of a consent on expiry of its validity period, fast-tracking of a consent** application through a delegation to local offices, and **reduced frequency of inspections** by the state pollution control board. It can also be delivered as a financial incentive through a **reduction in the consent fee**. While some states (such as Gujarat and Madhya Pradesh) are already providing relaxations in consent, a national-level guidance by the Central Pollution Control Board could encourage other SPCBs to follow suit.
3. **Capital subsidies:** Capital subsidies are currently being offered by ministries responsible for industries (such as Ministry of MSME, DPIIT, etc.) and until recently were also offered by MOEFCC. These could be continued in the form of grants in case of common infrastructure such as CETPs. Other forms of capital subsidy, such as concessional loans, could also be explored particularly when targeted individual industries.

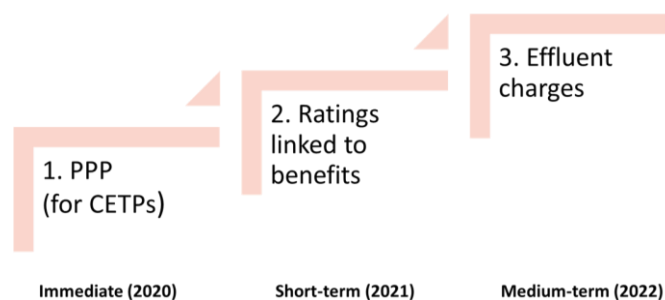
The other forms of incentives such as **tax benefits may be more attractive and consequently have a larger impact**. However, the **process for getting the relevant institutions on board may be long-drawn and also require detailed cost-benefit analysis** to justify the potential financial impact.

Due to these implementation challenges, the other forms of incentives have been prioritised. Income-tax benefit in the form of accelerated depreciation was offered at 100% on water pollution control equipment by the Ministry of Finance. However, this was reduced to 40% in fiscal 2018. Preferred public procurement is another incentive which could be explored, given lower probability of a financial impact. However, this incentive would have to be delivered by the DPIIT or the Ministry of MSME. Both of these institutions do not have an environmental mandate. Given the lack of precedence for such an incentive in the environmental sector may present a challenge. Also, while these incentives have to be anchored by the DPIIT or Ministry of MSME, they would have to be delivered by the ministries or government agencies engaged in procurement. This requirement for inter-ministerial co-ordination also presents an implementation challenge.

6.5 Prioritisation of mechanism

The potential for impact and the ease of implementation of various incentive mechanisms has been discussed in section 3.6. Further, a review of the incentive mechanisms currently adopted in India has also been carried out in chapter 4 and 5. Based on this assessment, three of these can be prioritised – CETP subsidy schemes on PPP, unified environmental ratings, and effluent charges. While the modifications to the subsidy scheme and the environmental ratings could be pursued in the immediate to short-term, the introduction of effluent charges would require a long-term horizon.

Figure 6: Prioritisation of incentive mechanisms



Source: CRIS analysis

Other incentive mechanisms such as tradable permits and environmental liability could be pursued in parallel by the CPCB and SPCBs depending on their need for particular cases.

These mechanisms have been further detailed in the following sections.

6.6 Moving existing capital grants scheme towards PPP

A number of capital subsidy schemes for setting CETPs have been pursued in India. Schemes specifically catering to this include the MOEFCC's CETP Scheme, the Ministry of Textile's IPDS and the DPIIT's ILDP. Apart from this, schemes for developing common infrastructure in industrial areas such as DPIIT's MIUS and Ministry of MSME's MSE-CDP permit use of the subsidies for developing CETPs.

The existing incentive mechanisms focus on the **creation of assets and not on the operation of the asset to deliver the desired outcome**. Reports from the CPCB show many of the **CETPs** developed under these schemes face issues **related to their operations**. This could be attributed, among other issues, to the lack of independently appointed CETP operators, no direct incentives for the operator, limited state involvement, and an input-orientation. Also, most of these schemes are only applicable for the construction of new CETPs and not for upgrading existing ones.

It is consequently recommended these schemes can improved upon **by adopting an outcome orientation**. This can be ensured by providing part of the **capital subsidy** in the form of **performance-linked grants to ensure an outcome-orientation to the scheme**. This could be delivered by adopting a PPP mode for project delivery. State involvement could be ensured by making the state industrial development corporation (SIDC) responsible for awarding the PPP contract. Such an arrangement would require a private professional agency, independently appointed by the SIDC, to develop as well as maintain the CETP.

Further, such a scheme could be used for funding new CETPs as well as upgrading existing plants. But in case of existing CETPs, the capital component would need to be minimum and more for operational improvements or upgradation. This benefit may be provided only if upgradation is taken up on a PPP model, since it would ensure that the management is more professional with a higher level of supervision. The incentive for the existing CETPs to improve their performance would be funds for undertaking upgradation. If an industry association intends to upgrade the CETP and make it functional, it would not need to take up any substantial upfront capital expense.

6.6.1 Incentive design

The independently appointed CETP management can be included as a beneficiary along with the industrial units. The subsidies can be structured in the form of capital subsidies as well as performance-linked grants. **Such performance-linked grants would be paid over a period of time based on certain output metrics being fulfilled by the CETP operator**. The industrial units can be **incentivised through an effluent tariff** which is linked to the **effluent quantity as well as its quantity**.

Table 15: Incentive design for CETP subsidy schemes on PPP mode

Beneficiary	Incentive	Aspects incentivised
CETP management agency	• Capital subsidy	• Investment for setting up/ upgrade of CETP
	• Performance-linked grants	• Achieving desired effluent output • Self-monitoring of pollution • Adoption of EMS
Industrial units	• Variable effluent tariff	• Water conservation • Pre-treatment of effluent

Source: CRIS analysis

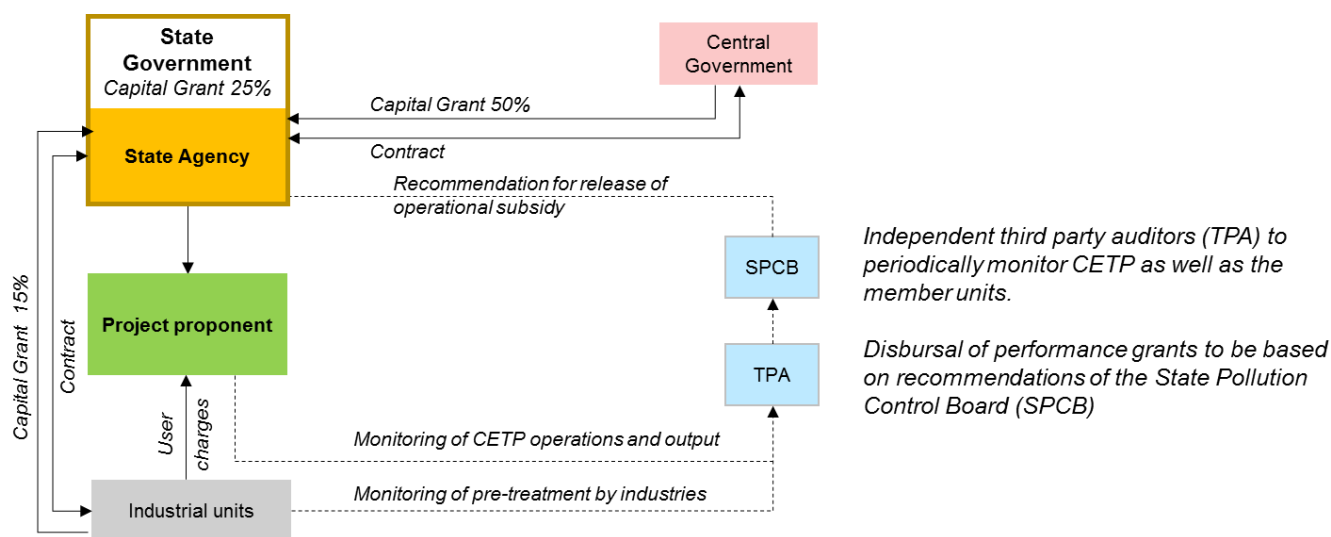
PPP structure and institutional framework

Several PPP models can be adapted for CETP projects. One of these could be a design-build-finance-operate-finance-transfer (DBFOT) model. Here, the private players (the CETP management agency) can be made responsible for the design, financing, construction as well as the operational risk associated with the project. The CETP management agency would receive subsidies in the form of capital and performance-linked grants and also earn revenue in the form of user charges paid by the industrial units connected to the CETP. The concession would be granted to the agency for a defined period at the end of which the asset is to be transferred back to the state government agency. PPP models in the water and wastewater sector are well-established and accepted, and its modalities are well understood by the stakeholders. There are multiple precedents of wastewater treatment plants including CETPs being implementing on PPP mode.

The state government agency (state industrial development corporation) would be responsible for appointing the CETP management agency and disbursing the subsidies to the agency. The contract (Memorandum of Understanding) signed with the CETP management agency should clearly define the performance parameters and mention consequences of not adhering to them.

The SPCB can be made responsible for monitoring the performance of the CETP management agency in relation to the performance parameters formed part of the PPP contract. The SPCB can make use of effluent monitoring under the online continuous effluent monitoring system (OCEMS) and also outsource the task of assessment to third-party agencies. The SPCB can also be required to ensure monitoring of pre-treatment by the individual industries.

Figure 7: Framework for CETP subsidy scheme on PPP mode

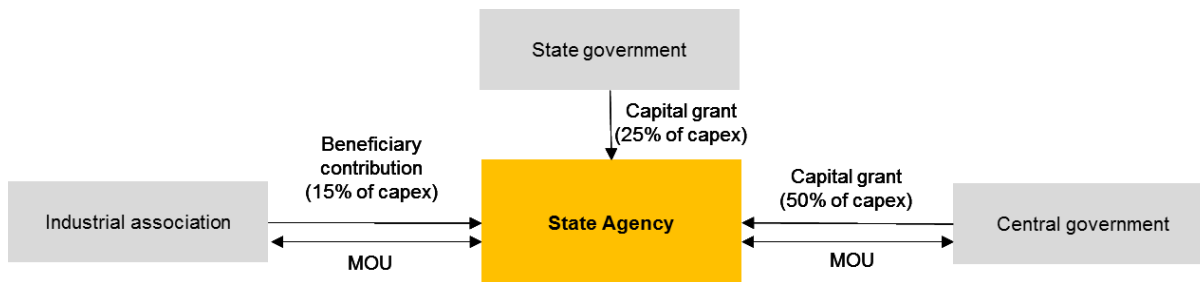


Source: CRIS analysis

6.6.2 Scheme financing

Improvements to these schemes can be brought about without an increase in the financial outlay. The extent of contributions currently being made by the central government, state government and industrial association can also be retained. The overall subsidy in most of the schemes is capped at 75% of the project cost by the government. As much as 50% of the project cost is contributed by the central government, 25% by the state and 15% by the industrial association. Without increasing this contribution, it could be partly apportioned for capital subsidies and partly for performance grants. Thus, the scheme can be improved upon without the need for an increase in the outlay typically kept for such schemes. These funds could be deposited with the state agency along with contracts signed which clearly define the usage of these funds.

Figure 8: Financing structure for CETP subsidy scheme on PPP mode



Source: CRIS analysis

6.6.3 Action plan for implementing the recommendations

Financial feasibility studies would be required to develop potential business models, define PPP structures and assess the funding requirement. This would need to be complemented with a tool-kit for PPP in the industrial effluent space along with model concession agreements could be prepared. Such a tool-kit would provide sector-specific guidance on needs assessment, pre-feasibility assessment, project preparation, business models, procurement, etc.

Various central government schemes are currently being evaluated by the concerned ministries as well as Niti Aayog. Consultations would be required with the stakeholders (central government ministries, state agencies and industrial associations) to obtain their buy-in for adopting these recommendations as part of the revisions in these schemes.

6.6.4 Examples

An example of such a mechanism is the Australia Indonesia Infrastructure Grant for Municipal Sanitation (sAIIG) program. Under this program, subsidies are provided to construct or upgrade wastewater treatment plants. The wastewater treatment plants are subsidised by up to 50% of the capital cost through capital grants. The beneficiaries are then eligible for additional subsidies if they adopt 'good governance' practices and ensure connections to the plants for its operations. The adoption of PPP models for CETPs in itself is not new in India. Examples of CETPs developed on PPP mode include those at Haridwar (Uttarakhand), Waluj (Maharashtra), etc.

6.7 Unified environmental ratings

A number of ratings and award programmes have been documented as part of this study. As highlighted in the chapter on gaps in the existing incentives, for improving the effectiveness of these programmes, **the recognition provided needs to be linked to tangible benefits**. An associated issue is that each of these programmes use different parameters to evaluate industries' environmental performance. **Given that these parameters are not formally recognised by MOEFCC or CPCB, SPCBs (or other institutions)** may not be able to rely on these ratings to provide incentives.

In order to overcome this issue, it is proposed that a **unified environmental rating system be developed**, which, while covering **various aspects of environmental protection**, also provides **due weightage to industrial wastewater management**. The ratings would include grades to distinguish industries which go beyond compliance to control pollution. This system would have to be developed with buy-in from MOEFCC and CPCB to ensure a wider acceptance. Further, to ensure its effectiveness, the system should **automatically trigger benefits in the form of relaxations in the consents provided by SPCBs**. Such a rating system could then be adopted by other reward and recognition programmes to evaluate the environmental performance of industries.

6.7.1 Incentive design

Such a rating system could also cover industrial clusters/ parks, industrial associations and solution providers in addition to individual units. It can be applied across industry and sectors, regardless of their size, to ensure maximum coverage. The awarding of a rating automatically trigger concessions in consents issued by SPCBs. The other incentives could be directly provided by the concerned institutions and linked to the environmental ratings.

Table 16: Incentive design for unified environmental ratings

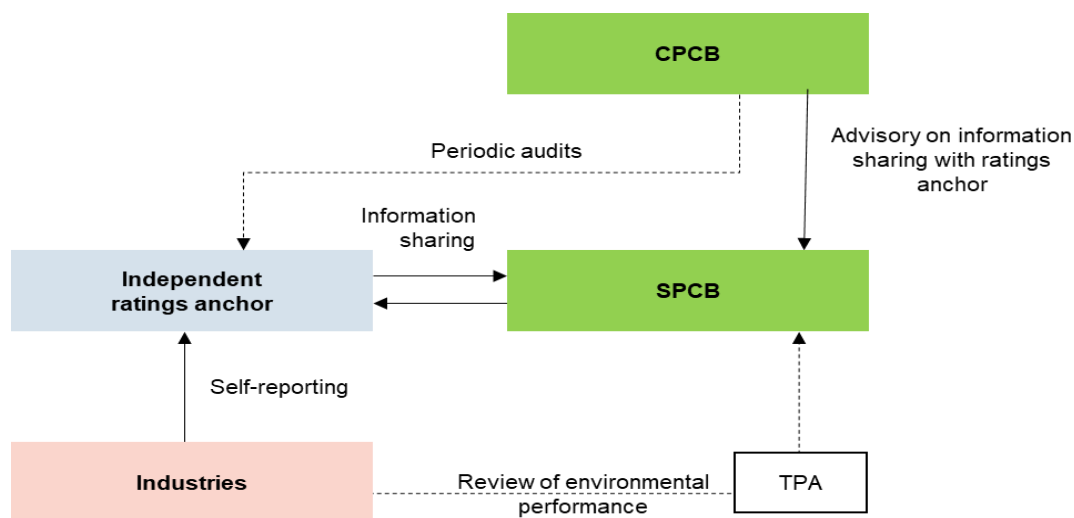
Beneficiary	Incentive	Aspects incentivized
Industrial units (all industry categories)	<ul style="list-style-type: none"> • Recognition • Concession in consent • Preferred procurement • Subsidized loans 	<ul style="list-style-type: none"> • Resource efficiency & clean technology • Capital investment in pollution control equipment • Performance better than CTO terms • Self-monitoring of pollution • Responsible supply chain management • Adoption of EMS
Industrial units (MSMEs)	<ul style="list-style-type: none"> • Technical assistance 	
Industrial cluster	<ul style="list-style-type: none"> • Recognition 	<ul style="list-style-type: none"> • Collective efforts for environment protection
Industrial association	<ul style="list-style-type: none"> • Recognition 	<ul style="list-style-type: none"> • Mobilizing industrial units for adoption of incentives • Fostering knowledge exchange between units
Solution providers	<ul style="list-style-type: none"> • Recognition 	<ul style="list-style-type: none"> • Providing workable solutions to industries

Source: CRIS analysis

6.7.2 Ratings mechanism and institutional structure

An independent institution can be tasked with anchoring this unified environmental ratings system. The ministry could be tasked with the setting up of this institution and formulation of the rating parameters and methodology, with technical assistance from CPCB. The industrial units may be ranked based on voluntary application and self-reporting of environmental information. SPCBs can be tasked with providing information to the ratings anchor for verification of the reports submitted by the units. The boards can outsource review of actual environmental performance to third-party agencies. CPCB should conduct periodic audits of the ratings awarded by the anchor agency for quality assessment and control. The board can also publish information sharing protocols between SPCBs and the ratings anchor.

Figure 9: Institutional framework for unified environmental ratings



Source: CRIS analysis

6.7.3 Scheme financing

A fee can be collected from industries seeking environmental rating to cover the expenses of appointing the ratings anchor. As discussed earlier, the environmental rating could be discussed to concession or relaxation in the consent issued by SPCBs. In case of the incentives provided by SPCBs, only reduction of consent fee has a financial impact. At the same time, using the information from the ratings system, SPCBs may be able to more efficiently identify high-risk industries. Consequently, a business case for this could be evaluated.

Incentives offered by other institutions can also be linked to the environmental ratings. Thus, the delivery of these incentives would not require additional financial resources.

6.7.4 Action plan for implementing the recommendations

The aspects covered and performance metrics used by the existing ratings or evaluation frameworks could be further detailed. The frameworks include the pollution index used by CPCB, parameters defined under the ZED certification and the sustainability standards for industrial parks developed under the first phase of SEIP.

A business case can be explored for formulating an independent environmental rating system in coordination with MOEFCC. Alternatively, agencies currently implementing various rating systems, such as DPIIT, which is implementing the Industrial Parks Rating System, and the Ministry of MSME and Quality Council of India (QCI), which are implementing the ZED certification, could be consulted for improved environmental parameters of their rating systems.

Based on MOEFCC and CPCB's buy-in, SPCBs could be consulted for linking concessions in the consent that they provide with the environmental rating system. Following this, protocols can be developed for sharing of information between the environmental rating anchor (or the other rating agencies) and SPCBs.

6.7.5 Example

Environmental ratings have been used in a number of countries to complement regulatory measures for pollution control. A summary of these initiatives has been captured in the table below:

Figure 10: Comparison of international examples of environmental ratings

Components		PROPER	ECOWATCH	GREEN	AKOBEN	PRIDE
		Indonesia	Philippines	WATCH China	Ghana	Ukraine
Scheme Design	Nationwide Coverage	✓	✓	✓	✓	-
	Industrial Polluters	✓	✓	✓	✓	✓
	Tangible benefits for beyond compliance	-	✓	-	-	-
Performance Indicators	Consistency of previous rating	-	✓	-	✓	-
	Clean Technology	✓	✓	✓	-	✓
	Waste Minimization	✓	✓	-	-	✓
	Waste/ Sludge disposal	✓	-	✓	-	-
	Maintenance of monitoring equipment	-	✓	-	-	✓
	Grievance Redressal	✓	-	-	-	-
Monitoring	Environmental Management Systems	✓	✓	-	-	-
	Diligent Self-reporting	-	-	✓	✓	-
	Third Party Auditing/Field visits	✓	✓	✓	✓	✓
	Disincentives upon non-compliance	-	✓	✓	-	-

Source: Secondary research, CRIS analysis

6.8 Effluent charges

India has no mechanism to price pollution. Water cess – as a cost for water consumed – was being levied until recently. Industrial units that treated their wastewater were eligible for a rebate on the cess. However, it was abolished following the implementation of goods and service tax (GST) on July 1, 2017. Industries that are linked to CETPs typically pay fees in proportion to the quality and quantity of their effluent. However, these are user charges that are utilised to run the CETP. They are not designed considering the potential impact of the pollutants on the environment and human health. Hence, they are not in the form of effluent charges.

At present, industries are not internalising the costs of pollution. In case of effluents, industries may be paying a consent fee and an environmental compensation. Both these are not proportional to the actual quality and quantity of the effluent they discharge. Consent fee is charged for processing the consent to operate. It is computed based on the industry category and size of the unit. The rate is decided by pollution control boards of each state. Environmental compensation is levied in case of a violation of norms by an industrial unit. It is being levied following an order of the National Green Tribunal (NGT). The extent of this compensation depends on the size, category and location of the unit, and duration of the violation.

In order to internalise the costs of industrial pollution, the units could be charged in proportion to the extent of pollution they have caused. Levy of such a charge is more pragmatic and has wider applicability compared with other mechanisms used to price pollution (such as tradable permits and liability mechanisms). However, at present, there is no legal basis for the levy under the Water Act or the Environmental Protection Act. The Water Act permits SPCBs to levy only a consent fee. Hence, for imposition of such a charge, the laws will have to be amended suitably.

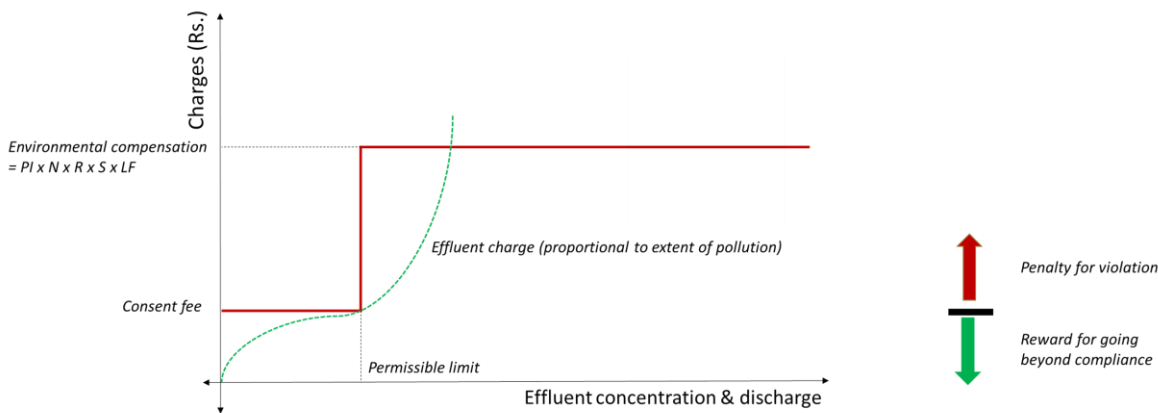
The effluent charges collected may be ring-fenced and their use of the funds may be limited to environment protection activities such as restoration of the quality of water bodies, conducting R&D for developing pollution control technologies, providing capital subsidies for CETPs, etc.

6.8.1 Incentive design

The effluent charge can be levied on industrial units (which directly discharge their treated effluent) and CETP operators (where such a ETPs exists). Units and CETP operators that treat their effluent beyond the compliance requirement and recycle the treated water can be charged substantially lower rates. The beneficiaries may also be permitted to claim deductions on this effluent charge against investments made in environmental technology for going beyond the compliance. On the other hand, industrial units that violate environmental norms may be charged an exponentially higher rate based on the extent of the pollution they cause.

This model could encourage units to self-monitor, reuse treated wastewater and adopt environment management systems. The units that go beyond the compliance requirements will save on cost. It also encourages industries to stop violation of environmental norms.

Figure 11: Incentive design for effluent charges



Source: CRIS analysis

6.8.2 Potential institutional framework

An institutional framework for the levy of effluent charge should involve CPCB and SPCBs. CPCB's role would involve preparation of guidelines, developing the rationale for setting the rate for the charges, defining the use of the charges collected and building SPCB capacity for levy of effluent charge. SPCBs would be responsible for fixing the rate in their respective states, monitoring effluent released by industrial units, assessing charges to be paid by them and issuance of bills, collection of effluent charges from the units and taking action against units defaulting on payments. Some of the SPCB functions such as monitoring of the effluent discharge could be outsourced to third-party agencies.

6.8.3 Action plan

Given the challenges in implementation of effluent charges, it could be rolled out in a phased manner. Prior to amending the Water Act, the consent fee could be modified to include a variable component. The Act permits SPCBs to levy a consent fee. The boards are empowered to decide the manner in which this consent fee is levied. As a stepping stone, this consent fee could be restructured to include a variable component. This could be linked to the environmental performance of an industrial unit in the previous year. Initially, this could be limited to areas that are critically polluted identified by CPCB or limited to industries and CETPs linked to the online continuous effluent monitoring system (OCEMS).

6.8.4 Examples of levy of effluent charges

Effluent charges have been levied by several countries in Europe and Asia. In Germany, the charge is fixed in proportion to 'damage units'. One damage unit is measured at 20% of permissible annual load of a given pollutant. Each damage unit is charged 35.8 euros. In assessing the charge, various effluent characteristics measured include chemical oxygen demand (COD), phosphorous, nitrogen, organic halogens, mercury, cadmium, chromate, nickel, lead, copper and toxicity for fish eggs. Certain relaxations are provided in these charges to encourage industries to be responsible to the environment. Industries get 50% rebate if they go beyond the compliance requirements. Also, for investments in sustainable wastewater management, industries are allowed to claim deduction in the effluent charges for three years.

6.9 Other incentive mechanisms

Apart from the above, tradable permits and environmental liability mechanism are two systems that can be used to incentivise industries. They have inherent limitations and hence are not included in the priority list. Tradable permits

can only be used for a large number of homogenous industries located within a well-defined catchment. Environmental liability, on the other hand, may not be affordable for smaller units and may increase the cost of doing business substantially for larger ones. However, these could be rolled out in parallel by MOEFCC and CPCB in collaboration with SPCBs on a case-to-case basis, particularly for critically polluted areas.

6.9.1 Tradable permits

In a tradable permit system, the price of industrial effluents is set through market mechanisms, and not by a regulator. The permissible quantum of a pollutant for a given geographic catchment is fixed but industrial units are free to trade their individual permits. However, as mentioned earlier, this mechanism has inherent limitation. Further, it also requires monitoring of effluent load instead of volumetric and concentration-based monitoring currently SPCBs resort to.

In order to implement this mechanism, CPCB would have to prepare national guidelines and create knowledge products to guide SPCBs. Appropriate industrial clusters (homogenous with large number of industries) falling within critically polluted areas could be prioritised for introducing this mechanism.

SPCBs would have to evaluate the legal basis for introducing the scheme, identify appropriate industrial areas and implement it. It would require development of a trading platform that allows buyers and sellers to meet, transact and access information on the market prices of the permits. It would also require a system that updates the regulator about transactions and changes in the permits of each industry.

The mechanism is currently being piloted in an industrial cluster that was not compliant with the air pollution norms in Surat, Gujarat. Over 150 units participated in the programme. The trading platform required was developed by the Gujarat Pollution Control Board (GPCB) in collaboration with the National Commodities and Derivatives Exchange. The aggregate permissible limit for particulate pollution has been capped at a level equivalent to that which would be achieved if all the industries were individually compliant. While 80% of the permit was issued in the traditional manner, 20% were auctioned by GPCB. It is expected that the scheme may bring down the particulate pollution levels by 29%. Learnings from this experience could be adapted for its use for industrial effluents.

Internationally, tradable permits for wastewater have been used for specific pollutants or pollution parameters. In the River Murray-Darling Basin area in Australia, a scheme involving tradable salinity credits has been there. Under the system, beneficiaries investing in reducing the salinity of the river are rewarded through salinity credits by the regulator. These credits can be traded in the open market with those who can afford to invest in reducing the salinity levels.

6.9.2 Environmental liability mechanisms

Some SPCBs have started collecting bank guarantees from various industries to ensure timely compliance. Also, an NGT order has held industries responsible for environmental damage and requires them to compensate for violations.

Under an environmental liability mechanism, an upfront guarantee against future environmental violation is collected from all units based on their industry category, size and location. This guarantee may be used for claims when an industrial unit attracts penalties or environmental compensation.

Based on a history of environmental compliance, the extent of this guarantee may be reduced or further increased. Creation of such a mechanism may require an amendment to the laws. CPCB would need to prescribe rules for determining the extent of the guarantee.

In order to help SPCBs deliver such a mechanism, a system to record and evaluate environmental history of various firms would have to be developed. Further, procedures for determining changes in the guarantee amount based on environmental performance of a firm have to be established. As in the case of tradable permits, this mechanism could be initially used for industrial units in critically polluted areas.

7 Annexure 1: Incentive mechanisms at the national level in India

7.1 Capital subsidy schemes

7.1.1 Centrally sponsored scheme of CETPs (CETP scheme)

Name of scheme		Centrally sponsored scheme of CETPs		
Institutional anchor		MOEFCC		
Commencement		1997	Completion	2017
Focus	Scheme objective	To enable small-scale industries to undertake the requisite end-of-pipe treatment at lower cost		
	Scheme components	Construction or upgradation of CETP along with ZLD		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		75% capital subsidy ⁴	Construction or upgradation of CETP, may include ZLD (excluding cost of land)	Industries
Scheme design	Eligibility criteria	<ul style="list-style-type: none"> Scheme is applicable for clusters primarily comprising micro and small-scale industries Large and medium-scale industries belonging to the 17 categories of heavily polluting industries are not eligible 		
	Financing	<ul style="list-style-type: none"> 50% project cost through central government grant. Scheme outlay for period commencing 2012 was Rs 100 crore 25% project cost through state government grant 10% project cost through debt taken by project proponent 15% project cost through project proponent's equity 		
	Institutional framework for implementation	<ul style="list-style-type: none"> Project proposal to be prepared by project proponent (SPV of industrial units) Appraisal of project proposal by technical institutions such as IITs or CSIR, nationalised banks and SPCBs Responsibility for ensuring forward and backward linkages for the CETP as well as availability of land to lie with the state government Project scrutiny for funding under the scheme to be carried out by MOEFCC SPCB to be responsible for monitoring of project construction Post the commissioning, evaluation to be carried out by CPCB CETP operators, industrial units, SPCBs and an independent third party responsible for monitoring project operation 		
	Monitoring framework	<ul style="list-style-type: none"> SPCB responsible for monitoring of project construction Continuous effluent monitoring system at outlet of CETP with 24-hour data display on SPCB website Three tiered monitoring system involving industries, SPCB and third-party monitoring 		
Number of actual beneficiaries		119 CETPs (estimated)		

Source: Scheme guidelines, Annual Reports of MOEFCC, CRIS Analysis

CRISIL Risk and Infrastructure Solutions Limited (A subsidiary of CRISIL Enterprise) is a company incorporated in India. For CETPs with ZLD the cap is Rs 400 crore (Rs. 400 million). For CETPs without ZLD the cap is Rs 20 crore (Rs 200 million) for the project.

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SWOT analysis of the CETP scheme

Strengths	Weaknesses
<ul style="list-style-type: none"> • Dedicated focus on industrial wastewater management • Incentives for CETP as well as adoption of ZLD • Applicable to MSEs across industry sectors • Provision for monitoring of project operations through online effluent monitoring as well as third-party audits 	<ul style="list-style-type: none"> • Focus is limited to capital investments • No incentives for developing allied infrastructure (conveyance, sludge disposal) • No incentives for operational aspects for pre-treatment by industries and CETP operations • No incentives for solution providers, including CETP. Monitoring of operations not linked to incentives under the scheme • No online portal for applying for the scheme • Centralised approval process at the national level
Opportunities	Threats
<ul style="list-style-type: none"> • Convergence with schemes such as MIUS and MSE-CDP which provide for allied infrastructure development • Final tranche of the subsidy or incentives such as ease of doing business could be linked to operational performance and output achieved • Integration of online effluent monitoring with the OCEMS initiative by CPCB 	<ul style="list-style-type: none"> • Inefficient use of assets constructed in case of operational issues • The centralised approval process, along with the absence of an online application filing and tracking system, may hamper scheme uptake • Affordability issues with the state government and industries due to the rule that industries should contribute their share of capital may hamper scheme uptake

Source: CRIS analysis

7.1.2 Integrated processing development scheme (IPDS)

Name of scheme		Integrated processing development scheme (IPDS)		
Institutional anchor		Ministry of Textile (MoT)		
Commencement		2012	Completion	Ongoing
Focus	Scheme objective	To help textile industries ensure pollution control by funding the setting up of common effluent treatment plants		
	Scheme components	<ul style="list-style-type: none"> Water treatment plants and CETP Captive power generation Common facilities such as testing laboratories and R&D centers⁵ 		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		75% of capital cost ⁶	Construction of CETP, may include ZLD (excluding cost of land)	Industries
Scheme design	Eligibility criteria	Textile clusters across India		
	Financing	<ul style="list-style-type: none"> 50% project cost through central government grant. Scheme outlay for period commencing 2012 was Rs 500 crore (Rs 5 billion) 25% project cost through state government grant 10% project cost through debt taken by project proponent 15% project cost through project proponent's equity 		
	Institutional framework for implementation	<ul style="list-style-type: none"> Project proposal to be prepared by project proponent (SPV of industrial units) Appraisal of project proposal by state government, SPCB, technical institutions such as IIT or CSIR, nationalised bank, project management consultant (PMC) appointed by MoT, project scrutiny committee (PSC) and project approval committee (PAC) Project scrutiny committee (PSC) headed by JS, MoT, along with representatives from MOEFCC, CPCB, bank in which TRA is placed, state government, SPCB PAC to be headed by secretary - textiles and to decide on approval for funding a project under this scheme CETP operator, industries, SPCB and an independent third party responsible for monitoring project operation 		
	Monitoring framework	<ul style="list-style-type: none"> SPV to maintain website to routinely upload pictures of construction progress PMC to be responsible for periodical monitoring of project construction Continuous effluent monitoring system at outlet of CETP with 24-hour data display on SPCB website Three tiered monitoring system involving industries, SPCB and a third party Final installment of subsidy comprising 20% of the central government is released only after successful operation of the plant for three years. This is to be certified by the SPCB 		

⁵ This component is not eligible for central government grants

⁶ The central government grant for this subsidy is capped. The cap is Rs 75 crore (Rs 750 million) for ZLD and marine discharge, and Rs 10 crore (Rs 100 million) for conventional CETP and riverine discharge.

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Procedure for access	<ol style="list-style-type: none"> 1. Formulation of an SPV among industrial units 2. Appointment of a project management agency 3. Preparation of a project proposal in the form of a detailed project report (DPR) 4. Acquire land and necessary environmental clearances 5. Open a trust and retention account with a nationalised bank 6. Have DPR appraised by a technical institute and a nationalised bank 7. Obtain in-principle approval from state government 8. Submit proposal to MoT for appraisal and approval <p>There is no online portal for submission and tracking of application.</p>
Number of actual beneficiaries	7 (3 clusters in Rajasthan, 3 clusters in Tamil Nadu and 1 cluster in Gujarat; all the projects are for ZLD with an aggregate capacity of 75.8 MLD)

Source: Scheme guidelines, consultations with MoT, CRIS Analysis

SWOT analysis of IPDS

Strengths	Weaknesses
<ul style="list-style-type: none"> • Dedicated focus on industrial wastewater management • Incentive available for CETP as well as adoption of ZLD • Incentive for operations through retention of final instalment of subsidy pending successful operations of CETP for three years • State buy-in ensured through contribution requirement, approval, environmental clearances as well as project scrutiny committee • Provision for monitoring of project operations through online effluent monitoring as well as third-party audits 	<ul style="list-style-type: none"> • Focus limited to capital investments • Funding limited to textile clusters • No incentive for developing allied infrastructure (conveyance, sludge disposal) • No incentive for operational aspects for pre-treatment by industries • No incentives for solution providers, including CETP operators • Monitoring of operations not linked to incentives under the scheme • Parameters for evaluation of CETP performance not specified • No online portal for applying to scheme • Centralised approval process at the national level
Opportunities	Threats
<ul style="list-style-type: none"> • Convergence with schemes such as MIIUS and MSE-CDP which provide for allied infrastructure development • Linking of specific performance and output parameters in defining the 'successful operations of the CETP' for three years • Integration of online effluent monitoring with the OCEMS initiative by CPCB 	<ul style="list-style-type: none"> • Inefficient use of assets constructed in case of operational issues in the absence of well-defined performance parameters • The centralised approval process along with the absence of an online application filing and tracking system may hamper scheme uptake • Affordability issues with the state government and industries due to the rule that industries should contribute their share of capital may hamper scheme uptake

Source: CRIS analysis

7.1.3 Micro and Small Enterprises – Cluster Development Programme (MSE-CDP)

Name of scheme		Micro and Small Enterprises – Cluster Development Program (MSE-CDP)		
Institutional anchor		Ministry of MSME		
Commencement		1994	Completion	Ongoing
Focus	Scheme objective	To support growth of MSEs by addressing common issues, including infrastructure, and through the adoption of a cluster approach		
	Scheme components	<ul style="list-style-type: none"> Carrying out diagnostic studies for industrial clusters Soft interventions such as technical assistance, capacity building, exposure visits, market development, trust building, etc. for the cluster units Preparation of DPR for common facility centers and infrastructure Development of common facilities, including testing facility, design centre, production centre, effluent treatment plant, training centre, R&D centre, raw material bank/sales depot, product display centre and information centre Development of infrastructure, including land, provision of water supply, drainage, power distribution, non-conventional sources of energy for common captive use, construction of roads, etc. 		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		70% capital subsidy ⁷ In special cases ⁸ , capital subsidy is increased to 80%.	Setting up of effluent treatment plant	Industries
		60% capital subsidy ⁹ In special cases, capital subsidy is increased to 80%.	Setting up of conveyance infrastructure (excluding cost of land)	State government agency
Scheme design	Eligibility criteria	<ul style="list-style-type: none"> Applicable for MSE clusters across the country In case of CETP, SPV must comprise at least 20 MSE units 		
	Financing	<ul style="list-style-type: none"> Capital subsidy by the central government. Financial outlay of Rs 800 crore (Rs 8 billion) for the period commencing 2012 In case of CETP, minimum 10% of project cost by the SPV State government funding for meeting gap or project over-runs 		
	Institutional framework for implementation	<ul style="list-style-type: none"> Project proposal to be prepared by project proponent (SPV of industries) Appraisal of project proposal by state government followed by project management service providers (PMS) of the Development Commissioner, Ministry of MSME (DC, MSME) Provision of in-principle approval and final approval by Development Commissioner, Ministry of MSME (DC, MSME) Monitoring of project construction by state government and a project steering committee constituted by state along with DC, MSME, with the help of PMS 		
	Monitoring framework	<ul style="list-style-type: none"> State government and PMS responsible for construction monitoring No monitoring of project operations 		

⁷ The project cost is capped at Rs 15 crore (Rs 150 million)

⁸ For clusters in the North-eastern states or hill states (which include Uttarakhand) and clusters where micro, village, women-owned or SC/ST-owned enterprises comprise more than 50% of enterprises in the cluster.

⁹ Project cost is capped at Rs 10 crore (Rs 100 million)

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Procedure for access	<ol style="list-style-type: none"> 1. Registration on https://cluster.dcmsme.gov.in 2. Filling of online application for initial proposal 3. Submission of proposal to state government for further processing 4. Receipt of in-principle approval from DC, MSME 5. Formation of SPV 6. Opening of trust account 7. Procurement of land 8. Preparation of DPR 9. Appraisal of DPR by independent agency 10. Submission of DPR and other documents
Number of actual beneficiaries	<p>228 industrial clusters</p> <ul style="list-style-type: none"> • Beneficiaries are present in 20 states • Three projects have been completed in Uttarakhand, namely, IIE Uddham Singh Nagar, IIE BHEL Compound and Selaqui Industrial Area in Dehradun • However, number of beneficiaries accessing the incentive for building CETP or for other wastewater-related interventions is not known

Source: Scheme guidelines, consultations with MoMSME, CRIS Analysis

SWOT analysis of MSE-CDP

Strengths	Weaknesses
<ul style="list-style-type: none"> • Comprehensive focus across infrastructure, including technical assistance • Incentives cover CETP as well as allied infrastructure • Wide eligibility criteria covering MSE clusters across industry sectors • Online application and tracking portal • State buy-in ensured by required routing of all applications through state • Scheme, including technical assistance components, to aid industries to identify and develop project proposal 	<ul style="list-style-type: none"> • No dedicated industrial wastewater component • No incentive for operational aspects for pre-treatment by industries and CETP operations • No incentives for solution providers, including CETP operators • No mechanism for monitoring of operations • Monitoring of operations not linked to incentives under the scheme • Project approval at central level • Centralised approval process at the national level
Opportunities	Threats
<ul style="list-style-type: none"> • Convergence with schemes such as erstwhile CETP scheme, ongoing IPDS and the sub-scheme of ILDP which focuses on industrial wastewater management • Final tranche of the subsidy or incentives, such as ease of doing business, could be linked to operational performance and output achieved • Use of online effluent monitoring integrated with OCEMS initiative by CPCB • Use of third-party audits for monitoring of performance parameters and outputs • Expansion of technical assistance component to include hand-holding for CETP operations 	<ul style="list-style-type: none"> • Funding may be diverted for other projects such as road construction etc. rather than industrial wastewater • Inefficient use of assets constructed in case of operational issues in the absence of well-defined performance parameters • Affordability issues with the state government and industries due to the rule that industries should contribute their share of capital may hamper scheme uptake

Source: CRIS analysis

7.1.4 Modified industrial infrastructure upgradation scheme

Name of scheme		Modified industrial infrastructure upgradation scheme (MIUS)		
Institutional anchor		DPIIT		
Commencement		2003	Completion	Ongoing
Focus	Scheme objective	To increase the industry's competitiveness by subsidising the cost of common infrastructure development		
	Scheme components	<ul style="list-style-type: none"> • Technical infrastructure (common facility centers, R&D and technical demonstration facility, CETP and other environment protection infrastructure, training infrastructure, quality certification and benchmarking, etc) • Social infrastructure (dormitories, hostels for working women, etc) • Physical infrastructure (solid waste management, water supply, roads, captive power plants, etc) 		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		75% capital subsidy ¹⁰	CETP, may include ZLD	State implementing agency
		50% capital subsidy ¹¹	Allied infrastructure (conveyance and sludge disposal)	State implementing agency
Scheme design	Eligibility criteria	<ul style="list-style-type: none"> • For all industrial clusters • Eligible project excludes items specifically covered under sectoral sub-schemes or those related to the explosives industry 		
	Financing	<ul style="list-style-type: none"> • 50%¹² project cost through central government grant. Scheme outlay for period commencing 2012 was Rs 580 crore (Rs 5.8 billion) for new projects • 25% project cost through state government grant • Remaining funding through contribution by the beneficiary industries and debt¹³ 		
	Institutional framework for implementation	<ul style="list-style-type: none"> • Project preparation and submission of project proposal by a state implementing agency (SIA), which would be the State Industrial Development Corporation • Appraisal of DFR and DPR by DPIIT's project management agency (PMA) as well as bank or state/ central financial agency • Proposal evaluation and sanction by DPIIT's apex committee The apex committee is chaired by secretary (DPIIT) and includes representatives from SIA, industry association or SPV, secretary (Industries) from the state government • Project execution by SIA • Project monitoring by board of SIA, PMA and the apex committee 		
	Monitoring framework	<ul style="list-style-type: none"> • DIPP to appoint its nominee to SIA's governing body • Submission of quarterly progress reports by SIA to DIPP • Field visits and maintenance of a web-based monitoring system by PMA • Annual project progress review by the apex committee 		

¹⁰ The subsidy is capped in terms of the central government grant. For CETPs without ZLD, the cap is Rs 15 crore (Rs 150 million) for the project and Rs 1.5 crore (Rs 15 million) per MLD. For CETPs with ZLD, the cap is Rs 20 crore (Rs 200 million) for the project and Rs 4.5 crore/ MLD).

¹¹ Central government subsidy is capped at Rs 12.5 crore (Rs 125 million).

¹² In case of north-eastern states, the central government grant is increased to 80% of the project cost with an additional 10% grant from the state government.

¹³ Priority to be accorded to project with 10% of the project cost contributed by beneficiary industries.

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	Procedure for access	<ul style="list-style-type: none"> • Project proposal, in the form of a detailed feasibility report, to be prepared by SIA, which would be the State Industrial Development Corporation • Submission of proposal to DPIIT • Receipt of in-principle approval by DPIIT • Project preparation by SIA including land acquisition, budgetary allocation, obtaining proof of commitment from stakeholders, and preparation of DPR • Approval of board of SIA or state industries department to the project • Opening of trust and retention account (TRA) for depositing project funds • Obtain financial appraisal from a bank or the government financing agency • Preparation of DPR • Submission of detailed proposal to DPIIT <p>There is no online portal for application</p>
	Number of actual beneficiaries	<p>52 clusters</p> <p>Of the 24 projects sanctioned under MIUS since 2012, only three included a CETP.</p> <p>The total number of beneficiaries utilising the incentive for wastewater-related purposes, since conceptualisation of the scheme, is not available</p>

Source: Scheme guidelines, DPIIT website, consultations with DPIIT and CRIS analysis

SWOT analysis for MIUS

Strengths	Weaknesses
<ul style="list-style-type: none"> • Focus on infrastructure • Incentives available for CETP and adoption of ZLD • Incentives available for developing allied infrastructure • Wide eligibility criteria, including all industrial clusters • State buy-in ensured by making it the beneficiary and implementing agency 	<ul style="list-style-type: none"> • No dedicated industrial wastewater component • No incentives for operational aspects for pre-treatment by industries and CETP operations • No incentives for solution providers including CETP operator • No mechanism for monitoring the operations • Monitoring of operations not linked to incentives under the scheme • Centralised approval process at the national level • No online portal for submitting the project proposal
Opportunities	Threats
<ul style="list-style-type: none"> • Convergence with schemes such as the erstwhile CETP scheme, and the ongoing IPDS and the sub-scheme of ILDP that focus on industrial wastewater management • Final tranche of the subsidy or incentives, such as ease of doing business, could be linked to operational performance and output achieved • Use of online effluent monitoring integrated with OCEMS initiative by CPCB • Use of third party audits for monitoring the performance parameters and outputs 	<ul style="list-style-type: none"> • Funding may be used for competing uses such as roads, etc rather than industrial wastewater • Inefficient use of assets constructed in case of operational issues in the absence of well-defined performance parameters • The centralised approval process along with the absence of an online application filing and tracking system may hamper scheme uptake • Affordability issues with the state government and industries due to the rule that industries should contribute their share of capital may hamper scheme uptake

Source: CRIS analysis

7.1.5 Credit Linked Capital Subsidy Scheme

Name of scheme		Credit Linked Capital Subsidy Scheme (CLCSS)		
Institutional anchor		Ministry of MSME		
Commencement		2000	Completion	Ongoing
Focus	Scheme objective	Facilitate MSEs pursue technology upgradation through capital subsidy on project-related loans availed		
	Scheme components	Technology related to 51 sectors, one of which is CETP		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		15% capital subsidy ¹⁴	CETP	Industrial unit
Scheme design	Eligibility criteria	<ul style="list-style-type: none"> For all MSE units for investments in technology in a specified set of sectors¹⁵ 		
	Financing	<ul style="list-style-type: none"> The subsidy is provided through central government grant. Scheme outlay for period commencing 2012 was Rs 2,360 crore (Rs 23.6 billion) The beneficiary industry has to seek a loan to fund acquisition of the equipment or machinery in order to avail the scheme benefits The subsidy is routed through the lending institution 		
	Institutional framework for implementation	<ul style="list-style-type: none"> Beneficiary unit to prepare loan proposal and submit the application to the primary lending institution Scrutiny of project and credit worthiness of beneficiary by the PLI Project appraisal by nodal agency and DC, MSME Project approval by the committee of experts chaired by secretary (MSME) 		
	Monitoring framework	<ul style="list-style-type: none"> The subsidy amount is secured in the form of a term deposit with the lending institution. This amount is credited to the loan account of the beneficiary only after it remains in commercial production for three years post installation and commissioning of the equipment/ plant/ machinery for which the subsidy was availed 		
	Procedure for access	<ul style="list-style-type: none"> Beneficiary submits application to the lending institution for a term loan to purchase equipment/ plant/ machinery Beneficiary files online application through the lending institution Beneficiary can track application status on https://my.msme.gov.in/MyMsme/Reg/COM_ClcssAppForm.aspx 		
Number of actual beneficiaries		14,155 MSE units. However, the number of beneficiaries utilising the incentive for wastewater-related purposes is not available		

Source: Scheme guidelines, DC-MSME website and CRIS analysis

¹⁴ The subsidy is calculated on the actual cost of technology. The project cost is capped at Rs 1 crore (Rs 10 million) and, hence, subsidy is capped at Rs 15 lakh (Rs 1.5 million).

¹⁵ The limitation of sectors is not applicable to entrepreneurs who are women, SC/ ST or hail from the north-eastern states, hill states (which includes Uttarakhand), island territories and aspirational districts. Fabricated and second-hand equipment would continue to be excluded.

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SWOT analysis for CLCSS

Strengths	Weaknesses
<ul style="list-style-type: none"> • Incentives available for CETP • Wide eligibility criteria covering MSMEs across the country and sectors • Mechanism in place to link subsidy release to execution of commercial operations • Online portal for tracking of project application 	<ul style="list-style-type: none"> • No dedicated industrial wastewater component • Incentive, at subsidy of 15% of project cost, is lower in quantum compared with other capital subsidy schemes • No incentive for developed allied infrastructure • No incentive for operational aspects for pre-treatment by industries and CETP operations • No incentive for solution providers including CETP operator • No mechanism for monitoring operations in terms of quality of effluent or environmental compliance • Project approval at the central level
Opportunities	Threats
<ul style="list-style-type: none"> • Convergence with schemes such as MIIUS and MSE-CDP which provide for allied infrastructure development • Linking of specific performance and output parameters along with requirement for commercial operations of the entity for three years • Provision for online effluent monitoring and its integration with the OCEMS initiative by CPCB • Use of third party audits for environmental monitoring 	<ul style="list-style-type: none"> • Funding may be used for competing uses pertaining to technology for the other 50 sectors • Inefficient use of assets constructed in case of operational issues in the absence of well-defined performance parameters • Affordability issues with the industries to contribute their share of capital may hamper scheme uptake

Source: CRIS analysis

7.1.6 Leather technology, innovation and environmental issues sub-scheme

Name of scheme		Leather technology, innovation and environmental issues sub-scheme (of the Integrated Leather Development Program)		
Institutional anchor		DPIIT		
Commencement		2002	Completion	Ongoing
Focus	Scheme objective	The scheme aims at aiding leather industries to meet environmental norms through capital subsidy for setting up CETPs, common recovery units, and sludge management facilities		
	Scheme components	<ul style="list-style-type: none"> Establishment or upgradation of CETPs including reliable alternate power supply arrangements, common recovery units, developing secure landfills, sludge residue management, conversion of waste into by-products, and other techniques for hazardous waste management Preparation of vision document for leather, footwear and accessories industry, and extending assistance to the national level sectoral industry council/ association 		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		70% of capital cost ¹⁶	Construction of CETP may include ZLD (excluding cost of land) as well as allied infrastructure	Industries
Scheme design	Eligibility criteria	Leather clusters across India		
	Financing	<ul style="list-style-type: none"> 70% project cost through a central government grant Remaining to be contributed by the project proponent 		
	Institutional framework for implementation	<ul style="list-style-type: none"> Project proposal to be prepared by the project proponent (SPV of industries as well as one nominee each of DPIIT and state government) Appraisal of project proposal by Central Leather Research Institute (CLRI) and DPIIT Projects up to Rs 15 crore (Rs 1.5 million) to be approved by a steering committee formed by DPIIT and projects of more than Rs 15 crore to be approved by an empowered committee of DPIIT Monitoring and evaluation of projects by CLRI 		
	Monitoring framework	<ul style="list-style-type: none"> CLRI to be responsible for periodical monitoring of project construction Continuous effluent monitoring system at the CETP outlet 		
	Procedure for access	<ol style="list-style-type: none"> Formulation of an SPV Submission of project proposal to DPIIT Receipt of approval from DPIIT Setting up of a trust and retention account with a nationalised bank for depositing project funds <p>There is no online portal for submission and tracking of application</p>		
Number of actual beneficiaries		Six CETPs approved in the 11th Five-Year Plan. The same were to be supported further. No information available on new CETPs being supported under this scheme		

Source: Scheme guidelines, DPIIT website and CRIS analysis

¹⁶ The central government grant for this subsidy is capped at Rs 200 crore (Rs 2 billion).

SWOT analysis for Leather Technology, Innovation and Environmental Issues sub-scheme

Strengths	Weaknesses
<ul style="list-style-type: none"> • Focus on industrial wastewater management • Cap on central government subsidy, at Rs 200 crore (Rs 2 billion), is higher than other capital subsidy schemes • Incentive covers development of allied infrastructure • State buy-in ensured through representation on board of SPV • Representation of DPIIT in the SPV • Recommends use of online effluent monitoring 	<ul style="list-style-type: none"> • Focus limited to capital investments • Funding limited to leather clusters • No incentive for operational aspects for pre-treatment by industries • No incentive for solution providers including CETP operator • Online monitoring of effluent not mandatory • Monitoring of operations not linked to incentives under the scheme • Parameters for evaluation of CETP performance not specified • No online portal for applying to the scheme • Centralised project approval at the national level
Opportunities	Threats
<ul style="list-style-type: none"> • Final tranche of the subsidy or incentives, such as ease of doing business, could be linked to operational performance and output achieved • Integration of online effluent monitoring with the OCEMS initiative by CPCB • Use of third party audit for monitoring performance and output parameters 	<ul style="list-style-type: none"> • Inefficient use of assets constructed in case of operational issues • The centralised approval process along with the absence of an online application filing and tracking system may hamper scheme uptake • Affordability issues with the industries to contribute their share of capital may hamper scheme uptake

Source: CRIS analysis

7.2 Certifications

7.2.1 Financial support to MSMEs in ZED certification scheme

Name of scheme		Financial support to MSMEs in ZED certification scheme		
Institutional anchor		Ministry of MSME		
Commencement		2016	Completion	Ongoing
Focus	Scheme objective	To improve competitiveness of MSMEs by promoting zero defect and environment-friendly production processes in manufacturing through technical assistance and recognition		
	Scheme components	Certification includes a set of 50 scoring parameters including process design, pre-production, production & maintenance, product design, post production, facility, human resources, out-sources activities, innovation & creativity, and outcomes. Minimum of 30 scoring parameters for certification are listed. This includes a set of 20 compulsory parameters, of which eight relate to industrial wastewater management. Scheme components include awareness and training of rating agencies, development of online systems, rating of MSMEs, promotion and branding		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		Recognition in the form of ZED certification (starting lowest – bronze, silver, gold, diamond, and platinum)	<ul style="list-style-type: none"> Putting in place processes for waste reduction Putting in place operating systems for abatement of effluent, emissions, and wastes Putting in place operating systems for natural resource conservation Planned maintenance of environmental management systems Achieving outcomes in terms of optimal use of natural resource (fuel/ energy/ water/ wood) Achieving outcomes in terms of air/ effluent/ solid waste management 	Industrial unit
		25% concession in processing charges	Gold-rated MSMEs	Industrial unit
		25% concession in processing charges as well as 0.25% interest	Diamond and platinum ZED-rated MSMEs	Industrial unit
Scheme design	Eligibility criteria	Applicable to all MSMEs		
	Financing	<p>Central government subsidy of 80%, 60% and 50% for micro, small and medium enterprises, respectively. Outlay of Rs 451 crore (Rs 4.5 billion) committed for period commencing 2016. Subsidy to be used towards ZED rating, technical assistance for improving ratings, and re-rating of enterprises</p> <p>Additional subsidies provided by Punjab, Haryana, Gujarat, Rajasthan, Daman & Diu, Dadra & Nagar Haveli, Uttar Pradesh, and Tamil Nadu to MSMEs for balance expenditure (in terms of ratings expense as well as investment in equipment) to the MSME units</p>		

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	Institutional framework for implementation	<ul style="list-style-type: none"> • ZED rating agencies empaneled by the ministry of MSME • QCI as issuer of rating and the National Monitoring and Implementation Unit • Steering committee of DC, MSME in charge of policy formulation, scheme implementation and monitoring
	Monitoring framework	<ul style="list-style-type: none"> • Scheme monitoring involves an empaneled set of ZED rating agencies and the National Monitoring and Implementing Unit • ZED rating agencies shall carry out an assessment of the industrial unit and recommend the rating • QCI shall issue ratings based on the findings and recommendations of the rating agency and also act as the National Monitoring and Implementation Unit • The rating is valid for four years, during which QCI will carry out surveillance audits
	Procedure for access	<ol style="list-style-type: none"> 1. Online registration by the MSME unit on https://www.zed.org.in 2. Online self-assessment by the MSME 3. Desktop assessment of the MSME by assessors 4. Site assessment by rating agencies 5. ZED rating and issue of certification by QCI
Number of actual beneficiaries		<p>266 MSMEs have received a ZED rating till date</p> <p>Four have been rated diamond, 51 gold, 115 silver and 96 bronze. Five MSMEs are located in Uttarakhand, including one diamond-rated industry</p>

Source: Scheme guidelines and website, consultations with QCI and CRIS analysis

SWOT analysis for Financial Support to MSMEs in ZED certification scheme

Strengths	Weaknesses
<ul style="list-style-type: none"> • The scheme focuses on operational aspects of industrial wastewater management, including process and system design as well as outcomes including resource efficiency and exceeding compliance • Graded incentive which rewards commitment to world-class practices • Incentives include tangible component in terms of discount on concession charges and interest rate for loans from State Bank of India (SBI) • Wide eligibility criteria, which includes MSMEs from different sectors • Online application process • Monitoring arrangements using third party rating agencies 	<ul style="list-style-type: none"> • Focus on industrial wastewater management is insignificant • Incentive is intangible in nature for grades lower than gold • Tangible incentives as concessions in loans limited to SBI and Yes Bank • Incentives target individual industrial units. But no incentives for setting up common infrastructure such as CETPs and for inter-relationship between industries and CETP operators where such arrangements exist • The approval process is centralised at the national level • State governments are not directly involved • Does not require public disclosure of environmental practices
Opportunities	Threats
<ul style="list-style-type: none"> • Certification relevant to industrial wastewater management could be linked to ease of doing business incentives such as extended consent period or reduction in consent fees 	<ul style="list-style-type: none"> • The beneficiary may focus on other aspects such as quality control or other forms of pollution control rather than industrial wastewater management • On-ground promotion of scheme may weaken as the state government is not directly engaged

Source: CRIS analysis

7.2.2 Eco-mark

Name of scheme		Eco-mark		
Institutional anchor		BIS		
Commencement		1991	Completion	Ongoing
Focus	Scheme objective	To promote environment-friendly manufacturing of consumer products and enable consumers to make informed choices by labelling of products		
	Scheme components	Certification parameters include quality, safety, material used for packaging, and environmental clearances for effluent as well as emissions		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		Recognition through permission for use of Eco-mark label on products	Compliance with effluent standards	Industries
		In case of Madhya Pradesh, 50% reduction in fees payable to SPCB	Compliance with effluent standards	Industries
Scheme design	Eligibility criteria	Industries manufacturing a defined set of products (typically consumer products) covered by the Eco-mark scheme		
	Financing	Industrial unit required to pay application fees for Eco-mark		
	Institutional framework for implementation	<ul style="list-style-type: none"> Industrial unit to submit application for Eco-mark BIS to review and decide on grant rights for use of Eco-mark label by industries CPCB hosts technical committee to provide technical assistance to the steering committee and review implementation of the scheme by BIS Steering committee of MOEFCC decides on product categories and policy formulation 		
	Monitoring framework	<ul style="list-style-type: none"> Environmental clearance (consent to operate) issued by SPCB considered as proof of environmental compliance BIS undertakes field inspections from time to time to ensure compliance by the industrial unit CPCB undertakes scheme-level review periodically 		
	Procedure for access	<ul style="list-style-type: none"> Industrial unit to obtain application form from the BIS office Industrial unit to submit one application form for each product and each Indian standard specification (ISS), along with a fee of Rs 500 for each form. Form to be accompanied with environmental clearance certificate from SPCB and in case of MSE, certificate issued by concerned authority Preliminary inspection by BIS of manufacturing and quality control facilities as well as testing personnel Factory testing and independent testing of random samples of product by BIS inspection officers Submission of formal consent by industrial unit to comply with a Scheme of Testing and Inspection (STI) provided by BIS Payment of marking fees applicable to the product along with inspection and laboratory testing charges by the applicant Grant of licence by BIS for use of product label by BIS with validity of one year (renewable for two years) 		
Number of actual beneficiaries		12 products across 10 companies as of 2007		

Source: Scheme guidelines and CRIS analysis

SWOT analysis for Eco-mark

Strengths	Weaknesses
<ul style="list-style-type: none"> • Scheme mandates environmental clearance from SPCB • Incentive for complying with environmental regulations concerning industrial wastewater • The monitoring framework includes factory inspection and regular renewal of licence by BIS • Low fee for licence 	<ul style="list-style-type: none"> • No scoring parameter for measuring output exceeding compliance requirements • Focus on other parameters such as packaging, quality and safety • Incentive intangible in nature and not graded • No incentive for adopting measures related to resource efficiency or treatment of effluent beyond regulatory requirements • Incentives target individual industrial units. No incentive for setting up common infrastructure, such as CETPs, and for inter-relationships between industries and CETP operators where such arrangements exist • Eligibility limited to products (largely consumer products) covered under the scheme • No online portal for filing application • The approval process is centralised at the national level • No monitoring framework for assessing effluent output and resource efficiency • The state government is not directly involved in the scheme
Opportunities	Threats
<ul style="list-style-type: none"> • Linkage with tangible incentives such as ease of doing business or discounted consent fees • Use of third party audits by some states for verifying the effluent treatment process and output by the industries 	<ul style="list-style-type: none"> • Beneficiaries may focus on other aspects such as packaging, quality and safety • The centralised approval process along with the absence of an online application filing and tracking system can hamper scheme uptake • On-ground promotion of the scheme may be weak as the state government is not directly engaged

Source: CRIS analysis

7.2.3 Responsible care

Name of scheme		Responsible care		
Institutional anchor		Indian Chemical Council (in India), International Council of Chemical Associations		
Commencement		2006	Completion	Ongoing
Focus	Scheme objective	To promote safety, performance and responsible management by the chemical industry through a voluntary certification programme		
	Scheme components	Process safety, occupation health and employee safety, pollution prevention, emergency response and communication to community, distribution code, and product stewardship		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		Recognition in the form of license to use the Responsible Care logo	<ul style="list-style-type: none"> Wastewater collection, treatment and disposal 	
		Consent to operate, issued by GPCB, extended by two years in Gujarat		
Scheme design	Eligibility criteria	Applicable to all chemical industries		
	Financing	NA		
	Institutional framework for implementation	<ul style="list-style-type: none"> Industry to apply for license Assessment, issue of license and surveillance by Indian Chemical Council Mentoring assistance by responsible care (RC) license-holding industries 		
	Monitoring framework	<ul style="list-style-type: none"> Key performance indicator (KPI) reporting by industrial unit at regular interval Surveillance audits by Indian chemical council (ICC) 		
	Procedure for access	<ul style="list-style-type: none"> CEO of industry to sign commitment to responsible care guiding principles and adopt the six codes of managements practices Self-assessment by the industry followed by rapid assessment and identifying of gaps by the ICC responsible care team Improvements by the industry with assistance from mentor industries Industry to request code-specific verification visits by the ICC responsible care team 		
Number of actual beneficiaries		48 ICC member companies hold RC license out of 128 signatories		

Source: Responsible Care guidelines, Consultations with Chemical Council of India, CRIS analysis

SWOT analysis for Responsible Care

Strengths	Weaknesses
<ul style="list-style-type: none"> • Scheme focuses on entire activity chain of industrial wastewater management as well as monitoring systems • Scheme includes handholding assistance through peer organisations 	<ul style="list-style-type: none"> • Scheme is not specific to industrial wastewater, and the pollution code includes industrial emissions • Incentive is not graded in nature • Incentive is not tangible for industries, other than those located in Gujarat • Incentives target individual industrial units. No incentives for setting up common infrastructure, such as CETPs, and for inter-relationship between industries and CETP operators, where such arrangements exist • Scheme is limited to the chemicals sector • Does not require public disclosure of environmental practices • Pollution prevention code for India is not publically available
Opportunities	Threats
<ul style="list-style-type: none"> • Replication of the Gujarat initiative of linking the certification to extended consent period and fast-tracking of environmental proposals to other states of the country 	<ul style="list-style-type: none"> • The beneficiary may focus on other aspects, such as quality control or other forms of pollution control, rather than industrial wastewater management • Given lack of tangible benefits in states, other than Gujarat, there may be limited uptake by industrial units

Source: CRIS analysis

7.3 Awards

7.3.1 National award for prevention of pollution and Rajiv Gandhi environment award for clean technology

Name of scheme		National award for prevention of pollution and Rajiv Gandhi environment award for clean technology		
Institutional anchor		MOEFCC		
Commencement		1992	Completion	Ongoing
Focus	Scheme objective	To encourage industries to take significant steps to prevent pollution by recognizing innovative efforts in this direction		
	Scheme components	Pollution control (effluent, emissions and waste disposal) and clean technology		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		National award and cash prize of Rs 1 lakh (Rs 0.1 million)	Pollution control	Industrial unit
		Rajiv Gandhi award and cash prize of Rs 2 lakh (Rs 0.2 million)	Clean technology	Industrial unit
Scheme design	Eligibility criteria	Industries from 17 polluting industry categories and MSEs are eligible		
	Financing	Awards are funded by MOEFCC		
	Institutional framework for implementation	<ul style="list-style-type: none"> • Selection committee, which among others includes MOEFCC and CPCB • MOEFCC as anchor of the scheme 		
	Monitoring framework	NA		
	Procedure for access	<ul style="list-style-type: none"> • Industries to apply for awards in the respective category • Awardees chosen by the selection committee 		
Number of actual beneficiaries		<p>No data on awardees is available.</p> <ul style="list-style-type: none"> • In 2009, only seven industries were given the national award and one industry was given the Rajiv Gandhi award • Also, in 2010, the ministry received only 65 nominations from across the country, which declined to 25 nominations in 2012 		

Source: Scheme guidelines, Annual reports of MOEFCC, and CRIS analysis

SWOT analysis for National Award for Prevention of Pollution and Rajiv Gandhi Environment Award for Clean Technology

Strengths	Weaknesses
<ul style="list-style-type: none"> • Scheme focuses on pollution control and clean technology • Incentive includes combination of recognition along with a cash prize • Wider coverage, including large industries from 17 categories as well as SMEs 	<ul style="list-style-type: none"> • No separate award categories for industrial wastewater • Cash prize of Rs 2 lakh (0.2 million) is lower than other financial incentives • No incentive for continuation of environmental performance • Award selection criteria is not publicized • No incentive for incurring capital investments for pollution control • Incentives target individual industrial units. No incentives for setting up common infrastructure, such as CETPs, and for inter-relationships between industries and CETP operators, where such arrangements exist • Award-winning accomplishments not documented and disseminated as case studies • List of award-winners not maintained on MOEFCC's website • State government not involved in the award scheme
Opportunities	Threats
<ul style="list-style-type: none"> • Sustainability standards formulated by GIZ under SEIP Phase 1 and adopted by Gujarat Industrial Development Corporation could be used to extend awards to industrial clusters • Preparation of case studies and best practices based on experience of awardees and hosting of the same on the Environmental Information System (ENVIS) knowledge management portal • Replication of the award scheme at the state level, in addition to national level, similar to the cleaner production awards instituted in Gujarat, along with linkage of tangible benefits, such as extension in consent period 	<ul style="list-style-type: none"> • Industries may seek awards for advances in emissions or waste disposal instead of industrial wastewater management • Uptake for the award scheme may be limited, given the absence of substantial tangible benefits linked with the award • On-ground promotion of the award scheme may be weak as state governments are not involved

Source: CRIS analysis

7.3.2 The Secondary Steel Sector Award Scheme (Prime Minister's Trophy, Steel Minister's Trophy and Award Scheme for Secondary Steel Producers)

Name of scheme		The Secondary Steel Sector Award Scheme		
Institutional anchor		Ministry of Steel		
Commencement		1993	Completion	Ongoing
Focus	Scheme objective	To promote efficiency, quality, safety and economy in the operation of steel industries by providing recognition		
	Scheme components	In case of the award for secondary steel producers, there are 13 scoring parameters, of which environment protection carries a 6% weightage. In case of the prime minister and steel minister awards, environment protection has a weightage of 1%		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		1-6% weightage in scoring for the award In case of prime minister and steel minister awards, capital grants of Rs 2 crore (Rs 20 million) and Rs 1 crore (Rs 10 million) respectively are awarded, which are to be spent on improving factory workers' quality of life	Adoption of ISO 14001 or any aspect of industrial wastewater	Industrial unit
Scheme design	Eligibility criteria	In case of prime minister and steel minister trophies, integrated steel plants in India are eligible In case of the award for secondary steel producers, composite mini steel plants and standalone steel production or processing units having crude or finished steel production are eligible		
	Financing	Ministry of Steel finances the awards		
	Institutional framework for implementation	Panel of judges, which, in addition to a representative from the Ministry of Steel, includes representatives from the industry		
	Monitoring framework	Panel of judges empowered to carry out field inspections		
	Procedure for access	Online application to be made by the industrial unit		
Number of actual beneficiaries		Complete list of beneficiaries not available		

SWOT analysis for Prime Minister’s Trophy, Steel Minister’s Trophy, and Award Scheme for Secondary Steel Producers (Steel Awards)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Scheme includes environmental protection as a scoring parameter • Incentive includes combination of recognition along with tangible benefit in the form of cash prize • Wide coverage, including large industries from 17 categories as well as SMEs • Award selection criteria and scoring pattern is publically available 	<ul style="list-style-type: none"> • No separate award category for industrial wastewater • Focus on environment protection with no specific weightage for industrial wastewater management • Small weightage prescribed to environmental protection, which, in addition to industrial wastewater management, includes other forms of pollution control • No incentive for continuation of environmental performance • No incentive for incurring capital investment for pollution control • Incentives target individual industrial units. No incentive for setting up common infrastructure, such as CETPs, and for inter-relationships between industries and CETP operators, where such arrangements exist • Award-winning accomplishments not documented and disseminated as case studies • List of award winners not maintained on the ministry’s website • State governments not involved in the award scheme
Opportunities	Threats
<ul style="list-style-type: none"> • Sustainability standards formulated by GIZ under SEIP Phase 1 and adopted by Gujarat Industrial Development Corporation could be used to extend awards to steel clusters • Preparation of case studies and best practices based on the experience of awardees, and hosting of the same on the ENVIS knowledge management portal • Replication of the award scheme at the state level, in addition to national level, similar to the cleaner production awards instituted in Gujarat, along with linkage of tangible benefits, such as extension in consent period 	<ul style="list-style-type: none"> • Industries may seek awards for advances in emissions, waste disposal or tree plantation drives instead of industrial wastewater management • On-ground promotion of the award scheme may be weak as state governments are not involved

Source: CRIS analysis

8 Annexure 2: Incentives mechanisms at the state level in Uttarakhand

8.1 Capital subsidy schemes

8.1.1 Mega Industrial and Investment Policy (Uttarakhand)

Name of scheme		Mega Industrial and Investment Policy (Uttarakhand)		
Institutional anchor		Directorate of Industries (Uttarakhand)		
Commencement		2015	Completion	Ongoing
Focus	Scheme objective	To encourage establishment and expansion on industries in Uttarakhand		
	Scheme components	Setting up and expansion of industries		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		Capital subsidy of 30% of project cost ¹⁷	Construction of Effluent treatment plant	Industries
Scheme design	Eligibility criteria	<ul style="list-style-type: none"> For new industries or industries proposing expansion with proposed capital investment of more than Rs 50 crore (Rs 500 million) 		
	Financing	<ul style="list-style-type: none"> The subsidy is financed through state government grants 		
	Institutional framework for implementation	<ul style="list-style-type: none"> SIIDCUL is responsible for implementation of the scheme and disbursement of subsidies Directorate of Industries is responsible for coordination and provision of technical assistance to the scrutiny committee and the state empowered committee. It is also responsible for transfer of state government grants to SIIDCUL Scrutiny committee chaired by Principal Secretary (Industries) is responsible for proposal evaluation State empowered committee chaired by Chief Secretary is responsible for approvals 		
	Monitoring framework	<ul style="list-style-type: none"> - 		
	Procedure for access	<ul style="list-style-type: none"> Application is made through an online single window portal 		
Number of actual beneficiaries		0 approvals for ETP subsidy given till date		

Source: Scheme guidelines, Consultation with Directorate of Industries, CRIS analysis

¹⁷ The subsidy in the form of state government grant is capped at Rs 50 lakh (Rs 5 million)

SWOT analysis for Mega Industrial and Investment Policy, 2015 in Uttarakhand

Strengths	Weaknesses
<ul style="list-style-type: none"> Effluent treatment is one of the components covered under the scheme Online single window application process 	<ul style="list-style-type: none"> Eligibility limited to new industries or expansions with investments of over Rs 50 crore It does not cover advanced forms of effluent treatment, such as ZLD No incentives for operational aspects of ETP No incentives for allied infrastructure, such as sludge disposal No mechanism for monitoring of operations
Opportunities	Threats
<ul style="list-style-type: none"> Part of the subsidy or incentive, such as ease of doing business, could be linked to operational performance and output achieved Provision for online effluent monitoring could be incorporated and integrated with the OCEMS initiative by CPCB Use of third-party audits for monitoring operational parameters and effluent output 	<ul style="list-style-type: none"> Inefficient use of assets constructed in case of operational issues

Source: CRIS analysis

8.1.2 Heavy Industrial Investment and Employment Promotion Policy (Uttarakhand)

Name of scheme		Heavy Industrial Investment and Employment Promotion Policy (Uttarakhand)		
Institutional anchor		Directorate of Industries (Uttarakhand)		
Commencement		2018	Completion	Ongoing
Focus	Scheme objective	To encourage establishment and expansion of industries in Uttarakhand		
	Scheme components	Setting up and expansion of industries		
Incentive design		Incentive	Aspect of industrial wastewater	Beneficiary
		Capital subsidy of 30% of project cost ¹⁸	Construction of ETP	Industries
Scheme design	Eligibility criteria	<ul style="list-style-type: none"> For new industries or industries proposing expansion with proposed capital investment of Rs 10 crore (Rs 100 million) to Rs 50 crore (Rs 500 million) 		
	Financing	<ul style="list-style-type: none"> The subsidy is financed through state government grants 		
	Institutional framework for implementation	<ul style="list-style-type: none"> SIIDCUL is responsible for scheme implementation and disbursement of subsidies Directorate of Industries is responsible for coordination, and provision of technical assistance to the scrutiny committee and the state empowered committee. It is also responsible for transfer of state government grants to SIIDCUL Scrutiny committee chaired by Principal Secretary (Industries) is responsible for proposal evaluation State empowered committee chaired by Chief Secretary is responsible for approvals 		

¹⁸ The subsidy in the form of state government grant is capped at Rs 20 lakh (Rs 2 million)

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Monitoring framework	<ul style="list-style-type: none"> -
Procedure for access	<ul style="list-style-type: none"> Application is made through an online single window portal
Number of actual beneficiaries	0 approvals for ETP subsidy given till date

Source: Scheme guidelines, Consultation with Directorate of Industries, CRIS analysis

SWOT analysis for Heavy Industrial Investment and Employment Promotion Policy in Uttarakhand

Strengths	Weaknesses
<ul style="list-style-type: none"> Effluent treatment is one of the components covered under the scheme Online single window application process 	<ul style="list-style-type: none"> Eligibility limited to new industries or expansions with investments of more than Rs 10 crore It does not cover advanced forms of effluent treatment, such as ZLD No incentive for operational aspects of ETP No incentive for allied infrastructure, such as sludge disposal No mechanism for monitoring of operations
Opportunities	Threats
<ul style="list-style-type: none"> Part of the subsidy or incentive, such as ease of doing business, could be linked to operational performance and output achieved Provision for online effluent monitoring could be incorporated and integrated with the OCEMS initiative by CPCB Use of third-party audit for monitoring operational parameters and effluent output 	<ul style="list-style-type: none"> Inefficient use of assets constructed in case of operational issues

Source: CRIS analysis

9 Annexure 3: Case studies

9.1 Wastewater charges/taxes

The wastewater charges/taxes are a price rationing approach, where the polluter is required to pay charges according to the quantity or quality (or both) of pollutants it discharges. Although this mechanism helps in reducing polluting activity by the pollutants, it fails to assess the amount or scale of pollution reduction caused by the charges/taxes.

9.1.1 Germany

1. **Name of the incentive scheme:** Effluent tax - Abwasserabgabe

2. **Objective of the incentive scheme:**

The objectives of the effluent tax is to provide a strong incentive for pollution abatement, with specific goals as follows:

- Mitigating and avoiding the discharge of pollutants into waterways, soil, and drainage systems
 - Maintaining clean water bodies
 - Maintain state-of-the-art water treatment plants
 - Developing production processes with less or no wastewater development
 - Appropriately distributing costs to mitigate, eliminate, and balance damage to water bodies
3. **Types of benefits / incentives:** Subsidy on tax upon compliance to standards/limits
4. **Focus industry / region:** All industries that discharge pollutants into the surface water
5. **Target beneficiaries / focus industry stakeholder:** Industries and factories that discharge effluents into the surface water bodies
6. **Institutional anchor / implementation agency:** The implementation agencies are the Government of Germany and lander (states)
7. **Institutional structure for implementation:** The main agencies involved in the implementation of this scheme are:

9.1.1.1 Institution 1: Germany

The Government of Germany is responsible for setting all standards or limits of discharge from industries, the charge amounts, charge calculation rules, defining the damage unit parameters, etc that need to be complied by the industries in order to be eligible for the subsidy.

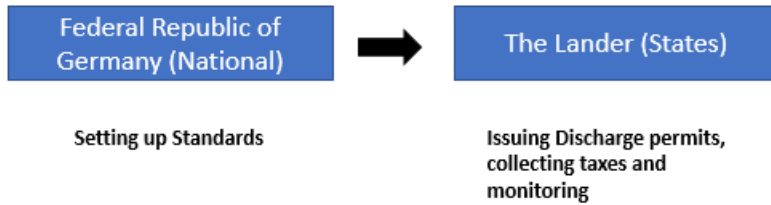
9.1.1.2 Institution 2: Lander (states)

The lander or states set up goals for the discharge limits, based on standards set by the federal and define programmes, in order to achieve the federal targets. They are responsible for issuing discharge permits to the dischargers, which establishes a discharge right and also specifies the maximum amount of discharge that can be discharged during a particular period. The lander is also responsible for specifying the monitoring system in its permit, and calculating the discharge bills and collecting the charges.

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The complete implementation of the effluent tax happens with the help of the discharge permits given by the lander and discharge standards set by the Government of Germany. The government sets the standards, while the lander helps in collecting the effluent tax.

Figure 12: Implementation framework for effluent tax



8. Process for availing scheme benefits:

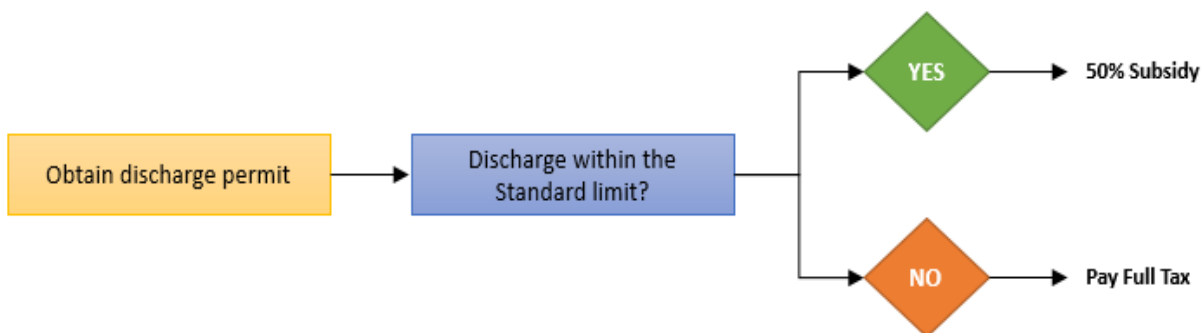
Step 1: Obtain a discharge permit

The first step even before beginning to discharge effluent into public water bodies by the industries or factories is to obtain rights to discharge effluents in the form of discharge permits issued by the specific lander.

Step 2: Comply with federal standards

The industries or factories have to comply with the discharge limits or technological standards set by the Government of Germany by either reducing their effluent discharge by improving and incorporating innovations in their technologies, or treating the effluent to reach better than standard level of damage units prescribed in order to receive a 50% subsidy to the specified tax for the limit prescribed by the federal government.

Figure 13: Flowchart for levy of effluent tax



9. Charge rates:

The current tax rates collected for the wastewater tax or abwasserabgabe is 35.8 euros (approx. Rs 2800 or \$40) per damage unit. (Law on charges for the discharge of waste water into waters (Wastewater Tax Law - AbwAG), 2003)

10. Monitoring institution and mechanism

The federal government sets specific monitoring procedures and standards, based on a list of biological test of samples. The monitoring of water quality is left to self-assessment with random checks by the authority.

11. Key lessons or summary on observations

The effluent tax was introduced as a complementary mechanism along with the command and control regulatory mechanism of discharge permits, and to incentivise the polluters to comply with federal standards. Introducing an effluent tax on its own may not be as effective as the policy mix of discharge permits, effluent tax and discharge limits or technological standards.

9.1.2 Bangkok, Thailand

1. Name of the incentive scheme: Wastewater treatment fee

2. Objective of the incentive scheme: To provide a sustainable mechanism for the operation and maintenance of WWTPs, by inducing the polluter pays principle for charging the major source of water pollution in Bangkok, the users.

3. Types of benefits / incentives: Fee

4. Focus industry / region: All the polluters discharging wastewater into water bodies from 21 out of 50 districts of Bangkok

5. Target beneficiaries / focus industry stakeholder

All the polluters discharging wastewater into water bodies from 21 out of 50 districts of Bangkok, have been divided into three groups (Wancharoen, Bangkok Post, 2019):

- Domestic polluters/ normal households
- Commercial polluters/office buildings (<2,000 cubic metre discharge per month)
- Large scale commercial users - Hotels and factories (>,2000 cubic metre discharge per month)

6. Institutional anchor / implementation agency

Bangkok Metropolitan Administration (BMA)

7. Institutional structure for implementation

The BMA has recently (June 2019) implemented a fee for operation and maintenance of its eight WWTPs by charging the dischargers, who are grouped into domestic, commercial and large-scale commercial users, a fee keeping 80% of the of tap water use (in cubic metres) that they make per month as baseline. As the Metropolitan Waterworks Authority is already collecting the tap water bills for Bangkok, the BMA suggested they continue collection of the waste water fee as well, but the final decision is still not clear. A third party may be outsourced for this purpose. (Bangkok Post , 2018)

8. Process for availing scheme benefits:

The fee will be collected by either BMA or Metropolitan Waterworks Authority in the form of a bill just like the tap water bill.

9. Charges

The charges are calculated by multiplying 80% of the volume of tap water used in cubic metre per month with the fee for each group as follows: (Wancharoen, Bangkok Post, 2019)

Table 17: Wastewater fee collected in Bangkok

Group	Fee (baht/ cubic metre) (f)	Example
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		Tap water used (W)	Total fee to be paid (80% of W x f)
Domestic polluters/ normal households	2	30 cubic metre	48 bahts
Commercial polluters/office buildings (<2,000 cubic metre discharge per month)	4	1,500 cubic metre	4,800 bahts
Large-scale commercial users - Hotels and factories (>2,000 cubic metre discharge per month)	8	6,000 cubic metre	48,000 bahts

10. Key lessons or summary on observations

The BMA aims at introducing this fee in only 21 districts out of 50 initially, due to capacity constraints at its eight WWTPs, but will extend it in future through investment of the collected fee for constructing more WWTPs. This mechanism has integrated its implementation with the existing water bill system, which makes it easier for implementation.

9.2 Grants/funds/subsidies

In order to compensate for the benefits that the society achieves, upon the pollution control efforts taken by the industries, this mechanism implements the “beneficiary pays principle” by compensating the industries for their pollution control efforts through construction of treatment plants etc., by either providing them with fee discounts for cost of operating and proper functioning of the treatment plants, rebates or capital funds for the costs incurred for construction and setting up of new treatment plants. Such subsidies/grants/funds mechanisms are being implemented in Indonesia, India, etc. The example for Indonesia covers the mechanism used for municipal wastewater charges.

9.2.1 Indonesia

1. Name of the incentive scheme: Australia Indonesia Infrastructure Grant for Municipal Sanitation (sAIIG) programme

2. Objective of the incentive scheme: To stimulate local government investments for improving city/district sanitation services through the development of existing and new domestic neighbourhood WWTPs. Phase I of this programme started in 2012 and ended in 2017. The second phase is scheduled from 2018 to 2020.

3. Types of benefits / incentives: Subsidies (rebates/reimbursements)

4. Focus industry / region: 49 states of Indonesia

5. Target beneficiaries / focus industry stakeholder: State governments encouraged to invest in municipal WTPs in areas with high population density (minimum: 150 people/ha)

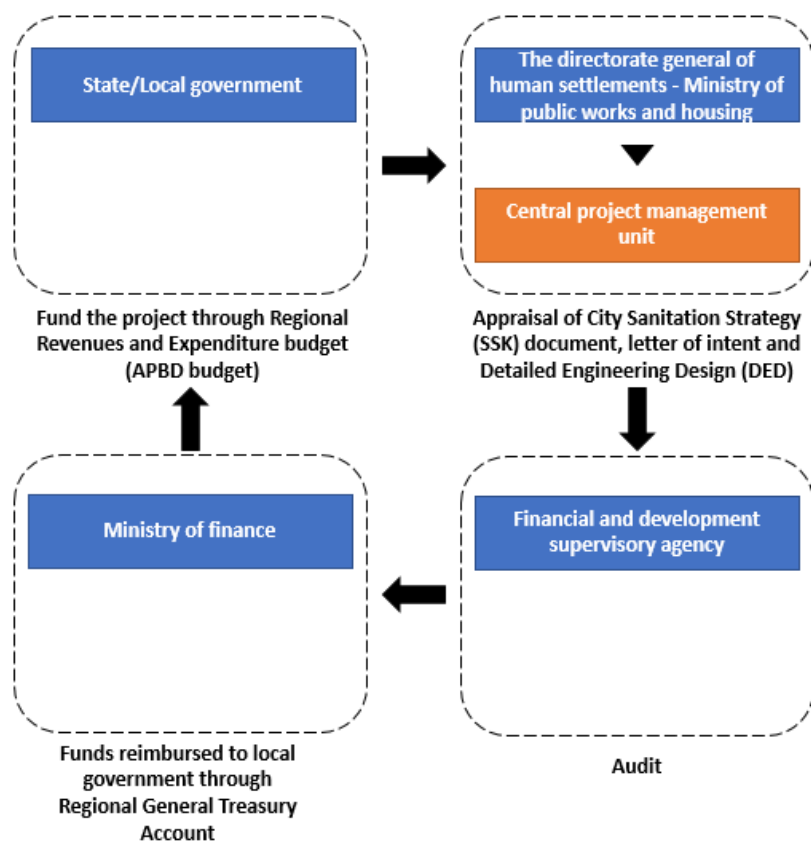
6. Institutional anchor / implementation agency

The state or local government is the main implementation anchor along with the Central Project Management Unit (CPMU) which is appointed by the Directorate General of Human Settlements (DGHS) under the Ministry of Public Works and Housing. The Ministry of Finance disburses the final rebate/reimbursement amount.

7. Institutional structure for implementation

The local government funds the project to set up WWTPs through its regional revenue and expenditure budget (*Anggaran Pendapatan dan Belanja Daerah* - APBD budget). The programme has two packages: one for areas with no WWTPs and one having existing WWTPs with idle capacity. After the project completion and ensuring compliance with technical standards, the city sanitation strategy document (*Strategi Sanitasi Kota/Kabupaten* –SSK document), letter of intent and detailed engineering design are appraised by an independent consultant in the CPMU appointed by the Directorate General of Human Settlements (DGHS) under the Ministry of Public Works and Housing, which is then sent for audit by the Financial and Development Supervisory Agency, after which the Ministry of Finance directly disburses the amount to the regional general treasury account.

Figure 14: Implementation framework for sAIG programme



8. Process for availing scheme benefits:

Step 1: Assign funds in the regional revenue and expenditure budget (APBD) for project implementation

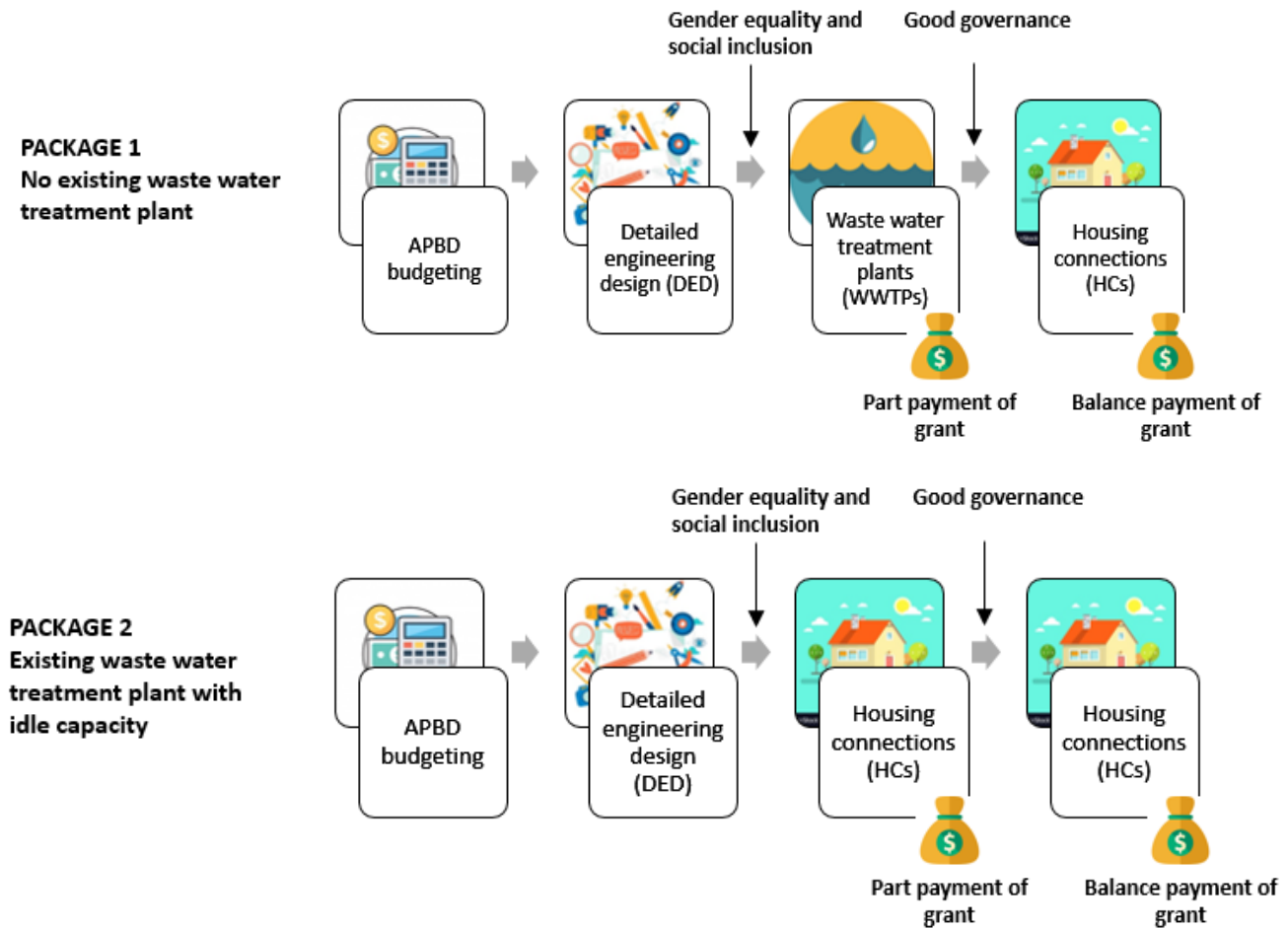
Step 2: Prepare and submit the city sanitation plan document (SSK), intent letter and detailed engineering design for the tender process

Step 3: Maintain a regional general treasury account

Step 4: Adopt gender equality and social inclusion measures. First part payment of the grant is released after gender equality and social inclusion measures are adopted, and upon completion of the WWTP, it is in compliance with the technical standards in Package 1 or directly for house connections in Package 2

Step 5: Practice good governance and the balance payment is released after house connections are complete

Figure 15: Process flow to levy rebate under sAIG programme



9. Funding pattern

A financial outlay of \$40 million has been set for both phases, from 2012 to 2020; the funds will be released in two stages. Each city/district government that builds a new WWTP will be reimbursed up to 50% of the total construction cost. In addition, for the first 10 functioning house connections, the local/state government will be reimbursed up to Indonesian Rupiah (IDR) 13 million (approximately Rs 65,000) per connection and IDR 6 million (approximately Rs 30,000) for each additional house connection. City/district governments having existing WWTPs with idle capacity, will be reimbursed IDR 6 million (approximately Rs 30,000) for each new house connection (Development assistance in Indonesia).

10. Monitoring institution and mechanism

The monitoring and evaluation (M&E) of the sAIG programme is aligned with the M&E framework of the Indonesia Infrastructure Initiative (Australian AID, 2011). M&E is carried out by several parties, including the CPMU under the Government of Indonesia (GoI), provincial project management units, project implementation units and independent third-party implementation and verification consultants recruited under the programme. The GoI is responsible for routine M&E activities as per the DGHS guidelines for sanitation infrastructure programmes. The Indonesia Infrastructure Initiative consultants provide the required support, such as undertaking specific activities to assess progress towards meeting key programme outcomes and other aspects of programme implementation (gender equality, access, social inclusion etc.).

11. Key lessons or summary on observations

The programme has supported over 46,000 new sanitation connections and aims to provide additional 23,000 house connections by 2020 (Development assistance in Indonesia, n.d.). This type of subsidy -- reimbursement of funds incurred in setting up of WWTPs -- shifts the responsibility of collecting proofs and following up onto the beneficiaries, and thereby requires minimum monitoring effort.

9.3 Deposit refund system

The deposit refund system works on the principle of depositing some amount upon purchasing a product or a product within a packaging, which when disposed irresponsibly, would be harmful for the environment. Since this mechanism is only used for products, most of the examples are related to product-package recycling. The following example is related to a deposit refund system in Ontario, Canada, for alcoholic beverage and spirit bottles.

9.3.1 Ontario, Canada

1. **Name of the incentive scheme: Ontario Deposit Refund Program (ODRP)**
2. **Objective of the incentive scheme:** To reduce environmental pollution by diverting all recyclable materials from the landfill and low-quality recycling uses, to put these materials to better re-use. This is achieved by levying a charge for beverage containers sold in the province and refunding some of the amount upon return of the containers at authorised recycling stations.
3. **Types of benefits / incentives:** Refundable deposit for products
4. **Focus industry / region:** Alcoholic beverage industry in Ontario
5. **Target beneficiaries / focus industry stakeholder:** Manufacturers, wineries, and government stores licensed to sell alcohol under the Liquor Licence Act, but excludes the Brewers Retail Inc.'s packaging return system. The deposit is paid by consumers, which is refunded to them upon returning the containers.
6. **Institutional anchor / implementation agency**
Liquor Control Board of Ontario (LCBO), The Beer Store (TBS)
7. **Institutional structure for implementation**
The LCBO has appointed The Beer Store (TBS) which has signed a five-year contract with the Government of Ontario to collect, process and recycle alcohol and spirit containers sold to consumers, who pay an upfront deposit for the purchase, which is refunded upon return of the containers to TBS. The Government of Ontario pays TBS 10 cents for each container collected (CTV News, 2006).

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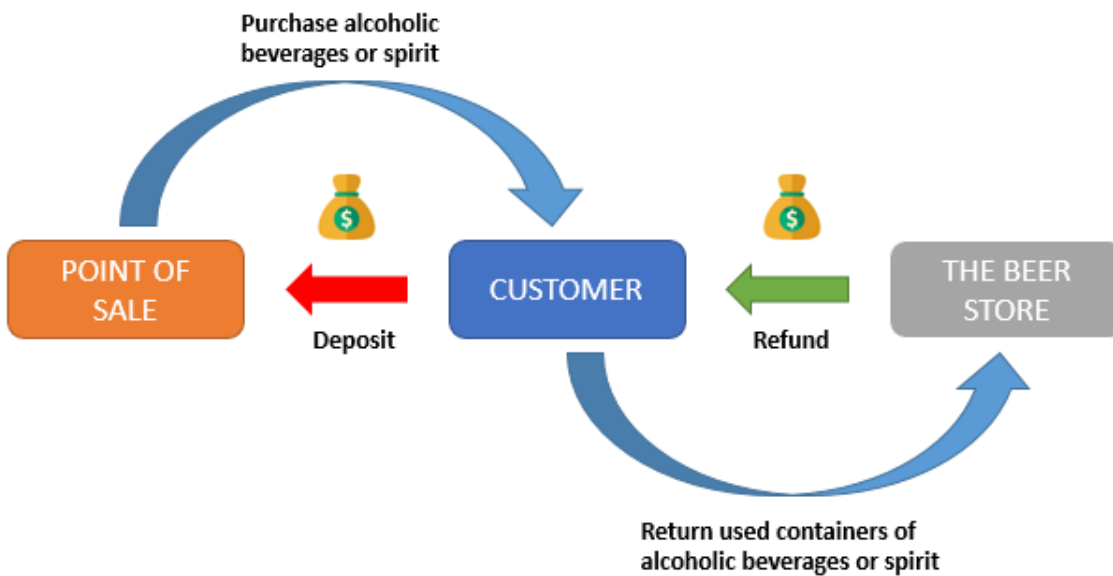
Figure 16: Implementation framework for ODRP



8. Process for availing scheme benefits:

Customers purchasing an alcoholic beverage or spirit container pay a deposit, which is refunded upon returning the container to the nearest TBS franchise.

Figure 17: Process flow to levy refund under ODRP



9. Deposit rates collected

Deposits are collected at the point of sale in two slabs depending on the bottle size (Ontario Deposit Return Program, O Reg 13/07, 2016).

Table 18: Deposit rates collected under ODRP

Refund amount	Non-metal	Metal
10 cents	Glass containers, polyethylene terephthalate (PET), Tetra Pak (polycoat) and bag-in-a-box of volumetric capacity up to 630 mL	Aluminium or steel cans less than or equal to 1 L

Refund amount	Non-metal	Metal
20 cents	Glass containers, PET, Tetra Pak and bag-in-a-box of volumetric capacity over 630 mL	Aluminium or steel cans over 1 L

10. Monitoring institution and mechanism

TBS is responsible for the collection, processing and broker recovered waste, while the LCBO monitors and sanctions funds received from the Government of Ontario to TBS -- at a rate of 10 cents per bottle recovered.

11. Key lessons or summary on observations

Except the domestic beer manufacturers, other manufacturers have no role in the collection and recycling process, and hence, the beverage companies may continue producing their beverages and packaging in the same kind of containers while the beer store has the universal set of beverage containers to be collected. An incentive for returning used beverage cans or bottles and establishing accessible return points is required to encourage users to return used containers. The ODRP has managed to provide incentives by appointing TBS as the return station as it has more than 800 redemption points across the province. Under the ODRP and TBS program, a container return/redemption rate of 89% was observed during the period May 1, 2007, to April 31, 2008 (Evaluating End-of-Life Beverage Container Management Systems for California, 2009).

9.4 Trading regimes

Trading regimes involve providing certification for factories or units that are in compliance with certain environmental standards and they can sell these certificates or permits to willing buyers with less discharge limits or compliance permits. There are many examples of tradable water pollution permits used internationally, but these permits are further differentiated on the basis of polluting substances or the class of substances and there is a huge list of these parameters and polluting substances. As a result of which there are no examples of tradable permits for water pollution as a whole. Most tradable permits or certificates are based on individual parameters such as salt, organic oxygen-depleting substances and nutrients. The case explained below is for salinity credits for the Murray-Darling basin area in Australia.

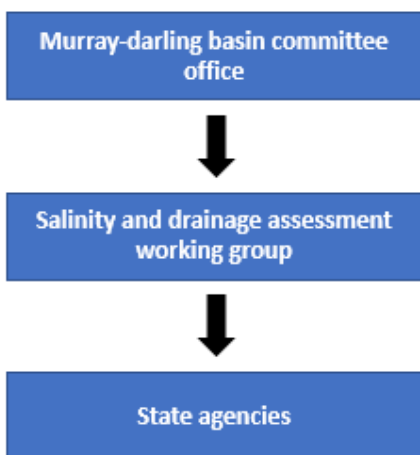
9.4.1 Australia

- Name of the incentive scheme: Salinity and Drainage Strategy**
- Objective of the incentive scheme:** To improve water quality in the River Murray-Darling basin area for uses such as agriculture, urban, industrial or recreational purposes, control existing land degradation and prevent further land degradation. The strategy also aims to rehabilitate land resources and conserve the natural environment of the Murray valleys and preserve sensitive ecosystems.
- Types of benefits / incentives:** Salinity credit trading
- Focus industry / region:** Salt pollution rights are not freely traded by industries or individuals, but credits or debits are exchanged between governments of the participating states. Hence there is no focus industry but the four states New South Wales, Victoria, South Australia and Queensland are focus regions whose credits or debits are given based on actions performed for decreasing and increasing the salinity of the basin respectively.
- Target beneficiaries / focus industry stakeholder:** States along the Murray-Darling basin: New South Wales, Victoria, South Australia and Queensland
- Institutional anchor / implementation agency:** Murray-Darling Basin Commission

7. Institutional structure for implementation

The Murray-Darling Basin Commission keeps a record of the credits and debits of the four participating states on the basis of project plans submitted by state agencies and provide technical support to the salinity and drainage assessment working groups that are responsible for assessing these project proposals, to be appraised and recommended to the commission. The joint or individual projects which help in reducing the salinity levels of the shared river basin, for example interception schemes and investing in capital works for salinity reduction, count as positive actions by the States and they receive “credits” for it, while activities such as drainage that would increase the salinity level, count as negative actions and attract “debits”. Even a shortfall in activities for salinity reduction and protection of shared rivers can attract debits for the states. The states can trade these credits among themselves or use them for performing salinity increasing activities or projects.

Figure 18: Implementation framework for Salinity and Drainage Strategy



8. Process for availing scheme benefits:

The participating states can receive salinity credits for either performing or investing in capital works of projects that are aimed at reducing salinity levels in the basin. Also, they receive debits for activities that can increase the salinity levels, such as drainage into the basin. Falling short of positive activities that would reduce salinity levels also attracts debit. These states that cannot avoid their drainage and development works can offset these debits with their salinity credits or purchase credits from other states.

The states will be eligible for credits only if they have invested in the capital and operation and maintenance costs of these projects.

The Commonwealth funds 50% of the cost of construction for the joint or individual interception schemes, while the rest is shared by the states.

9. Salinity credits

Salinity credits are determined in terms of electrical conductivity (EC) credits. EC is a measure of the ability of water to conduct electricity, in microsiemens/cm, at 25°C and is used as an indicator of total dissolved solids. 1 EC is approximately equal to 0.6 mg/L of total dissolved solids(Salinity and Drainage Strategy, 1999).

10. Monitoring institution and mechanism

The Murray-Darling Basin Commission keeps a record of the credits and debits of all the participating states and is the monitoring body for the implementation of schemes to reduce salinity levels in the basin. However, the cost of operation, maintenance and monitoring of these interception schemes is shared by the participating states (Salinity and Drainage Strategy, 1999).

11. Key lessons or summary on observations

The strategy is simple to understand and implement and brings in the common interests of all states to reduce salinity of the river basin. The credit and debit system ensures accountability of polluters, by rewarding through credits for positive actions and penalising through debits for negative actions. The commission has extended this trading policy for water rights in the Murray-Darling basin.

9.5 Certification/labelling

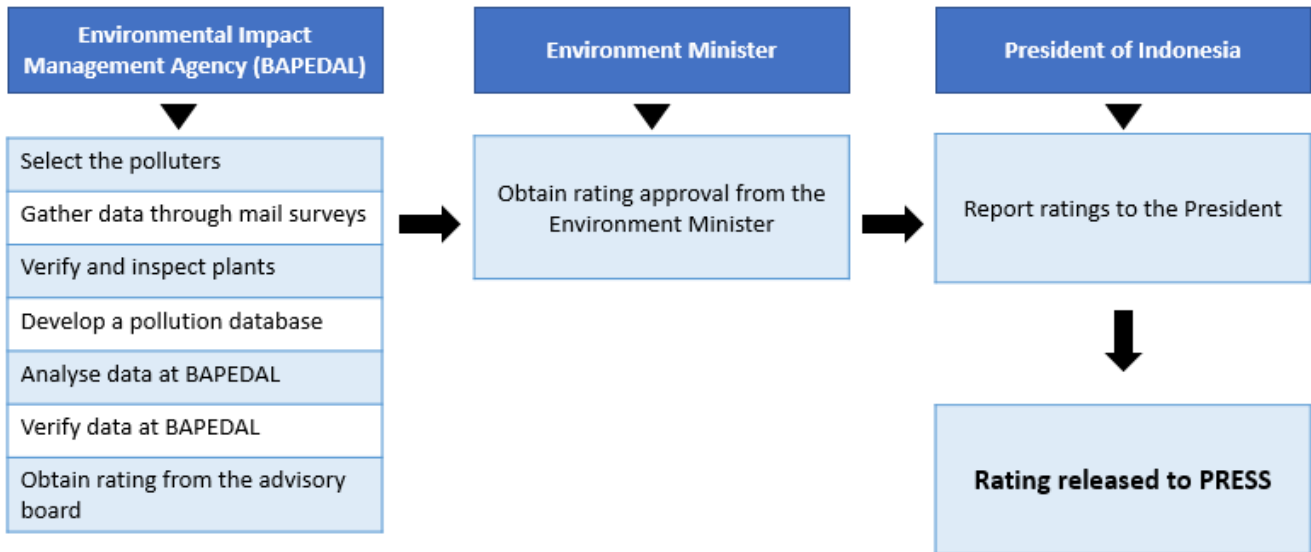
Certification or labelling of industries or their products functions as a reputational incentive and is an example of non-cash market promotion approach, which provides incentives to firms to reduce polluting activities. Verification of their claims from a reputed third party brings in more legitimacy and these certifications and labels also contribute to the marketing efforts of the industry by increasing competitiveness among industrial units.

9.5.1 Indonesia

1. **Name of the incentive scheme: Program for Pollution Control, Evaluation, and Rating (PROPER)**
2. **Objective of the incentive scheme:**
 - To ensure compliance with the national wastewater discharge standards
 - To promote industrial compliance with pollution control regulations
 - To facilitate and enforce the adoption of practices contributing to “clean technology”
 - To ensure a better environmental management system
3. **Types of benefits / incentives:** Labelling based on a five colour-coded rating system
4. **Focus industry / region:** All the industries that are already participating in Indonesia’s Clean River Program called PROKASIH and many other MSMEs polluting river basins of Sumatra, Java, and Kalimantan. The PROPER rating started with a focus on water pollution and later extended its scope to air and toxic pollution as well.
5. **Target beneficiaries / focus industry stakeholder:** All the industries releasing toxic pollutants, consumers, stakeholders, businesses and communities that require simple, credible categorical environmental ratings
6. **Institutional anchor / implementation agency:** Indonesian Environmental Impact Management Agency known as BAPEDAL (*Badan Pengendalian Dampak Lingkungan*)
7. **Institutional structure for implementation**

The BAPEDAL is the core implementation body responsible for all the scheme implementation processes from selecting polluters to gathering information about them and rating them based on the data from four sources (self-assessment, PROPER database, Clean River Program PROKASIH database, regulatory monitoring and enforcement activity database from a program called JAGATIRTA). Before releasing information to the press, BAPEDAL obtains approval from the environment minister and the President of Indonesia, which increases the legitimacy of the rating.

Figure 19: Implementation framework for PROPER



8. Process for availing scheme benefits:

The process of getting PROPER rating is simple. Most of the firms or factories are chosen based on their participation in other programmes such as Clean River Program PROKASIH. But others can also apply for PROPER rating by filling up and submitting application and self-assessment forms like land reclamation, environmental document, environmental pollution control, air pollution control, and independent assessment of hazardous waste management aspects. The PROPER team gives a preliminary or temporary rating based on self-assessment forms and other data available with them, and gives the factories some time to change their behaviour to improve their rating before it is released in the press as public information.

9. Monitoring institution and mechanism

The BAPEDAL is responsible for the selection, analysis, verification and final rating of the facilities. For further improving its credibility, BAPEDAL verifies data from three other sources -- PROKASIH, self-assessment, and the regulatory enforcement activity JAGATIRTA -- apart from its own data collected for PROPER. The rating is then vetted by the environment minister and the President of Indonesia, before disclosing to the public.

10. Key lessons or summary on observations

At the beginning of PROPER Phase I, out of the 187 facilities rated, 65% were not in compliance with the regulations. Within two years of implementation, the number of compliant facilities increased from one-third to almost half, at 49.2%. A recent study in 2018 on “The Development of Indonesia Environmental Performance and Environmental Compliance” published in the Journal of Accounting, Auditing and Business, revealed that the current rate of compliance has reached an average of 72% through PROPER.

9.5.2 Philippines

1. Name of the incentive scheme: Industrial EcoWatch Rating System

2. **Objective of the incentive scheme:** To encourage establishments to self-monitor and ensure compliance with environmental standards, introduce voluntary self-regulations, reduce pollution levels beyond the

compliance level, build capabilities to developing environmental management systems, and adopt international standards such as ISO 14000

3. **Types of benefits / incentives:** Labelling based on six colour-coded rating system
4. **Focus industry / region:** All industries whose activities impact environmental quality
5. **Target beneficiaries / focus industry stakeholder:**

The Industrial EcoWatch programme is a part of the Philippine Environment Partnership Program (PEPP), which covers:

Track 1: Companies that have shown superior environmental performance and go beyond compliance (mostly large companies)

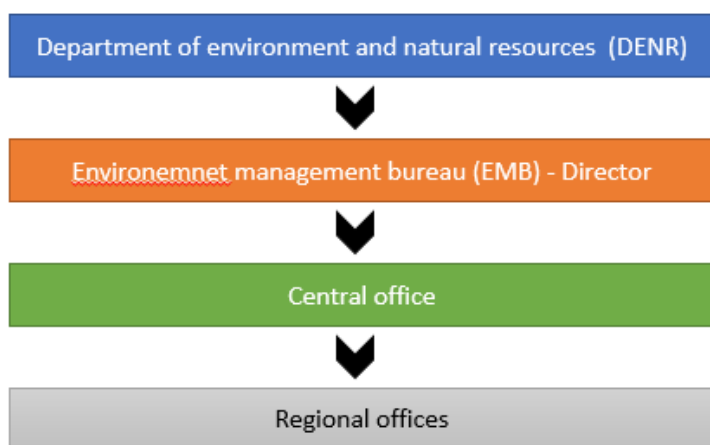
Track 2: Companies that are not in compliance with the technical/regulatory standards and are unable to show superior environmental performance (mostly small and medium enterprises)

6. **Institutional anchor / implementation agency:** Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR)

7. Institutional structure for implementation

The main implementation unit is the EMB of the DENR. A technical committee appointed by the EMB, regional offices, central office and the director of the EMB play important roles in the implementation process.

Figure 20: Implementation framework for Industrial EcoWatch Rating System



8. Process for availing scheme benefits:

Step 1: Application

The EMB invites application from all firms from the priority sectors, as the Industrial EcoWatch Rating System is a sector-based rating system. The documents include an application form and a letter of intent expressing their interest in participating in the programme.

Step 2: Prepare self-monitoring report (SMR)

The participating firms then have to prepare an SMR highlighting their compliance to all environment regulatory standards. The report has seven modules, and contains general information on the firm/establishment and its compliance with various required regulations.

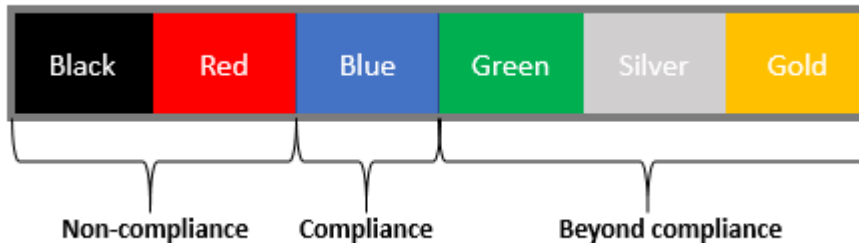
Step 3: Receive DENR seal of approval and recognition award

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Upon successful evaluation of the SMR and DENR inspection and monitoring reports, the firm is assigned a rating and awarded the DENR seal of approval.

9. Rating scale and criteria

Figure 21: Industrial Ecowatch rating scale



Non-compliance rating (at least one criterion to be met):

Black

1. The firm discharges beyond standard and does not have a wastewater treatment system or an air emission control/abatement system
2. The firm discharges toxic and hazardous waste into the environment beyond the permissible limits (based on concentration)
3. The firm is under a cease and desist order issued by the DENR, Pollution Adjunction Board or Laguna Lake Development Authority (LLDA) for violating the presidential decree
4. The firm is involved in wilful manipulation of effluent discharge or air emissions, including illegal activities such as dilution of discharge, installation and use of a temporary bypass pumping, or direct discharge of untreated wastewater or air emissions
5. There is verified obstruction of inspection by authorised personnel of the DENR/ LLDA
6. There is a verified complaint of pollution against the firm, and no effort has been taken to resolve this complaint by the firm within the rating period

Red:

A firm is rated red if it has violated the wastewater effluent/ air emission standards, though efforts have been made to reduce discharge through the installation of a WTP or emission control equipment.

Compliance level rating (all criteria to be met)

Blue:

1. The firm's effluent/air emission discharge is consistently within the standards during the rating period of one year
2. The firm is in full compliance of the DENR regulatory and legislative requirements, which include submission of SMRs
3. All the WTP and emission control abatement equipment are well maintained
4. The SMRs are complete and accurate

Beyond compliance rating (all the criteria to be met)

Green:

1. The firm was rated "Blue" in the previous period and meets all DENR/ LLDA requirements

2. The firm's effluent/emissions are consistently lower than the standard by at least 20%
3. The firm has well-functioning monitoring equipment such as flow meter and continuous emission monitoring system
4. The firm has discharge points accessible for inspection

Silver:

1. The firm was rated "Green" in the previous period and meets all DENR/ LLDA requirements
2. The firm has implemented clean technology, energy and water efficiency/conservation programmes

Gold:

1. The firm has been rated "Silver" in past two consecutive rating periods in all media (air, water, etc.)
2. The firm has implemented an environmental management system or a waste reduction programme
3. The firm also conducts community outreach programmes on a regular basis

Source: Scheme guidelines

10. Incentives/disincentives**Non-compliance disincentives****Black and Red rating:**

1. Cases are filed at the Pollution Adjudication Board for violations of applicable guidelines on environmental standards
2. For companies with an accredited pollution control officer (PCO), the investigation of responsibilities or culpabilities of the PCO concerned and the application of administrative sanctions upon conclusion of the investigation
3. For firms without an accredited PCO, filing of cases at the Pollution Adjudication Board for violations of DENR Administrative order document (DAO 26)

Compliance incentives**Blue rating:**

1. Firms are allowed to submit their quarterly SMR on annual basis

Green rating:

1. Firms are allowed to submit their quarterly SMR on annual basis
2. Regular permit renewal will be made through just the said SMR for two consecutive years

Silver rating:

1. Firms are allowed to submit their quarterly SMR on annual basis
2. Regular permit renewal will be made through just the said SMR for three consecutive years
3. DENR seal of approval will indicate the rating

Gold rating:

1. Firms are allowed to submit their quarterly SMR on annual basis
2. Regular permit renewal will be made through just the said SMR for five consecutive years
3. The firms can avail regulatory, financial, fiscal or other assistance from the DENR explained as follows:

a) Regulatory assistance:

- Relaxation in submission requirements
- Reduced frequency in SMR submission
- Simplified requirements for securing the environmental compliance certificate for expansion of an existing establishment

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b) Financial assistance:

PEPP partners such as the Development Bank of Philippines and Land Bank of Philippines provide financial assistance to gold-rated firms under the PEPP scheme.

c) Fiscal assistance:

Fiscal assistance in the form of tax credits and accelerated depreciation deductions can be availed by gold-rated firms upon meeting standard requirements of the government agency.

d) Other assistance:

Gold-rated firms can avail technical or technology information related to cleaner production technology from the DENR and other related agencies.

Source: Scheme guidelines, PEPP policy document

11. Monitoring institution and mechanism:

Self-reported data submitted through the SMRs is considered as the only data source by DENR and performs monitoring and inspection activities by getting the data audited and certified by an independent and accredited environment auditor.

12. Key lessons or summary on observations

The Industrial EcoWatch Rating System started its pilot rating in 2003 with its first public disclosure in 2004. The priority sectors identified for national implementation were:

- Sugar central/refinery plants
- Beverages plants
- Pulp and paper plants
- Cement plants

Some other sectors identified by regional offices for implementation included meat and fish processing plants, beer, soy sauce and condiment manufacturing plants, malls/commercial establishments, soft drinks manufacturing, chicken dressing plants, beer manufacturing, food processing and dressing plants.

The parameters considered for rating were biochemical oxygen demand and total suspended solids levels.

The Industrial EcoWatch ratings for 2005-2012 are as follows (Lambino, 2014).

Table 19: Industrial Ecowatch ratings for 2005-2012

Rating	2005	2006	2007	2008	2009	2010	2011	2012
Gold				3		8	2	1
Silver		4	8	15	19	29	11	11
Green	9	14	23	36	24	31	17	10
Blue	57	41	44	58	29	55	67	54
Red	20	17	15	16	48	53	12	16
Black	14	5	24	17	16	22	30	14
Underassessment			5					
Total firms rated	108	81	119	145	136	198	139	106

9.5.3 Gujarat

- Incentive scheme title:** Cleaner Production Award
- Objective of the incentive scheme:** To enhance proactive approach to end-of-pipe treatment, which is applied to the entire production cycle, for increasing productivity by ensuring a more efficient use of raw materials, energy and water, so as to promote better environmental performance through pollution reduction at source
- Types of benefits / incentives:** Award
- Focus industry / region:** Industries located in the state of Gujarat, India
- Target beneficiaries / Focus industry stakeholder:** All industry categories
- Institutional anchor / implementation agency:** Forests and Environment Department, Gujarat Cleaner Production Centre, Industries & Mines Department, Government of Gujarat
- Process for availing scheme benefits:** The Forests and Environment Department, Government of Gujarat, invites for applications through advertisement and appoints members of the evaluation committee. Post receiving the application, evaluation is undertaken by an appointed evaluation committee.

Total four firms will be selected: two firms (a large scale and a small and medium scale) from highly polluting 17 categories and two firms (one large scale and one small and medium scale) from less polluting categories.



The award will be given to the best among these industries, particularly the ones which have adopted and successfully implemented cleaner production and shown exemplary work in the form of water and energy conservation, wastewater and solid waste reduction, etc., during the respective financial year.

- Financial outlay under the schemes and sources of funds**
 - Winners get a trophy, cash prize of Rs 50,000, a certificate and one-year extension of period of consent by the Gujarat Pollution Control Board

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- Runners up get a cash prize of Rs 25,000 and a certificate
- 9. **Key lessons:** The Gujarat Cleaner Production Award is an example of how marketing promotion incentives such as awards can be linked to tangible benefits. In this case, the award is complemented with the ease of doing business incentive in the form of extension in the period of consent by the Gujarat Pollution Control Board.

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