Public Private Partnership Support Facility

Risk Management Report

For the Period Ended Apr 2025 to Jun 2025

Contents

A. Status of PSF's update on the implementation of PPP fiscal risk assessment and updates to PPP Policy Board

The following section of the risk report explains the general form of the risk report, the content of the various sections, and its implementation status based on the outline. The outline also highlights the need for further improvement in some key areas that are dependent on external factors. The report is addressed to its recipients within the PPP Framework, for examples PSF, PPP Unit, PPP Policy Board and the Board of PSF.

Table 1: Risk Report Outline

S.No	Process Outline/Objective	Status	Action Needed if any
1.	Project Wise Coverage for Projects approved by PSF Board	Under Implementation	This section provides recommendations for enhancing risk transference for the relevant stakeholders, namely the PSF BoD and the PPP Policy Board. Recommendations pertain to issues such as for instance, it's advisable for the GoS to prioritize the completion of its CPs prior to project implementation. Additionally, establishing well-defined KPIs to delineate performance expectations from private parties would contribute to a more comprehensive risk management approach.
2.	Sectoral Coverage for PPPs	Under Implementation	This section is intended to demonstrate the general overview of various sectors in which PPPs are implemented. It covers an evaluation of the risks, potential and realized benefits engendered by

S.No	Process Outline/Objective	Status	Action Needed if any
			PPPs within these sectors while effectively mitigating the observed risks.
3.	Affordability and Contingent Liabilities for PPP projects approved by PSF Board	Under Implementation – Needs refinement in information retrieval	Enhancing this process involves refining both the accuracy and promptness of data. The financial model held by the IA for ongoing projects stands as one of the most reliable data sources. Additionally, prioritizing high-quality IE reports further contributes to the reliability of information.
4.	Affordability/Contingent Liabilities for PPP portfolio as a whole	Under Implementation - Needs refinement in information retrieval	This process can be further refined by improving the timeliness and veracity of the data.
5.	Work Done for the Quarter Ended March 2025	Under Implementation -	This section presents the work done by Risk Department in the relevant quarter. The format and content details are being improved upon.
6.	PPP Related Risk Issues/Methods	Under Implementation	In this section, any general matters which either explain a facet of PPPs in terms of risk related issues and/or methods which help in risk estimation etc. are to be outlined.
7.	Reflect the project costs as per RCF and RVA techniques so Cost and Schedule Over run is accounted for	Under Implementation – Needs refinement in information retrieval	This process can be enhanced by optimizing timely delivery of accurate data. Included the actual data on cost overruns for Infrastructure related PPP projects.

B. Summary of the current risk report

This Risk Report serves multiple purposes such as:

i. Highlights project-specific risks and elaborates upon risk mitigation measures already embedded in the projects' Concession Agreement, and suggests risk mitigation measures for risks assessed by PSF.
ii. Provides a complete picture of fiscal commitments that the GoS may have to incur in the likely occurrence of the assessed risk events. These fiscal commitments include direct obligations, contingent obligations, and measures of affordability against available fiscal space.

A. Ongoing PPP Projects in Sindh Education Sector

During the quarter ended June 2025, School Education and Literacy Department, (SELD) and three Education Management Organizations (EMOs) i.e. successful bidders are in due process of fulfilling the condition precedents as stipulated in the signed concession agreement of Girls' Elementary School Project. As mentioned in previous quarterly report, the project has outsourced O&M of 54 public sector schools, rehabilitated under Japan International Cooperation Agency (JICA) assistance. In the first phase of this project, SELD initiated the procurement process of 03 packages comprising 19 girls' elementary schools for public private partnership contracts. It is hoped that the execution of the contract will become effective from July 2025 after fulfilling the condition precedents of the concession agreement.

In respect of EMO-7, which was approved by the Board in January 2024, all six packages became operational in the previous quarter following the Installation, Planning, and Preparation (IPP) phase. Consequently, the operation and management of all the facilities commenced this quarter with a delay of 4-6 months, with annuity payments to be made based on the operator's performance weightage as assessed by the independent expert and auditor. A recurring concern during this reporting period has been the delayed disbursement of annuity payments to private partners. This issue, which has now become a regular feature in quarterly reporting of education sector PPPs, carries potential risks for project sustainability and may adversely affect the overall success of these initiatives. During this quarter, PSF continued to provide its technical support to PPP-Unit (Finance Department), PPP-Node (SELD) and Sindh Technical Education & Vocational Training Authority (STEVTA) in the following PPP projects at their preliminary stage(s):

- Sindh Secondary Education Improvement Project (SSEIP)
- Provision of Free Transport to the Girls Students of Grade 9-12 in Selected Districts
- Consultancy Services for Impact Assessment/ Study of EMO project under PPP mode
- Establishment of ECE centers in model schools of Sindh (an unsolicited proposal from UNICEF)
- Provision of Solar Energy Facility in Public Schools (UNICEF funded Transaction Advisory Services)
- Outsourcing the operation and management of STEVTA centers

Ongoing/Emergent Issues in Sindh Education Sector

Table 2: Ongoing and Emergent Issues in Education Sector

S.No	Project/Issue	Nature of Issue
1	Teachers Training Institutes - Transition from Installation and Planning Period (IPP) to Operations	The project had earlier entered a high-risk zone due to prolonged delays in rehabilitation works and ineffective progress during the IPP phase. As per the execution of the project's notices, the IPP period was scheduled to conclude by the end of March 2025. While some activities under the IPP are still pending completion and third-party verification/progress reports are awaited, the facilities have now transitioned to the management of private operators. The operators have commenced administrative and academic activities in the TTIs, marking the start of the operational phase, though residual IPP obligations remain under PPP-Node's purview.
2	Education Projects Overall – Contract Management	Contract management remains a significant risk under the EMO reform initiative, primarily due to limited capacity at the PPP Node of SELD, which functions as the PIU. Although the Node has recently inducted human resources to strengthen its functionality, most staff are public-sector transferees who, despite their commitment, often lack the technical understanding of PPP frameworks and contract management. Moreover, staffing levels remain insufficient given the Node's responsibility for overseeing 46 active contracts, alongside several projects in the pipeline. Other contributing factors include limited administrative authority, weak documentation practices, and gaps in performance monitoring, all of which continue to undermine effective accountability. While remedial steps—such as appointing a Contract Compliance Manager and introducing an online monitoring dashboard—have been taken, their effectiveness is yet to be seen. Recently, the Senior Director PPP-Node has also begun coordinating with Independent Experts to ensure more reliable reporting for contract management. Whether these efforts will yield meaningful improvements will become clearer in the upcoming quarterly progress reports.

S.No	Project/Issue	Nature of Issue
3	Education Management Organization Project - Data Management/ Availability of Effective Information System	While the PPP Node has developed the centralized Education Management and Reporting System (EMIRS) to strengthen monitoring, challenges remain in ensuring its effective use. Despite PSF's requests, direct access to the dashboard has not been provided. Although PPP Node cooperates by sharing information on request, providing PSF with real-time access would enable it to review updated data efficiently and strengthen its risk management function. Going forward, PPP Node should also triangulate dashboard entries with quarterly reports prepared by Independent Experts to validate accuracy and reliability. Without such measures, the risk of inconsistent or incomplete reporting persists, which may weaken evidence-based decision-making. Additional challenges to effective data-driven contract management include: • **Limited technical expertise** of staff to manage and analyze digital data systems. • **Inadequate integration** of EMIRS with ground-level monitoring and feedback mechanisms. • **Potential delays** in EMO compliance with regular data uploads. • **Weak accountability frameworks**, making it difficult to enforce data accuracy. Unless these gaps are addressed, robust data management—critical for successful PPP implementation in the education sector—may remain an underutilized tool rather than a driver of improved governance and policy.
4	Delayed quarterly progress reports and annuity payments in EMO projects	This issue had already been highlighted in the previous quarterly report, yet it remains unresolved in the current period. Delays in both the submission of quarterly progress reports and the processing of annuity payments in EMO projects continue to emerge as a critical risk area. Although there has been a slight progress in terms of clearing out the backlog, in few cases, progress reports have been delayed for more than a year, which not only restricts timely assessment of project performance but also weakens the basis for transparent decision-making.

S.No	Project/Issue	Nature of Issue
		Similarly, late disbursement of annuity payments affects the financial sustainability of private partners, potentially leading to compromised service delivery in administration and academic activities. The persistence of these delays risks creating a culture of weak compliance and reduced accountability within the EMO framework. Without corrective measures—such as stricter timelines for Independent Experts, strengthened coordination between PPP Node and EMOs, and robust mechanisms for timely annuity disbursement—project objectives and sectoral reform targets may remain at risk.

Affordability and Contingent Liability of Education Sector Projects

As a new PPP project in the education sector i.e. the Girls Elementary Schools Project has become effective in this period with financial implications to be executed from (anticipated) July 2025, the overall affordability position and contingent liabilities have slightly changed. As per the Affordability and Contingent Liability Analysis conducted by the PSF, both these amounts will not make an adverse financing burden on the GoS budgetary outlays and resources. Our findings are based on the following indicators:

For affordability analysis, the total bid cost of all education projects, so far, for 10 years' period was compared to the current FY 2024-25 ADP budget of GoS which ranges from 0.012% - 0.403% of the GoS provincial ADP Budget of FY 2024-25. When compared to the ADP budget of SELD for the same FY i.e. 2024-25, the EMO cost of all these projects shall have an impact range, in percentage terms, between 0.128 % (2016) and 4.141% (2024).

Table 3: Annual recurring obligations in Education PPPs i.e. EMOs and TTIs

											493,092.00	48,030	
Year	EMO-1	EMO-2	EMO-3	EMO-4	EMO-5	EMO-6	EMO-7	TTIs	Girls Education Project	Total (EMOs+TTIs)	Total in Million	% of Provincial GoS-ADP 2024-25	% of Provincial SELD-ADP 2024-25
2016	61,437,904									61,439,920	61.44	0.012%	0.128%
2017	59,022,910	84,856,882								143,881,809	143.88	0.029%	0.300%
2018	62,934,982	65,909,743	286,973,716							415,820,459	415.82	0.084%	0.866%
2019	68,534,496	72,553,938	163,065,486	296,965,825						601,121,764	601.12	0.122%	1.252%
2020	72,481,312	78,124,444	181,541,039	135,395,648						467,544,463	467.54	0.095%	0.973%
2021	78,037,474	85,141,360	197,453,389	147,896,044	377,598,205					886,128,492	886.13	0.180%	1.845%
2022	84,819,841	90,951,542	208,516,956	163,417,024	183,849,508	140,361,818				871,918,711	871.92	0.177%	1.815%
2023	90,904,561	103,306,649	217,934,278	173,336,804	186,421,231	76,052,258		144,273,085		992,230,890	992.23	0.201%	2.066%
2024	97,425,198	108,765,504	266,146,314	188,243,032	219,165,519	82,791,155	958,212,491	68,079,370		1,988,830,608	1,988.83	0.403%	4.141%
2025	105,444,147	120,763,092	244,848,128	205,733,456	209,435,917	91,057,165	575,785,579	71,613,195	218,806,773	1,843,489,476	1,843.49	0.374%	3.838%
2026		130,883,929	267,004,519	227,936,504	221,203,410	100,476,777	580,016,352	77,915,532	155,191,251	1,760,630,299	1,760.63	0.357%	3.666%
2027			279,446,590	243,149,336	245,462,103	124,085,408	633,276,756	84,794,820	170,710,376	1,780,927,416	1,780.93	0.361%	3.708%
2028				264,810,864	236,580,748	121,118,881	692,913,402	100,373,595	187,781,414	1,603,580,932	1,603.58	0.325%	3.339%
2029					245,587,865	133,188,587	828,446,107	108,626,678	233,559,555	1,549,410,821	1,549.41	0.314%	3.226%
2030					259,352,468	146,961,938	852,710,147	109,567,147	227,215,511	1,595,809,240	1,595.81	0.324%	3.323%
2031						161,592,695	906,798,223	119,325,971	249,937,062	1,437,655,980	1,437.65	0.292%	2.993%
2032							993,563,474	129,960,756	274,930,768	1,398,457,030	1,398.46	0.284%	2.912%
2033							1,087,294,851	67,756,808	302,423,845	1,457,477,537	1,457.48	0.296%	3.035%
2034							277,773,958		332,666,229	610,442,221	610.44	0.124%	1.271%
	781,042,825	**941,257,084**	**2,312,930,414**	**2,046,884,537**	**2,384,656,972**	**1,177,686,682**	**8,386,791,341**	**1,082,286,957**	**2,353,222,783**	**21,466,798,069**	**21,467**		

The contingent liabilities as percentage of GoS-School Education provincial ADP Budget (without FPA) of current FY 2024-25 ranges from 0.13% (2034) – 1.00% (2024) for a period from 2024- 2034.

Table 4: Contingent Liabilities in Education PPPs i.e. EMOs and TTIs

Year	EMO-1	EMO-2	EMO-3	EMO-4	EMO-5	EMO-6	TTIs	EMO-7	Girls Education Project	Total	Percentage of Annual Development Budget		
											SELD @ Rs. 20.0 billion (without FPA)	SELD @ Rs. 48.03 billion (with FPA)	GoS @ Rs.493.09 billion
2016	4,200,000	-	-	-	-	-	-	-	-	**4,200,000**	-	-	-
2017	4,220,000	7,671,394	-	-	-	-	-	-	-	**11,891,394**	-	-	-
2018	4,242,000	7,766,394	34,024,146	-	-	-	-	-	-	**46,032,540**	-	-	-
2019	4,266,200	7,869,394	21,660,897	-	-	-	-	-	-	**33,796,491**	-	-	-
2020	4,292,820	7,981,119	24,235,756	14,848,291	-	-	-	-	-	**51,357,986**	-	-	-
2021	4,322,102	8,102,363	26,157,853	6,769,782	34,482,192	-	-	-	-	**79,834,292**	-	-	-
2022	4,354,312	8,233,995	27,512,480	7,394,802	19,333,017	10,039,636	-	-	-	**76,868,242**	-	-	-
2023	4,389,744	8,376,966	28,432,289	8,170,851	19,848,746	9,287,475	14,841,291	-	-	**93,347,362**	0.47%	0.19%	0.02%
2024	4,428,718	8,532,320	33,596,916	8,666,840	23,611,194	10,172,662	19,538,339	92,253,437	-	**200,800,426**	1.00%	0.42%	0.04%
2025	4,471,590	8,701,200	32,241,407	9,412,152	23,121,025	11,189,929	21,034,861	48,430,577	17,613,764	**176,216,505**	0.88%	0.37%	0.04%
2026	-	8,884,857	34,932,419	10,286,673	24,439,612	12,308,921	22,649,024	52,816,935	12,335,140	**178,653,581**	0.89%	0.37%	0.04%
2027	-	-	36,316,000	11,396,825	27,641,628	13,963,092	24,390,350	57,623,553	13,568,654	**184,900,102**	0.92%	0.38%	0.04%
2028	-	-	-	12,157,467	27,417,960	14,893,795	26,269,159	62,891,540	14,925,519	**158,555,440**	0.79%	0.33%	0.03%
2029	-	-	-	13,240,543	28,801,147	16,383,174	28,296,633	73,952,817	16,418,071	**177,092,385**	0.89%	0.37%	0.04%
2030	-	-	-	-	31,754,554	18,021,492	30,484,893	74,996,775	18,059,878	**173,317,592**	0.87%	0.36%	0.04%
2031	-	-	-	-	-	19,823,641	32,847,081	81,938,219	19,865,866	**154,474,807**	0.77%	0.32%	0.03%
2032	-	-	-	-	-	-	35,397,446	89,550,355	21,852,453	**146,800,255**	0.73%	0.31%	0.03%
2033	-	-	-	-	-	-	-	97,899,081	24,037,698	**121,936,780**	0.61%	0.25%	0.02%
2034	-	-	-	-	-	-	-	-	26,441,468	**26,441,468**	0.13%	0.06%	0.01%

PSF Board so far approved seven projects (RFP#1 to RFP#7) of schools, one project of Teacher Training Institutes (2 TTIs) and one project of Girls Elementary School (JICA Assisted Schools phase-I) in education sector for their funding from VGF-PSF. PSF provides support funds to these projects from new VGF with the financial assistance of the EPPP project effective from April 2018 to December 2026[1]. Whereas funding before that date i.e. April 2018 (if any) to be done through old VGF

The EPPP funding is provided by three agencies with ratio as below; - Partners' share formula has been given below;

Table 5: Funding Ratio of EPPP

EPPP Partner	Ratio of Funding Contribution			
	April 2018- June 2022	*July 2022- December 2022*	*January 2023- December 2024*	*January 2025- December 2026[2]*
ADB	58.49%	68.33%	76.49%	90%
FCDO (DFID)	6.99%	8.16%	NIL	NIL
GoS	34.52%	23.51%	23.51%	10%

- GOS to bear Tax Amount in addition to its agreed share.

Following table[3] elaborates PSF ratio separately and accumulative for funding support to all procurements under EMO reform and PPP mode[4].

Table 6: Funding Detail of PPP Education Projects by PSF

RFP#	No. of Schools	Total Bid Cost	Expenditure before EPPP	PSF-EPPP (April 2018-December 2026)				PSF-GoS	PSF Total
				Total EPPP Share	ADB+FCDO	GoS		From Jan 2027-onward Outstanding	Commitment till End of the Project
						Partner Contribution	Tax		
1	4	781,042,825	120,460,814	660,582,011	418,464,321	139,894,849	100,929,078	0	660,582,011
2	5	941,257,084	84,856,882	823,990,920	550,585,340	161,131,852	109,813,476	32,409,282	856,400,202
3	14	2,312,930,414	0	1,924,772,257	1,266,241,337	386,442,125	266,885,809	388,158,157	2,312,930,414
4	45	2,046,884,537	0	1,481,940,211	981,604,526	295,041,431	201,056,788	564,944,326	2,046,884,537
5	71	2,384,656,972	-	1,342,372,938	952,314,404	212,431,050	173,326,186	1,042,284,034	2,384,656,972
6	32	1,177,686,682	-	440,500,784	324,152,887	65,537,152	48,983,834	737,185,897	1,177,686,682
7	40	8,386,791,341	-	2,114,014,423	1,604,583,024	324,411,047	173,462,333	6,272,776,918	8,386,791,341
Sub-Total (EMOs)	**211**	**18,031,249,854**	**205,317,696**	**8,788,173,543**	**6,097,945,838**	**1,584,889,505**	**1,074,457,503**	**9,037,758,615**	**17,825,932,158**
TTIs	2	1,082,286,957	-	386,345,462	278,541,797	59,542,689	46,864,050	695,941,495	1,082,286,957
Sub-Total (TTIs)	**2**	**1,082,286,957**	**-**	**386,345,462**	**278,541,797**	**59,542,689**	**46,864,050**	**695,941,495**	**1,082,286,957**
Girls Education Project	19	2,353,202,780	-	296,382,396	266,744,156	26,674,416	0	2,056,820,384	2,353,202,780
Sub-Total (GEP)	19	2353202780	0	**296,382,396**	**266,744,156**	**26,674,416**	**0**	**2,056,820,384**	**2,353,202,780**
Total	**213**	**21,466,739,591**	**205,317,696**	**9,470,901,401**	**6,643,231,792**	**1,671,106,609**	**1,121,321,553**	**11,790,520,494**	**21,261,421,895**

[1] The terminal date of EPPP period has been extended till December 2026.

[2] This funding ratio has been kept changing, after mutual agreement between ADB and GoS, initial ratio was applicable till June 2022 (EMO 1-5); revised ratio was applicable from July 2022 to December 2022 (EMO-6 and TTIs), then updated ratio was applicable from January 2023 to December 2024 (EMO-7) and current ratio is applicable from January 2025 to December 2026. The projects approved between January 2025 and December 2026 will be funded by EPPP funds in ratio of 90% and 10% by ADB and GoS respectively. All funding amount is taken from relevant PARs as approved by PSF Boards.

[3] Extracted from approved PARs of all i.e. RFP#1 to RFP#7, JICA Assisted Girls Education Project and TTIs. However, the cost of Girls Elementary School Project is not included as the project is in process of procurement.

[4] This amount will be updated in next quarterly report due to change in partner's contribution ratio, addition of new projects and extension of EPPP funding date.

As such 44% (Rs. 9.47 billion) of total bid cost (Rs. 21.47 billion) of all education PPP projects approved by PSF Board is projected as payable amount by PSF from April 2018 till project life (*each project is of 10-year duration except TTIs which is of 10.5 year and EMO-7 as of 10.25 years)* of each school/project.

B. Ongoing PPP Projects in Sindh Health Sector

During the current reporting period, no additional health sector PPP project was approved by the PSF Board. As a result, a total of three health sector projects have now been approved:

1. Outsourcing Safety and Security Services at JPMC
2. Outsourcing Management of Regional Blood Centre (RBC) — Jamshoro
3. Outsourcing Management of Regional Blood Centre (RBC) — Sukkur

Funding support for two RBCs Jamshoro and Sukkur under the EPPP (Expanded Program on Public-Private Partnerships) was concurred by the Asian Development Bank (ADB). . Subsequently, the PSF received a request to provide similar funding support for RBC Karachi & Shaheed Benazirabad.

During this reporting quarter, the Project Appraisal Report (PAR) for RBC Karachi and Shaheed Benazirabad is in development process for seeking approval from PSF Board as well their concurrence of its funding under EPPP.

The other details of the previously approved projects remain unchanged from the last report. An extract is reproduced below for reference and perusal:

- The **JPMC project** is currently in the procurement phase; therefore, its actual financial implications are not included in this report.
- **RBC Jamshoro** is a sub-project of the broader Outsourcing Management of Four RBCs in Sindh initiative. The project commenced in 2018 under a management contract between the Health Department, Government of Sindh, and the Indus Hospital Network. Initially, the scope was set at screening 20,000 blood bags annually. However, within the first year of operation, screening capacity expanded to 70,000 blood bags annually. Following a request from the operator to revise the scope, a detailed review was conducted, and an amended agreement was finalized. The revised scope now includes screening of 100,000 blood bags annually, with an updated project cost of Rs. 5.7 billion for the 10-year project period ending in 2028.
- **RBC Sukkur** is another sub-project of the broader Outsourcing Management of Four RBCs in Sindh initiative. The project commenced in 2018, parallel to RBC Jamshoro, under a management contract between the Health Department, Government of Sindh, and the Sukkur Blood and Drugs Donating Society (SBDDS). Initially, the scope was set at screening 20,000 blood bags annually, same as of RBC Jamshoro. However, its screening capacity also expanded beyond its allocated capacity of 20,000 blood bags annually. Following the instructions by PPP Policy Board to conduct

the review of the project's scope on the pattern of RBC Jamshoro, a detailed review has been conducted by third party, however, still an amended agreement isn't finalized. Therefore, its project cost remains as of its approved financial bid of Rs. 2.9 billion for the 10-year project period ending in 2028.

Table 7: Ongoing/ Emerging Issues in PPP Projects in Health Sector

S. No	Project/Issue	Nature of Issue
1	JPMC	The Request for Proposals (RFP) for the JPMC project was launched during this reporting period, and the Technical and Financial Evaluation Committee (TFEC) is currently conducting the technical evaluation of the submitted bids. It is expected that the evaluation process will be completed by the next quarter, and the outcomes may be shared and discussed in the forthcoming report.
2	RBC Jamshoro	The RBC Jamshoro Project, initiated in 2018, has now entered its sixth year of the total 10-year project period. Both the scope and cost of the project have been revised upward due to demand for blood bags exceeding the initial projections. However, a key concern has emerged: four out of seven Hospital-Based Blood Banks (HBBs) have not been operationalized during the first half of the project's lifecycle. If the non-operationalization of these four HBBs persists, the project's ability to achieve its intended objectives may be significantly compromised. Consequently, this situation could escalate the project's risk profile from its current low risk level to a **higher risk level** in subsequent reporting periods. The high levels of utilisation of bags and inventory levels also need to be continuously monitored. Hemovigilance data C/T ratio, %T and TI as quality indicators used to assess blood utilization efficiency and Maximum Surgical Blood Order Schedule (MSBOS), to prevent unnecessary testing and blood wastage. It's highly unlikely that cross match to transfusion falls below 1. Blood donation recruitment policy, and Hemovigilance forms, should be upto standards. On the pattern of Education, PPP-Node health should also be coordinating with Independent Experts to ensure more effective reporting for contract management

S. No	Project/Issue	Nature of Issue
3	RBC Sukkur	The RBC Sukkur Project commenced operations under the PPP mode alongside RBC Jamshoro in 2018 and has now successfully completed six years of its 10-year project period. During implementation, at the request of the Health Department, three satellite Hospital-Based Blood Banks (HBBs) were incorporated into the original scope of work assigned to the private operator. However, this expansion was undertaken without revising the associated financial allocations and the relevant approvals for need to be in place, as such an amendment to the concession agreement may be required. This development may strain both the administrative and financial capacity of the private operator, potentially undermining the effective achievement of the project's goals and objectives. If these concerns persist unaddressed, the project's risk rating—currently assessed as low—may escalate to a medium risk level in future reporting periods. The high levels of utilisation of bags and inventory levels also need to be continuously monitored. Hemovigilance data C/T ratio, %T and TI as quality indicators used to assess blood utilization efficiency and Maximum Surgical Blood Order Schedule (MSBOS), to prevent unnecessary testing and blood wastage. It's highly unlikely that cross match to transfusion falls below 1. Blood donation recruitment policy, and Hemovigilance forms, should be up to standards. Issues related to QC and trainings and competencies of staff, Planned Preventive Maintenance (PPM) records and utilization of funds from capital accounts for operational purposes need to be addressed.

Affordability and Contingent Liability of Health Sector Projects

As per the Affordability and Contingent Liability Analysis conducted by the PSF, both these amounts will not make an adverse financing burden on the GoS budgetary outlays and resources. Our findings are based on the following indicators:

For affordability analysis, the total bid cost of health sector projects, currently with financial impact, for 10 years' period was compared to the current FY 2019-27 ADP budget of GoS which ranges from 0.08% - 0.22%. When it is compared to the ADP budget of Health Department for the same period, the project cost shall have an impact range, in percentage terms, between 1.32% (2025) and 5.21% (2027).

Table 8: Annual recurring Obligations in RBC Jamshoro and RBC Sukkur

Total Budget Outlay for Health Sector PPP Projects				
Year	RBC Jamshoro	RBC Sukkur	% of Health Department Budget	% of Health ADP
2019	211,536,249	207,806,732	0.38%	2.83%
2020	219,997,699	213,001,901	0.31%	2.79%
2021	228,797,607	218,326,948	0.24%	1.32%
2022	578,695,890	223,785,112	0.41%	3.77%
2023	754,048,075	229,379,750	0.55%	5.03%
2024	823,396,412	235,114,244	0.57%	5.21%
2025	768,416,929	240,992,100	0.45%	2.56%
2026	825,629,998	247,016,902	0.45%	2.51%
2027	887,284,790	253,192,325	0.47%	2.90%
	5,719,205,063	**2,494,693,536**		

The contingent liabilities as percentage of GoS and Health Department provincial ADP Budget of current FY 2024-25 ranges from 0.19% (2024) – 0.11% (2027).

Table 9: Contingent Liabilities in Health PPPs i.e. RBC- Jamshoro and RBC Sukkur

Year	RBC Jamshoro	RBC Sukkur	Percentage of Annual Departmental Budget	Percentage of ADP
2019	15,669,352	17,158,354	0.03%	0.22%
2020	16,296,126	17,587,312	0.02%	0.22%
2021	16,947,971	18,026,995	0.02%	0.10%
2022	17,625,890	18,477,670	0.01%	0.08%
2023	18,330,925	18,939,612	0.02%	0.19%
2024	19,064,162	19,413,102	0.02%	0.19%
2025	19,826,729	19,898,430	0.02%	0.10%
2026	20,619,798	20,395,891	0.02%	0.10%
2027	21,444,590	20,905,788	0.02%	0.11%

PSF Funding Ratio

PSF Board so far approved three projects of health sector which include Provision of safety and security services in JPMC Karachi and operation & management of RBC Jamshoro and RBC Sukkur for their funding from EPPP funds through VGF-PSF.

The EPPP funding is provided by three agencies with ratio as below; - Partners' share formula has been given below.

Table 10: Funding Ratio of EPPP

EPPP Partner	Ratio of Funding Contribution			
	April 2018- June 2022	*July 2022- December 2022*	*January 2023- December 2024*	*January 2025- December 2026*[5]
ADB	58.49%	68.33%	76.49%	90%
FCDO (DFID)	6.99%	8.16%	NIL	NIL
GoS	34.52%	23.51%	23.51%	10%

- GOS to bear Tax Amount in addition to its agreed share.

Following table[6] elaborates PSF ratio separately and accumulates funding support to all procurements PPP mode

Table 11: Funding Detail of PPP Health Projects by PSF

S. No.	Project Name	HMO	Bid Cost	Bid Cost under EPPP January 2025- December 2026	ADB Share	GoS Share	Remaining Amount to be paid by GoS through PSF
			10 years budget	*Inclus. of Tax*	*76.49%/ 90.00%*	*23.51%/ 10.00%*	*After December 2026 till end of project life*
1	RBC Jamshoro	Indus Health Network	*5,719,205,603*	*4,693,123,210*	*3,810,590,009*	*882,533,201*	1,026,082,393
2	RBC Sukkur	Sukkur Blood and Drugs Donating Society (DBDDS)	2,494,693,540	2,117,992,760	1,906,193,484	211,799,276	376,700,780
		Total	**8,213,899,143**	**6,811,115,970**	**5,716,783,493**	**1,094,332,477**	**1,402,783,173**

C. On going PPP project in infrastructure

During the review period, the board of PSF approved the Marble City Project (MCK). The Sindh Economic Zone Management Company (SEZMC) has utilized Public-Private Partnership (PPP) modality to bid this project, with a total cost of PKR 10,529 million. PSF has approved funding of up to PKR 6,819 million under the EPPP program. The Asian Development Bank (ADB) will contribute

[5] *This funding ratio has been kept changing, after mutual agreement between ADB and GoS, initial ratio was applicable till June 2022; revised ratio was applicable from July 2022 to December 2022, then updated ratio was applicable from January 2023 to December 2024 and current ratio is applicable from January 2025 to December 2026. The projects approved between January 2025 and December 2026 will be funded by EPPP funds in ratio of 90% and 10% by ADB and GoS respectively. All funding amount is taken from relevant PARs as approved by PSF Boards.*

[6] *Extracted from approved PARs of RBCs- Jamshoro and Sukkur. However, the cost of JPMC is not included as the project is in process of procurement.*

90% of this amount, while the Government of Sindh (GoS) will contribute the remaining 10%. About MCK:

The total project cost is PKR 10.529 billion, with approximately 93.66% allocated to EPC costs and the remaining portion designated as non-EPC costs.

Table 12: Cost Break-up

Cost	PKR Million
EPC Cost	9,862
Non-EPC Cost & project management	667
Total Project Cost	**10,529**

The GoS, through VGF managed by PPP Support Facility (PSF), may provide funding for the Marble City Project if customer payments are delayed. In this case, the Sindh Economic Zone Management Company/GoS, through **PSF, will pay the developer for construction milestones achieved, up to PKR 6,819 million, assuming the worst-case scenario i.e. no sale of the plot.** Moreover, since the GoS has retained cost overrun risk, any escalation above 20% would be reviewed and if justified, would be paid (adjusted) by the GoS.

The project's funding is contingent upon the sales of plots. If there is sufficient market interest, the project may not need any external funding. However, if plot sales do not materialize due to limited market interest, the project may require funding of up to PKR 6,819 million up to loan closing period of EPPP (Dec 31, 2026).

Table 13: Ongoing/ Emerging Issues in PPP Projects in Infrastructure

S. No	Project/Issue	Nature of Issue
1	MCK	Clearance of IEE from ADB: The project's Initial Environmental Examination (IEE) report is currently under review by the Asian Development Bank (ADB). If the outcome is unfavorable, it could affect both project approval and funding from the ADB. Therefore, it is essential to closely monitor this process and ensure its successful completion.

Affordability and Contingent Liability of Infrastructure Project

From affordability and contingent liability point of view, GoS may incur CL of up to PKR 4.27 billion based on the price in the bid and the willingness to pay assessments in the 2021 feasibility study. Since the government has retained most of the risk, the efficiencies of the private sector may not be realized. However, risk transference to private parties is the true essence of a PPP project, as PSF believes. The feasibility due to the scope of the assignment also did not undertake VfM or a Cost Benefit Analysis. However, keeping in view the criticality of VfM & CBA, PSF has undertaken both

analyses. It is also important to note that the demand analysis of the feasibilities was not very comprehensive as it indicated a low willingness to pay.

In terms of Contingent liabilities already assumed by GoS, MCK may invoke an additional CL of PKR 8.95bln construction cost subject to GoS inability to sell even a single plot. The GoS potential commitment to PPP projects now stands at PKR 470bn over the next 5 years. The average annual provincial ADP on actuals has been PKR 118 bn and in the last 5 years cycle it has been PKR 588 bn implying that PPP liabilities for the next 5 years cycle have reached 80% of the potential 5 years ADP commitment.

PSF Funding Ratio

The PSF Board has approved MCK for the infrastructure development of an industrial estate focused on marble processing and related industries under the PPP mode. Under the EPPP program, PSF will fund up to PKR 6,819 million.

This amount is split between ADB and GoS as per under-described ratio:

Table 14: Proportionate funding for equity

Total Funding	ADB	GoS
	90%	10%
6,819 million	6,137	682

Table 15: Cumulative funding as % of project till Dec 2026*

Project Draw Down Amount (PKR in Million)										
Partner Name	VGF under EPPP (US$)	VGF under EPPP	% Loan Ratios[1]	Education Sector	Health Sector	Infrastructure Projects			Cumulative VGF Data of all Projects	
						TP-1	Marble City	Total-3	Amount	% of Total
ADB	70.00	18,452	90.0%	**3,303**	**5,213**	-	6,137	**6,137**	**14,653**	79.4%
FCDO	15.43	2,396	0.0%	**1,735**	**-**	-		**-**	**1,735**	72.4%
GoS	28.48	7,006	10.0%	**1,836**	**-**	-	682	**682**	**2,518**	35.9%
Total	**113.91**	**27,854**	**100.0%**	**6,874**	**5,213**		**6,819**	**6,819**	**18,906**	**68%**

* We have assumed Marble City funding till Dec 2026 (end of the loan closing period).

Transport, Road and Motorways Sector

To date, GoS has 8 ongoing transport and road projects, three of which have achieved construction completion, namely Hyderabad Mirpurkhas Dual Carriageway, Jhirk Mulla Katiyar Bridge Project and Karachi Thatta Dual Carriageway Project. Three further projects are under construction, these include Ghotki Kandhkot Bridge Project, Link Road Project and Malir Expressway Project (partially completed). PSF has reviewed three of these projects since 2019 and two of these namely Ghotki Kandhkot and Malir Expressway were conditionally approved by PSF Board subject to compliance with E&S safeguards. ADB has however, dropped these from the priority list of projects to be undertaken under EPPP funding. While the rest 02 projects include Procurement and Operation of Yellow Line Buses in Karachi and Malir Expressway Phase-1 projects. PSF has been involved in the review process of these two projects and has provided its feedback on the feasibility study of O&M of Yellow Line Buses project as well as on the USP & its preliminary review report for Malir Expressway Phase-1 project. (Please note that as per practice PSF is considering projects which have been approved by PSF Board prior to end June 2025).

Social Sector Projects

Table 16: Education PPP/ Health PPPs approved

Project	No of Packages/Facilities	PSF Approved on	Total Pro1ect Cost	Project Duration	Estimated Number of Beneficiary
EMO·l	04 packages/04 schools	19 08 2019	PKR 781,042,825	10 years April 2016· April 2026	3,000 students
EM0·2	05 packages/05 schools	19 08 2019	PKR 941,257,084	10 years February 2017· February 2027	5,000 students
EM0·3	14 packages/14schools	04 02 2020	PKR 2,312,930,414	10 years February 2018·February 2028	10,000 students
EM0·4	04 packages/45 schools	31 03 2021	PKR 2,046,884,537	10 years April 2019· April 2029	25,000 students
EM0·5	05 packages/71 schools	27 06 2021	PKR 2,384,656,972	10 years January 2021·January 2031	35,000 students
EM0·6	03 packages/32 schools	29 12 2021	PKR 1,177,686,682	10 years April 2022· April 2032	15,000 students
EM0·7	06 packages/40 schools	20 12 2023	PKR 8,386,791,341	10.25 years, September 2024- December 2034	25,000 students
Teacher Training Institutes (TTls)	02 TTls	06 04 2022	PKR 1,082,286,957	10.5 *years*, **September 2024· March 2035**	3,500 pre-service and 6000 in service teachers
Girls' Education	19 girls' schools	09-07-2024	PKR **2,353,222,783**	10 years	9000 girls students

Project	No of Packages/Facilities	PSF Approved on	Total Pro1ect Cost	Project Duration	Estimated Number of Beneficiary
Project Phase-I				July 2025- June 2035[7]	
RBC Jamshoro	01 RBC linked with 7 HBBs	09 07 2024	PKR 5,719,205,063	10 years, February 2018·February 2028	1,500,000 patients
RBC Sukkur	01 RBC linked with 7 HBBs	09 01 2025	PKR 2,494,693,536	10 years, February 2018·February 2028	600,000 patients

Education Sector

Education Management Organization (EMO) reform is one of the GoS initiative focusing on the objectives of improved access and governance, better quality education and effective utilization of public resources. For this purpose, the operation and management of selected public schools/institutes is outsourced to credible and experienced private sector parties to make them helpful in achieving the targets as set out in Key Performance Indicators (KPI) framework based on the objectives of the EMO reform.

The PPP Support Facility (PSF) has, to date, approved funding of 230 schools and 3 (three) Teacher Training Institutes (TTIs), which were outsourced under 9 rounds of procurements,[8] amounting to PKR 22,096 million in terms of nominal value. However, one of the operators of the TTI project requested to withdraw his offer to operate the GECE Sukkur which turned the project comprising 2 (two) TTIs lowering the project amount to PKR 21,466 million.

The overall risk profile of the project is low as PSF is of the view that the Concession Agreements have satisfactorily allocated the perceived risks between the Government and the private parties which might be got further mitigated if implemented with true spirit.

Table 17: Education PPP (number of institutes and funding)

Education PPPs	# of Procurements	# of Schools	Funding Approved (Rs. In mn)
EMOs- SBEP	7	211	18031.249
TTIs	1	2	1082.287
EMOs-JICA	1	19	2353.222

[7] *Anticipated date of execution of the project after fulfilling of the condition precedents by both the parties, separately and jointly*.

Health Sector

GoS has initiated numerous health projects under PPP modality which included operations and management of health facilities through Health Management Organizations, outsourcing security and safety services at National Institute of Child Health (NICH), operation and management of Regional Blood Centers (RBCs) etc. PSF has reviewed all of the aforementioned.

PSF has principally approved the structure of the health sector project to procure a management contract with a credible private partner for provision of safety and security services at Jinnah Post Graduate Medical Centre (JPMC) Karachi. The PSF Board, in its meeting held on 17th January 2023, approved to fund the project with some advice to review and explore an option if the salary of human resource under this project may be sorted out from VGF (old VGF).

The Health Department launched Request for Proposal (RFP) to outsource the security and safety services to private operator under PPP mode. The Technical and Financial Evaluation Committee (TFEC) is conducting the evaluation of the bids submitted. Hopefully, process of procurement of the project may be completed by end of next quarter.

PSF Board, in its meetings held on 14 July 2024 and 09 January 2025, also approved two health sector project i.e. Outsourcing the management of RBC Jamshoro and RBC Sukkur for its funding from EPPP. The project cost of RBC Jamshoro is estimated as PKR 5,719 million out of which PKR 4,693 million will be funded from EPPP with effective date from April 2018 to December 2026. Whereas the project cost of RBC Sukkur is estimated PKR 2,494 million out of which PKR 2,117 million will be funded from EPPP w.e.f. April 2018 to December 2026.

After extension of EPPP project till December 2026, the EPPP funding for both projects i.e. RBCs Jamshoro and Sukkur will be revised accordingly and will be updated in next quarterly risk report.

The project has been operated by private partners for more than six years. Based on the progress evaluation reports by the Independent Expert, the project may be categorized, overall, at low risk.

Water Supply Sector

The Government of Sindh is working on multiple projects for the supply of water transmission, filtration and distribution. These include Nabisar Vajihar project (under construction) TP1, (Feasibility completed), TP4, 5MiGD Desalination Project, 65 MiGD water supply project.

Table 18: General Risks of PPP Projects

Ongoing projects / Under Development	General Issues/Lessons from projects
Guideline for project construction	Contractual Requirements • Construction documents are instruments of communication: Comprising legal, procedural, and construction information. once a contract between owner and contractor has been executed, construction drawings acquire the status of legal documents: Errors, conflicting information, or omissions in these legal documents can result in costly change orders • construction documents translate design of a project from realm of ideas to physical form. • For the project a longstop is defined as target date of practical completion otherwise one or more of the parties to the agreement may be able to terminate the agreement, contract hold points must be used, which refer to a specific stage in a construction project where work must stop and cannot proceed further until a designated authority, like an engineer or inspector, verifies that certain quality standards or critical aspects of the work have been met and releases the hold, essentially acting as a mandatory checkpoint to ensure project compliance with the contract specifications before moving on to the next phase. • A typical IWP includes witness or hold points, which may need additional inspection, verification and documentation to make sure of: safety of the environment and the public, before proceeding and the technical quality and any legal requirements have been satisfied. • FIDIC offers standard forms of contracts widely used in international construction projects. PEC, the Pakistan Engineering Council, has developed its own standard bidding documents, incorporating FIDIC principles and adapting them to the local context. • FIDIC contracts also have clauses related to payment procedures, which indirectly relate to scheduling and progress monitoring. For example, should the next payment certification be contingent on the contractor providing a submittal schedule?

Ongoing projects / Under Development	General Issues/Lessons from projects
	• Contractor initially submits project schedule to consultant for review. approved version of the schedule is known as the baseline schedule. Whereas submittal schedule outlines the timeline and sequence for submitting and approving materials, products, and equipment for a construction project. • Retention money: normally, 12.5% value of each item of billing schedule is retained, which is released in the form of milestone payments as per the contract, made only when employer is fully satisfied with performance of milestones. A provision dealing with negligence is also provided in an EPC contract. • detailed price schedule provided for all the items to be supplied under the contract. • to bring more clarity and to bind the contractors, the sub-schedule of various activities of engineering, procurement and commissioning should be provided in the contract. L1 Schedule. L2 Schedule: Summary Master Schedule (SMS). L3 Schedule: integrated Critical Path Method (CPM), L4 schedule: project working schedule L5 schedule: short-term schedule for a specific area with detailed activities to be coordinated on a day-to-day basis. • costing of claims in the construction industry governed by FIDIC Conditions of Contract.: delay does not always bring an entitlement to an extension of time, and that granting of an extension of time does not always bring money. • contract provides guidelines (e.g. clause 52 of FIDIC conditions). rates for work compared with existing or similar rates available in Contract. In absence of such rates, contractor will be required to present a build-up of rates based on actual expenditure on manpower, equipment & materials along with mark up for overheads & profit. The productivity of all these resources will be subjected to scrutiny based on acceptable norms. • design calculations include structural, performance, loading , mechanical, thermal, and fluid dynamic calculations. drawings are tested, explored, and depicted to ensure it will be constructed correctly on the site. Standards of drawings for

Ongoing projects / Under Development	General Issues/Lessons from projects
	projects should conform to the requirements of the Computer-Aided-Drafting (CAD). • In the context of construction drawings, a **"green-light check set" refers to a specific set of documents that are approved and finalized for construction purposes**. This set is given the "green light" because it signifies that **all necessary approvals and revisions have been completed**, allowing the project to proceed to the construction phase. It's essentially a final, validated set of plans that contractors can use to build the project. • The Designer shall exercise every effort to ensure that no drawings shall be issued for tendering or construction until the "Design and Check Certificate" has been accepted by the project office. The certification guarantees design has been accurately translated into contract drawings and the design and amendments of design complied with the relevant standards at the time when they were carried out, to confirm that they are complete, adequate, and valid. • As-built documentation refers to the final set of drawings which capture any modifications or deviations from original design, ensuring an accurate representation of what was built. <u>Project Implementation and Monitoring</u> • Gather critical project documents; Identify content containing project deliverables, such as the Project Charter[9], Scope Statement and Project Management Plan (PMP)[10]. • properly planned site investigation to identify the geotechnical problems of a site and provide sufficient data for safe and economic design and construction is needed. (4 months atleast) • as details are defined, planning packages eventually evolve to work packages. This planning process is called Rolling Wave Planning a form of progressive elaboration which entails WBS chart, work breakdown structure, work packages, control accounts.

[9] A project charter is a formal, brief document that provides official authorization for a project to begin and establishes the project manager's authority.
10 a formal, comprehensive document that guides the execution, monitoring, and control of a project, acting as a roadmap for its successful completion.

Ongoing projects / Under Development	General Issues/Lessons from projects
	• Define the content of the WBS Dictionary, which is narrative description of the work covered the lowest level elements in the WBS are called Work Packages. • WBS is also a monitoring and controlling tool, accomplished by defining Control Accounts. C which are WBS Elements at which the project plans to monitor and report performance. A control account manager will analyzing the variances between the budget and the schedule to spot possible problems; developing recovery plans for any schedule or cost variance; • Work Packages cover information related to the deliverable, such as owner, milestones, durations, resources, risks, etc. • The work package description serves the project manager as a basis for operational management and project controlling. It is advisable to always describe all work packages, as this is the only way to make the entire project task transparent. they are the ideal basis for controlling,. There can only be one work package manager at a time . • Advanced Work Packaging (AWP) is a standardized way to plan the execution of a construction project starts with the priorities of construction and or commissioning and works backwards. Three levels of work package definition that may be used: 1,) Construction Work Area (CWA) 2.) Construction Work Package (CWP), 3. Installation Work Package (IWP). • IWP includes: Work package summary - inclusive of description of work, location, contact information, sequenced work steps, reference documents, estimate of work hours and quantities, cost codes, witness or hold points, and special comments quantity work sheet. • Work Package is further decomposed into activities (which are to be entered into the "Activity List"). The activity list is to be used to develop the project schedule. The work packages give us an overview of what needs to be done (for scope estimation) while the activities give detailed account of what is actually involved (for time estimation).

Ongoing projects / Under Development	General Issues/Lessons from projects
	• Decompose the Work Packages to activities as appropriate. Export or enter the Work Breakdown Structure into a Gantt chart for further scheduling and project tracking. • scheduling problem is to determine appropriate set of activity start time, resource allocations and completion times that will result in completion of project in a timely and efficient fashion. • unit productivity rates are employed commercial services can provide average productivity adjustments might be made to represent learning curve variations in average productivity. • CPM calculates task precedence's (resulting in critical path scheduling) which results in longest overall duration for the sequenced activities with start and finish time of project activities and then determines the shortest possible project completion time. • EVMS is a management tool which is used to ascertain project status, i.e. the state of previous work accomplished against where the project was planned to be.
Road Construction Projects *Malir, Ghotki,*	• Lack of good quality feasibility studies with accurate estimates • Define and lock in baseline, cost, scope, timeline • Identify all E&S impacts • Define comprehensive Key Performance Indicators • Risk transference, need to transfer design, construction and maintenance risk completely • Identify all potential relief events • Land procurement needs to be completed in all respects along the ROW, all affectees need to be paid prior to start of construction • Detailed design completed and approved prior to start of construction • All tests completed before start of construction, • Financial Close achieved before start of construction • IA/IE fees paid through independent escrow • IA/IE approvals mandatory • No deemed approval for essential aspects such as detailed design, test, financial close, E&S safeguards

Ongoing projects / Under Development	General Issues/Lessons from projects
	• Change of Scope limited to ancillary activities not for scope necessities missed in the original baseline • Escalation on four major items initial 10% on concessionaire thereafter equally. • Ownership from the department and administrative arrangements on ground i.e. PD, PMiU, Land Revenue department etc. • Recurring monitor as-built drawings, conduct tests, and approved by IA/IE • Monitor schedule and cost variance and estimate cost at completion • The treatment of alternatives also varies; sometimes alternatives are not considered in any detail, other times alternatives are addressed early in the study and it is only the favored alternative which is taken forward for detailed study. • comparisons of the order of costs for alternative schemes to select the most suitable scheme[11] • It is essential that there is close cooperation between those undertaking environmental assessment, and those undertaking the other aspects of pre-feasibility and feasibility studies. • Civil works implementation schedule should be synchronized with the land acquisition and implementation of LARPs and construction works should only be allowed in sections where land acquisition is completed and implementation of LARP is confirmed. • Once a contract between owner and contractor has been executed, the construction drawings acquire the status of legal documents: They are instruments of the contract, as well as the focal point of the construction process. • Claims in construction contracts, are governed by FIDIC conditions, and may be raised on those FIDIC conditions. • Technical Requirements of project structuring, also requires a general layout plan that also shows the location of the project

[11] https://rds.eppingforestdc.gov.uk/documents/s75459/C-067%20Civic%20Offices%20Review%20BP%20VI.pdf

Ongoing projects / Under Development	General Issues/Lessons from projects
	and a setting out plan, general arrangement of the major elements of the projects (e.g. structures), and detailed drawings. • General layout plan of a project should contain sufficient details of the Works such as *dimensions, levels and sections of the main items of the project, works sites, works areas, borrow areas, major traffic diversion schemes during construction, and a key plan showing the geographical location of the Works.* • design has to be correctly translated onto drawings, i.e. the details correspond with design assumptions, philosophies and calculations. • schematic design should be undertaken by taking into consideration of aspects, such as types of suitable geotechnical works, general layout, building configuration, road alignment etc., with a view to enhancing the cost-effectiveness. • Detailed drawings should include *reinforcement details, drainage details, utilities, etc.* • The scale of the general layout plan should be appropriate to the nature and size of the works but generally 1:200, 1:500 or 1:1000 are preferred. • Standards of drawings for projects should conform to the requirements of the Computer-Aided-Drafting (CAD)' • good practice to document the design criteria in a design memorandum for future reference. • There is a need to avoid abortive work and delay to the project (designing) due to changes in site conditions, design requirements or other circumstances after completion of the preliminary design • Checking Engineer (IE) should be is given drawings of the Works as designed, the design memorandum, other information on functional/performance requirements and applicable design standards of the Works, but without the design calculations. The Checking Engineer (IE) should then verify the design as shown on drawings by executing an independent set of calculations.

Ongoing projects / Under Development	General Issues/Lessons from projects
Water Treatment/transmission project TP1, etc.	• Prioritization of projects essential • Define comprehensive Key Performance Indicators • Meet all E&S requirements • Consider Affordability and contingent liability • Land procurement should be completed prior to tender or engagement with private concessionaires • All approvals in place prior to commencement • Engage local contractors as much as possible • Maximum reliance on local equipment and content, • park offshore risk with onshore contractor, recover sites, no horizontal defenses or Extension of Time (EOT) • Avoid International Arbitration • Recurring monitor as-built drawings, conduct tests, and approved by IA/IE • Monitor schedule and cost variance and estimate cost at completion • *Preliminary treatments remove large particles through screening and settling techniques. secondary treatments employ biological processes, using microorganisms to consume organic matter, tertiary treatment, is further purification through filtration, disinfection, and sometimes advanced methods like reverse osmosis, making the water safe for discharge or reuse.* • *"Project Administration Handbook for Civil Engineering", often referred to as a General Specification (GS), outlines main works include aspects like intake and pretreatment, desalination processes, and environmental considerations.* • *From determining the appropriate size of treatment units to assessing the removal efficiency of various contaminants, design calculations guide every aspect of plant design and operation* • *infrastructure design of a wastewater plant is critical in ensuring that treatment process runs smoothly. This includes design of pipelines, channels, and pumps. The integrity of structures ensures the long-term operation of the facility without succumbing to environmental stressors or operational demands. This entails rigorous calculations regarding load-bearing capacities, resistance to corrosion, and adaptability to fluctuating water volumes.* • *For desalination plants main technical questions pertain to spatial location selection and optimization of water intake-outlet arrangement in the construction of environmentally friendly desalination plants.* • *Site selection is affected by many factors, such as 1. water depth, 2. tidal current velocity, 3. water sediment concentration, and 4. the form of the water intake structure. Therefore, determining*

Ongoing projects / Under Development	General Issues/Lessons from projects
	the optimum site for water intake and brine outfalls is a key issue at the planning stage for coastal desalination plant projects.selection of the water intake location should take into account water depth, tidal current velocity, etc., as well as the influence of the salinity increase of seawater near the intake caused by brine discharge from the outlet into the sea. • *Project size has a significant influence on the overall production cost of desalinated waterwater production costs can be reduced by approximately 50 % when plant capacity is increased from 5,000 to 200,000 m^3/day (1.3 MGD to 53 MGD).* • *main capital cost component is plant construction (60%), followed by engineering expenditures (12.5%), approximately 65% of construction costs are equipment expenditures and 35% - labor costs.* • *operation and maintenance vary on a number of variables such as source water salinity and temperature, unit labor costs, content of particulates in the source water, biofouling propensity of this water, frequency and magnitude of algal blooms in the vicinity of the intake, etc.* • *Energy consumption (electricity for pumps), 35 – 45%, Chemicals (antiscalants, polymers, disinfection, pH remineralization) 5 – 15%, Membrane replacement 5 – 10%, Labor (operations, maintenance), 15 – 25%, Other Costs (maintenance materials, consumables, disposal fees) 5-15%.* • *Essential to the design and operation of a wastewater treatment plant are accurate peak flow rate calculations. Understanding how much wastewater flows into the plant within a given timeframe dictates the size and capacity of the facility. an underestimation of flow rates can lead to overflows and untreated discharges.* • *peak flow: PF=ADF×PFF, where: ADF or the average daily flow is the average amount of wastewater produced each day, and PFF is a factor accounting for peak flow periods or surges in wastewater.* • *Total Daily Flow: TDF=ADF+PF Total Daily Flow (TDF) Average Daily Flow (ADF) and Peak Flow (PF)* • *Manufacturers provide hydraulic loading rates in their specifications. The Hydraulic Loading Rate is the volume of water applied per unit time per unit area of a treatment system. Hydraulic Loading Rate is a fundamental design and operational parameter that ensures a treatment system is the right size for the job—balancing treatment effectiveness, cost, and physical constraints.* • *HLR = (Volumetric Flow Rate) / (Surface Area) common units*

Ongoing projects / Under Development	General Issues/Lessons from projects
	include: Cubic meters per day per square meter ($m^3/d/m^2$) - Used in metric systems. • *Loading per square foot: to clean this water effectively, need a filter that provides appropriate square feet of surface area. The size is calculated based on two things: How dirty the water is (the "particulate load"). How fast the water is flowing. Total Flow Rate ÷ Loading Rate = Filter Area* • *If the filter is too small there isn't enough contact time, and dirt, iron, and turbidity break through into clean water, it also clogs much faster, requiring frequent backwashing. Is it is too big filtration is efficient and the water will be very clean. However, equipment is unnecessarily large and expensive* • *Depending on the technology, plant scheme and quality of the treated water, wastewater treatment plants consume approximately 0.5-2.0 kWh per cubic meter of treated water* • *The industry-wide medium range energy use for production of fresh drinking water from brackish water varies in a significantly wider bracket - 0.6 to 2.1 kWh/m3, and averages 0.8 kWh/m3, for low-salinity BWRO desalination plants and 1.4 kWh/m3 for high salinity desalination plants, Reverse osmosis uses around 2.5 to 3.5 kWh per cubic metre.* • *To calculate* ***kWh usage*** *of a desalination plant,* ***multiply the plant's water production volume (in cubic meters) by the specific energy consumption (kWh/m^3)*** *essentially, kWh = Water Production (m^3) x Specific Energy Consumption (kWh/m^3)* • *medium- to large-scale plants, the aerobic digestion system accounts for 50-60% of the total required electricity, followed by the sludge treatment (15-25%) and recirculation pumping (15%) sections.* • *Water and wastewater treatment plants are starting to consider different aspects of renewable energy transition. For example, hydrogen/oxygen (electrolysis) and methane (anaerobic digestion) can be produced and used at these plants to enhance purification processes and make them more energy-efficient. Additionally, methane and/or hydrogen-oxygen can be used for seasonal energy storage.* • *CEPT not only provides an increase in biogas production but also leads to a significant reduction in phosphorous and reduction in sludge production, impacting sludge dewatering, and might have a positive effect on energy consumption.*
Transport Projects Yellow Line	• include study of model shifts and include study of transfer ratio • developed countries have adopted the 400 m (0.25 mile) as planning goals (walking) for bus stop catchment areas. In urban

Ongoing projects / Under Development	General Issues/Lessons from projects
	settings, catchment areas are often within a 1-2 km radius from a BRT station, which corresponds to a 10-20 minute walking distance • Data should be collected from passengers about how much they value their time, through: Stated Preference Surveys (SP Surveys): and Revealed Preference Surveys (RP Surveys): In the later actual behavior of passengers is observed (e.g., willingness to pay for quicker routes or services). • Use the survey to determine value of time, VOT is often higher in congested urban areas where travel time is more unpredictable, and passengers are more willing to pay for time savings. VOT can also vary based on the socioeconomic characteristics of the passengers, such as income levels, trip purpose (e.g., work or leisure), and the availability of alternative transportation options • The schedule for completing a traffic study can range from a few days to 6 weeks or longer. • different vehicle operation scenarios to assess the adequacy of the ICE/HPM generator size, based on vehicle driving range, battery SOC, ICE specific fuel consumption and emission. This should be used to determine an optimally operating EV, (HEV). • Minimum ICE/HPM generator rating may be determined such that it fulfils the range requirements and emissions based on 2015-2021 European Commission Standard. • An optimal hybridisation ratio should be applied to measure the power share between the battery and the ICE/HPM generator. • The battery peak-to-peak voltage and average and peak power should be reduced. These contribute to an improved battery energy usage and potentially lifetime operation." • USD 100 per CO2 is acceptable threshold for cost efficiency and both electric and hybrid buses at USD 100-230 per CO2 and USD750 for electric buses are much higher than this.
Industrial Zone Projects Marble City	• All E&S Issues addressed and LAA 1894 followed. • All construction plans are approved, which include adoption of practices such as the Critical Path method. All pre-commencement tests should be conducted under supervision of

Ongoing projects / Under Development	General Issues/Lessons from projects
	IE. All external infrastructure required for pre-commencement phase made ready. • Longstop date for CPs defined as well as for project. • pertaining to records and reports should include provisions for activity reports from project site, monitoring through Earned value analysis, Critical path method, and E&S monitoring reports. • A plan for the development of MIS should be finalized and should be reviewed by the Independent Appointees and approved by them. • monitor and payments including O&M fees being deposited in escrow by the zone enterprises preferably monthly at least through the MIS (online tracking of payment). • selling of plots is an obligation of SEZMC on the recommendation of independent advisory consortium, and sales proceeds shall be deposited in the escrow account of SEZMC. • Information Memorandum and the marketing plan should be evaluated by the advisory consortium to be engaged, since the private party only scored 2 out of 5 in the marketing plan. • If GoS is responsible for ensuring connectivity by road and provision of utilities these should be done timely and as per ADB SPS requirements.
Management Contracts Health, HMOs, EMOs, TTIs, RBCs	• **<u>Key Challenges and Common Issues</u>** • Selection of Consultants: Difficulty in identifying and engaging credible consultants for conducting robust feasibility studies of proposed PPP projects. • Delivery of Project Outputs: Challenges in meeting defined deliverables due to inadequate due diligence of technical requirements and ineffective monitoring of key performance indicators (KPIs). • Alignment of Service Levels and Resources: A persistent challenge is ensuring that service levels are realistically calibrated to the resources at hand—for example, matching the number of beds in HMOs or the availability of blood donors in RBC projects. Baseline Data and Verification: Insufficient availability of reliable data and timely information for

Ongoing projects / Under Development	General Issues/Lessons from projects
	establishing evidence-based baselines, which should be verified by the Independent Evaluator (IE). • Stakeholder Coordination: Gaps in adhering to clearly defined stakeholder consultation roles, particularly during the conceptualization phase of PPP projects. • Timelines and Process Adherence: Persistent challenges in following stipulated timelines for pre-feasibility, feasibility, project preparation, initiation, and execution, as required under the PPP framework. **Lessons Learned and Recommended Practices** • Adopt competitive procurement processes; avoid direct awards and minimize post-contract negotiations or amendments to project structures. • Ensure all pending construction or supply works are completed before tendering the project. • Complete all codal formalities related to the handover of primary and ancillary facilities before project commencement. • Clarify and ensure that Independent Evaluators/Independent Auditors (IE/IA) fully understand their scope of work and diligently submit timely reports and approvals. • Allow the concessionaire full responsibility for construction, refurbishment, maintenance, and repairs as per contract terms. • Prevent any delays in escrow account opening and handover of facilities to avoid operational bottlenecks. • Strengthen and adequately staff PPP Nodes/PMIU to ensure effective contract enforcement and oversight. • Proactively identify and resolve bottlenecks that may hinder project implementation. • Ensure the timely and diligent fulfilment of Conditions Precedent (CPs) and avoid practices of delaying or deferring CPs. • Reinforce that all stakeholders fulfil their roles diligently during project design, preparation, execution, and monitoring, in full compliance with the Sindh PPP Act and applicable framework.

3. PPP PORTFOLIO LEVEL IMPACTS

1. Size of PPP portfolio, relative budgetary position

Over the past 10 years Government Development space has been shrinking due to increasing non-development outlay and weak revenues due to reliance on federal transfers which have ranged around 80% of the total revenues. The Development space on average has remained around 15% which doesn't account for PPP Projects as on average one project has featured in any fiscal year and of that PPP liabilities (outlays) are usually on accrual basis.

2. Affordability Analysis:

Affordability analysis is a key element, used to ensure that an individual / entity's fiscal obligations remain under budget and no untoward large burden surfaces later on in the project.

Methodology employed:

PSF employed the following methodology to conduct an Affordability Analysis:

1. Analysis of annual fiscal commitments, using a forecast budget limit approach on how overall budget limits will evolve and considers whether the estimated annual payments for projects could be accommodated.
2. Cumulative analysis of PPP projects within an Agency/Departmental Portfolio with their ADP allocations/projections.
3. Agency wise cumulative PPP outlays versus the Annual Development Plan of the Government of Sindh

3. Project Wise Cost Impact

Table 19: Estimated Projects Costs with Risk Estimates (All PPP Projects)

S.No	Projects in Operations (Post Debt Payoff)	Inception Date	Total PV of Cost	PV of Construction Cost	PV of O&M Cost	Prior Yr	Current Year	Next Year	Next 5 Years
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
1	Hyderabad MirpurKhas	2010	7,603,668,296	6,045,000,000	4,236,470,478	-	-	-	-
	Projects in Operations (Prior to Debt Payo	**Inception Date**	**Total PV of Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
2	Jhirk Mulla Katiyar	2013	14,477,930,506	4,300,000,000	5,532,359,109	329,160,017	365,628,225	415,446,528	2,222,716,159
3	Karachi Thatta Dual Carrigeway	2015	28,807,798,408	8,856,298,066	15,930,972,000	1,834,326,411	1,581,701,581	1,114,095,572	6,216,216,271
4	Malir Expressway	2024	105,041,245,244	57,416,829,863	47,624,415,381	1,528,028,418	4,510,234,719	6,250,413,566	24,597,769,863
	Projects in Construction/Implementation	**Inception Date**	**Total PV of Project Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF/EAC/PB Minutes	RVA	RCF	2024	2025	2026	Sum of RCF
5	Ghotki Kandhkot Bridge Project	2018	50,009,400,000	30,500,000,000	48,437,268,591	956,438,474	242,236,242	243,913,940	36,158,721,698
6	Link Road	2023	1,966,768,000	1,966,768,000	NA	NA	NA	NA	NA
7	Nabisar Vajihar	2022	276,753,695,951	69,100,000,000	207,653,695,951	4,755,125,160	6,844,874,840	24,963,523,742	121,308,887,926
8	Education Management Organisation	2016	10,696,449,044	NA	10,696,449,044	1,859,984,675	1,497,415,328	1,477,042,620	7,489,528,201
9	Teachers Training Institutes	2017	1,514,800,000	NA	1,514,800,000	110,494,157	67,557,855	68,600,884	445,088,666
10	NICH Security and Safety Project	2013	544,600,000	NA	544,600,000	1,257,650,026	89,636,715	-	149,892,507
11	Health Management Organisations	2016	68,307,728,109	NA	68,307,728,109	2,096,189,819	2,281,179,349	2,395,694,318	5,675,196,895
12	Childrens Hospital North Karachi	2017	6,160,000,000	NA	6,160,000,000	857,098,981	942,808,879	1,037,089,766	1,714,197,961
13	Sindh Medical Support Program	2017	1,526,823,783	NA	1,526,823,783	-		-	-
14	Aman Ambulance	2017	1,873,390,892	NA	1,873,390,892	-	-	-	-
15	Regional Blood Centres	2019	15,260,000,000	NA	15,260,000,000	477,580,478	493,243,002	509,446,008	2,269,122,281
	Project Post Financial Close	**Inception Date**	**Total PV of Project Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Project Post Tender FBC	**Inception Date**	**Total PV of Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
	Projects Post Full Feasibility	**Inception Date**	**Total PV of Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
16	JPMC Safety and Security Project	2024		379,580,419	2,021,688,692	-	240,797,804	295,226,800	1,480,858,480
17	NED Technology Park	2024	3,294,350,407	22,359,166,497	1,715,962,803	-	88,048,237	261,345,260	2,806,643,918
	Projects During Feasibility	**Inception Date**	**Total PV of Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
18	TP 1	2024	105,518,917,010	39,579,834,758	90,823,487,642	8,039,378,083	16,078,756,166	14,429,411,308	71,035,825,088
19	TP 4	2024	106,852,169,707	196,337,412,759	230,005,060,249	-	27,787,500,000	14,962,500,000	142,605,661,926
20	5 MiGD	2024	54,386,461,292	14,528,616,807	51,933,866,910	-	5,187,450,912	5,249,017,812	24,306,923,073
21	Malir Expresway Project PH 1	2025	207,379,204,381	83,979,480,000	123,399,724,381	-	4,138,287,440	4,361,712,560	38,209,100,854
22	Marble City	2024	14,633,627,941	10,528,947,000	-		-	8,087,414,564	14,633,627,941
23	Sukkur Water Distribution (USP)	2025	200,615,288,405	39,366,610,405	161,248,678,000	-	-	-	33,862,222,380
25	Yellow Line Project	2025	86,365,430,080	42,266,404,770	44,099,025,309	-	-		27,842,569,557
26	Rani Bagh	2024	-	6,273,853,183					
27	Shaheed Benazir Bhutto Park Project	2024							
28	Carbon Reduction Project - Carbon Credits	2024							
29	Management & Operation of Public Sector	2025							
30	Drug Rehabilitation Centres	2024	193,550,024		331,795,309		20,904,444	25,294,377	73,745,056
	Projects Prior to Feasibility	**Inception Date**	**Total PV of Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
			RCF	RVA	RCF	Actual	As Incurred	RVA	Sum of RCF
	Total PPP Portfolio Risk Adjusted Cost		**1,296,108,586,695**	**631,818,034,528**	**1,069,170,319,850**	**22,005,264,880**	**70,177,082,388**	**83,751,495,306**	**559,429,319,807**

Table 20: Estimated Projects Costs with Risk Estimates (PSF Approved Projects)

S.No	Projects in Operations (Post Debt Payoff)	Inception Date	Total PV of Cost	PV of Construction Cost	PV of O&M Cost	Prior Yr	Current Year	Next Year	Next 5 Years
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
	Projects in Operations (Prior to Debt Payo	**Inception Date**	**Total PV of Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
	Projects in Construction/Implementation	**Inception Date**	**Total PV of Project Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF/EAC/PB Minutes	RVA	RCF	2024	2025	2026	Sum of RCF
1	Education Management Organisation	2016	10,696,449,044	NA	10,696,449,044	1,859,984,675	1,497,415,328	1,477,042,620	7,489,528,201
2	Teachers Training Institutes	2017	1,514,800,000	NA	1,514,800,000	110,494,157	67,557,855	68,600,884	445,088,666
3	Regional Blood Centres	2019	15,260,000,000	NA	15,260,000,000	477,580,478	493,243,002	509,446,008	2,269,122,281
	Project Post Financial Close	**Inception Date**	**Total PV of Project Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Project Post Tender FBC	**Inception Date**	**Total PV of Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
	Projects Post Full Feasibility	**Inception Date**	**Total PV of Cost**	**PV of Construction Cost**	**PV of O&M Cost**	**Prior Yr**	**Current Year**	**Next Year**	**Next 5 Years**
	Adjustment		RCF	RVA	RCF	2024	2025	2026	Sum of RCF
4	JPMC Safety and Security Project	2024		379,580,419	2,021,688,692	-	240,797,804	295,226,800	1,480,858,480
	Total PPP Portfolio Risk Adjusted Cost		**27,471,249,044**	**379,580,419**	**29,492,937,736**	**2,448,059,310**	**2,299,013,989**	**2,350,316,312**	**11,684,597,629**

Table 21: Government Guarantees in PPP Projects under Implementation

Sr. No	Project Name	Project Description	Contract Term	Capital Struture	Guarantee Type	Date on Guarantees were issued	Risk Coverage	Project Cost	Risk Coverage	Guarantee Amount/(Outstanding)
1	HMDC	58.7 Km Carrigeway	32 (2 Construction+ 30 O&M)	40% Debt, 30% Pvt Equity, 30% GoS (Sub Debt)	ntee Given/ No debt Out	NA	FR, DR, ES, COS, COR (TOR), OMR, TR	6,045,000,000	NA	NA
2	JMK	1.75 Km Bridge and 24.5 Kn	27 (2 Construction+ 25 O&M)	75% Debt, 25% Equity (13% Pvt, 12% GoS)	ntee Given/ No debt Out	NA	FR, DR, ES, COS, COR (TOR), OMR, TR	4,300,000,000	NA	NA
3	KTDC	49.5 km dualized road	27 (2 Construction+ 25 O&M)	30% Equity (15.9% Pvt, 1	Debt Repayment Guaran	12-Apr-16	FR, DR, ES, COS, COR (TOR), OMR, TR	8,856,298,066	3,189,883,169	720,000,000
4	GKBP	12.2 Km Bridge and 23.29 K	32 (7 Construction+ 25 O&M)	70% Debt 30% Equity (16% Pvt, 14% GoS)	Project Finance Facilility	28-Feb-25	FR, DR, ES, COS, COR (TOR), OMR, TR	30,500,000,000	17,000,000,000	8,500,000,000
5	Link Road	22.343 Km four-lane carria	27 (2 Construction+ 25 O&M)	100% Pvt Equity	No Gurantee Given/ No	NA	FR, DR, ES, COS, COR (TOR), OMR, TR	1,966,768,000	NA	NA
6	MEW P II	39.3 Km expressway	27.5 (2.25 Construction+ 25.25 O&M)	65% Commercial Debt, 35% Equity (20% Pvt, 15% GoS)	Debt Repayment Guaran	9-Mar-22	FR, DR, ES, COS, COR (TOR), OMR, TR	57,416,829,863	9,000,000,000	9,000,000,000
7	SNPC	2 X 50 MW Gas Power Plan	27 (2 Construction+ 25 O&M)	80% Debt, 20% Equity (10.2% Pvt, 9.8% GoS)	Collaterals / Lien (Cash +	4-Dec-23	FR, DR, ES, COS, COR (TOR), OMR, TR	12,417,160,000	7,453,530,079	7,453,530,079
8	NSV	Construction of pumping s	27 (2 Construction+ 25 O&M)	74% Debt, 26% Equity (Foreign Equity USD15mn, Mez. Debt USD10mn, Sub.Sukkuk Rs 2bn)	Debit Authority From Ac	22-Dec-23	FR, DR, ES, COS, COR (TOR), OMR, TR	69,100,000,000	27,350,000,000	27,350,000,000
9	Marble City	Industrial estate for Marbl	12 (2 Construction+ 10 O&M)	85% Customer Advances, 15% Equity (100% Pvt)	NA	NA	FR, DR, ES, COS, COR (TOR), OMR, TR	10,529,000,000	NA	NA
10	EMO Schools	81 SBEP Construction scho	10 Years (O&M)	NA	No Gurantee Given/ No	NA	OMR, COR (TOR), TR	17,530,271,590	NA	NA
11	TTIC Hussainabad	Improve the functioning o	11 Years (10M Installation 10Y O&M)	NA	No Gurantee Given/ No	NA	OMR, COR (TOR), TR	1,082,000,000	NA	NA
12	2 TTIS	Improve the functioning o	10 Years (O&M)	NA	No Gurantee Given/ No	NA	OMR, COR (TOR), TR	1,082,286,957	NA	NA
13	JICA Schools	Outsourcing of 19 public se	10 Years (O&M)	NA	No Gurantee Given/ No	NA	OMR, COR (TOR), TR	1,257,650,026	NA	NA
14	NICH	Fool proof security and fire	5 Years (O&M)	NA	No Gurantee Given/ No	NA	OMR, COR (TOR), TR	389,000,000	NA	NA
15	DHQ Badin	Hgh quality of service deli	10 Years (O&M)	NA	No Gurantee Given/ No	NA	OMR, COR (TOR), TR	1,700,000,000	NA	NA
16	CHNK	High quality service delivery at 129 bedded facility	10 Years (O&M)	NA	No Gurantee Given/ No	NA	OMR, COR (TOR), TR	4,400,000,000	NA	NA
17	RBCs	4 state of the art Regional	10 Years (O&M)	NA	No Gurantee Given/ No	NA	OMR, COR (TOR), TR	10,900,000,000	NA	NA
					-			220,825,614,476	63,993,413,248	53,023,530,079

FR	Financing Risk	COR (TOR)	Cost Overrun (Time Overrun)
DR	Demand Risk	OMR	O&M Risk
ES	Escalation Risk	TR	Termination Risk
COS	Change of Scope		

Table 22: Government Guarantees in PPP Projects completed

Sr. No	Project Name	Project Description	ppp Model	Contract Term	Project Cost	Capital Struture	Guarantee Type	Date on Guarantees were issued	Risk Coverage	Risk Coverage	Guarantee Amount/(Outstanding)
1	HMOs RHCs and THQs	61 RHCs, 3 THQs in Various Districts	O&M	Completed	191,381,100	No debt, No Equity	NA	NA	NA	NA	NA
2	HMOs DHQ, RHCs, BHUs	DHQ Khairpur, 3 RHCs, 29 BHUs Bin Qasim, Gadap Town	O&M	Completed	234,388,132	No debt, No Equity	NA	NA	NA	NA	NA
3	HMOs DHQ, RHCs, BHUs	1 DHQ Thatta, 8 RHCs, 4 THQs Thatta and Sujawal	O&M	Completed	826,000,000	No debt, No Equity	NA	NA	NA	NA	NA
4	Sindh Ambulance Service	30 Ambulance in District Thatta and Sujawal.	O&M	Completed	1,873,390,892	No debt, No Equity	NA	NA	NA	NA	NA
5	SMSP	medical/surgical supplies and consumables, maternal and new born child health initiative, primary health care referrals initiative, etc.	O&M	Completed	1,526,823,783	No debt, No Equity	NA	NA	NA	NA	NA
					4,651,983,907		-			-	-

Table 23: Capital Structure/Guarantees in planned projects

S.No	Project Name	Line Department	Project Cost	Capital Structure
Education Sector				
1	Non Formal Education	School Education and Literacy Department	NA	Under Development
2	Management & Operation of Public Sector Schools - MC	School Education and Literacy Department	NA	Under Development
Health Sector				
3	JPMC Security and Safety	Health Department	NA	Under Development
Transport Sector				
4	Yellow Line Project	Transport & Mass Transit Department	NA	Under Development
Water and Irrigation Sector				
5	TP1	Local Government & HTP Department	NA	Under Development
6	TP4	Local Government & HTP Department	NA	Under Development
7	5MGD Desalanation project	Local Government & HTP Department	NA	Under Development
8	Sukkur Water Distribution (USP)	Local Government & HTP Department	NA	Under Development
Industrial, Tech and Economic Zones and Ports				
9	NED Park	NED University	NA	NA
Parks and Recreation Sector				
10	Rani Baagh Development Project	Local Government & HTP Department	NA	Under Development
11	Shaheed Benazir Bhutto Park Project	Local Government & HTP Department	NA	Under Development
Forestation and Green Financing (Carbon Credits) Sector				
12	Carbon Reduction Project - Carbon Credits	Forest Department	NA	Under Development

4. WORK DONE IN THE QUARTER ENDED JUNE 2025

Table 24: List of Tasks Performed during the quarter

Project/Miscellaneous - Linked Activities	Date of communication (if any)	Document if any	Value Added
Yellow Line			
Work on Yellow Line BRT Draft Feasibility Study	7th April 2025	Excel and Word Files	1.adequacy of ICE/HPM generator size to determine an optimally operating EV, (HEV).
Review of Financial Model	25th April 2025	Excel File	2. An optimal hybridization ratio to measure power share between the battery and ICE/HPM generator.
Comment on Feasibility	2nd May 2025	PDF and Word Documents	3. The battery peak-to-peak voltage and average and peak power should be reduced. For improved battery energy usage
			4. Corrected errors in model, derived as estimated ridership is high, BE possible at min fare of Rs 70 per 5 km as a base rate.
			5, Requirement for buses per route, route alignment to depot, catchment area for planning,
			6. Highlighted that Government is retaining all the risk in the project despite it being a viable project.
			7. Highlighted the type and duration of surveys needed, and that higher passenger capacity and lower number of buses can cater to demand
EMOs			
Review of IE QPRs of EMO project *(sample of 2 years reports of EMO-RFP-6 Karachi Package)*	7th April 2025	Word Document	1. Review of IE/IA Performance, reference best example lesson plans, institutional mechanism development,
Draft RFP for Impact Assessment of EMO Projects	9th April 2025	Word Document	2.Technical assistance to PPP-N (SELD) and PPP-U in drafting RFP along with draft concession agreement including KPIs, Shadow Bid Analysis, tax, compliance and payment issues
MEW P1			
Review of Final USP Preliminary Review Report	8th April 2025 Onwards	Excel and PDF Files	1. Breakeven toll rates and toll volumes are per financial model of MEW P1 (USP)

	E&S Checklists	15th April 2025	Word Documents	2. Structure and Triggered MRG calculations examples (this show triggered MRG is not needed)
	Feedback on TAs response to LGD Observation	18th April 2025	Word Documents	3. Compensations for Mangroves + Cost per Km and Cost per Container of Karachi Pipri Freight Corridor.
				4. Consideration for legally protected areas, mangroves, cultural heritage, bay, estuary, surface water hydrology
				5. Emphasized importance of consultations with institutions and UNHCR definition of Indigenous people
				7. Highlighted requirements of EIA and LARP, traffic congestion issues, project alternatives, stakeholder consultations,
				8. Input on Fuel Savings, Financial rates, highlighted excess assumption of efficiencies in VFM,
5 MGD Project				
	Issues pertaining to Water Intake and Outlets for desalination plants.	16th April 2025	Word Document	1. Consideration of aspects such as tidal current velocity, for Site Selection,
				2. form of water intake structure, marine engineering and coastal hydrodynamics (waves, currents, tides), diffusion,
				3. Environmental impacts dredging etc.
RBCs Sukkur, RBC Karachi & Shaheed Benazirabad				
	Work on PAR of RBC Sukkur	17th April 2025 onwards	Word Documents	1. Review of Minutes and Contract documents, comparison between draft and signed agreements
	Feedback RBC Sukkur, Bank Statements	23rd April 2025	Email communication	2. Responses to ADB queries, retrieving Banks Statements'
	Funding Consideration for RBC Karachi & Shaheed Benazirabad	25th April 2025	Online Meeting	Virtual meeting with ADB technical and procurement team to discuss possible funding from EPPP funds for RBC SBA & Karachi
	Funding Consideration for RBC Karachi & Shaheed Benazirabad	6th May 2025	Email communication	Official communication chain with PPP-N (HD) to get necessary documents required by ADB for seeking opportunity for funding of RBC SBA & Karachi
	Funding Consideration for RBC Karachi & Shaheed Benazirabad	8th May 2025	Emails exchanged	3. Verification of financial quantum contractual commitments
	Feedback on PSC	14th May 2025	Word Documents, emails	4. Concession may need adjustments to align payments with KPIs, distinction on Non Political FM, need

				for improved communication, extract from PAM
	Guidance on improved VFM through RVA	16th May 2025	Excel File	5. Guidance on scaling of VFM
	PSC of RBC Sukkur	21st May 2025	Signed Document	Shared signed PSC with ADB to complete codal formalities for approval of funding from ADB Board
	Review on requirements of Cabinet, ADB Loan Agreement	5th June 2025 Onward	Emails, Word Document	6. Reviewed procurement and ADB loan documents requirements for financing
	Visit of RBC Karachi with ADB team	19th June 2025	Project Site Visit	Visit of RBC Karachi with ADB team to observe the execution of project, a public facility, by a private partner
Marble City				
	Feedback on EIA	22nd April 2025	Word Document	1. Impact from dust emissions and pollutants
	Marble City ROW details	29th May 2025 Onwards	PDF Document	2. work on building an understanding the Legal Opinion
	Marble City Project Key Land and Environment Requirements	4th June 2025	Word Document	3. Highlighted aspects i.e. proximity to an ecologically sensitive area, key mitigation measures
	Follow up on IFRM meeting requirements	5th June 2025	PDF and Word Documents	4.Supremene Court and High Court Judgement, Environmental Safeguard Requirements
	Environmental Mitigation Measures Shared with PPP Unit	19th June 2025	PDF and Word Documents	5.Highlighted Mitigation measures specific to Marble City and to Projects in general
	PSC of Marble City	23rd June 2025	Word Document	6.Review and Comments on PSC - Scoring based on ADB Guidelines
JICA Assisted Schools				
	PAR of Girls Education Project (JICA Assisted Program)	12th May 2025 Onwards	Word Document	1. Highlighted that VFM was possible on double shifts and made improvements to CBA calculations
	Project Screening Document Review	2nd June 2025 Onwards	Email/Discussion	2. Discussed the PSC
Carbon Forestation Project				
	Categorization (REA and IR&IP) Checklists	3rd June 2025	Word Documents	1. Review of E&S Checklists
Solarization Project in Sindh Public Schools- UNICEF Assistance				
	Consultancy TORs	3rd June 2025	Word Document	1. Provided input on consultancy ToRs to PPP-N (SELD) and PPP-U
	Meeting to finalize ToRs for consultant	12th June 2025	Virtual Meeting	Virtual meeting held with PPP-N (SELD), PPP-U and UNICEF (funding agency for consultancy assignment) to finalize the ToRs
Karachi Thatta Dual Carriageway				
	Addressing the gaps in Land Acquisition requirements	20th June 2025 Onwards	Word Document	1. Note on steps to be taken for addressing Land Acquisition Act requirements to enable funding from ADB

Future of PPP Framework - Risk Department Procedures -SAEMR				
	Presentation and input on future of PPP Framework	11th April 2025	Power Point Presentation	1. Comparative review of PSF, PPP Nodes/Unit and PPP Authority
	Risk Department Procedures	12th May 2025	Word Document	2. Shared Risk procedures to be implemented in Riks Department
	Shared an SAEMR of ADB	5th June 2025	Word Document	3. Guidance on improving SAEMR

5. SOME RISK CONCEPTS OUTLINE

Following the Sindh PPP Law (2010), the Sindh province approved and announced its policy for Public-Private Partnership in 2012. The policy requires the Government of Sindh to **consider environmental viability** as one of the key considerations for providing government support. The Policy[12] puts forward the following objectives: Ensuring **sustainable** long-term funding for infrastructure development through **mobilization of private investments**; Sustainability is an approach to business that **balances the environmental, social, economic aspects** of project-based working to meet the current needs of stakeholders **without compromising or overburdening future generations**[13]. The policy requirements state the need for ensuring **financial sustainability of infrastructure services through full cost recovery through affordable user charges and tariff structure supplemented by viability gap funding (VGF), if necessary**. The policy presents a framework for PPP projects which requires **incorporation of social and environmental safeguard provisions into the proposals to enhance their bankability**[14] and protecting the best interests of all stakeholders including end users, the government and the private sector. The Policy also places great significance on **safeguarding public interest and consumer rights** by ensuring **uninterrupted public access** to essential infrastructure and providing adequate and equal protection of end users' rights to privacy, regardless of their ethnicity, gender, age, occupation, and civil, social and economic status; It also focuses upon **public health and safety and protecting the environment**.[15]

The following write-up capture the intent of the Policy. The include some previous concepts covered in risk reports as well as on new write-up on the efficacy of P3s.

The following aspects are covered,

1. Prioritization and Economic Analysis (revised)
2. Addressing Environmental and Social Safeguards (revised)
3. ADBs note on efficacy of PPPs (new)
4. ADBs requirements on procurement (revised)
5. Cost Overrun Risk Valuations Adjustment (new)

[12] Section 7

13 https://www.apm.org.uk/resources/what-is-project-management/what-is-sustainability-in-project-management/

14 (Section 61).

15 Section 11(2)

Prioritization and Economic Analysis
The following write-up narrates the process required at the highest level of planning in terms of Needs Assessment, mistakes in prioritization, long term development planning and the new methods of economic analysis for project.

Preliminary Need Assessment Study

The key drivers for planning an infrastructure program are the service needs of the end-users. An overall **needs assessment** should be carried out taking account of the **types of services users will need,** total user demand for those services, and all sources of existing and planned delivery of services. A "**needs assessment**" is a systematic process of identifying and analyzing the **gaps between current conditions and desired conditions**, essentially determining what needs to be addressed or improved in a particular situation, Planning for infrastructure services that are provided by assets with long lives should include a needs assessment that covers a correspondingly long period. This requires a holistic view taking account of factors that might affect the **level and location of demand**, including expected and planned urban and industrial development.

Examples of needs assessments in infrastructure project development include: assessing the **condition of existing infrastructure** like roads, bridges, and water systems to identify areas of **deterioration** or **capacity limitations**, analyzing traffic patterns to pinpoint **congestion** hotspots, conducting surveys to understand community needs for transportation access, evaluating environmental impact potential, and assessing the **resilience** of infrastructure to natural disasters; all aimed at identifying gaps and prioritizing necessary improvements.

Infrastructure services can be defined and measured in total for all users and broken down into totals for specific groups of users. The strategic plan should provide at least a preliminary assessment of needs for **user groups that would be served** by particular infrastructure assets or integrated systems. These can then be **mapped to individual project interventions**.

Common Mistakes in Project Prioritization

Project prioritization is a decisive step in project management which is often connected to a series of challenges and obstacles. To ensure effective prioritization, it is important to be aware of the most common mistakes and develop strategies to avoid them. The following are some of the **common mistakes in project prioritization**:

1. **Unclear definition of objectives:** Unclear or contradictory project objectives can lead to confusion and ineffective resource utilization. Clear and unique objectives are decisive for successful projects and their prioritization.

2. **Missing prioritization criteria:** Without clear criteria for prioritization, projects can be selected on a subjective basis. A definition of objective criteria is important.
3. **Negligence of risks:** Projects with high risk should not be overlooked, since this may lead to a substantial financial loss. An integrated risk evaluation is indispensable.
4. **Lack of stakeholder involvement:** The involvement of relevant stakeholders is decisive to consider their perspectives and requirements.
5. **Missing flexibility:** With a rigid approach in project prioritization you are unable to react appropriately to changes or new information

Assessment of existing and planned service capability

The existing infrastructure should be assessed for its **ability to deliver the currently needed services** and the service requirement expected for the future. This assessment will tend to focus on existing assets or systems and the way they are currently managed. An assessment should be made of the **service capacity** of existing assets. The **service standard** provided by existing assets which are typically measured by **performance indicators** relevant to the sector. The third assessment is of **condition of existing assets**, including how well maintained they are, their age and the number of years **remaining in their useful lives**

The assessment of asset condition would need to be carried out for all assets in the system. Best practice is to prepare an **asset inventory** that records the essential details of each component asset in the system. The inventory should include at least: a description of the asset, date of installation, expected useful life, asset value, maintenance cycle.

An assessment should also be made of existing plans for new infrastructure or planned infrastructure improvements. This should include a review of existing Technical Due Diligence Studies, including those that have already been approved and those still under preparation.

Expression of Project Need

Normally, projects are conceived on the basis of existing or future need among a cross section of society. Sometimes, projects are an **outcome of political commitments**. Sometimes, they are conceived as a part of the Centre Sponsored or Provincial Sponsored Schemes or Master Plans for Cities / City Development Plans / City Traffic and Transportation Plans. In all these cases, the common factor is the **interest of the people and their need for the project.**

Ideally, projects are finalized only after an elaborate sector analysis, assessment of demand and supply for the service delivery option, identification of gaps in service delivery, and a review of local community issues that might emerge from stakeholder consultations.

A misconceived project tends to fail because there was never any real demand for the service or asset in the first place.

Type of Needs:

Projects emerge from a need to fulfill public service or economic development requirements of the general public or a specific community. Sometimes the **need is obvious such as when basic housing, health, water services, etc. are lacking or inadequate**. At other times need could be latent and based on future demand brought about by changes in aspirations or economic and social circumstances. For instance, the **development of a bridge** across a *river where people initially commuted by way of ferry* is an outcome of the **expressed need of the people**. On the other hand the development of an **integrated township** is also an outcome of a **latent need** among people to *organize their livelihoods and function in a non-congested and well planned city*.

There are two kinds of needs:

1. A need which is an **improvement on the existing facility**, such as greater capacity, newer technology or integration of the existing facility with another service/project. Road widening and increasing the capacity at airports or ports.
2. A new need for a **service or facility which was never there before**. New townships and industrial clusters.

   Project needs can be similarly categorized as either a need for development in an area with no basic infrastructure in place at all or the need for development in an area which has some basic infrastructure. In certain cases, the public entity proposes the creation of **completely new infrastructure** in a place where even a basic water or power supply or connectivity is barely available. Other projects are conceived to **improve services in places where infrastructure already exists;** these could be a sewerage network in a metro or the construction of a new international convention Centre in the heart of a city.

Development Plans and Economic Analysis

The development of Hebei Province in the Peoples Republic of China's (PRC) was anchored on Five Year Plans, the 11th of which occurred in 2006 and 2010 , This policy supports the **PRC's vision of a "harmonious society", in which the benefits of economic growth are shared more equitably**. These lines mirror the intent of economic analysis CBA answers the question "Will project benefits exceed project costs"? This done by an estimation of fiscal impact of the project and its implications for government involvement i.e. indication of expected user charges and any implied subsidies**.** However **these methods are more suitable to assess entire investments on infrastructure in a country or a province, rather than assessing individual projects.** Appraisal of public sector projects no longer requires major shadow price adjustments in most countries, but developing

country governments remain important providers (or partners in public-private initiatives) of physical and social infrastructure whose economic benefits will typically not be captured in market transactions and will therefore not show up in financial appraisals. **Instead the estimated economic benefit of water supply in Shengfang is based on the results of the CV survey** conducted in Kazuo County (Liaoning province).

CV Method Analysis

In respect of projects **CV method analysis evaluates policy aims to overcome constraints on growth** identified through focus group discussions, for example, to **support and promote economic development through the expansion of industry and increased incomes, improve health conditions, promote water conservation, reducing travel** time and VOCs, employment opportunities, improve access to social services. Focus group discussions help in identifying (or confirming) **major constraints**. However, application of the CV method in developing countries is a cause for concern because poorly designed and administered CV studies **produce unreliable WTP estimates**

Calculating project benefits using WTP involves having reasonable confidence about the estimated mean WTP value, so it can be readily used in project economic analysis. The mean WTP multiplied by the number of users served by the project provides the total gross benefit of the project. Information can be fed back to engineering designs to avoid under-capacity/excess capacity issues in designing projects. The predicted uptake rates with the most plausible policy scenario answer the effective demand question directly and provide additional information on financial sustainability, and overall viability of the project.

The results of a CV study, together with the estimated WTP functions, can be used to gauge effective demand and to predict the rate of acceptance of a proposed improvement. Effective Demand is % of users/commercial establishments willing to pay for the project as predicted using the WTP function. The estimated WTP function is used to predict demand under different future scenarios.

The acceptance rate (or uptake rate) is a proxy for quantity in the usual price–quantity relationship. The revenue is calculated by simply multiplying the predicted number of users by the bid/tariff The results of the sensitivity analysis show that project benefits are sensitive to mean WTP i.e. how far mean WTP needs to fall to reduce the EIRR breakeven.

Unbundling the Demand: Conjoint Analysis

CV studies focus almost exclusively on **fees/ charges** as the primary factor that determines demand for WSS. However besides charges, consumers value multiple service attributes (Eto et al. 2001). WTP can be estimated for each attribute through the use of a variant of the CV method called conjoint analysis. This means that demand can be unbundled to different attributes to allow the design of

better service delivery, In the elicitation question, these attributes are fixed at levels taken to reflect household preferences. The estimated WTP values in CV studies therefore, do not reveal **household preference for different levels of these attributes, but correspond to the fixed level for each attribute**. Conjoint analysis therefore treats commodities as a combination of a series of attributes offered at varying levels. Discrete Choice Experiment (DCE)) is a form of conjoint analysis, but more structured and grounded in random utility theory. Rather than asking for a price, respondents are asked to choose between alternatives defined by attributes (e.g., cost, wait time, technology level). From these choices, you can infer WTP and trade-offs.

For a water supply study, the relevant attributes identified were the monthly water bill (cost), hours of supply, water quality, volumetric consumption, and service alternatives. These attributes were chosen based on the **findings of focus group discussions**, interviews with households, and meetings with relevant government officials.

The next step in conjoint analysis is to develop an **appropriate experimental design**. For example, a 24-hour supply of the highest quality water at the highest consumption level together with the best service quality cannot be provided with a low monthly bill. Such incompatible choices should be removed from the conjoint experiment. The experimental design therefore selects a subset of choices to be used in the conjoint experiment.

One advantage of conjoint questions over a basic CV question is that it can extract more information from the same sample, as it provides more than one choice to a household in an interview. The **responses for the given choices can be modeled** using a conditional logit model **to estimate WTP for each attribute**. The conditional logit model can also be used further to **calculate the marginal WTP (MWTP) for each attribute.**

Addressing Environmental and Social Safeguards

The following write-up explains what environmental and social impacts are and how they are addressed from the identification of the impacts, the management tools used to address them, the requirements for consultation, disclosure, funding and approvals.

What are environmental and social impacts

When we talk about Environmental and Social (E&S) safeguards we are essentially dealing with the following:

Environmental conditions: Climate and meteorology Landscape and land use Geology and geomorphology Hydrogeology Hydrology Soils Flora and habitats Fauna

Physical (Hydrology, Soil Erosion, Landscape Change, Physical Hazard, Electrical Hazard, Noise, Heat, Radiation)

Chemical (Respiratory Hazard, Air, Soil, Water, Plants, Human, Animal)

Biological (Wildlife and Wildlife Corridor, Ecologically Sensitive Areas, Water Bodies in the area, Wetland Ecosystem, Aquatic Ecosystem, Aquatic Weeds),

Socio-economic conditions Demography, Economy, Employment and income Social services Vulnerability of population and IDPs Tourism

Socioeconomic (Property Residence, Agricultural Land, Sound, Disease Ecology, Employment Opportunity, Local Services, Migrant Workers And Local Population)

Environmental Safeguards

Environmental safeguards, policies and requirements, seek to avoid, minimize, or mitigate adverse environmental impacts. Each PPP project needs to be scrutinized as to its type, location, scale and **sensitivity and the magnitude of its potential environmental impacts**. For clarification, environmental impacts include those related to the; 1.) natural environment (air, water, and land), 2.) human health and safety, and 3.) transboundary and global environmental aspects.

The management tools for conducting a robust environmental assessment may include developing project impact evaluation matrices and plans such as: 1.) climate risk assessment, 2.) biodiversity action plan, 3) cultural heritage management plan, 4.) labor management plan, 5.) community health and safety plan, 6.) stakeholder engagement plan, 7.) land acquisition plan, 8.) livelihood restoration plan; 9.) Indigenous Peoples plan, and other plans.

Importance of a good design and consideration of project alternatives

Government of Pakistan, Guidelines for the Preparation and Review of Environmental Reports, November 1997 state the relationship between environmental assessment and good design as a **good design practice will include careful consideration of environmental issues**.

It may be asked why environmental assessment is necessary beyond good design. Experience in both industrialized and developing countries shows that there are *two systematic difficulties in ensuring good design practice.* The first of these lies in the **lack of interest***, and consideration* during the planning and design process, shown by many project proponents in the possible effect of proposals on environmental resources. The second results from **differences in design assumptions on impacts, and the actual outcomes when the project goes into operation.** Environmental assessment should address both these difficulties. There is a need to ensure that **design-build proposers do not assume an unnecessary amount of risk in the event the SEPA process results in a significant change in the proposal.** By doing this the amount payable by the contracting agency to the design-builder *would not include significant contingency* as the result of risk placed on the design-builder associated with significant changes in the project definition arising out of the SEPA process.

The guideline also underline the need integrated environmental assessment; When significant impacts are identified in a proposal, a range of questions arise as to the best way to minimize the adverse effects—**can the project objectives be achieved in a different way, should an alternative site be chosen, is the technology appropriate, and are prudent mitigating measures incorporated?** The *treatment of alternatives also* varies; sometimes alternatives are not considered in any detail, other times alternatives are addressed early in the study and it is only the favored alternative which is taken forward for detailed study. It is essential that there is close cooperation between those undertaking environmental assessment, and those undertaking the other aspects of pre-feasibility and feasibility studies. The cooperation needs to be continuous, to allow for continuous project modification in response to environmental issues, and to ensure that the environmental assessment continues to proceed on the basis of the emerging design concept for the project. In many cases, the cooperation will be facilitated when the various components of the feasibility study are undertaken in an integrated manner. Where this is not possible, then the activities should proceed in parallel.

Disclosure requirements to prevent bias

Pakistan Environmental Protection Act (PEPA), 1997, states requirement for maintaining separate Registers for initial environmental examination and environmental impact assessment projects, which shall contain brief particulars of each project and a summary of decisions taken thereon, and which shall be **open to inspection by the public at all reasonable hours.**

The PPP Act also requires environmental and safety **requirements** to be **mentioned in the draft PPP Agreement as part of the bid documents** at the bidding stage[16]

GoP Guidelines for the Preparation and Review further state about making environmental assessment credible because matter who prepares the Environmental report, some bias will exist; and bias is not restricted to proponents, nor to Agencies and Departments, but will be present in every NGO or community member who contributes or comments on an Environmental Report. **Full public involvement provides a counterbalance to bias**, and some further measures will also assist in making the environmental assessment process transparent, accessible and accountable to the public. These measures include: 1.) a requirement for the proponent to *register all consultants' names and their terms of reference* with the Responsible Authority 2.) the listing of all consultants, their expertise and responsibilities and publishing the terms of reference in the environmental report; 3.) making all environmental reports available to the public; 4.) publishing lists of decisions–including the requirement for an EIA and the final outcome of environmental approval– along with the public availability of any recommendations for mitigation and impact management plans. The purpose of aforementioned requirements is to ensure that there is an objective environmental safeguards assessment, that so that public officials and citizens have the necessary environmental impact information for actions before actions are taken. The PPP Policy of 2012 emphasizes the need for providing information to the public about the obligations of the private sector and the Government.

Funding for E&S safeguard requirements

Government support approved by the Board for a project may include any of the following, administrative support to the private party in **obtaining licenses and clearances for the purposes of the project on such terms and conditions as may be prescribed; provision of utility connections for power, gas and water at project site; acquisition of land or rights of way necessary for the project; rehabilitation and resettlement of displaced persons directly required to execute the project; and any other administrative responsibility**; PPP Act requires *requests for government support* described shall be an integral part of the project proposals submitted by the Agencies[17], after approval of the Board, the Unit is required to make necessary arrangements for **including such support in the budget.** The Unit shall review and analyze all requests for government support with budgetary implications and shall evaluate the justification and eligibility for such support and the fiscal impact of the related direct and contingent liabilities. Based on this review and analysis, the Unit shall make commendation to the Board for approval, rejection or reconsideration of the requested support. All of the **government support for the project shall be clearly indicated in the bidding documents** and included in the Public-Private Partnership

16 (Sec. 16(3)V).

17 Section 15

Agreement. In carrying out the risk management function, the PPP Unit shall ensure the inclusion of approved government support in the Government's Annual Development Program[18]

Due Diligence

PSF is to endeavor that all concession agreements for PPP projects financed through the New VGF will contain adequate social protection covenants requiring, among other things, that concessionaires / private parties comply with: all *applicable laws and regulations of Pakistan*; the Financing Sources' environmental and social safeguard policies e.g. *ADB's SPS; core labor standards* and the applicable laws and regulations of Pakistan, including, but not limited to, the requirements relating to **workplace occupational safety norms**; *no use of child labor;* **no discrimination** against workers in respect of employment and occupation; **no use of forced labor.** The PSF will further endeavor that the workers engaged by the Concessionaires / private parties for the PPP projects are not restricted from developing **legally permissible means of expressing their grievances** and protecting their rights regarding conditions and terms of employment.

Procedures for Environmental and Social Assessment of PPP Projects (Project Preparation Phase)

Key environmental features in project area identified during inception/scoping stage based on **desk study of engineering investigations, reconnaissance survey and initial stakeholder consultations**. **GPS coordinates for sites** should be provided to help the prospective bidders to conduct their **desktop evaluation of the sites** and supplement it with additional studies such as Critical Habitat Assessments**.**

For a project with high resource demands, the government has to undertake an early stage **best available technologies (BAT) study,** benchmarking the project against relevant global comparators and conduct as applicable **water balance studies** or **mathematical modelling as part of project development and design.** Integrated Biodiversity Assessment Tool (IBAT) assessments evaluate biodiversity risks and opportunities using data from the **IUCN Red List**, World Database of **Protected Areas**, and World Database of Key **Biodiversity Areas**. IBAT is a subscription-based service that provides access to these dataset. A water balance assessment is **estimated for each catchment to understand surface water and groundwater split**. The assessment consists of a calculation that accounts for all significant inputs and outputs of water to and from the surface water and groundwater systems and any interactions between them.

Procedures for Environmental Management and Compliance during Project Implementation

The PPP Agreement must include appropriate *provisions preventing the concessionaire from proceeding with physical construction* prior to the completion of the SEPA process (**contract hold**

[18] Section 27

points or another **method of issuing multi-step approvals** must be used); also the *design-builder must not prepare* the SEPA document or have any decision making responsibility with respect to the SEPA process.

Sindh EPA and ADB SPS Requirements

Sindh EPA Review of IEE & EIA Regulations, 2014, **require public participation in the case of an EIA,** the Agency shall simultaneously with issue of confirmation of completeness cause to be **published** *in any English or Urdu national newspaper and in a local newspaper of general circulation in the area affected by the project, a* ***public notice*** *mentioning the type of project, its exact location, the name and address of the proponent and the places at which the EIA of the project can*[19]*,* be **accessed.** The notice issued shall fix a date, time and place of **public hearing for any comments on the project or its EIA**. The date fixed shall not be earlier than **fifteen days from the date of publication** of the notice. The Agency shall also ensure the **circulation** of the EIA to the concerned government agencies and solicit their comments thereon. All **comments** received by the Agency from the **public or any Government Agency shall be collated, tabulated and duly considered** by it **before decision on the EIA**. The Agency may issue guidelines indicating the basic *techniques and measures to be adopted to ensure effective public consultation,* involvement and participation in EIA assessment.

The environmental management plan (EMP) will include the proposed **mitigation measures**, environmental **monitoring** and **reporting procedures** to ensure **early detection of conditions that necessitate particular mitigation** measures, definition of **thresholds that will signal the need for corrective actions** related **institutional arrangements**, **capacity development/training measures**, cost estimates, **budgets implementation schedule**, **performance indicators** and document the progress and results of mitigation. **If some residual impacts are likely to remain significant after mitigation, the EMP will also include appropriate compensatory measures (offset)** that aim to ensure that the project does not cause significant net degradation to the environment. Such measures may relate, for instance, to conservation of habitat and biodiversity, preservation of ambient conditions[20], and greenhouse gas emissions. **Monetary compensation in lieu of offset is acceptable in exceptional circumstances**, provided that the compensation is used to provide **environmental benefits of the same nature and is commensurate with the project's residual impact.**

Where unanticipated environmental impacts become apparent during project implementation, the borrower/client will update the environmental assessment and EMP or prepare a new environmental assessment and EMP to assess the potential impacts, *evaluate the alternatives, and outline mitigation measures and resources to address those impacts.*

[19] subject to the restrictions in sub-section (3) of section 17,

[20] Ambient conditions are the environmental factors that surround a system or object, such as temperature, humidity, air pressure, and light intensity

The draft environmental assessment (including the EMP) is *to be disclosed in a timely manner, during project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders.* For illiterate people, other suitable communication methods will be used. Subsequently the final environmental assessment, and its updates if any, are disclosed to affected people and other stakeholders. Thereafter the requirements are to implement the EMP and monitor its effectiveness through prepare **periodic monitoring reports that describe progress with implementation of the EMP and compliance issues and corrective actions, if any.** Once the project implementation starts, monitoring of EMP implementation will start according to the monitoring plan given within the EMP.

Social Safeguards

Social safeguards screening and categorization process at project inception stage. All displaced persons are informed of their **entitlements and resettlement options.** It involves a comprehensive assessment of social impacts, involving census of all displaced persons, and an inventory of their lost assets; For this purpose, normally a **cut-off date** will be established by the host government procedures. Information regarding the cut-off date will be documented and disseminated throughout the project area.

The **scope of resettlement planning** is determined through a **social impacts assessment survey (with appropriate socioeconomic baseline data)** and **census of displaced persons,** with an assessment of lost assets and livelihood resources **and a gender analysis,** *specifically related to resettlement impacts and risks.* **Census of DPs and inventory of losses** will constitute a baseline for monitoring of LARP implementation progress.

Socio economic survey involves **focus groups discussion and elicitation through survey/survey based instruments**. Socio-economic survey of a sample of at least 25 percent of displaced persons; and detailed measurement survey (i.e. exact description and quantification of all lost assets by qualified appraisal experts), and valuation of all lost assets as well as an assessment of lost incomes will be carried out. For the purposes of valuation of assets Pakistan Banking Association (PBA) enlisted Professional Valuers for assessment of value of assets located in Pakistan may be used.

Information Disclosure and Grievance Redressal Procedure

It will be required by each PPP Node to establish **project-based GRM for speedy and amicable resolution of community concerns and grievances**. The PPP Node based GRM will maintain records of the following: *Complaints, grievances, or protests received from local communities,* **recording dates and organizations** involved, actions taken to resolve grievances, any outstanding issues, proposed **measures for resolution;** Details of **information disclosure and consultations**, if any, with affected people, local communities, civil society groups, and other stakeholders; Details of **approach/methodology** on addressing the concerns and issues raised at consultations.

Due Diligence Modality for Existing Facilities

Where the Financing Source's funds are desired for PPP projects that either already exist or are under construction, the relevant PPP Node / PMU will be required to conduct, and submit to the PSF, an environment and / or social compliance audit, including on-site assessment, to identify past or present concerns related to impacts on the environment, involuntary resettlement and Indigenous peoples.

The purpose of the aforementioned due diligence / compliance audit shall be to determine whether actions were in *accordance with the respective Financing Source's (eg. ADB) safeguard principles and requirements* so as to identify and plan any appropriate measures to address outstanding compliance issues. Where a non-compliance shall be identified, a Corrective Action Plan shall be prepared by the Node and agreed upon by the PPP Unit and PSF and the respective Financing Source. The corrective action plan (CAP) will define: necessary **remedial actions**, the **budget** for such actions, and the **time frame for resolution** of any non-compliance(s).

Land Acquisition Process:

The agency and project implementation consultant will work closely with the design engineers and concerned land administration officials, they will also prepare measurement surveys, socio-economic assessment and perform consultations with APs. The land acquisition process includes **conducting of surveys, measurements, valuation, inquiry on objections, formal declaration of intent to acquire land, dispute resolution, payment of compensation and taking possession of the acquired land**.

PSF endorsed final LARPs/IPPs for all Category A projects will also be reviewed, accepted and disclosed by the Financing Source (e.g. ADB) **prior to issuance of commencement certificate.** The valuation method for determining replacement cost is Applicable to all structures located on affected area at cut-off dates. Compensation will be paid prior to dismantling and removal of the structures as per civil works requirements.

Replacement cost refers to the method of valuation that help determine the amount sufficient to replace lost assets and cover transaction costs. For land, replacement cost is referred to pre-project value of the land of similar type/quality, plus transaction costs (e.g., administration charges, title or registration fees etc.). interest accrued, transitional and restoration costs; and other applicable payments, if any. In applying this method of valuation, depreciation of structures and assets should not be taken into account. Replacement cost, based on C&W rates, must reflect current material costs, labor etc.; the **valuation report by structure types to be annexed in the resettlement planning document.**

Land administration officials are to be requested to provide existing records for the DPs and lost assets. Based on these records agency/PPP Node and project implementation consultant, undertake census and inventory of lost assets, in consultation with DPs at each affected property ***LAR impact maps*** *showing the alignment of project facilities will be prepared.*

ADBs note on efficacy of PPPs and procurement requirements

This write up compares two typical procurement types: traditional procurement and public–private partnership (P3)s in the Asian context. It speaks of the PPP mechanism delivering efficiency as being entirely dependent on the specific project.

The PPP system was hastily promoted when the national treasury nearly went bankrupt after the Asian financial crisis. At that time, the government was unable to devote the resources needed to make the most of the new system; the emphasis in those crisis times was on pushing through as many PPP projects as possible, despite many constraints to doing this. Since then, the government has made a big effort to promote PPPs to relieve the financial burden on social infrastructure funding and tap the **private sector's creativeness and efficiency**. Bundling effects of PPP contracts, which is one of the main sources of **efficiency, is limited under the current economic and political environment and derive policy implications for developing countries implementing PPP projects in the region.**

Like the Republic of Korea, many countries adopted the PPP modality in the early 1990s and its use has been increasing. As Engel, Fischer, and Galetovic (2013, p. 84) put it, "As the economics of PPPs is still imperfectly understood, practice has run ahead of theory." Indeed, there is **no theoretical basis or empirical evidence showing that PPPs can reduce the government's financial burden and make public investments more efficient**— as many private contractors and government administrators involved in PPP projects assert. **Studies on projects show that PPPs may or may not lead to easing a government's financial burden and boosting efficiency either, depending on the project itself.**

The competent authority may be a public sector entity such as a local government or line ministry that is responsible for implementing a PPP project. It should consider, among other things, the feasibility of proposed projects and their consistency with related long-term policy directions.

The most important policy implication derived is **that PPPs are not always more efficient than traditional procurements. Only if the contracts and implementation of P3s are well designed the efficiency of these partnerships can be enhanced**. As seen in the PPP model for the Republic of Korea, the **results are similar to those from a traditional procurement**, **rather than to an ideal P3.** Should a government promote PPPs as an alternative to traditional procurement to enhance efficiency, it needs to **make the P3 mechanism as close as possible to the ideal model of a P3. Strengthening competition in P3 markets would be a good way of going about this**. In sum, the bundling effect is a key component that affects the efficiency of P3 projects. Thus, there is a need to examine if it is effective and, if not, the problems that reduce the effect should be resolved to maximize the efficiency of a P3 project. Please refer to the inclusion of cost overruns disclosure that we have introduced as part of the information on PPP projects disclosure, onwards from this risk report.

ADBs requirements on procurement
The following is a recap of ADBs requirement on procurement in alignment with the responsibility, under the terms of its Charter, to ensure that projects which it finances are carried out with due regard to "economy and efficiency

Documents for Changes in the Work

In accordance with the Guidelines/Regulations, ADB requires its borrowers or recipients of grants (hereinafter referred to as "Borrowers") or their Project Executing Agencies ("Executing Agencies") to submit a "Bid Evaluation Report" for ADB's approval (as early as possible) prior to award of contract in case the contract is subject to ADB prior review. For contracts subject to ADB's prior review, the Executing Agency should furnish to ADB, at least 4 weeks prior to expiration of bid validity, three copies of the complete bid evaluation report together with a covering letter upon award of contract or as otherwise specified in the financing agreement.

Bid Evaluation Reports prepared by Borrowers, Executing Agencies, and their consultants ("Consultants") in response to ADB's requirements have often been inadequate in form and substance; in many cases, ADB principles and procedures for procurement have not been fully met or, in some instances, violated. In such cases, it becomes necessary for ADB to obtain additional information or to request clarifications and additional analyses after the receipt and initial review of the report.

ADB is responsible, under the terms of its Charter, to **ensure that projects which it finances are carried out with due regard to "economy and efficiency."** ADB shall ensure that the proceeds of any loan made by ADB are used only for the purpose for which it was approved, with due attention given to considerations of economy and efficiency[21].

The Guidelines/Regulations built upon these Articles to define six core principles to guide ADB's procurement procedures and requirements: economy, efficiency, fairness, transparency, quality, and value for money.[22] Two of these are of particular importance.

- **Quality: procuring inputs and delivering outputs of appropriate standard in a timely manner to achieve the project outcomes, taking into account the context, risk, value, and complexity of procurement**
- **Value for money:** obtaining optimal benefits through **effective, efficient, and economic use of resources**..

[21] Procurement Guidelines Page 1 General Considerations
[22] What principles guide ADB's procurement? | Asian Development Bank

Fair, accurate, and transparent evaluation of bids is one of the most important aspects of procurement. Also, ADB must be satisfied that its objectives of economy, efficiency, transparency, and fairness among bidders have been met.

Purpose of Bid Evaluation

The main purpose of bid evaluation is to determine the **lowest evaluated substantially responsive bid** among the bids submitted on or before the bid closing date and time specified in the bidding document. In order to determine accurately the lowest evaluated substantially responsive bid in accordance with the terms and conditions of the bidding document, a **logical systematic evaluation procedure designed to cover all aspects of the evaluation process** as described in the bidding document should be followed.

ADB issues Standard Bidding Documents (SBDs) for different bidding procedures and for different types of procurement (Goods, Works, or Plant). It is assumed that the **actual bidding document issued by an Executing Agency has closely followed the SBD issued by ADB for the particular type of procurement and bidding procedure.** There are certain principles and practices of ADB in a bid evaluation that must be clearly understood and observed in the bid evaluation process.

Clarification and Modification of Bids

No bidder will be permitted to modify its bid after the bids have been opened. Only clarifications, which do not change the substance or price of the bid may be requested or accepted by the Executing Agency.

Qualifications and Track Record of the Bidder

Only the qualifications and track record of the Bidder itself are considered in the evaluation, **and not those of the Bidder's subsidiaries, parent entities, affiliates, or subcontractors, unless specifically permitted in the bidding document.** For certain key elements or activities of required experience the bidding document may allow the required experience to be met by specialist subcontractors/ manufacturers.

Lead Partner's project experience in terms of cost should be clear as to what nature of project and the corresponding cost submitted as part of the bid. **Experience on key activities should be given**, If lead Partner's similar projects submitted scope of work does not cover construction but is only building renovation work then it is not considered similar. Thus similar projects submitted may turn out not to be similar in scope.

Determination of Substantial Responsiveness of Bids

Bids without any deviations from the requirements of the bidding document are declared responsive, while those with deviations that are confirmed to be material or major are declared non-responsive. A bid is also considered non-responsive if **any deviation on critical requirements of the bidding**

document or any condition stated in the submitted bid cannot be reasonably translated into monetary values for financial adjustment.

Substantial Responsiveness to Commercial Terms and Conditions

Key examples of **nonconformance to commercial terms and conditions, which are justifiable grounds for rejection of a bid**, are **inability to meet the critical delivery schedule or work schedule clearly specified in the bidding document,** where such schedule is a crucial condition with which bidders must comply or the inability to accept the price adjustment formula of the bidding document

Substantial Responsiveness to Technical Requirements in Procurement of Goods and Procurement of Plant (Supply Component)

All bids must be checked for substantial responsiveness to the technical requirements of the bidding document Examples of n**onconformance to technical requirements, which are justifiable grounds for rejection** of a bid, are as follows:

a) failure to bid for the required scope of work (e.g., for the **entire works or a complete package or a complete schedule**) as instructed in the bidding document and where failure to do so has been indicated as unacceptable;
b) failure to quote for a major item in the package; A **major item is approximately 10 percent or more of the total bid price or is an item that, if omitted, makes the bid substantially incomplete**
c) failure to meet major **technical requirements** (e.g., offering completely different types specified, plant capacity well below the minimum specified,); and
d) failure to submit type-test reports for critical equipment, as clearly specified in the bidding document.

Substantial Responsiveness to Technical Requirements in Procurement of Works and Procurement of Plant (Adequacy of Technical Proposal)

In works and plant contracts, the evaluation of the technical proposal and technical alternatives is intended to confirm to the Executing Agency that a bidder demonstrates sufficient understanding of the requirements of the contract, and **possesses an acceptable plan or strategy to complete the works within the required time.** An **adequate technical proposal should exhibit internal consistency among the required elements of the technical proposal covering the entire scope of work** as described in Employer's Requirements of the bidding document. These are the statement of work methods, including sourcing of materials, site organization, personnel and equipment mobilization schedule, and the construction and completion schedule.

Preparation of Tables of Substantial Responsiveness of Bids

Bidders are not permitted, to change the substance or price of their bids. Clarifications and responses must be in writing. The records of all clarifications sought and received must be kept by the Executing Agency responsible for bid evaluation.

Bid price comparison is usually the final and the most critical step in the bid evaluation process. Factors or other criteria not listed in the bidding document shall not be introduced during the bid evaluation.

Adjustment for Deviation from the Delivery Schedule or Completion

In principle, unless specifically stipulated as a basis for rejection in the bidding document, bids offering marginally different delivery or completion schedules should not be rejected. However, the bidding document should specify the time limits which are acceptable to the Executing Agency and the manner in which any price adjustment will be applied. The price adjustment for later delivery or completion is calculated using the liquidated damages provision in the Conditions of Contract. **Liquidated damages are intended to provide a clear, pre-agreed method of compensating the public sector for any loss or inconvenience resulting from a delay or non-performance by the private partner**. **These damages serve as a deterrent against delays and as a way to quantify the losses resulting from such delays, without the need for lengthy legal disputes. They ensure that the private partner has a financial incentive to complete the project on time and to the required standards**. The percentage of liquidated damages, both the rate for delay and the maximum deduction, is detailed in the SCC, which is specific to that particular contract.

The maximum limit for the price adjustment should normally be 10% of the bid price. **Any bid which requires a price adjustment in excess of 10% for late or early delivery should be considered nonresponsive and the bid rejected**.[23] FIDIC contracts often include provisions for liquidated damages, and common caps for contractors may be around 5-10% . As per the world bank, the level of these damages should impose an adequate **incentive on the contractor to complete on time 10-25 per cent**[24]. of the contract price as a maximum limit is a reasonable guideline.

Adjustment for Technical Compliance

Rectification in the awarded contract of minor deficiencies, including replacement of non-compliant, missing, or ineligible items may be based on the evaluated price adjustments or the agency estimates for the items with minor deviations. Deviations are declared "minor" because their **costs "to be made good" can be estimated and are less than 10% of the bid price.**

The **final contract amount agreed between the Executing Agency and the successful bidder should not exceed the bid price** (as corrected for arithmetical errors, with discounts applied if

[23] https://www.adb.org/sites/default/files/bid-evaluation-guide.pdf Page 15
[24] https://ppp.worldbank.org/sites/default/files/2024-09/construction_contracts_checklist_en.pdf Page 4

offered,) **and the amount to make good any minor deviations in the scope of supply and technical compliance**) **of the second lowest evaluated substantially responsive bidder**. In proposing the additional amount, the Executing Agency should note the following: cost of making good the minor deviations should be included in the contract amount, provided that this cost **does not involve new items** that would constitute a violation of the Guidelines or of the Regulations, i.e., that "a **bidder shall not be required, as a condition of award, to undertake responsibilities for work not stipulated in the bidding documents or otherwise to modify the bid as originally submitted**

Maximum Amount of Adjustment for Deviations

In some cases, bids contain so many deviations requiring adjustments to the bid price such that the total value of all adjustments constitutes a large percentage of the bid price. In such cases, **each deviation by itself may be considered minor but both the number of deviations and their total value make it necessary to consider the bid nonresponsive as a whole.** In other instances, adjustments for only one or a few deviations have a relatively high monetary value, as would be the case with deviations regarding retention money or liquidated damages. **Fifteen percent of the bid price is considered an appropriate limit for the total monetary value of all adjustments to the bid price; if the total exceeds 15% of the bid price, the bid may be rejected as nonresponsive**.

Detailed Evaluation of Bids for a Civil Works Contract.

Where bidding documents require the bidder to provide drawings and/or a breakdown of the price of any bid item in support of its unit rate or price for that item, **any component that is missing from the drawings and/or the breakdown of the price of a bid item shall be loaded during evaluation for the price of the missing component. This adjustment, however, needs to be specifically provided in the bidding document**.

A bid is considered unbalanced if the unit rates in relation to the estimate and the rates quoted by other bidders are substantially higher for certain items of work, and lower for others. This becomes an issue when the items with substantially higher rates are those to be performed early in the contract or for possibly underestimated quantities. In this case, a bidder may purposely quote high unit prices for those work elements to be performed early in the contract period so as to increase the early payments. The same situation can arise in some supply, delivery, and installation contracts. This results in a higher cost for the Executing Agency (i.e., interest on early payment) and more importantly, the incentives for the contractor to complete the works are considerably reduced since the payments the contractor will receive during later phases of the contract may be smaller than the actual costs.

Confirmation of Qualifications and Recommendation for Contract Award

As a final step prior to award, the Executing Agency should always ensure that the bidder whose bid has been evaluated as the lowest evaluated substantially responsive bid has the **financial and technical capability or qualifications to execute the contract satisfactorily**. If this is established, the contract shall be awarded to the bidder who submitted the lowest evaluated substantially responsive bid.

The resources (financial, technical, and human) allocated for the project should be **used efficiently, avoiding over-expenditure and ensuring that the project is completed within its budget**. Ensuring that **project milestones are achieved on schedule is a key part of maintaining both economy and efficiency**. Delays can lead to higher costs and inefficiencies. In practice the economy and efficiency principle is applied at every stage of the procurement process, from planning and bidding to execution and monitoring.

The CORVA Framework: A Concise Overview
This framework provides a sound alternative to traditional historical-based or subjective risk estimation methods, fully conforming to international project delivery standards. ISO 37000 (Governance): ISO 31000 (Risk Management): ISO 19650 (Information Management)

Cost Overrun Risk Valuation Adjustment (CORVA) is a prescriptive model that quantifies the financial contingency required for a project by mathematically linking the maturity of its control environment to the probability of a cost overrun. It aligns with global best practices in governance, risk management, and engineering contracts.

1. Core Principle: Deterministic Risk Decay

The model is built on the function P(O) = 1 / n, where n represents the Control Level. This establishes a non-linear relationship:

High-Impact Early Gains: Moving from minimal control (n=1, 100% overrun risk) to basic control (n=5) reduces risk dramatically to 20%.

Diminishing Returns: Further advanced controls yield smaller risk reductions (e.g., n=100 to n=101 reduces risk by only ~0.01%).

2. The Two-Stage Methodology

Stage 1: Model Uncertainty & Define Expected Risk. The model accounts for uncertainty in future control effectiveness by calculating the Expected Probability of Overrun (E[PO]). This is the average of the P(O) values across a specified range of control levels (e.g., from n=1 to n=100), derived from the harmonic series.

Stage 2: Calculate Financial Adjustment. The E[PO] is used in a financial formula adapted from credit risk valuation (CVA):

CORVA = E[PO] × Cost Given Overrun (CGO) × Project Cost

Where CGO is typically 100% (meaning any overrun incurs a full loss on the exposed budget).

3. The Cascade Principle (Weakest Link Doctrine)

A project's risk is determined by its most severe uncontrolled failure.

Failure Propagation: A failure in a foundational control (e.g., no detailed design or absent contract hold points) propagates forward, invalidating all dependent controls (e.g., scheduling, cost monitoring).

Risk Assignment: The project's financial contingency is set by the tier of that root-cause failure, not by an average. For example, a failed Work Breakdown Structure (Tier 4) often reveals a flawed design (Tier 3), elevating the risk and required contingency to the higher Tier 3 level.

4. Integrated Key Control Concepts

Detailed Design: A complete, buildable package including construction drawings, stamped calculations, and all authority approvals.

Contract Hold Points: Pre-defined milestones where payment is retained until work is verified, directly reducing financial exposure.

Interface Management: Formal protocols to manage interactions between different project elements and associated contracts, preventing disputes and gaps in scope.

5. Alignment with International Standards

CORVA operationalizes principles from leading global standards:

ISO 37000 (Governance): Provides a tool for governing bodies to demonstrate due care in oversight and fiscal responsibility.

ISO 31000 (Risk Management): Offers a full, structured process for risk identification (tier assessment), analysis (E[PO] calculation), and treatment (contingency allocation).

ISO 19650 (Information Management): Mandates rigorous design documentation and management, reflected in CORVA's Tier 2 detailed design controls.

FIDIC Contracts: Explicitly values key clauses (e.g., time-only relief, hold points in Sub-Clause 14.6, liquidated damages) as critical financial controls within the framework.

6. Outcome and Utility

CORVA outputs a precise, defensible monetary value for the required contingency reserve. It transforms risk management from a subjective exercise into a quantitative governance tool, enabling:

Objective justification for contingency budgets., Clear prioritization of critical control improvements. Transparent accountability to stakeholders.

ANNEXURE 1: LIST OF PROJECTS COVERED BY PSF

	Project Name	Line Department	Recived in Prefeasibility	Projects Recived in feasibility Stage	Projects Reviewed during Bidding	Recived in Implementatio
Education Sector						
	EMOS 1-4	SELD				1
	EMOS 5-6	SELD		1	1	2
	EMO 7 -8	SELD	1	2	2	3
	Teachers Training Institute Hussinabad	SELD				4
	Teachers Training Institute (3 Institutes)	SELD		3	3	5
	Non Formal Education	SELD	2	4		
	JICA Girls School	SELD		5	4	
	Four Public Schools Project	SELD		6		
	Sindh Secondary School Improvement Project	SELD	3			
	Provision of free transport to Girl Students	SELD	4			
	Solarization of Schools	SELD	5			
	STEVTA		6			
Health Sector						
	Regional Blood Bank Jamshoro	Health				6
	Regional Blood Bank Sukkur	Health				7
	Regional Blood Bank SBA & Karachi	Health				8
	JPMC Security and Safety Contract	Health		7	5	
	NICH Security and Safety	Health		8	6	
	Health Management Organisations	Health		9		
	Drugs Adddiction Treatment Centre Project	Social Welfare Department	7			
Roads and Motorways Sector						
	MEW	LGD		10	7	9
	GKBP	W&S				10
	URI Mauripur	LGD		11	8	
	URI Korangi	LGD		12	9	
	Link Road Project	W&S		13	10	11
	Karachi Thatta Dual Carrigeway	W&S				12
	TMK to Sajwal Hyd to TMD	Works & Services		14		
Water and Irrigation Sector						
	Hub Canal	KWSB		15	11	
	TP1	KWSB		16	12	
	TP4	KWSB		17		
	5MGD Desalanation project	KWSB	8	18	13	
	Sukkur Water Distribution (USP)	LGD	9			
	Nabisar Vajihar Water Supply Project	Water Supply				13
	65 MIGD Water Project	KWSB	10	19		
	Karachi Bulk Water Supply Project	LGD	11			
	Lyari Sewage Rehabilitation Project	LGD	12			
	North Western Canal Project	Irrigation Department		20		
Industrial, Tech and Economic Zones and Ports						
	Marble City	Investment Dept			14	
	Khairpur Special Economic Zone Project	Investment Dept				14
	NED Park	NED University	13	21	15	
	Keti-Bander Project	W&S/Energy		22		
	Dhabeji Industrial Zone			23	16	
Parks and Recreation Sector						
	Rani Baagh Development Project	LGD		24		
	Shaheed Benazir Bhutto Park Project	Karachi Development Authority		25		
	Outsourcing of Existing Recreational Facilities	Corporation	14			
Transport Sector						
	Yellow Line Bus Operations Project	Department	15			
Real Estate and Housing Sector						
	Lyari Development Housing Scheme 42 Project (Lyari)	Foundation	16			
	Sindh Civil Servents Housing Foundation (Malir)	Foundation	17			
Forestation and Green Financing (Carbon Credits) Sector						
	Carbon Reduction Project - Carbon Credits	Forest Department	18			
	Total		**18**	**25**	**16**	**14**

ANNEXURE 2: LIST OF PARS MADE BY PSF

S.No	Project Name	PARs Made	PARs Approved	PARs Funded
Education Sector				
1	EMOs RFP 1-2	1	1	1
2	EMO RFP 3	2	2	2
3	EMO RFP 4	3	3	3
4	EMO RFP 5	4	4	4
5	EMO RFP 7	5	5	5
6	Teachers Training Institute Hussinabad	6		
7	Teachers Training Institute (3 Institutes)	7	6	
8	JICA Girls School	8	7	
Health Sector				
9	Regional Blood Bank Jamshoro	9	8	6
10	Regional Blood Bank Sukkur	10	9	7
11	Regional Blood Bank SBA & Karachi	11	10	
12	JPMC Security and Safety Contract	12	11	
13	NICH Security and Safety	13		
Roads and Motorways Sector				
14	MEW	14	12	
15	GKBP	15	13	
16	URI Mauripur	16	14	
17	Link Road Project	17		
18	Karachi Thatta Dual Carrigeway	18		
Water and Irrigation Sector				
19	Hub Canal	19	15	
20	TP1	20	16	
Industrial, Tech and Economic Zones and Ports				
21	Marble City	21		
22	NED Park	22	17	

ANNEXURE 3: COST OVERRUNS IN PPPS PROJECTS

Project Name	Cost as of Feasibility	Actual Cost	Cost Overrun +/- Feasibility/Bid
HMDC	6,045,000,000	6,800,000,000	12%
JMK	13,400,000,000	19,850,000,000	48%
Nooriabad	13,130,000,000	19,000,000,000	45%
KTDC	6,063,797,741	8,856,298,066	46%
Ghotki	14,200,000,000	24,250,000,000	71%
Malir	32,760,000,000	54,814,000,000	67%
Link	6,902,000,000	6,949,000,000	1%
NSV	27,444,365,532	69,500,000,000	153%
Mean	**55%**	**St Dev**	**44%**

Interpreting Statistically (assuming a normal distribution for simplicity):

Range	Formula	What It Means
~68% of projects	55% ± 43% → **12% to 98%** overrun	Most projects overrun between **12%** and **98%**
~95% of projects	55% ± 2×43% → **−31% to 141%**	Some projects even **underrun by 31%**, others **overrun by 140%+**

Land is acquired strictly following vague procedures in the LAA.	The provisions of LAA create ambiguity as to which sections fall within different actual implementation of Land Acquisition. Ambiguity sometimes exists on the main stakeholders on the land acquisition process and the timelines of land acquisition.
Keys stakeholders in the land acquisition process	
Land revenue Act	The act deals with record of rights, assessment and collection of land revenue, appointment of land officers and all the matters relating and arising in connection with the administration of land revenue.
Land Revenue Officials Involves	There are five classes of revenue officers: the financial commissioner, the commissioner, the collector, the assistant collector of the 1st grade, and the assistant collector of the 2nd grade.
Units and committees involved in Land Acquisition	
Project Management Unit	Director Deputy Director Environment and Social (E & S) Environment Specialist, Member Resettlement Specialist, Member
Project Implementation Unit	Project Director, Chairman, assisted by PIU staff Land Acquisition Collector (LAC), Member, assisted by Qanogo and Patwari Officers of concerned departments Resettlement Specialist (Member), assisted by Social Mobilizer(male/female) APs' Representative (Member)
Environmental And Social Safeguards Unit (ESSU)	ESSU at PMU overall responsibility updating, implementation and monitoring LARPs in coordination with District administration, Revenue Department and other line departments. It principally deals with oversight and reporting matters.
ESSU function grievance redress office (GRO)	GRO on LAR related matters/concerns raised by DPs during LARP preparation or complaints forwarded by project GRC or DPs unsatisfied with decision of project GRC.

Land Acquisition And Resettlement Unit	Key tasks for LAR unit ensure effective safeguards management at PIU. Coordinate in land acquisition process, resettlement planning activities for Project, It deals with nearly all matters of land administration including dissemination of information to concerned stakeholders. Assist PIU to operationalize and implement project based GRM at Project level; extend GRM at village level for review and redress grievances at village level by DPCs with coordination and support from LAR unit. participate in Price Assessment Committee meetings at each district to clarify replacement value/cost and ensure the assessment is fully reflective of current market
District Price Assessment Committee (DPAC)	DPAC assesses compensation amount and designated land acquisition Collectors or Revenue Department
Grievance Redress Mechanism	Involves committees as village level, project level, (possibly the node level) and the court as per the provisions of the Land Acquisition Act
Village	Affected persons (APs) representatives Social Mobilizer (Male) Social Mobilizer (Female)
The flow through of the provisions of Land Acquisition Act and the timeline for land acquisition	
Section 4 (max 1 yr in case of dispute/litigation)	When it is know that land is to be acquired section 4 is issued as a preliminary notification, this allows the right of entry and survey. The maximum time allowed for the socio economic survey (baseline) and census of DPs is 1 year and that is in case there is a dispute or arbitration involved. The right of entry onto land is 7 days after notification and any damage caused as a result of survey is to be compensated. The cut-off date that is linked to section 4 is to be publically disseminated. Any failure to perform these actions could lead to dispute or litigation. **The Census of AP(s) and Socio economic Impact Assessment can be done within 3 to 6 months of the notification of Section 4**.
Section 5 & 5 (a) (max 6 months including any dispute or litigation)	Section 5 is formal notification of acquisition of land and enquiry into grievances. This is done after survey done as per Section 4. Hence the AP(s) in a sense have already been determined. The Land acquisition collector is to entertain objections not before 15 from the notification in person. All AP(s) should submit their objections within 30 days of

Section 7,8,9,10,11 (partially) 13, 14,15, 23, 24 30, all can be applied during this time.	notification. The LAC puts each case forward to Commissioner within 90 days of notification. The Commissioner further decides upon the case put forth within 90 days. The total process hence is of 6 month including any dispute or litigation being addresses. **The LARP can be finalized post the 6 months' time (max) required for section 5 implementation. The compensation to AP(s) can also be done at this point. The latest the compensation payments can be made is 1.5 Years, whilst the earliest is 9 months as per Law. However if the steps within Section 5 are expedited this can be earlier**.
Section 6. (max 6 months including any dispute or litigation) Section 11 (partially),12, 16, 30 all can be applied within this time period.	Notification under section 6 is issued 6 months after section 5 maximum. If it is not issued the land acquisition process comes to an end. Section 6 is issued if it is certain that land is to be acquired for a public purpose. **Section 17 which is acquisition under urgency cannot be issued if Section 6 is issued**. The only material change for land is if additional land from that identified under section 4 is required. This would involve the LARP to be updated. **The Land award can be published six month after Section 6.There after the land can be acquired under section 16. Hence the maximum time for land acquisition can stretch up to 2 years**.
Environmental Studies to be concluded prior to tender of project	
Feasibility Stage the EIA, IEE, ES to be conducted during the feasibility stage.	Depending on the project nature the EIA, IEE, ES study along with the EMP should be disclosed to stakeholders. **All project alternatives with equal importance should be included in the environmental studies. The preliminary design is a must for this environmental study. The approval from SEPA is required before the project is approved by the PPP Policy Board**. At a maximum for Category A projects **SEPA requires 4 months disclosure before approval whereas ADB requires 6 months for approval. Detailed design should be completed before construction start implementation**.

ANNEXURE 5: EXAMPLE OF LAND AND E&S COST (KTDC)

	Chainage	Km	Length Feet	Max Length	Max Ft Width	Max Area sq ft	Width Provided	Max Widt Provided	Area Acquired	Area in Acres
1	0									
2	20.2435	20.2435	3280.84	66,416	220	14,611,451	220	14,611,451	-	-
3	38.8345	18.591	3280.84	60,994	220	13,418,701	132	8,051,221	5,367,480	123
4	39.33	0.4955	3280.84	1,626	220	357,644	66	107,293	250,351	6
5	39.88	0.55	3280.84	1,804	220	396,982	132	238,189	158,793	4
6	48.324	8.444	3280.84	27,703	220	6,094,751	66	1,828,425	4,266,326	98
7	49.185	0.861	3280.84	2,825	220	621,457	132	372,874	248,583	6
		49.185				35,500,985		25,209,453	10,291,532	236

1 km=3280.84 feet

1 acre = 43,560 sq ft

1 sq ft = 0.092903 sq m

Cost of Land Acquisition	Rupees	76,937,875
Area of Land Aqusition	Acres	236
Cost per acre	Rupees	326,008
Length of Acquired RoW	Kms	49.185
EMP Costs	Rupees	7,300,000
Area of Total ROW	Acres	578.73
Cost per Acre	Rupees	12,614
Area of Total ROW	Km	49.185
Cost per Km	Rupees	148,419
Total Cost per Acre	Rupees	338,622
Project Cost	Rupees	8,860,000,000
Cost in total	Rupees	84,237,875
Risk Coverage		1.0%

ANNEXURE 6: CONTROL AND COMPLIANCE OF CORVA

Table 1: CORVA Control & Compliance Framework			
Tier	**Theme**	**Granular Primary Control**	**Essential Compliance Measure (Binary)**
1	**Existential Failure**	• Land Acquisition	• Title deeds registered.
		• Environmental Safeguards	• ESIA approval certificate.
		• Financial Close	• Signed financing agreement.
		• FIDIC-based Contract	• Legal review certifying "time-only" relief.
		• Liquidated Damages (LDs)	• Bank guarantee for LD amount lodged.
		• Performance Securities	• Performance bond from reputable bank.
		• Longstop Date for CPs	• Contract clause with right to terminate.
2	**Catastrophic Failure**	• Detailed Design Calculations	• Stamped calculations by engineer.
		• Geotechnical Reports	• Final geotechnical report.
		• IFC Drawings	• IFC drawing register signed off.
		• Bill of Quantities (BOQ)	• Finalized, baselined BOQ.
		• Work Breakdown Structure (WBS)	• Signed-off WBS dictionary.
		• Master Schedule (CPM)	• Baselined CPM schedule approved.
		• Longstop Date (Construction)	• Contract clause tying LDs to fixed date.
3	**Loss of Governance**	• Independent Engineer (IE)	• IE contract executed; monthly report received.
		• EVM System	• Monthly EVM report (CPI/SPI) circulated.
		• Change Control Board (CCB)	• CCB charter published; meeting minutes.
		• Key Insurances (CAR)	• Insurance certificates for CAR.
		• Disclosure Mechanisms	• Protocol for mandatory monthly reporting.
4	**Major Oversight Failure**	• Risk Register	• Digital register updated within last month.
		• Quality Assurance (QA) Plan	• QA audit report; non-conformance log.
		• KPI Definitions	• Dashboard of defined KPIs.
		• Construction Supervision	• Daily logs from site supervisors.
5	**Systemic Inefficiency**	• As-Built Process	• Contract clause tying payment to as-built submission.
		• Completion Tests	• Procedure document for testing.
		• Punch List Management	• Digital punch list tool with open/closed items.
		• Lessons-Learned System	• Central repository for logging past issues.
6	**Minor Process Deficiencies**	• Real-Time Cost Tracking	• Digital dashboard showing daily cost vs. forecast.
		• Automated Progress Monitoring	• System auto-updates schedule % from field data.
		• Stakeholder Communication Portal	• Online portal with latest reports accessible to all.
7	**Controlled Performance**	• Predictive Analytics	• Reports forecasting potential delays/overruns.
		• Zero Punch List at Handover	• Final inspection confirms 100% completion.
		• Final Cost Variance < 0.1%	• Actual cost report showing negligible variance.
		• Perfect Safety Record	• Zero lost-time incidents report.
8	**Theoretical Ideal**	• Flawless Value Delivery	• Project delivers 100% of promised benefits.
		• Zero Defects	• No defects during liability period.
		• Perfect Stakeholder Satisfaction	• Formal survey shows 100% satisfaction.

ANNEXURE 7: PROJECT EXAMPLE CORVA

Table 2: CORVA Financial Impact Assessment				
Basis: Project Cost = Rs 50,000,000,000				
Tier	**Theme**	**E[PO]**	**Expected Cost Overrun (CORVA)**	**Total Project Cost (After Overrun)**
1	**Existential Failure**	100.00%	Rs 50,000,000,000	Rs 100,000,000,000
2	**Catastrophic Failure**	29.29%	Rs 14,644,500,000	Rs 64,644,500,000
3	**Loss of Governance**	5.19%	Rs 2,593,500,000	Rs 52,593,500,000
4	**Major Oversight Failure**	0.75%	Rs 374,000,000	Rs 50,374,000,000
5	**Systemic Inefficiency**	0.10%	Rs 48,500,000	Rs 50,048,500,000
6	**Minor Process Deficiencies**	0.01%	Rs 6,000,000	Rs 50,006,000,000
7	**Controlled Performance**	0.01%	Rs 7,100,000	Rs 50,007,100,000
8	**Theoretical Ideal**	0.00%	Rs 80,000	Rs 50,000,080,000

ANNEXURE 8: ENERGY COST OF WATER TREATMENT PER PROCESS

Type of Facility	Unit Process	Energy Consumption per Unit Flow (kWh/1000 m³)						
		2.63 m³/min (1 MGD)	5.26 m³/min (2 MGD)	10.5 m³/min (4 MGD)	15.77 m³/min (6 MGD)	23.13 m³/min (8.8 MGD)	28.9 m³/min (11 MGD)	Average
MBR Facility	Coarse Screens	0.31	0.15	0.08	0.05	0.03	0.04	0.11
	Grit Chamber	28.38	16.56	11.83	9.46	7.52	6.45	13.37
	Fine Screens	9.46	4.73	2.36	1.58	1.08	1.29	3.42
	Total Primary	38.15	21.44	14.27	11.09	8.63	7.78	16.89
	Bioreactor	420.50	421.08	421.08	421.08	424.65	424.65	422.18
	Membranes	238.89	238.89	238.89	238.89	221.66	221.66	233.15
	Total Secondary and Tertiary	659.39	659.97	659.97	659.97	646.31	646.31	655.32
	UV Disinfection	25.89	27.74	26.68	25.71	25.18	25.89	26.18
	Total w/UV	723.38	709.11	700.92	696.70	680.05	680.05	698.37
	Chlorination	1.18	0.59	0.30	0.20	0.13	0.11	0.42
	Total w/Chlorination	698.81	681.90	674.50	671.33	654.95	654.16	672.61
CAS Facility	Coarse Screens	0.31	0.15	0.08	0.05	0.03	0.04	0.11
	Grit Chamber	28.38	16.56	11.83	9.46	7.52	6.45	13.37
	Fine Screens	9.46	4.73	2.36	1.58	1.08	1.29	3.42
	Total Primary	38.15	21.44	14.27	11.09	8.63	7.78	16.89
	CAS	311.70	307.56	307.56	307.56	310.70	310.70	309.30
	Secondary Clarifier	2.36	1.77	1.77	1.77	1.61	1.61	1.82
	Dual Media Filters	1.33	1.32	0.99	0.88	0.85	0.85	1.04
	Total Secondary and Tertiary	315.40	310.65	310.32	310.21	313.17	313.17	312.15
	UV Disinfection	36.46	36.46	35.61	36.64	36.91	35.43	36.25
	Total w/UV	389.96	368.56	360.11	357.99	358.78	356.41	365.30
	Chlorination	1.18	0.59	0.30	0.20	0.13	0.11	0.42
	Total w/Chlorination	354.56	332.63	324.70	321.53	322.06	321.00	329.41

REFERENCES

1. **Prioritization and Economic Analysis (revised)**

   Risk Report for period ended December 2024

   Cost-Benefit Analysis for Development: A Practical Guide

   Institutional Document | January 2013

   Cost-Benefit Analysis for Development: A Practical Guide | Asian Development Bank

2. **Addressing Environmental and Social Safeguards (revised)**

   Risk Report for period ended December 2024

3. **ADBs note on efficacy of PPPs (new)**

   Traditional Procurement Versus Public–Private Partnership: A Comparison Of Procurement Modalities Focusing On Bundling Contract Effects

   Hojun Lee and Kiwan Kim

   Traditional Procurement versus Public–Private Partnership: A Comparison of Procurement Modalities Focusing on Bundling Contract Effects

4. **ADBs requirements on procurement (revised)**

   Risk Report for period ended September 2024

5. **Cost Overrun Risk Valuations Adjustment (new)**

   An Order of Magnitude Calculus

   Nic Wilson

   1302.4989