

ADAPTIVE CRISIS LEADERSHIP IN REMOTE BALOCHISTAN: AURANGZEB BADINI'S STRATEGIES FOR NATURAL DISASTER RESPONSE AND THEIR GLOBAL APPLICABILITY

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DOI: <https://doi.org/10.5281/zenodo.17718859>

Received	Accepted	Published
04 October 2025	12 November 2025	26 November 2025

ABSTRACT

The paper examines a Pakistan Administrative Service officer Aurangzeb Badini's leadership during crises in three emergencies in Balochistan that include the COVID-19 pandemic in Quetta (2020-2021), severe winter conditions along with flash floods in Pishin on 9 January 2019, and urban flooding in Gwadar between late February and early March 2024. By utilizing Results-Based Management (RBM) and Problem-Driven Iterative Adaptation (PDIA), the responses applied accessibility-first planning and adaptive governance to mobilize multi-sector operations, engage media outlets, effectively manage teams, and develop innovative distribution and rehabilitation mechanisms. To achieve objectives, careful team selection, adequate transparency, and community-based distribution systems were utilized to ensure the delivery of desired outcomes to remote and resource-scarce districts. Along with that, available provincial human resources such as principal workforce for operations and logistics under the Deputy Commissioner's coordination cell were mobilized to ensure the desired objectives (NDMA 2020–2024; UNDP 2022). The efforts helped mitigate the crises earning appreciation from the Prime Minister, Chief Minister and Local Populace.

Keywords: Balochistan, disaster management, disaster relief, Results-Based Management, Problem Driven Iterative Adaptation, verified targeting, volunteer integration, accessibility-first logistics, media strategy.

INTRODUCTION

The crisis management in the peripheral districts as compared to metropolitan cities has been a challenging task as they have long distances, poor infrastructure, and multi-layered authorities. To tackle these challenges, leadership must ensure transparency, operational security, the use of both formal and informal local networks, and the building of capable teams. This paper studies Badini's approach to team leadership, distribution innovation, and media strategies in the

context of three emergencies in Balochistan to reflect how a few simple principles can be applied to regions across the world (Barca, McCann, and Rodríguez-Pose 2012; UN-Habitat, 2013; Sen, 1999). Two guiding ideas in plain language would be, Results-Based Management that sets clear results, tracks simple indicators, ensure audit trails, and adjust when something is not working (ICRC 2018) and Problem Driven Iterative Adaptation that begins from specific

local problems, tests small fixes, learns rapidly, and scales what works while making capable to front-line teams with specified boundaries (Andrews, Pritchett, and Woolcock 2017).
QUETTA: DISTRICT PROFILE, THEN COVID-19 RESPONSE (2020–2021)

DISTRICT PROFILE AND DISASTER

Brief Profile: Quetta is the capital city of the province of Balochistan. It is also a market hub and transit node that connects different areas of Balochistan and Pakistan with Afghanistan. Although the area of the city varies in different reports on its surveys and boundary updates, however, most commonly cited area of the district which includes Quetta city is 3,447 km² (PBS 2012). The most-spoken language in the city is Pashto, followed by Brahui, Balochi, and Urdu. The city is widely populated by the Pashtun and Baloch community, with the Hazara community concentrated in areas such as Mariabad and Hazara Town. When COVID-19 reached Quetta in March 2020, health facilities faced simultaneous pressures: case isolation, contact tracing, and continuity of routine care. Mobility restrictions and border dynamics complicated surveillance, while shortages of PPE, testing capacity, and ICU beds strained the system. Public risk communication, market closures, and school suspensions reduced transmission but carried social and economic costs that needed targeted mitigation.

COVID-19 Response In Quetta

Team leadership and task delegation: A small crisis team was established with clear roles. Saqib Kakar (Additional Deputy Commissioner General) was assigned overall coordination and inter-departmental liaison, whereas Sanya Safi (Additional Deputy Commissioner Revenue) oversaw the distribution of relief items. Likewise, Sana Durrani led private volunteer networks and Ansar Ul Islam (part of Jammat-e-Ulamai Islam, a religious party) to help in maintaining cordons in areas with limited police deployments. This clear distribution of roles

facilitated parallel enforcement within a single chain of command, aligning with PDIA's practice of authorizing local problem-solving within strategic guardrails (Andrews, Pritchett, and Woolcock 2017).

Interdepartmental workforce: The main workforce mainly consisted of personnel that were already posted and deployed in the Quetta from key provincial line departments, including Health Department surveillance and vaccination teams, Local Government and Rural Development field staff, Municipal Corporation sanitation and enforcement crews, Public Health Engineering Department water tankers and repair crews, Social Welfare and Food Department staff for ration management, Education Department staff for use as controlled distribution points, and Revenue field staff for verification and receipts. Police and Levies provided perimeter security and movement control. The PDMA liaison officers also supported the provision of supplies and reporting to the province (NDMA 2020–2024; UNDP, 2022).

Strategic distribution innovation: To avoid long queues, the administration initiated a token-based system linked to the Benazir Income Support Programme (BISP) database of verified needy households. The first field execution of the token distribution was ensured on the ground under the leadership of Sania Safi. The token system effectively avoided large gatherings, reduced conflict risk, and transmitted benefits to verified beneficiaries. It also leveraged the existing government verification backbone (BISP) for rapid deployments whenever necessary, BISP (n.d.; ICRC 2018).

Adaptive transparency protocols: The dedicated team ensured detailed records of internal documentation and audit trails, issued progress reports, communicated timely announcements to prevent surges, and conducted post-distribution reporting and beneficiary verifications. This enhanced accountability with operational security

closely aligns with RBM-style monitoring and course correction (ICRC, 2018).

Private volunteer integration: Under the leadership of Sana Durrani, volunteers' capacity was expanded to launch door-to-door awareness campaigns, last-mile delivery to remote and hard-to-reach areas, linguistic mediation, and real-time feedback. The hybrid delivery using the trusted local partners was the proven way to reach the populations that were hardly reachable to the government alone in crisis (IFRC 2018; Badini, 2023).

Largest Quarantine Center: During the COVID-19 operations, the largest 2000-capacity quarantine center of Pakistan was established in Quetta to isolate the high-risk arrivals and decompress hospital load (Quetta District Administration 2020).

PISHIN: DISTRICT PROFILE, THEN SNOWSTORM AND FLASH FLOODS (JANUARY 2020)

DISTRICT PROFILE AND DISASTER

Pishin is a district in Balochistan province of Pakistan. It lies in the north of Quetta in the Pashtun belt. According to the reference series and boundary notes, the district's area is reported to be 6218 square kilometers. In early 2019, Pishin District in northern Balochistan faced a compound winter hazard as heavy snowfall overlapped with intense rain, triggering roof collapses, flash floods, and road blockages along the Quetta-Chaman corridor. The event exposed vulnerabilities in rural housing, drainage, and cold-weather preparedness, particularly for scattered settlements and travelers. Damage to transport links slowed relief, while power disruptions and limited stockpiles of food and fuel magnified risk.

Winter Emergency And Flash Flood Response In Pishin

Multi-level team structure. Through the distributed model, several tehsils of the districts were covered. The working team consisted of Faisal Faheem (ADCR), leading

coordination and resource allocation; Nida Kazmi (AC Pishin), managing field operations and evacuations in the Pishin Sub-division; whereas, Ameer Zaman (AC Barshore) was handling field operations and evacuations in Barshore Sub-division. In this way decentralized authorities supported simultaneous operations across the challenging terrain. This maintenance of a unified strategy aligns with PDIA design (Andrews, Pritchett, and Woolcock 2017).

Interdepartmental workforce. The prior deployed line departments in the district were mobilized and proven to be the operational backbone. These include Communication and Works engineers and road crews; Public Health Engineering Department for pumps and water lines; Irrigation Department for culverts and embankments; Agriculture Extension for relief to farm households; Livestock and Dairy Development for fodder and disease control; Forest and local works crews for chainsaws and debris removal; Local Government staff for union-council operations; Revenue staff for loss recording and relief receipts; and PDMA liaisons for heavy-equipment tasking and reporting. The Police and Levies ensured security of routes and traffic control on newly opened corridors (NDMA 2020-2024).

Public-private resource mobilization. To clear the snow, private contractors were requested to use specialized heavy machinery with the fuel being provided by Deputy Commissioner's office, and NHA equipment was also used in parallel to clear primary routes. To avoid conflicts in equipment movement and maximize utilization, crews were deployed on a need basis at a particular time.

Infrastructure-first approach. The team's hard work and dedication to complete the tasks resulted in the swift clearance of critical routes within 72 hours, enabling the medical evacuations, establishing supply corridors before large-scale relief, and using the opened routes to preposition supplies at strategic points resulting into saving lives of the people

stuck-up in snow not only in Pishin but in neighboring districts of Killa Abdullallah and Ziarat too. This reflects the accessibility-first that is the core lesson in emergency logistics (Hansen, 1959; NDMA 2020-2024; UN-Habitat, 2013).

GWADAR: DISTRICT PROFILE, THEN MONSOON AND URBAN FLOODS (FEB-MAR 2024)

DISTRICT PROFILE AND DISASTER

Gwadar has an area of 15,216 square kilometers, extending from the Makran coast to the Gwadar coast, including Pasni, Ormara, and Jiwani. The flood and surge risk is shaped by the region's low-lying neighborhoods and shoreline (GDA, 2024; District Profile Gwadar, n.d.). The local population primarily earns from fishing, boatbuilding, and port-linked services. However, the region is vulnerable to water scarcity and urban drainage, which are primary hurdles to economic growth. Most people in the region speak Balochi, have maritime skills, and maintain strong community bonds across coastal settlements. In late February 2024, extreme rainfall overwhelmed Gwadar's rapidly growing coastal city, submerging low-lying neighborhoods, disrupting port activities, and damaging critical services. The flood highlighted a familiar urban risk pattern: inadequate stormwater infrastructure, settlement in depressions, and limited enforcement of building and drainage codes. Emergency pumping and ad-hoc sheltering reduced immediate harm but revealed gaps in early-warning coverage, evacuation routing, and protection of livelihoods.

Monsoon Flood Response In Gwadar

Hydromet Signals and Progression: During the first spell on 28 February 2024, Gwadar recorded around 183 mm of rainfall, followed by 55 mm later that day. One week later, in the second spell, 52 mm of rainfall was recorded in 24 hours. Until late February, conditions in the region remained normal. However, by 2 March, the flood was visible in

the urban districts, including other cities. According to Satellite Radar analysis, around 140 Square kilometers of land was covered by water by 2 March (District Administration Gwadar 2024a: 2024b).

Governance-aligned Team Leadership:

Leadership followed the government structure. The councils were appointed rather than elected, and matters in the region were handled through official channels. Sana Mahjabeen Umrani (Additional Deputy Commissioner Revenue) led emergency coordination, while Assistant Commissioner (Under Training) Yousaf Hashmi handled damage assessment and verification in the area. Additionally, Assistant Commissioner, Gwadar City Naveed Alam supervised distribution and security. Therefore, this response to the flood through the governance system helps sustain legitimacy and enable a quick response.

Interdepartmental Workforce: During the flood, the district personnel from the key line departments have formed a primary workforce, such as Municipal Committee and local Government started water bowzers and operated pumps, the Fisheries Department and local harbor teams enabled boats and landing access, the health department ran first aid service and surveillance, Revenue staff conducted household evaluation and sustained ledgers, the Education Department prepared schools for use as shelters and pickup point, the relief stock was coordinated by the PDMA liaisons and police and levies protected the key sites and accompany the routes (NDMA 2020-2024; IFRC 2024).

Evidence-based, security-conscious distribution: The flood damage was jointly assessed by the revenue staff and councilors using digital photo evidence, enabling them to create verified records for NDMA alignment. The damage was assessed based on documents, and aid was allocated accordingly. For distribution, undisclosed sites and

nighttime windows were used. Additionally, the pickup points were also decentralized. The staff and beneficiaries were protected via multiple smaller handovers. It also reduced crowding, enabling feasible distribution (NDMA 2020-2024; IFRC 2018).

Operational data presented in Annex A (Table C1-C3) includes local lists, entries of damage tehsils, and market impacts. Additionally, assets and relief are summarized in Annex A (Table C4-C6), covering shelters, Machinery that was deployed, and the list of contributors (District Administration Gwadar 2024a).

Preparedness Gaps and Process

Improvements: Before starting the first spell, heavy machinery was positioned and drained, and generators and pumps were located in advance. For temporary sheltering purposes, buildings were selected. All the departments held a meeting before the flood, including GDA, GPA, B&R, PDMA, Army, NAVY, Irrigation, and local and private contractors, aiming to coordinate a plan for the floods. To the flood response, several actions were proven effective, such as early drain cleaning reduced water, a 12-inch turbine provided by the Sindh government (requested through Director General Provincial Development Authority Mr. Jahanzeb Khan Ghorezai) helped pump out water faster, the verification of the field survey was speed up through a mobile app, and funds of around 10 million from GPA helped the quick purchasing of supplies. The meeting between the authorities enabled them to align and provide a robust response to the flood, and the DC's office remained functional throughout.

However, some hurdles remained in the effectiveness. Machinery, bowzers, and drivers were limited in scale to clear the flooded space. Supplies of POL remained tight because the second spell arrived before all assets and rosters were fully deployed. The Pump deployment record was initially weak, while the revenue survey confronted mistrust till the local community was involved to enhance efficiency. In the meantime, some pumps and vehicles were briefly

commandeered during peak hours, and the saturated groundwater table was lowered to clear the flooded area. During the day, crowds gathered during distributions, which is a persistent hurdle. The operations team outlined key improvements, such as keeping a record of damage linked to relief allocation, and the control room remained operational throughout the time. For the verification, using SUPARCO post-flooded data, staff efforts were recognizable and followed careful distribution. Ms. Shama Izhar and Mr. Nasrullah were pivotal in collecting the pre and post flood damages helping calculate the intensity of damages and demolished houses. Aid was provided only when necessary, delaying non-essential materials. The recipients were targeted precisely, using the night hours to prevent crowds and avoid public photos (District Administration Gwadar, 2024b).

Context Note: Gwadar was already facing water scarcity, requiring 7.9 million gallons per day, but the supply was only 4.33 million gallons per day, leaving a gap of 3.68 million gallons per day. Because of this shortage, any disruption to pipelines or a reduction in water quality during the flood led to a drinking water shortage. Moreover, the water in the nearest dams was not pure enough to be drunk due to the floods (District profile Gwadar, n.d.). This scarcity was covered through water bowzers from Akra Kaur Dam which had relatively cleaner water.

MEDIA STRATEGY AND ATTENTION LEVERAGING

Although media criticism can be challenging during operation, it also brings attention and resources. During the crisis, media coverage helped to initiate national and provincial help. It also created political pressure to boost the response and maintain public accountability when a complete response was not possible. It also created a record for learning. Regular briefings on progress and challenges, clear documentation of constraints to justify resource need, honest briefing on both achievements and

limitations, and post-crisis reviews reflected PDIA's feedback approach and RBM monitoring process (Andrews, Pritchett, and Woolcock 2017; ICRC, 2018). It was due to the media pressure that the Chief Minister and Later the Prime Minister Shahbaz Sharif visited Gwadar to review the progress on rehabilitation.

INSTITUTIONAL CHALLENGES AND ADAPTIVE RESPONSES

Managing political pressure: Under the Chief Minister's instruction, some houses recommended by the MPAs were considered for aid, but each case was screened to ensure a feasible flow of aid and assistance remains need-based. The administration required proper documentation for handover and maintained a clear audit record. It aims to maintain accountability and a good relationship with the elected representatives.

Lessons from distribution challenges: In the field, political pressure, security constraints, heavy media, and hard resources were the key challenges. The most effective response combines database-driven, photo-verified damage with secure, organized logistics, including staggered notifications, multiple pickup points, nighttime handovers, distribution at night, use of local councilors and controlled perimeters. Interdepartmental cooperation extended capability, and a trusted community partner helped to reach the most affected areas. These adjustments balance the competing pressures and ensure effectiveness.

CROSS-CASE ANALYSIS: LEADERSHIP, WORKFORCE, AND MANAGEMENT TOOLS

Team leadership principles: The team members were specialized, each with a different function. Their roles and accountability were defined through the delegation of authority, aiming to enable rapid decision-making and to connect the tehsils, districts, and communities with the daily reviewers for greater effectiveness (Andrew, Pritchett, and Woolcock 2017).

Interdepartmental workforce model: Across all departments, the district staff of provincial departments formed the key workforce, including health, local government, municipal committee, public health engineering, C&W, irrigation, Agriculture, livestock, Social welfare, education, PDMA, and police. Relying on posted staff as a backbone to faster mobilization and ensuring records stayed within the official system (NDMA 2020-2024; UNDP, 2022).

Adaptive Transparency Framework:

Adaptive transparency maintains audit trails, shares key information securely, involves the local community through trusted partners, and records lessons for institutional growth (ICRC, 2018; IFRC, 2018).

Distribution innovation models: By using a verified database, link was established to documents that are required to apply secure logistics. All combine the official system with the community network for last-mile delivery (BISP n.d.; NDMA 2020-2024). Items were distributed at night and unlike in Pishin, distribution was made through local councilors after seeking the details of affectees.

Accessibility of first sequencing: Quickly opened key corridors to various villages and sub-division Suntsar for supply chain and evacuation and then secondary routes (Hansen, 1959; UN-Habitat, 2013).

COUNTRIES AND AREAS WHERE THESE LESSONS COULD BE APPLIED

These lessons are transformative to some peripheral zones with the low state presence. It could cover the infrastructure gap and security risks. A tool that includes verified targeting, photo-backed damage verification via a satellite system, feasible distribution, and decentralized pickup points using the support of local government officials and line department functionaries. Examples include Pakistan's merged tribal districts and Tharparkar, Umerkot, Dera Ghazi Khan, and Rajanpur. In Afghanistan's, the region of

southern/eastern provinces while Iran's Sistan and Baluchestan; Yemen's Hadhramaut and Al Mahrah; Iraq's Anbar; Syria's Deir ez Zor; Jordan's Mafraq and the Badia; Somalia's Puntland/Galmudug; Ethiopia's Afar and Somali Region; Sudan's Darfur/South Kordofan; South Sudan's Jonglei/Upper Nile; Niger's Diffa; Chad's Tibesti; Mali's Gao/Kidal; Libya's Fezzan; Algeria's Tamanrasset; Morocco's High Atlas; India's Jaisalmer, Ladakh, Lahaul Spiti; Myanmar's Rakhine and Chin; the Philippines' BARMM; Indonesia's Papua and East Nusa Tenggara; Bangladesh's Chittagong Hill Tracts; Peru's highlands and Amazonia; Bolivia's Beni and Pando; Guatemala's Alta Verapaz; Mexico's Oaxaca highlands and Tarahumara; Colombia's La Guajira and Chocó; Haiti's Grand Anse; and outer provinces of Papua New Guinea and Vanuatu.

CONCLUSION

Leadership across Quetta, Pishin and Gwadar described how to work in the key rugged region using well-structured, straightforward equipment. During the crisis, building the right team is key to overcoming crises. The key workforce should be mobilized from the provincial line departments. Verified data proved effective for targeting. Sharing information in a way that ensures people's safety and preserves accountability. Before providing relief, the access route should be cleared for feasible transformation. Volunteer work is vital to reach the last mile and capture key information. Meanwhile, RBM and PDIA form the backbone for learning and

improvement (Andrews, Pritchett, and Woolcock 2017; ICRC 2018; NDMA 2020-2024; UNDP 2022; UN-Habitat 2013).

Annexures

Annex A. Administrative Units (Quetta)

Quetta-Sub-divisions: Quetta City; Quetta Saddar. Tehsils/Towns: Quetta City (often presented as Chiltan and Zarghoon Towns), Quetta Saddar, Panjpai, Kuchlak; some updates list Sariab as a subdivision/tehsil (PBS 2012).

A1:. COVID-19 Response-Quetta Quarantine Centre

A 2,000-capacity quarantine centre was established in Quetta during early COVID-19 operations—at the time the largest in Pakistan—to isolate high-risk arrivals and decompress hospital load. The centre operated under the district administration's incident command and inter-departmental staffing model described in the main text (Quetta District Administration 2020).

Annex B. Administrative Units (Pishin)

Pishin-Sub-divisions: Barshore; Karezat (Karazat); Pishin; Huramazai. Tehsils: Barshore; Huramazai; Karezat (Karazat); Pishin; Saranan; Bostan; Khanozai (District Administration Pishin 2018)

Annex C. Gwadar Flood Operations Data (Feb–Mar 2024)

C1. Hydromet timeline and areal extent. 23 Feb 2024 nominal conditions; 28 Feb ~183 mm + ~55 mm; ~1 week later ~52 mm/24h; 2 Mar 2024 >140 km² inundated (District Administration Gwadar 2024a; 2024b).

Table C1. Most-affected localities (District Administration Gwadar 2024a).

Locality	Locality	Locality	Locality
Shadoband Ward	Mullaband	Gwatree	Thana Ward
Surabi Ward	Shambay Ismail	Faqeer Colony	Pishukan
Surbandar	Mujahid Ward	Haji Nauman Ward	Gazerwan
Usmania Ward	Saleh Mohammad Ward	Senator Ishaq Ward	Topag Ward
Kuhbun Ward	Tehsil Jiwani	Sub-Tehsil Suntsar	

Table C2. Damage summary by tehsil/sub-tehsil (District Administration Gwadar 2024a).

Tehsil/Sub-Tehsil	Houses	B/W*	Kitchens/Baths	Boats (damaged/drowned)	Agriculture 'bandat' affected	Livestock (goats/sheep)	Notes
Gwadar	365	150	15	—	—	73	—
Jiwani	30	150	20	80 drowned	95%	140	—
Suntsar (Sub-Tehsil)	—	40	—	—	250	—	+ 20 huts
Pasni	15	—	—	—	—	—	Solar panels damaged

*B/W = bathrooms/washrooms. A consolidated slide listed “200 boats” damaged district-wide (District Administration Gwadar 2024a).

C3. Transport & access impacts (selection) (District Administration Gwadar 2024a).

Panwan-Hospital (Jiwani); Panwan-Faizabad (Jiwani); Jiwani-Shayabad; Robar-Kargoshki (Jiwani); Peraheen-Took (submerged); Mirjatt-Kalato (submerged); Akada Imam Bux Bazar; Omani Grant-Chib Rekani; Surbandar Football Chowk; Surbandar Niaz Hotel; Darbella; Coastal Hwy ↔ Kapper/Omani Grant; Gwadar→Pishukan (80% work); Motorway Chowk→Graveyard (city); Jinnah Ave→TCF School (city).

C4. Markets/areas disconnected due to Dasht River rise (District Administration Gwadar 2024a).

Kohsar Bazar Patan; Kohsar Waleed Bazaar; Meerani Bazar Shimaly; Bal Kuhda Haneef Bazar; Chawad Bazar; Saisadi Bazar; Zahran Liaquat Bazar; Zahran Sohban Bazar; Zahran Mullah Naik Bazar; Chalho Bazar; Lodeeg Aap Bazar; Teerandask Bazar.

Table C4. Assets deployed (District Administration Gwadar 2024a).

Asset	Quantity
Water bowzers	21
Dewatering pumps	54
Excavators	3
Loaders	2
Cranes	1

Table C5. Shelters and occupancy (District Administration Gwadar 2024a).

Shelter Site	Occupancy	Notes
GPA Rest House (Kauda Babar)	70	
Pak-China School	100	
S&GAD Camp Office	185	

Total sheltered: 355; an additional 800–1,000 evacuees stayed with relatives (District Administration Gwadar 2024a).

Table C6. Relief stocks and contributors (District Administration Gwadar 2024a).

Item/Contributor	Details
Relief items/services	Hot meals; medical teams; tents; blankets; tarpaulins; hygiene kits; fumigation; 90,000 aqua-tabs; filtration plant; medicines
PDMA stocks	1,000 tarpaulins; 1,000 blankets; 1,000 mosquito nets; 1,000 jerry cans; 500 water coolers; 500 × 10-kg gas cylinders
NGOs	Edhi; Al-Khidmat; Meer Abdul Ghafoor Trust; Bakhshullah Trust; BSDSB (6,000 rations); Saylani (cooked food); Red Crescent (dewatering/filtration); Hayat Foundation (2,000 packs); BRSP (200); RCDC (500-700 for Surbandan)
Government sources	PDMA (Government of Balochistan); KS-Relief (Saudi Arabia)

C5. Preparedness and lessons. Nullah cleaning, pre-positioned machinery, earmarked shelters, and pre-flood coordination with GDA, GPA, Irrigation, B&R, PHED, PDMA, Army, Navy, Local Government, and private contractors. Positives included early nullah cleaning, 12-inch turbines from PDMA Sindh, a damage-survey app, PKR 10 million from GPA, effective local-government response, daily coordination, and DC office continuity; gaps included shortages of bowsers/machinery/drivers, POL constraints, a second spell before reset, weak pump records, initial mistrust in surveys, sporadic commandeering, saturated water table, and crowding at daytime distributions (District Administration Gwadar 2024b).

C6. Context: district water-supply shortfall 3.68 MGD (demand 7.90 vs supply 4.22) (District Profile Gwadar n.d.).