



22 cumulative environmental degradation. Applying the framework of Rob Nixon's *Slow Violence*,  
23 the study traces four historically layered processes, pre-modern geophysical upheaval, colonial  
24 hydraulic restructuring, post-colonial land redistribution, and current industrial encroachment,  
25 through which damage accumulates over generations without achieving political visibility or  
26 accountability. Fieldwork reveals interlocking forms of dispossession: erosion of fisheries and  
27 agrarian livelihoods, enclosure of communal river basins by mechanized sand-mining,  
28 disproportionate groundwater pollution in households with no land and women, and the  
29 generational loss of environmentally-based knowledge. The study further argues that oral  
30 traditions, ritual practices, and communal storytelling on the dry riverbed constitute active forms  
31 of counter-narration and environmental resistance rather than nostalgic commemoration. The  
32 article proposes that a vanished river may be conceptualised as a living cultural commons,  
33 generating ongoing and institutionally unaddressed claims upon water governance frameworks.

34 **Keywords:** River Beas, *Slow Violence*, Common Theory, Postcolonial hydrology, Channel  
35 migration, Water governance

## 36 **Introduction**

37 Rivers in South Asia are not merely hydrological features; they are fundamental organising  
38 principles of social life, repositories of spiritual meaning, and vessels of collective identity [1, 2].  
39 Their disappearance, therefore, constitutes a loss that operates simultaneously across physical,  
40 cultural, and political registers. The case of the Beas River in Pakistani Punjab illustrates this  
41 multidimensional character of river loss with particular clarity. What remains of the Beas today  
42 is a dry palaeochannel extending through Depalpur Tehsil and the Kasur–Chunian Corridor, a  
43 ghostly imprint on the landscape around which communities have continued to organise

44 memory, grief, and contestation. Two questions animate this article: what does it mean to inhabit  
45 a landscape structured by a river's permanent absence, and what responsibilities does this impose  
46 upon existing governance frameworks?

47 The chronology of the Beas' disappearance sets it apart from most documented cases of river  
48 loss in the region. Natural channel migration between 1750 and 1800 caused the river to shift its  
49 course entirely, merging with the Sutlej and transforming the Bari Doab, the interfluvial zone  
50 between the Ravi and Sutlej rivers, into a dry, waterless tract [3, 4]. Crucially, this geophysical  
51 transformation was complete well before British colonial engineers arrived to construct their  
52 extensive canal networks in the 1880s. By that point, the Beas had been absent for close to a  
53 century. Neither the Partition of 1947 nor the Indus Waters Treaty (IWT) of 1960 caused the  
54 river's disappearance; what these political and legal developments accomplished instead was the  
55 formalisation and permanent entrenchment of a loss that had already occurred, eliminating any  
56 remaining institutional pathway toward ecological recovery [5, 6]. This distinction carries  
57 significant analytical weight. Treating the Beas as a pre-modern ecological event rather than a  
58 casualty of contemporary geopolitical conflict reopens fundamental questions about what the  
59 river represents symbolically and what forms of redress remain conceivable.

60 Nixon's (2011) framework of slow violence provides the theoretical scaffolding for this analysis  
61 [7]. Slow violence refers to harm that does not announce itself through dramatic rupture but  
62 instead accumulates incrementally across time, below the threshold of political visibility and  
63 beyond the reach of legal accountability. Four distinct but overlapping historical strata have  
64 generated this slow violence in the Beas corridor: the pre-1800 natural avulsion that initiated  
65 absence; the colonial hydraulic engineering of the 1880s that institutionalised that absence; the  
66 1960 IWT water allocation regime that legally consolidated it; and the industrial and extractive

67 encroachment that has intensified since the 1980s and continues to deepen it. Those who bear the  
68 greatest burden of these compounding processes are predictably those with the fewest resources  
69 to resist them, principally women, landless labourers, and communities without formal land or  
70 water entitlements [8, 9].

71 A significant gap characterises the existing literature on the Beas. Scholarly attention has  
72 overwhelmingly gravitated toward bilateral water diplomacy and the upstream-downstream  
73 hydrological dynamics of the river system [10], leaving largely unexamined the lives and  
74 struggles of Pakistani communities settled along the former riverbed. Their ecological  
75 knowledge, cultural memory, and daily negotiation of environmental degradation remain outside  
76 the frame of most academic and policy accounts. This study intervenes in that gap through three  
77 phases of ethnographic fieldwork conducted between 2019 and 2025 across Depalpur Tehsil and  
78 the Kasur–Chunian Corridor, foregrounding the perspectives of those who live most directly  
79 with the river's absence.

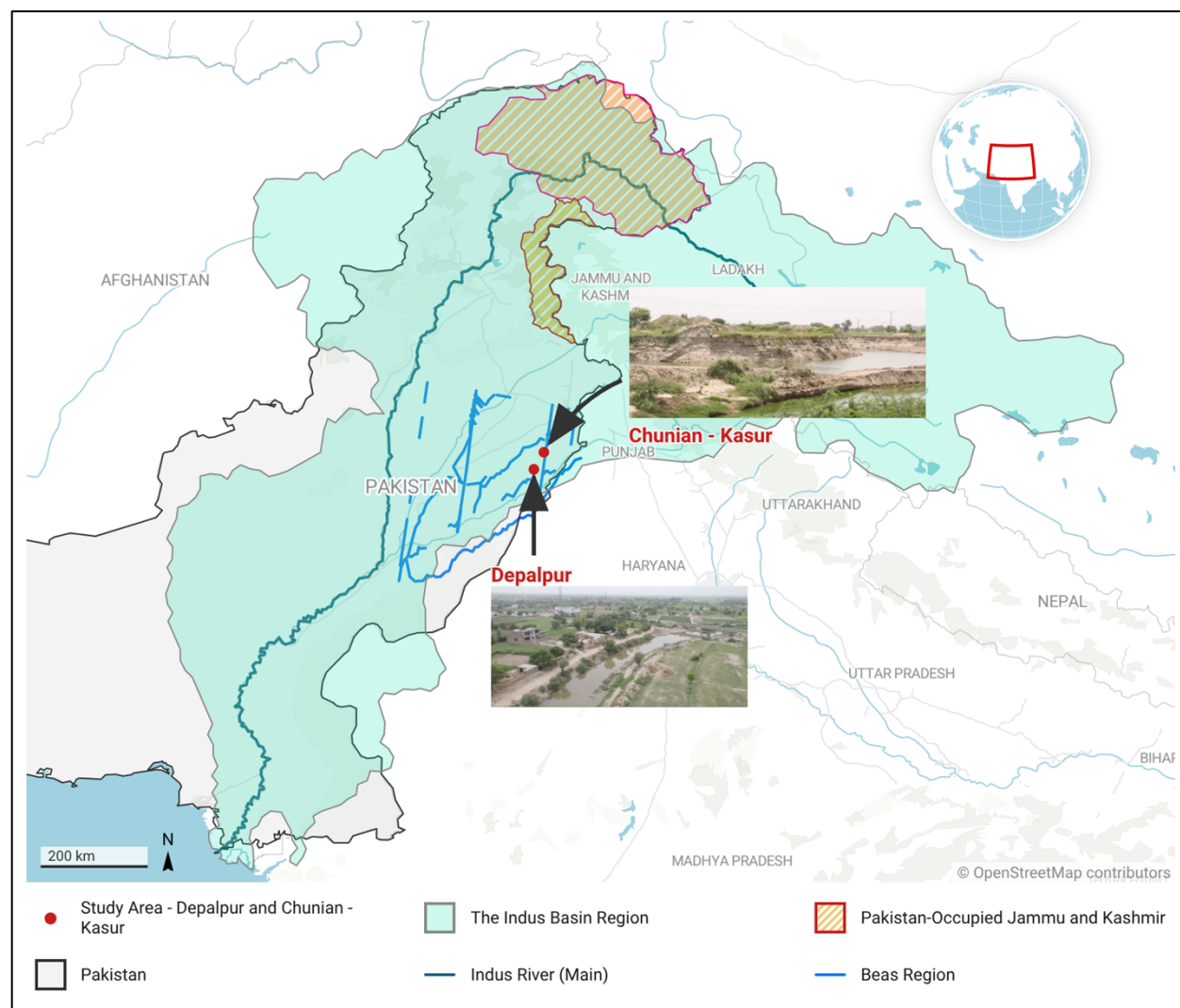
80 The article proceeds through the following sections: Materials and Methods; Theoretical-  
81 Conceptual Framework: Nixon's Slow Violence; Results; and Discussion.

## 82 **Materials and Methods**

83 The Kasur-Depalpur Corridor in the Bari Doab interchange in the central Punjab of Pakistan is  
84 the subject of this article (Fig 1). The River Beas ceased to flow through the area between 1750  
85 and 1800 [11], leaving behind a dry palaeochannel, remnants of which can still be seen in the  
86 topographic depressions, characteristic alluvial soils and remnant wetlands. The alluvial  
87 lowlands of the region, which support a diverse riverine and agricultural economy, have

88 historically been vulnerable to monsoon flooding. More than 70% of rural household water is  
89 now from the groundwater [12], and the corridor is characterized by rising salinity and declining  
90 water levels [13].

91 **Fig 1. Study Area – Depalpur and Chunian – Kasur Region - Pakistan**



93 **Source:** Created by the authors using Datawrapper. The current course of the Beas River is shown. The picture for  
94 Chunian – Kasur was captured in autumn 2025 and documents ongoing sand mining activities, including the  
95 excavation of the riverbed. The picture for Depalpur showcases the riverbank of the Beas River in 40/D village,  
96 Depalpur.

97 Continuous human settlement in this region dates to the Kushan period, reflecting its enduring  
98 historical significance. Culturally, Depalpur is embedded in traditions associated with Guru  
99 Nanak, while Kasur is intimately connected to Bulleh Shah, a Sufi poet. Water historically  
100 organised social life across the corridor, shaping fishing practices, agricultural rituals, and  
101 patterns of riverbank settlement [10]. This relationship has since been severely disrupted by  
102 converging environmental pressures. Industrial facilities, including rice mills, sugar factories,  
103 and cement plants, have expanded along the former riverbed, generating groundwater  
104 contamination through industrial discharge and agricultural runoff [14]. Simultaneously,  
105 mechanised sand mining has enclosed and commodified riverbed spaces that once functioned as  
106 shared commons. Four villages were selected for fieldwork based on their historical proximity to  
107 the ancient riverbed and direct exposure to these overlapping pressures: Chak No. 40/D,  
108 Dolowal, Bhutta Muhabbat, and Pepli Pahar.

## 109 **Research Design**

110 Sustained engagement across multiple field sites connected through shared historical, ecological,  
111 and political processes defined the methodological orientation of this study [15]. Ethnography  
112 was selected as the primary approach because it captures embodied, affective, and everyday  
113 dimensions of lived experience that survey-based and policy-oriented research consistently  
114 overlooks, making it particularly appropriate for documenting cumulative environmental harm  
115 [7, 16, 17]. Phase one, conducted between January and March 2019, prioritised community  
116 rapport-building, key informant identification, and researcher familiarisation with field locations.  
117 Phase two, between September and December 2021, encompassed focus group discussions, in-  
118 depth interviews, observational visits, and documentary collection. Phase three, between March

119 and June 2025, focused on longitudinal change documentation, follow-up monitoring, and  
120 triangulation of earlier findings.

121 A foundational methodological principle underlying this multi-stage design is that cumulative  
122 damage cannot be adequately captured through a single field visit [7, 18]. Repeated and  
123 sustained engagement with the same sites across an extended timeframe was therefore essential  
124 for documenting compounding loss processes, cumulative environmental effects, and the  
125 incremental ecological changes associated with prolonged river absence.

## 126 **Data Collection**

127 Primary data were generated through three complementary ethnographic techniques: participant  
128 observation, semi-structured in-depth interviews, and focus group discussions. During participant  
129 observation, the researcher was embedded within riverine communities for extended durations,  
130 engaging directly in everyday practices including subsistence cultivation, household water  
131 procurement, ceremonial gatherings on the dry palaeochannel, and informal intergenerational  
132 storytelling sessions. Particular analytical attention was directed toward the sensory dimensions  
133 of the landscape, the odour of stagnant residual pools, the acoustic character of wind moving  
134 through abandoned channel depressions, and the tactile quality of compacted alluvial silt,  
135 treating these as embodied registers of ecological memory and place-based environmental  
136 knowledge [19]. Field notes were maintained by hand throughout all observation periods, and  
137 photographs and audio recordings were obtained under conditions of prior verbal informed  
138 consent.

139 Semi-structured in-depth interviews were conducted with fifteen purposively selected  
140 participants chosen to represent a range of ecological expertise, livelihood backgrounds, and  
141 relational histories with the river [20]. The sample encompassed farmers affected by industrial  
142 effluent discharge, women whose domestic and caregiving responsibilities were directly shaped  
143 by water scarcity and contamination, village elders carrying generational environmental  
144 knowledge of the Beas, youth environmental advocates, and three individuals who had  
145 physically excavated sections of the dry channel in acts carrying both practical and symbolic  
146 significance. All interviews were conducted in Jangli-Punjabi (Bar dialect) and Urdu, audio-  
147 recorded with participant consent, and subsequently transcribed and translated into English.

148 Two focus group discussions, each comprising eight to ten participants and structured to  
149 represent diversity across gender, age cohort, livelihood type, and community role, were held  
150 directly on the dry riverbed (Fig 2). Situating these discussions within the physical space under  
151 investigation enabled the researcher to observe how collective environmental narratives emerged  
152 in direct material proximity to the landscape being discussed, grounding testimonial accounts in  
153 shared spatial experience [21]. Secondary documentary sources were gathered in parallel and  
154 subjected to systematic review, encompassing government water policy documents,  
155 environmental tribunal rulings, regional newspaper coverage, and vernacular oral materials such  
156 as locally circulating songs and proverbs referencing the river [22]. All data were analysed using  
157 reflexive thematic analysis [23], with slow violence [7] and environmental memory [24] serving  
158 as the primary organising analytical concepts.

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**Fig 2. Focused Group Discussion with Elderly Participants from the Depalpur and Kasur-Chunian Corridor**



168

169 **Source:** The picture was taken by the author with the proper informed consent from participants. Participants, aged  
170 approximately 80 to 100 years, shared their memories and perspectives on the Beas River, including their  
171 experiences of the 1956 flood in Pakistan. Their narratives challenge dominant hydropolitical understandings by  
172 foregrounding lived memory and long-term environmental experience.

### 173 **Ethics and Positionality**

174 All subjects gave their verbal informed consent. Verbal informed consent was obtained from all  
175 participants before conducting the field study. Before participation, the author explained the  
176 purpose of the study, its academic and non-commercial nature, the intended use of the collected  
177 material, and the participants' right to decline participation or withdraw at any stage. Verbal  
178 consent was considered appropriate due to the field-based and community-oriented nature of the  
179 study. The consent process was documented in field notes, including the date, location, type of  
180 interaction, and permission granted for photographs, audio recordings, or video recordings.  
181 Where applicable, verbal consent was obtained in the presence of local community members,

182 key informants, or other participants who witnessed the process. The researcher's long-standing  
183 familiarity with Tehsil Depalpur and the Kasur-Chunian corridor helped establish trust, but all  
184 participation remained voluntary and based on prior informed verbal consent.

185 Where appropriate, pseudonyms are used for identity protection. The study ensured anonymity  
186 and took into account the sensitivities of the community by following ethical criteria for  
187 anthropological fieldwork. As a local with strong cultural and emotional ties to the region, the  
188 researcher was placed in a position to be both an observer and a participant in the process. This  
189 fostered openness and trust, but it also required constant reflection to identify circumstances in  
190 which familiarity could mask differences. Reflexive field notes were kept throughout all three  
191 phases of fieldwork.

## 192 **Limitations of the Study**

193 Several methodological and empirical constraints limit the findings of this study, deserving  
194 explicit acknowledgement. Fieldwork conducted from 2019 to 2025 faced challenges in  
195 documenting continuous ecological and socio-environmental changes due to the hydrological  
196 unpredictability of the former Beas channel and seasonal variability in residual water bodies.  
197 Systematic longitudinal monitoring, necessary for precise observation of incremental  
198 environmental changes, exceeded the capabilities of ethnographic fieldwork alone.

199 The historical documentation for the region presents significant gaps that hinder archival  
200 triangulation. Fragmentary and inconsistently preserved colonial-era cartographic and  
201 administrative records on the Pakistani side of the Beas, coupled with uneven archival  
202 maintenance of post-Partition institutional records concerning land tenure and water governance  
203 in the Kasur–Depalpur corridor, constrained the researcher's ability to corroborate oral

204 testimonies with written historical evidence. This necessitated interpretive caution in situating  
205 community narratives within broader chronological contexts.

206 Furthermore, local interpretations of the river's historical significance and the reasons for its  
207 disappearance are internally diverse, shaped by intersecting factors such as caste, gender,  
208 political affiliation, and generational experience. Thus, no single narrative fully represents the  
209 corridor's collective perspective. The study adopts this plurality as analytically valuable,  
210 highlighting the social stratification of environmental knowledge and loss. However, conducting  
211 comparative ethnographic work across a more extensive range of sites within the wider Indus  
212 Basin could enhance the generalizability of the conclusions and represents a crucial avenue for  
213 future research.

## 214 **Theoretical-Conceptual Framework: Nixon's Slow Violence**

215 Rob Nixon (2011) defined slow violence as “a violence that occurs gradually and out of sight, a  
216 violence of delayed destruction that is dispersed across time and space, an attritional violence  
217 that is typically not viewed as violence at all” [7]. This definition is used in this study. Event-  
218 based kinds of harm, like explosions, floods, or armed warfare, are different from slow violence  
219 since their impacts are visible and instantaneous. Instead, their effects build up gradually and  
220 only reach catastrophic levels over long stretches of time, making it structurally challenging to  
221 assign blame and accountability. Slow violence occurs over extended periods of time, which  
222 separates cause and effect and permits dispossession to develop at a rate that is not recognised by  
223 traditional political or legal structures. Governments, businesses, and international organisations  
224 are able to continue detrimental behaviours without being held accountable for them because of  
225 this temporal distance [7, 25]. In postcolonial South Asian literature, the idea has been

226 extensively used, especially in studies of industrial pollution [27], rural dispossession [1], and  
227 extractive economies [26].

228 This concept is extended by the Beas River instance, which demonstrates that gradual damage  
229 can result from both historical geophysical processes and contemporary governmental or  
230 industrial initiatives. In this case, neither the Indus Waters Treaty nor the 1947 Partition marked  
231 the start of the gradual bloodshed. Rather, it develops through a layered build-up of damage over  
232 four different temporal periods, each of which builds on and exacerbates the consequences of the  
233 one before it.

234 The first stage is a pre-modern geophysical transition that occurred between 1750's and 1800.  
235 During this time, tectonic movement, sediment deposition, and monsoon-related avulsion caused  
236 the Beas to change course and be absorbed into the Sutlej by natural channel migration [3, 4].  
237 His change, which took place long before colonial control, Partition, or the IWT, created an  
238 initial state of absence that would be acted upon by subsequent processes. The colonial hydraulic  
239 intervention (1849–1940s) is the second phase. Water flows were reorganised to support  
240 agricultural productivity and revenue extraction starting in 1849 with the building of the Bari  
241 Doab canal system and the growth of canal colonies [28, 29]. Colonial engineering eliminated  
242 the river from official geographic and administrative registries by reclassifying the original Beas  
243 channel as marginal land and directing water into state-managed infrastructure [30].

244 Partition and the Indus Waters Treaty (1947–1960) gave rise to the third phase. The partition  
245 broke long-standing ecological and social ties across newly drawn borders and upset established  
246 water governance systems [6]. Any chance of re-establishing downstream flow was legally  
247 eliminated when the 1960 treaty assigned the Beas solely to India as an Eastern River [5]. This

248 arrangement addressed the institutional permanency of the river's absence rather than the river's  
249 actual disappearance.

250 Postcolonial industrial incursion is the fourth and most recent phase (1980s–present). The dry  
251 riverbed has been progressively filled by rice mills, sugar industries, cement plants, and  
252 mechanised sand mining activities, which have contaminated groundwater, discharged effluents  
253 into surviving water bodies, and further degraded the remaining shared riverine environment [14,  
254 31]. Even though this stage is the most obvious, it can only be completely comprehended in light  
255 of the larger temporal sequence that comes before it.

256 According to Nixon, counter-narration—stories, testimonials, and cultural practices that make  
257 accumulated damage readable and restore the temporal richness frequently lost by technocratic  
258 governance—is how slow violence becomes apparent [7]. This is where ethnography and the  
259 slow violence framework meet. The oral histories, songs, rituals, and testimonies recorded in this  
260 study function as witnessing practices that allow communities to express kinds of damage that  
261 are hidden in institutional discourse. These counter-narratives persist through environmental  
262 memory [24], which is defined as the generational transfer of ecological knowledge and  
263 attachment to place, even in the absence of living recollection of the river's flow.

## 264 **Results**

265 The results are based on three stages of ethnographic study carried out in four village locations  
266 along the old Beas channel in Punjab's Kasur–Depalpur corridor between 2019 and 2025. When  
267 taken as a whole, the five theme findings point to a particular arrangement of gradual violence  
268 that is influenced by the river's extended absence.

## 269 **Industrial Pollution and the Decline of River-Based Livelihoods**

270 Community reports of clearly contaminated water passing via seasonal channels at Shergarh,  
271 Renala Khurd, and Okara before entering the old Beas course and endangering the health of  
272 people and cattle were confirmed by field observations. Participants often detailed how untreated  
273 wastewater is released into the channel by industrial facilities built along the dry riverbed, such  
274 as rice mills, sugar factories, and cement plants, deteriorating water supplies utilised for grazing,  
275 drinking, and agriculture [14, 32]. A number of individuals stated that some firms use  
276 subterranean plastic tubes to discharge garbage straight into groundwater. This assertion is  
277 corroborated by several sightings of discoloured, foul-smelling water seeping into the ancient  
278 route.

279 A 59-year-old resident whose house stands on the former bank of the Beas described a slow shift  
280 from abundance to decline:

281 پہلے ساری زندگی اس خوشی نال اپنی زمیناں کاشت کیتیاں، تے ساڈا گھر ہنسی خوشی چلدا رہا۔ پر کچھ عرصے توں  
282 دریا دے کول فیکٹریاں بن گئیاں۔ اوہناں نے اس صاف پانی نوں خراب کر دتا۔ نہ صرف بہندے پانی نوں گندا کیتا، بلکہ  
283 ساڈا پین والا پانی وی گندا ہو گیا۔

284 (In the past, our houses ran well, and we joyfully worked our land throughout our lives.

285 Factories were constructed close to the river over time, damaging both the flowing water and our  
286 drinking water.)

287 He went on to discuss decreasing crop yields, rising drinking water salinity, and animal illness  
288 and mortality (Fig 3). These damages did not appear overnight; rather, they accumulated over

289 many years and grew progressively worse—a commonplace but significant manifestation of  
290 delayed violence.

291 **Fig 3. Discussion with riverine communities on wastewater pollution and its impacts**



292

293 **Source:** The picture was taken by the author with the proper informed consent from participants.  
294 Participants shared their experiences of how local factories affect food systems, drinking water quality,  
295 climate conditions, livestock, and agricultural lands. The discussion was conducted during fieldwork in  
296 2023 under approximately 35°C weather conditions. Community members expressed strong concerns  
297 about river pollution. In the background, livestock are visible standing nearby.

298 Similarly, a 62-year-old farmer who recalled his childhood as a time of swimming, fishing, and  
299 travelling by boat on the river reflected on what replaced it:

300 “شوگر ملاں نے ہور صنعتاں آگئیاں نیں۔ او بے خوف ہو کے گند دریا وچ سٹ دے نیں۔ اوہناں نے دریا نوں مار دتا اے۔”

301 (Sugar mills and other industries have arrived. Without fear, they dump waste into the river.

302 They have killed the river.)

303 His shift from remembering to the language of killing, "they have killed the river",—makes  
304 gradual violence narratively evident, claiming that the harm is the result of identifiable persons  
305 and activities rather than being accidental or natural [7, 33].

## 306 **Displacement and Environmental Insecurity**

307 The Dharian, a group of ten to fifteen houses living in makeshift shelters in a community known  
308 locally as Balochon ki Dhari in village Chak No. 40/D, were the most vulnerable group met  
309 during fieldwork. The Dharian lack basic sanitation, dependable access to drinking water, and  
310 secure land ownership. Children were observed drinking straight from the stagnant, salty,  
311 greenish water that had accumulated within the old canal during field observation.

312 One resident explained:

313 “ساڈے کول پین نوں پانی نئیں ملدا۔ ساڈے بچے دریا وچوں کھارا پانی پین تے مجبور نیں۔”

314 (There is no drinking water available to us. Our children are forced to drink salty water from the  
315 river.)

316 Participants stated that because their shelters are built on land controlled by a single landlord  
317 who has the power to remove them at any moment, people who try to find work elsewhere run  
318 the danger of violent reprisal. This confluence of forced work, unstable tenure, and  
319 environmental exposure is not coincidental; rather, it represents systematic exclusion from  
320 institutional recognition, legal protection, and public infrastructure that is provided to other  
321 members of the community [34, 35].

322 A 46-year-old private contractor explained the scope of sand mining in the corridor, claiming to  
323 have a two-year mining contract worth 52 million PKR, with sand sold for 21,500 PKR per tram  
324 after payments to landowners and government officials. A 26-year-old resident went on to  
325 explain how local officials and contractors put pressure on communities to give up access to  
326 river land. When combined, these narratives demonstrate how the dry riverbed has been  
327 converted from a common natural area to a location of extraction, private accumulation, and  
328 institutional neglect, directly resulting in the Dharian and other communities becoming  
329 dependent on tainted water [36].

### 330 **Enclosure of the Riverbed as a Common Resource**

331 The Beas riverbed was once used as an open-access commons, according to oral narratives from  
332 all four field locations. The riverbed served as a place for grazing, washing, ritual practice, and  
333 social contact; fishing sites were arranged by rotating household arrangements; and sand was  
334 mined periodically and on small sizes. Customary arrangements, which were unwritten but  
335 generally accepted standards that specified who might use specific resources, when, and under  
336 what circumstances, regulated access [37].

337 This commons has gradually been enclosed over time. The state now rents sand-mining rights to  
338 commercial companies, substituting mechanised dredging for community-based extraction.  
339 Security guards and physical obstacles are used to restrict access, and community forms of  
340 resource governance have been replaced by wage labour under mining contractors. Due to their  
341 lack of institutional status and alternate means of subsistence, women and landless labourers  
342 have been disproportionately impacted by this change [38].

343 Resistance is further limited by the legal structure that supports this process. The riverbed's  
344 classification as government land makes it impossible to contest the distribution of mining leases  
345 to commercial operators, so superseding centuries of traditional usage with a single formal  
346 designation. Beas communities have continuously been denied legal recognition and  
347 enforcement authority, despite research on commons governance showing that shared resources  
348 can be managed sustainably [39]. Therefore, enclosure involves both physical and legal  
349 dispossession: the loss of legitimacy and power through bureaucratic classification, which  
350 functions as a kind of delayed violence in and of itself [40, 41].

## 351 **Ecological Memory and Intergenerational Knowledge Loss**

352 Communities in the Kasur–Depalpur corridor nevertheless possess extensive biological  
353 knowledge of the Beas despite the river's physical extinction. This information has been passed  
354 down orally through generations that have never seen the river in action [24, 42]. Seasonal flood  
355 patterns, the sound of monsoon waters flowing through certain channels, fish species once  
356 connected to distinct riverbed reaches, agricultural calendars dependent on floods, and soil  
357 characteristics influenced by recurring flooding are all described by elders (Fig 4). This  
358 information is not only practical; it is based on long-term observations of biological cycles, soil-  
359 water connections, and hydrological behaviour that are not included in official scientific records.

360 **Fig 4. Discussion on Wastewater pollution and Its Impacts on livestock, wild birds, and**  
361 **other animals in the Depalpur and Kasur-Chunian corridor**



362

363 **Source:** The picture was taken by the author with the proper informed consent from participants.  
364 Participants shared their perspectives on livestock, wild birds, and other animals in the area. One  
365 participant emphasized that wastewater pollution affects not only human life but also animals and  
366 migratory birds. He noted that migratory birds once stayed in the area for extended periods and thrived,  
367 but factory wastewater has severely disrupted local ecosystems, affecting agricultural land and  
368 groundwater quality as well.

369 A Phase Three follow-up visit in early 2025 was one of the most impactful fieldwork  
370 experiences. One of the last people with a live recall of residual water running down the former  
371 Beas channel was a guy the researcher encountered on a chilly winter's morning who was  
372 thought to be roughly 105 years old. He remembered the profusion of fish, the unique sounds of  
373 monsoon waters, and the social life that used to revolve around the riverbanks. He started crying  
374 as he said. The field notes record:

375 "Where water once flowed, his tears fell on dry ground." Nixon's description of creeping  
376 violence was no longer an abstract idea, but rather the pain of an elderly man, which was  
377 portrayed in ways that words could not adequately convey. This elder did not view the river's

378 loss as an abstract concept or a policy issue. A life moulded by cumulative absence revealed the  
379 intergenerational and embodied aspects of gradual violence [7, 43].

## 380 **Memory and Oral Tradition as Resistance**

381 Instead of passive recall, recollection of the Beas functions as an active form of environmental  
382 resilience at every field location [24, 44]. Rituals carried out on the dry riverbed that previously  
383 followed monsoon flooding, stories passed down from elders to youngsters who have never seen  
384 the river in flow, and songs that identify extinct fish species all serve as practices that resist  
385 institutional erasure. According to Nixon, counter-narration, cultural expressions that make  
386 accumulated suffering humanly comprehensible and restore temporal depth otherwise flattened  
387 by technocratic governance, makes slow violence readable [7].

388 These counter-narratives are represented by the oral traditions recorded in this study. In addition  
389 to being an act of cultural continuity, singing a Punjabi song about the Beas affirms that the river  
390 existed, that its demise was neither inevitable nor natural, and that it still has significance [45].

391 An elder challenges the notion that a river without flow has no epistemic value by describing fish  
392 that were previously discovered at a certain bend in the channel. These remembering customs  
393 equate to a type of political knowledge that is still mainly ignored by the systems of  
394 administration that are in place.

395 Seasonal variability, soil conditions, biological relationships, and histories of commons  
396 administration are among the details they maintain that are not found in hydrological data [42].

397 Communities are conserving cultural memory as well as the supporting evidence for future  
398 claims about loss, past existence, and responsibility by upholding such information.

## 399 **Discussion**

### 400 **Slow Violence Across Temporal Layers**

401 A fundamental state of absence that precedes any one political moment of accountability was  
402 created by the Beas' natural avulsion between 1750 and 1800 [3, 4]. Colonial canal engineering  
403 eventually formalised this first break, the Indus Waters Treaty and P $\beta$ artition made it legal, and  
404 industrial encroachment later made it more severe. When combined, these mechanisms show  
405 how violence develops gradually through accumulation: while the overall injury remains  
406 dispersed and mostly invisible, each historical layer normalises the one before it [7, 25].

407 Rather than being a continual hurt that may serve as a basis for political action or legal remedies,  
408 the prior condition was considered as a set backdrop at each level. Infrastructural arrangements  
409 solidified into legal permanence, natural absence became an infrastructural given, and industrial  
410 exploitation was justified by legal permanence. Thus, temporal stacking, the practice of  
411 continuously shifting injury into the past and removing it from current regimes of responsibility,  
412 continues slow violence [7, 25].

413 Governance is directly impacted by these processes. Pakistan's water management agencies do  
414 not acknowledge the old Beas channel as a dynamic ecological or social area since it is officially  
415 categorised as non-flowing [31]. The changed ecologies of the riverbed and the populations  
416 whose livelihoods and identities were affected by the river's departure are unseen since dry  
417 channels are not covered by the current environmental regulatory frameworks [8, 9]. This  
418 invisibility is a structural result of the same logic that underlies slow violence, which treats

419 steady degradation as a neutral background state rather than as damage requiring political  
420 attention or intervention [25, 36]. It is not an administrative error.

## 421 **The Unequal Distribution of Harm**

422 Nixon contends that gradual violence, which concentrates harm on groups least able to fend it off  
423 or oppose it, both causes and perpetuates social inequality [7]. This assertion is both supported  
424 and expanded upon by the study's findings. The unequal responsibilities carried by women, the  
425 Dharian's reliance on tainted water sources, and the exclusion of landless labourers from a fenced  
426 riverbed commons are not accidental consequences; rather, they are ingrained in Pakistani  
427 Punjab's older history of agricultural injustice. Colonial hydraulic measures that favoured canal-  
428 irrigated landowners while marginalising pastoral and subsistence-oriented people further  
429 solidified these disparities [1, 28].

430 Due to their major role in family water management during times of scarcity, women in the  
431 Kasur–Depalpur corridor suffer the most from these damages. They must go farther to obtain  
432 drinkable water, are more likely to be contaminated when working around the house, and take on  
433 more caregiving duties associated with illnesses connected to water [38, 46]. The loss of seasonal  
434 income, intergenerational knowledge transfer, and communal work practices is described by  
435 former fishing families as a significant type of cultural dispossession, which is felt most acutely  
436 by those whose whole subsistence economy had previously been centred on the river [47]. When  
437 taken as a whole, these disparate experiences highlight how slow violence is organised by  
438 intersecting inequalities of class, gender, and land tenure rather than being spread equally.

## 439 **Memory as Counter-Narration**

440 The evidence that memory functions as a kind of political knowledge and active resistance rather  
441 than as passive nostalgia is a key contribution of this work [24, 44]. In Nixon's understanding,  
442 the oral traditions, songs, rituals, and testimonials recorded here serve as counter-narratives,  
443 affirming the river's continued ecological and social relevance in the face of governing structures  
444 that have made it officially nonexistent [7].

445 The precise, verifiable information ingrained in intergenerational ecological memory cannot be  
446 captured or replaced by conventional water research. Detailed knowledge of seasonal  
447 fluctuations, soil conditions, biological change, and past commons management approaches is  
448 preserved through oral traditions—information passed down through generations that have never  
449 seen the river in motion [42, 45]. This communal knowledge base may be thought of as a cultural  
450 commons, which is an archive of ethical assertions, historical responsibility, and ecological  
451 awareness connected to a material resource that is no longer physically present.

452 The Beas instance shows that commons governance is independent of a resource's ongoing  
453 physical presence. Similar in governance relevance to commons based on direct material access,  
454 this cultural common offers a moral and evidential basis for future claims about the river [37,  
455 39].

## 456 **Implications for Water Governance**

457 Three fundamental changes in approaches to water governance are required, according to the  
458 study's results. Governance models must, first and foremost, have a solid historical foundation.  
459 The Beas' absence in the Kasur–Depalpur corridor is not just a natural state; rather, it is a  
460 politically maintained result sculpted by layers of industrial growth, colonial hydraulic

461 intervention, legal allocation, and geomorphological change [29–31]. In order to acknowledge  
462 this history, one must acknowledge that community ties to and rights to the river precede modern  
463 governmental systems.

464 Second, it is important to acknowledge oral tradition and communal memory as valid types of  
465 environmental evidence. The songs, rites, and testimonials recorded here provide accurate and  
466 trustworthy information about the environment, seasonal cycles, and past resource-use patterns  
467 of the Beas corridor. By incorporating such information into governance processes, frameworks  
468 that are less dependent on strictly technical forms of expertise and more responsive to lived  
469 environmental realities may be supported [42, 45].

470 Third, the uneven distribution of harm must be addressed by governance solutions. The social,  
471 health, and economic impacts of the river's extinction are disproportionately borne by the  
472 Dharian, women, and landless communities [38, 46, 47]. Approaches to governance that presume  
473 groups are equally impacted run the danger of perpetuating already-existing disparities. To  
474 ensure that the most marginalised groups are at the center of planning, consultation, and  
475 decision-making regarding the former riverbed, its groundwater systems, and the industrial  
476 activities that continue to degrade them, effective water governance in this context necessitates  
477 treating caste, gender, and class as constitutive dimensions of environmental harm rather than as  
478 peripheral concerns.

## 479 **Conclusion**

480 The Beas River's withdrawal from the Kasur–Depalpur corridor during the latter half of the  
481 eighteenth century constituted a geophysical event that substantially predated the colonial

482 hydraulic apparatus, the territorial rupture of Partition, and the international water allocation  
483 architecture established by the Indus Waters Treaty. Yet this originary absence did not remain a  
484 purely environmental condition. Through successive layers of colonial engineering, juridical  
485 codification, and industrial encroachment, what began as pre-modern geomorphological change  
486 was progressively transformed into an enduring political and cultural condition — one  
487 transmitted across generations whose members have consistently refused to naturalise  
488 environmental displacement as either inevitable or irreversible.

489 The ethnographic record accumulated over six years of sustained fieldwork substantiates this  
490 durability with considerable force. Ritual observances performed upon a palaeochannel that once  
491 conveyed monsoon floodwaters; oral compositions that continue to enumerate fish species long  
492 absent from the corridor; the embodied grief of a centenarian elder recalling the acoustic texture  
493 of flowing water on a winter morning; and the lived precarity of Dharian children compelled to  
494 consume saline groundwater because prevailing governance frameworks have never formally  
495 acknowledged their existence—these are not residual traces of communities reconciled to loss.  
496 They constitute assertive, ongoing claims that what was surrendered carried profound  
497 significance and that its disappearance was neither ecologically predetermined nor politically  
498 neutral.

499 This study advances three substantive contributions to existing scholarship. First, it extends the  
500 conceptual reach of slow violence by demonstrating that attritional harm can originate in pre-  
501 modern geophysical processes and intensify through historically distinct political, legal, and  
502 extractive mechanisms operating across centuries. Second, it establishes that communities can  
503 sustain a cultural commons around a materially absent resource—an archive of ecological  
504 knowledge, moral entitlement, and collective memory that retains governance relevance

505 comparable to commons grounded in direct material access. Third, it argues that effective water  
506 governance in contexts of river disappearance requires three fundamental reorientations: the  
507 embedding of historical depth within institutional frameworks, the formal recognition of  
508 community memory as epistemically valid environmental evidence, and the explicit centering of  
509 intersectional social harm—structured by gender, class, and land tenure—within planning and  
510 decision-making processes.

511 Across South Asia, rivers are being diminished or eliminated through over-extraction, climatic  
512 disruption, and infrastructural control, yet governance frameworks remain structurally ill-  
513 equipped to reflect the lived realities of affected populations. The Beas case demonstrates that a  
514 river's social existence is not extinguished by the cessation of flow. Even in physical absence,  
515 rivers continue to constitute identities, reproduce injustice, preserve environmental knowledge,  
516 and generate legitimate governance claims. Comprehending what a disappearing river leaves  
517 behind—inscribed in people, landscapes, and intergenerational memory—thus represents an  
518 indispensable first step toward governance architectures commensurate with the full scope,  
519 duration, and depth of the loss sustained.

520

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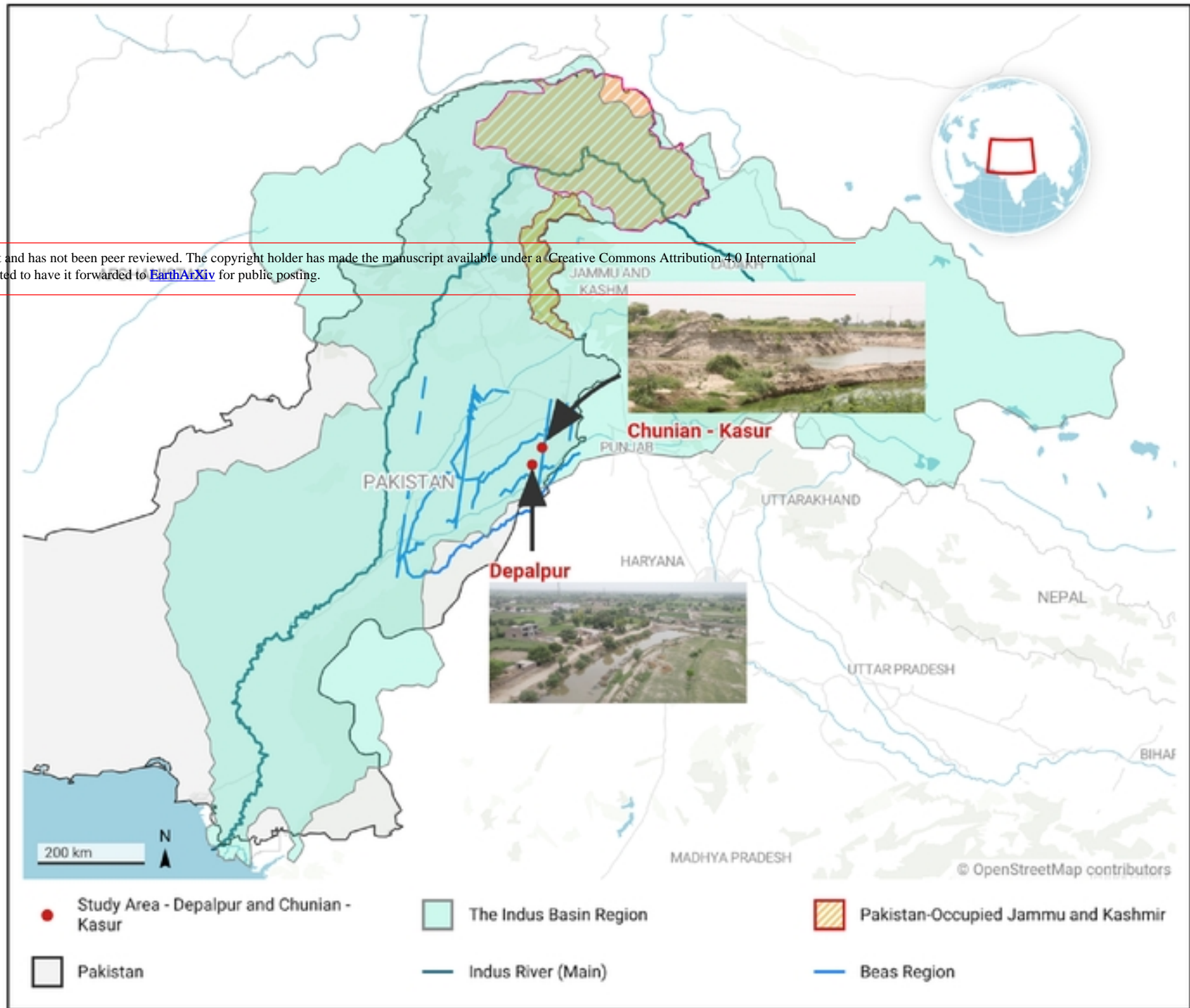
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# Figures

**Fig 1. Study Area – Depalpur and Chunian – Kasur Region - Pakistan**



**Source:** Created by the authors using Datawrapper. The current course of the Beas River is shown. The picture for Chunian – Kasur was captured in autumn 2025 and documents ongoing sand mining activities, including the excavation of the riverbed. The picture for Depalpur showcases the riverbank of the Beas River in 40/D village, Depalpur.

**Fig 2. Focused Group Discussion with Elderly Participants from the Depalpur and Kasur-Chunian Corridor**



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**Source:** The picture was taken by the author with the proper informed consent from participants. Participants, aged approximately 80 to 100 years, shared their memories and perspectives on the Beas River, including their experiences of the 1956 flood in Pakistan. Their narratives challenge dominant hydropolitical understandings by foregrounding lived memory and long-term environmental experience.

**Fig 3. Discussion with riverine communities on wastewater pollution and its impacts**



**Source:** The picture was taken by the author with the proper informed consent from participants. Participants shared their experiences of how local factories affect food systems, drinking water quality,

climate conditions, livestock, and agricultural lands. The discussion was conducted during fieldwork in 2023 under approximately 35°C weather conditions. Community members expressed strong concerns about river pollution. In the background, livestock are visible standing nearby.

**Fig 4. Discussion on Wastewater pollution and Its Impacts on livestock, wild birds, and other animals in the Depalpur and Kasur-Chunian corridor**



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**Source:** The picture was taken by the author with the proper informed consent from participants. Participants shared their perspectives on livestock, wild birds, and other animals in the area. One participant emphasized that wastewater pollution affects not only human life but also animals and migratory birds. He noted that migratory birds once stayed in the area for extended periods and thrived, but factory wastewater has severely disrupted local ecosystems, affecting agricultural land and groundwater quality as well.