Cleaner Production Policy for Sindh Environmental Protection Agency, Sindh EPA,

Pakistan

Updated Draft-I

September, 2020

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Policy Title

Provincial Policy for Sindh EPA on Cleaner Production (CP)

Effective Date

To be indicated upon receipt and approval of the Provincial Cabinet Government of Sindh

Introduction

Background

Pakistan is an agrarian economy. In 2019, agriculture contributed around 22.04 % to the Gross Domestic Product (GDP) of the country. Pakistan is doing fairly well in two more sectors i.e. manufacturing sector also known as the industrial sector contributing 18.34 % and the services sector contributing 53.86 % to the GDP. The agricultural sector not only boosts up the country's economy but at the same time employees more than 50% of Pakistan's workforce in it. Pakistan is fortunate to have ample arable lands with natural fertility to sustain seasonal cereal crops, cash crops, fruits, fodder and vegetables. In addition to this, Pakistan is rich in livestock and its associated resources, which not only serve as food source but is also meeting the demands of the local leather sector. This is the reason that rural population outnumbers the urban population. Even the country's two major industries i.e. textile and sugar get their raw material cotton and sugarcane respectively from the agricultural sector. The agriculture and industrial sectors are interdependent, that is as agricultural production and its efficiency increases, the industrial sector thrives. The progress made in these sectors made the country a fast-developing country. However, the rapid population growth, poor health conditions, unplanned urbanization and mismanaged agricultural practices are adversely impacting the overall economic growth of the country and the industrial and manufacturing sector is putting immense pressure on natural resources causing substantial environmental impacts.

The Sindh province contributes dominantly in agriculture and has been making remarkable progress in industrial and services sectors. In Sindh, Karachi, the major economic hub of the country, districts Thatta and Badin are located on the coastal belt of Pakistan. This location serves as the major port of the country, providing better trade opportunities, both for importing raw material for industrial processes and exporting products produced by the industrial sector. The Sindh Industrial and Trading Estates (SITE) are extensively operating in Karachi, Nooriabad, Kotri, Hyderabad and Sukkur. Recently, a new concept of "Industrial Parks" has been introduced and planned to be adopted for the development of infrastructure and establishment of more industrial units in different parts of the province. The existing industrial sector contributes in economic development of the country in

general and the province in particular. The industrial sector also provides employment opportunities to a large number of local people.

The types of industries are highly diversified ranging from large manufacturing industries to Small and Medium Enterprises (SMEs) and cottage industries. The heavy manufacturing includes machine products, plastics, steel, automobile manufacturing, cement and various other products. The agriculture base industries include cotton ginning, textiles, rice mills, flour mills, paper and sugarcane. The province is rich in mineral resources and that is why petrochemical industries and oil refineries are operating here as well[1]. The other types include pharmaceuticals, pulp and paper, tanneries and leather producing units, chemicals, ceramics, etc. Furthermore, the availability of electricity is essential for economic development and thus coal fired power plants, thermal power plants are also operating and their number is increasing day by day.

Pakistan's Environmental Protection Act 1997, realization emerged in the minds of all concerns including government functionaries, planners, policy makers, academia that the industrial sector is causing adverse impacts on the natural environment. In the meanwhile, there was ever increasing emphasis that sustainable development must be adopted under "Agenda 21" and plans may be furnished for achieving "2030 Agenda for Sustainable Development" with their Sustainable Development Goals (SDGs).

The ongoing industrial and economic activities are unsustainable and polluting the water, air, soil and marine resources. The adversities are emerging in the form of deteriorated ambient air quality, and water quality this is resulting in alarming situation in urban areas of the province in particular. The emissions in the form of carbon emissions, oxides of sulphur (SOx), oxides of nitrogen (NOx), polychlorinated biphenyls (PCBs), lead (Pb), ozone (O_3), particulate matters ($PM_{2.5}$,PM_{10} TSP, SPM) are potentially causing significant health impacts on humans and may lead to global issues like climate change[2]. The issues related to water and wastewater treatment are complex in nature and needs urgent attention as well as effective solutions. The contaminated water or polluted water from biological or chemical contamination may result in water-borne diseases. The wastewater if discharged untreated from industrial activities or from municipal localities may potentially cause harm to flora, fauna, soil or marine or aquatic life. Presently, Sindh Environmental Protection Agency (SEPA) is striving hard to implement the Sindh Environmental Protection Act 2014 in association with various stakeholders including associations of trade and industry, academia and non-governmental organizations.

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[1] Husain, I.S.H.R.A.T., 2014. "The Economy of Sindh. Online] http://ishrathusain. iba. edu. Pk/speeches/new-201314/The_Economy_of_Sindh_Concluding_Keynote_Address_at_the_2nd_International_Seminar_on_Sindh_through_the_Centuries. docx (accessed 12 August 2015).

[2] Sánchez-Triana, E., Enriquez, S., Larsen, B., Webster, P., & Afzal, J. (2015). *Sustainability and Poverty Alleviation: Confronting Environmental Threats in Sindh, Pakistan*. *Sustainability and Poverty Alleviation: Confronting Environmental Threats in Sindh, Pakistan*. The World Bank. https://doi.org/10.1596/978-1-4648-0452-6

Rationale

The concept of Cleaner production (CP) aims to bring economic development and social wellbeing together keeping environmental protection at a priority and managing the resources in a sustainable manner. Cleaner production adoption may result in reduced negative environmental impacts, reduced pollution, reduced impacts on laborer and community health and safety. Cleaner production can also improve business profitability by reducing the operating cost along with the reduced environmental impacts.

In this regard, it is critical to take a participatory approach for development of the proposed cleaner production policy and take the respective stakeholders on board. The Sindh Environmental Protection Agency (SEPA) is playing a leading role in introducing the Cleaner Production (CP) policy. All stakeholders such as; vendors, manufacturers and end users must maintain close coordination and better working relationship in order to streamline the whole process.

The proposed idea of Cleaner Production Policy for Sindh

The proposed CP policy for Sindh is developed through an interactive consultative process with input from all relevant stakeholders including key departments, public and private sectors, academia, and the community. The policy focuses on key environmental challenges, which if left unaddressed, may interfere with economic development and suggests cleaner production as a potential solution. CP policy proposes continued and maintained adoption of better environmental practices. The proposed policy is designed to build capacity of the human resources of the province associated with industrial sector and to strengthen their ability to replace end of pipe approach for pollution treatment by adopting technological as well as management solutions for pollution prevention. The CP policy suggests that industries need to adopt environmentally sound processes, methodologies, and tools to achieve sustainable development. It is also proposed that for non-renewable energy sources such as incompetent and ineffective fossil fuels, subsidies may be restructured in order to ensure the improvement of the environment. In addition to this, the policy is intended to attain the level of sustainable development in Sindh by employing effective and efficient use of all-natural resources.

Policy Principles, Statements and Goals

Policy Framework

Economic development of a country is equally important to sustainable use of natural resources, prevention of pollution and protection of the environment. This only can be achieved through the effective use of natural resources that will result in protection and enhancement of the

resources for the future generations. This policy will develop linkages with already existing policies, sustainable development goals and relevant environmental protection legislation at local, national and international levels.

Policy Principles

The policy principles of this document emphasize on:

1. Sustainable and efficient use of all natural resources to produce goods and products.
2. Improved environmental performance and elimination/reduction of hazardous & toxic wastes used or produced in the industrial manufacturing processes.
3. Pollution prevention by emission reduction and minimization of solid and liquid waste streams.
4. Capacity building and skill development of the management, workers and labor, as well as associated partners in the industrial sectors.

Policy Statements

The cleaner production policy statement is based on:

1. Improving the quality of life in the province of Sindh by reducing environmental deterioration without degrading the natural resources and compromising the needs and requirements of the future generations.
2. Minimizing consumption of raw materials in on-going industrial and manufacturing activities.
3. Minimizing energy consumption and implementation of energy conservation practices.
4. Reducing air pollution by industrial sector.
5. Minimization and management of all type of solid waste by adopting waste reuse and recycling strategies.
6. Applying life cycle strategies to manage and monitor the adverse effects if any from products or processes at any stage of its life.

Policy Goals

The policy goals as stated below will be achieved by the end of year 2030.

1. Better management of chemical substances, all liquid and solid wastes throughout their life cycle be achieved, and their release to air, fresh water, marine water and soil significantly minimized in order to combat their adverse impacts onto the natural environment in general and human health in particular.
2. Reduction in pre and post-harvest losses of cultivated crops be achieved.
3. Sustainable development in line with effective and efficient use of all natural resources be achieved.
4. Solid waste generation be reduced, recycled and reused.
5. The large scale industries and SMEs adopt Smart Environmental Management Practices (SEMPs) in accordance with provincial and international environmental policies for sustainable development.
6. Strengthening of technological and scientific capacity of the industries in all sectors to achieve cleaner production.

Applicability and Scope

The proposed cleaner production policy applies to all the sectors involving resource consumption, processing and manufacturing of products from goods or services. Reference of such sectors is given in Schedule-I and II of review of EIA/IEE Regulation 2014 of SEP, Act. It does not exempt any organization or sector. When this policy is finalized and made ready for implementation it may be designed for:

- Economic development
- Regulatory requirement
- Voluntary agreements
- Information base systems

The CP policy also applies to address various challenges pertaining to impacts caused by climate change.

Policy Implementation and Resource Allocation

The successful implementation of this provincial policy needs support of line departments and ministries for its implementation along with political, business community and partners will and wish. The success of its implementation depends on the will and eagerness of the organization. The starting point for implementation of this policy is entirely based on transformation of the current system to the desired up gradation. The management along with all its employees must acquire trainings, and skillsto understand and act according to the new cleaner production policy mechanism. The holistic approach starts to deliver and yields the expected outcomes as set under the policy.

Governance

In order to ensure effective governance, a line of action is clearly drawn for deployment of cleaner production policy and furthermore responsibilities are fixed for implementation, supervising, monitoring in order to ascertain that the policy adoption is executed in the right direction. This policy will be implemented by the Sindh Environmental Protection Agency. The governance may turn more successful if its implementation is linked with already existing policies or legislation like Sindh Environmental Protection Act 2014, National Water Policy, National Environmental Policy, Climate Change Policy Sindh and National Conservation Strategy.

The governance commitment can be effectively achieved by two tiers mechanism:

1. The Sindh Environmental Protection Agency (SEPA) may designate an internal Cleaner Production Policy Cell (CPPC) to administratively handle all functionaries of the policy by

exercising the roles for communication with stakeholders, reporting, awareness trainings and capacity building of the policy need/regular basis. The CPPC shall be equipped with infrastructure, office accommodation, budgetary provisions and more importantly the skilled staff to perform the CPPC's office working.

2. A policy Inter Departmental Working Group (IDWG) may be established comprising of SEPA, business organizations, non-governmental organizations (NGO's), academia, relevant institutes, consumer protection organizations, etc. to support the fair implementation and maintain transparency. The CPPC may arrange biannual meetings on regular basis to evaluate and judge the progress and relevant working.

Planning

Planning is key to successful implementation of the cleaner production policy of the territory. Planning supports the short term and long-term goals so that the effective implementation can be achieved. The planning for achievement of cleaner production and sustainable development can yield reflective governance. There are three phases of implementation of this policy.

1. Short term – Engagement and Capacity Building
2. Midterm – Adoption and Investment
3. Long term – Sustainability and Scale-up

The long-term perspective also assists and facilitates the overall planning process for short-term and long-term economic, environmental, economic, social obligations. Furthermore, to achieve the successful outcome from planning it is necessary to secure:

1. Policy coherence for balancing environmental, economic and social aspects of the organization.
2. Policy coherence for potential trade-offs, conflicts if any to ensure that in achieving one policy goal it is not resulting in setbacks for rest of policy goals.
3. Multi-sectoral coherence for multi-sectoral plans addressing multi-dimensional and crosscutting issues in the policy agenda such as climate change, poverty effects or business downfalls.
4. Responsive policy coherence for the continuous and effective tracking, innovation based on latest and sophisticated technologies, on the job adjustments and skillful learning and alignment of short-term goals with long-term goals.
5. Action plans policy that will be updated through five yearly intervals in order to incorporate responsive changes, regular review, regular monitoring, and measuring the outcomes.

Monitoring, Evaluation and Continuous Improvement

For supervising and assessing the policy, a well-established and extensive monitoring system is needed along with indicators framework. The Cleaner Production Policy Cell (CPPC) may govern and execute this through planned framework. The SEPA, academia, non-governmental organizations may collect, disseminate, compile authentic and reliable up-to-date information which will be used for the planning, monitoring and implementation of cleaner production policy for economic development and social well-being. Through the tracking of flaws, priorities may be refined and re-introduced for the betterment of the policy. The outcomes of the monitoring and evaluation will provide a newer roadmap for improving the existing policy framework and removal of the flaws or shortcomings if any. This strategy of monitoring and evaluation will help the CPPC and SEPA to evolve better methodologies for future implications. So, this will become repeated practice for effective and efficient workings.

Policy effectiveness, period and renewal

This policy will be dynamic, responsive and a living document which may be amended or revised if any need arises.