



Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 14-Sep-2020 | Report No: PIDA28464



BASIC INFORMATION

A. Basic Project Data

Country Pakistan	Project ID P173021	Project Name Karachi Solid Waste Emergency and Efficiency Project	Parent Project ID (if any)
Region SOUTH ASIA	Estimated Appraisal Date 16-Sep-2020	Estimated Board Date 22-Oct-2020	Practice Area (Lead) Urban, Resilience and Land
Financing Instrument Investment Project Financing	Borrower(s) Islamic Republic of Pakistan	Implementing Agency Province of Sindh, Local Government Department	

Proposed Development Objective(s)

To mitigate the impacts of flooding and COVID-19 emergencies, and to improve solid waste management services in Karachi.

Components

Immediate Emergency Response Interventions
Development of SWM Backbone Infrastructure
Project Management and Implementation Support

The processing of this project is applying the policy requirements exceptions for situations of urgent need of assistance or capacity constraints that are outlined in OP 10.00, paragraph 12.

Yes

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	105.00
Total Financing	105.00
of which IBRD/IDA	100.00
Financing Gap	0.00

DETAILS

World Bank Group Financing



International Bank for Reconstruction and Development (IBRD)	100.00
Non-World Bank Group Financing	
Counterpart Funding	5.00
Borrower/Recipient	5.00
Environmental and Social Risk Classification	
High	
Decision	
The review did authorize the team to appraise and negotiate	

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Pakistan is at a crossroads as it deals with the coronavirus disease (COVID-19) pandemic.** Periodic macroeconomic crises and a low human capital basis have constrained the country's growth prospects. Over the last two decades, economic growth in Pakistan has averaged 4.4 percent a year, below the South Asian annual average of 6.3 percent¹. Low investment in human capital, slow progress of structural reforms, low private investment, and slow export growth due to an overvalued currency, among others, have hindered growth prospects². The country was making good progress in stabilizing its economy and implementing much needed structural reforms. However, the COVID-19 pandemic will have significant negative impacts on the economy. The closure of businesses and disruption to the supply chains are significantly affecting the services and manufacturing sectors, which account for nearly 80 percent of total gross domestic product (GDP). The economy is expected to contract in the range of 2.6 and 3.3 percent in FY20, and between 0.2 and 4.0 percent in FY21.

2. **Pakistan is the most urbanized large country in South Asia³, but cities and towns are struggling to manage solid waste.** According to a 2017 estimate, Pakistan produced around 31 million metric tons of solid waste annually.⁴ Insufficient public spending on essential infrastructure, weak institutions, and low professionalization and skillsets within the sector constrain the adequate management of waste, leading to reduced livability, environmental degradation, and high incidence of marine and plastic pollution. Waste collection remains low across the country and the waste collected is generally disposed in uncontrolled dumps.

¹ World Bank estimate

² World Bank. 2019. Pakistan at 100: Shaping the Future. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/31335>

³ Officially, about 36 percent of Pakistanis live in urban settlements. A large body of research indicates that actual urbanization may be higher, as issues with definition and boundaries in official statistics tend to under report the share of Pakistan's urban population

⁴ Korai, Muhammad Safar, Rasool Bux Mahar, and Muhammad Aslam Uqaili. 2017. "The Feasibility of Municipal Solid Waste for Energy Generation and Its Existing Management Practices in Pakistan." *Renewable and Sustainable Energy Reviews* 72: 338–53.



Sectoral and Institutional Context

3. **The city of Karachi generates an estimated 12,000 to 16,000 metric tons of municipal solid waste every day.** Around 60 percent of this waste is collected and transported to two large unsanitary dumps, Jam Chakro and Gond Pass.⁵ The chronic backlog of uncollected waste has decreased the operating capacity of much of the urban infrastructure – i.e. the drainage system is clogged by waste, which contributes to persistent flooding; water sources are contaminated; and public spaces are unattractive and unsanitary. The environmental and human health implications are severe: open burning of waste generates high levels of toxic chemicals that degrade air quality and cause cardio-vascular diseases; inadequate solid waste management (SWM) contributes to continued incidence of polio in Karachi;⁶ surface and groundwater pollution feeds into the prevalence of water-borne diseases. Plastics account for about 60 percent of waste by density found on Karachi’s beaches.⁷
4. **Karachi ranks below low-income country benchmarks in SWM on all parameters.** Limited institutional capacity, a weak and fragmented governance structure and infrastructure gaps along the entire value chain impact the sector’s efficiency. A diagnostic of the sector was completed in 2018⁸, and two ongoing urban sector operations⁹ are addressing some of the underpinning institutional and governance challenges. Ongoing policy efforts are focusing on improving the overall institutional environment (e.g. capacity, analytics, planning) in which future infrastructure investments can succeed. The Government of Sindh (GoS) is cognizant of these problems and has taken several steps to improve the situation in recent years. GoS set up the Sindh Solid Waste Management Board (SSWMB) in 2014 and has increased allocations and expenditure significantly to engage private sector contractors for waste collection.
5. **Considering the debilitating impact of 2019 monsoon, the season this year is also anticipated to significantly impact flooding and public health.** Higher than average rainfall in the 2019 monsoon caused widespread flooding, inundated main transit corridors, residential areas and public spaces, damaged residential and commercial property, and caused 24 fatalities¹⁰ While the GoS’ “Clean My Karachi” drive lifted a reported 1,000,000 metric tons of solid waste backlog in October 2019, a further breakdown in the provision of SWM services resulted in greater volumes of uncollected waste accumulating in drainage channels. SSWMB cancelled the waste collection contract for District West¹¹ around the same time, citing concerns with performance of the private sector operator, but has been unable to establish adequate alternatives for this district. Subsequently, the COVID-19 related restrictions of operations across the city since early March 2020 has resulted in a pronounced degradation of service and an increasing backlog of waste.
6. **In addition, Sindh is currently managing the impacts of COVID-19 pandemic, as is the rest of the country.** Pakistan experienced a rapid surge in infections, and Sindh has the largest number of confirmed COVID-19 cases among provinces in Pakistan to date. Since the end of June, the province has seen an overall declining trend in the number of daily infections. The authorities have gradually eased restrictions put in place since April while

⁵ Silpa, Lisa Yao, Perinaz Bhada-Tata, and Frank Van Woerden. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, DC: World Bank. doi:10.1596/978-1-4648-1329-0. License: Creative Commons Attribution CC BY 3.0 IGO

⁶ Provincial Task Force for the eradication of polio.

⁷ Waste distribution studies of four beaches in Karachi.

⁸ World Bank (2018), “Transforming Karachi into a Livable and Competitive Megacity: A City Diagnostic and Transformation Strategy”

⁹ Karachi Neighborhood Improvement Project (KNIP, FY17), and Competitive and Livable City of Karachi (CLICK, FY19).

¹⁰ An official death toll is not available, but unofficial reports place the number of deaths at roughly two dozen, primarily caused by collapsing rooftops and electrocution

¹¹ District West is the largest district in Karachi and also has the biggest concentrations of ‘*katchi abadies*’ (low-income neighborhoods and informal settlements) in the city. The district is inhabited by around 25 percent of the city’s population.



continuing to enforce highly localized ‘smart lockdowns’ where necessary.

7. **The GoS urgently needs to mitigate the impacts of flooding in the 2020 season.** There are multiple issues that contribute to flooding in Karachi These include, inter alia, insufficient drainage infrastructure (primary, secondary, and tertiary stormwater networks), reduced percolation due to paving and impermeabilization of surfaces, drains clogged by solid waste and/or by sewage, encroachment of natural drainage channels, inadequate land use and/or lack of enforcement of urban development, which have allowed the built up area to impinge on natural drainage systems without providing alternative conveyance capacity, etc. The result is insufficient ability of the system to drain water during rain events, and subsequently flooding. The cleaning of nullahs represents an immediate risk mitigation activity to restore the capacity of the existing system that has been compromised due to solid waste linked issues. Preliminary risk modelling shows that clearing of nullahs ahead of the monsoon rains would result in greater than 30 percent reduction in annual average damages.¹² Also, heaping of waste on the banks of channels or in residential areas for drying during earlier years has proved inefficient and counter-productive as it fell back into drains or ended up polluting adjacent residential areas. Mitigation of flooding in Karachi is therefore contingent on timely cleaning of drains prior to the monsoon and adequate logistical arrangements for transfer and disposal of waste cleared from drains.

8. **A rapid intervention in the SWM sector also offers opportunities to address COVID-19 impacts.** First, project activities to increase the conveyance capacity of the city’s drainage system are labor intensive and require mobilization of crews to work through the monsoon season for cleaning and adequate disposal of waste. The emergency nullah cleanup campaign and drainage maintenance will therefore create employment opportunities and provide relief to low-skilled workers impacted by economic ramifications of the COVID-related lockdowns. Second, the project includes activities related to the management of healthcare waste and limiting potential spreading of COVID-19 from poor handling of contaminated waste. This includes strengthening existing systems for collection, management and disposal of medical waste, increasing awareness to the risks of exposure, training of personnel, and provision of protective equipment.

The Bank’s role in the Karachi SWM sector

9. **The Bank’s ongoing urban policy dialogue in Karachi has long underscored the importance of adequate SWM.** The Karachi City Diagnostic and Transformation Strategy identified the SWM sector as critical to improving livability and competitiveness. Integrated technical assistance (TA) interventions were prioritized under the Competitive and Livable City of Karachi (CLICK) Project, approved in 2019. Despite the need for capital investments and given the relative lack of maturity of the sector, CLICK was envisioned as the first phase of a longer-term partnership with the city, aiming to address, initially through TA, systemic issues, including critical institutional, regulatory and capacity gaps. Subsequent interventions in SWM were envisioned to focus on infrastructure investments and service provision improvements. However, the deteriorating performance of the existing SWM system in Karachi, recent shocks and emergencies linked to inadequate provision of SWM services, public health risks and persistent economic impacts have increased the urgency for the Bank to scale up the engagement to help bridge the infrastructure and service provision gap in the sector.

10. **Therefore, the Karachi Solid Waste Emergency and Efficiency Project (SWEEP) has been designed at the request of the GoS,** first, to support emergency intervention to reduce high flooding risk during the 2020 monsoon, and to help the government mitigate COVID-19 impacts. Second, leveraging emergency interventions, the project will begin to tackle institutional and infrastructure changes required to improve SWM in Karachi. In view of the widespread flooding and public health crisis over the 2019 monsoon, subsequent deterioration of SWM services, and further shocks during the ongoing COVID-19 crisis, the Bank approved the use of emergency

¹² The analysis used a city-scale hydraulic model using satellite derived digital terrain information and data on urban built up area.



procedures to prepare and implement SWEEP.

11. **The two operations, CLICK and SWEEP, will work in tandem, supporting essential institutional strengthening and infrastructure investments to support SWM services in Karachi.** Specifically, CLICK is supporting upstream policy and regulatory work, institutional capacity strengthening of the SSWMB, development of sector strategies and public awareness. Building on the inputs from CLICK, SWEEP will begin the incremental upgrading infrastructure collection, transfer, final disposal and treatment of solid waste.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

12. The Project Development Objective (PDO) is to mitigate the impacts of flooding and COVID-19 emergencies, and to improve solid waste management services in Karachi.

Key Results

13. PDO indicators are as follows:

- (a) Number of persons for whom flood risks and exposure to pathogens including COVID-19, was reduced through cleanup of drainage channels (of which female, percentage)
- (b) Number of persons for whom urban living conditions are improved due to improved solid waste management services (of which female, percentage)
- (c) Solid waste collected from Karachi that is safely disposed (Metric tons/year)

D. Project Description

14. The proposed project will finance interventions that will be implemented over two phases: (a) in the immediate emergency response phase, activities will aim to mitigate (i) high flooding risks linked to the 2020 monsoon and caused by accumulation of solid waste in the city's natural drainage channels (nullahs), as well as (ii) public health risks caused by exposure to poorly managed COVID-19 contaminated waste; and (b) in the medium-to-long-term phase, improve backbone SWM infrastructure and service delivery to address the underlying risk factors leading to recurring emergency flooding situations.

Component 1: Immediate Emergency Response Interventions (US\$ 11 million)

15. The Component will support:

- a. Cleaning of nullahs and disposal of waste, including: (a) removing waste obstructing the flow of water and restoring the drainage capacity of the nullahs; and (b) construction of a temporary storage cell for waste and sediments cleared from nullahs at the Jam Chakro dumpsite.
- b. Development and implementation of a targeted communication and awareness campaign aimed at communities living around the nullahs.

Component 2: Development of SWM Backbone Infrastructure (Total cost: US\$84.0 million; WB financing: US\$84.0 million)

16. Component 2 will support:

- a. Provision of urgent collection equipment for under-served districts and improvement of Kachra Kundis, including: (a) provision of critical equipment to improve occupational safety and collection efficiency, such as personal protective equipment for workers, collection trucks, bins, and containers; and (b) upgrading of up to thirty existing kachra kundis and the construction of approximately fifty kachra kundis.



- b. Construction of a new sanitary disposal cell at Jam Chakro dumpsite, including: (a) design and construction of a new landfill cell; (b) design and construction of a manual material recovery facility adjacent to the disposal cell; (c) implementation of measures to improve safety and environmental performance of the dumpsite; (d) progressive closure and rehabilitation of areas that have reached capacity; and (e) development and implementation of community support plan for waste pickers living at Jam Chakro.
- c. Construction and/or upgrading of transfer stations, including the development and implementation of an appropriate operating model for the operation and maintenance of the transfer stations.
- d. Development of long-term waste solutions for Karachi, including: (a) planning, design and construction of a new sanitary landfill with associated facilities; (b) planning, feasibility studies, engineering design, development of business and operating models, and provision of advisory services for the preparation of a large ecosystem of waste treatment solutions; and (c) design and construction of solutions to improve treatment of non-municipal waste streams such as medical waste and/or construction and demolition waste, including assessment of existing systems for collection, transport and disposal of such waste streams; identification of gaps to be addressed through processes, investments and technologies; development of service improvement plans needed to build end-to-end solutions for each stream, as well as policy recommendations on regulation and tariffs for producers; and, identification of priority investments.

Component 3: Project Management and Implementation Support (Total cost: US\$10 million; WB financing: US\$5.0 million)

17. Component 3 will provide support for implementing agencies to manage, implement, and supervise Project activities and investments and training and skill development in the areas of monitoring and evaluation, communication, audits, social and environmental management, engineering, operations and maintenance, and Project management.

Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Assessment of Environmental and Social Risks and Impacts

Environmental Risk Rating

High

18. The project activities are intended to create positive environmental impacts by preventing the potential immediate flooding and public health risks through emergency intervention and awareness campaign as well as by providing improved collection, transfer, and disposal systems of solid wastes following international standards for the mid-term. However, because of the environmental, health and safety risks associated with *nullah* cleaning, transportation and temporary storage of potentially biologically and chemically contaminated waste materials cleared from drains, safety improvement and rehabilitation works of Jam Chakro dump site and construction and operation of collection points, transfer station, sanitary land fill cell at Jam Chakro and advanced waste management facility in Dhabeji, the Project is classified as “High Risk”.



Social Risk Rating

High

19. The social risks associated with the project are assessed as *High*. No private land acquisition is planned or anticipated under the project. However, the city has a problem of encroachment and there is a significant number of squatters settled on or using public land for residential and/or livelihood purposes respectively. Under Component 1, for cleaning the drains/*nullahs*, the project does not include any removal of encroachment from the *nullahs*. However, there is a moderate risk that there may be some inadvertent damage to structures (established for livelihood purposes) that may have extended/encroached onto *nullahs*. Removal of material from the *nullahs* to the dumpsite may also pose health and safety risks to communities living near *nullahs* (due to spillage around their holdings) and along the transport routes due to spillage of wet waste material etc. The waste accumulated in the *nullahs* consists of municipal and industrial effluent, which may have pathogens such as hepatitis, typhoid, etc., rendering anybody exposed to it at the risk of serious illness.

E. Implementation

Institutional and Implementation Arrangements

20. **The project's implementation arrangements are based on institutional mandates of each relevant agency and enable the respective agencies to implement activities described under each component.** The Local Government Department (LGD) is the umbrella institution for all implementing agencies under the project. An inter-agency Steering Committee, headed by the Chairman, Planning and Development (P&D) Board, with representation from relevant Government of Sindh agencies, will provide overall strategic oversight of the project, review implementation progress, resolve inter-agency disputes, and provide approvals for project-related matters as needed.

21. **GoS has tasked the PIU established under LGD for CLICK to support project preparation and to manage immediate emergency activities**, on a job-share basis. This PIU will be responsible for managing activities under Component 1 prior to, and during, the 2020 monsoon. The CLICK PIU will be supported by KMC for emergency pre-monsoon cleaning of nullahs.

22. **SSWMB will be the implementing agency for Components 2 and 3.** SSWMB will operate a Project Implementation Unit (PIU) with adequate staffing and resources provided to manage activities and investments under SWEEP.

B. Results Monitoring and Evaluation Arrangements

23. **Monitoring and evaluation of outcomes and results during implementation will be standardized per the sources, frequencies, and reporting arrangements in the Results Framework and Monitoring Plan.** The SSWMB PIU will prepare quarterly reports to be reviewed and discussed with the World Bank. The PIU will hire consultancy services for specific Monitoring and Evaluation (M&E) aspects, including data collection and analysis for reporting on the project results framework (indicators, outputs and outcomes), design and use of modern M&E systems for data and information. Use of third-party monitoring agencies will also be considered for specific tasks such as provision of training and equipment to solid waste workers. Infrastructure delivered under SWEEP will also be integrated with the performance management system being designed for SSWMB under CLICK. The generation of timely and accurate data will allow to measure performance of facilities on several standards/parameters (disposed and recovered waste, throughput for transfer stations, regular clearing of collection infrastructure and equipment). The information streams from such facilities will contribute to studies on quantity of waste and place of generation.



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APPROVAL

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