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From Building Dams to Fetching Water: Scales of Politicization in the Indus Basin

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Abstract: Water flows through and informs the socio-spatial geography of the Indus waterscape in Pakistan in myriad ways. This paper argues that state-led water development has historically attempted to bypass political conflict by invoking techno-scientific authority to render water development as a purely techno-managerial pursuit. By invoking the scientifically objective, depoliticized knowledge of water resources, the state shifts the politics of water to the domain of politics of knowledge to disarm communities with cultural and political claims to water. These attempts to “depoliticize” are always accompanied by attempts to repoliticize water—both from within the state apparatus and from society more generally. The paper stages an engagement between the historical geography of the Indus and the field of critical water geography to develop an understanding of politicization as inter-scalar and relatively insensitive to changes in the ruling political regime. We present a novel periodization of the hydrosocial relations in the Indus Basin that highlight periods of relative continuity and coherence in terms of the political regime in the water sector. Despite the significance of these shifts for political history, we argue that the historical geography of water reveals a techno-managerial knowledge/value structure with a deep and structural continuity. Using a scale-sensitive understanding of politicization to analyze the historical and contemporary geography of the Indus allows us to go behind shifts in political regime to identify the deeper structures at play. These are the epistemological and ideological structures that produce a dynamic of attempted depoliticization and repoliticization in the Indus Basin.

Keywords: historical geography; water politics; technocracy; Pakistan; Punjab

1. Introduction

Two stories of hydrosocial relations, governance, law, and collective imaginaries of Pakistani nationhood converged in the Supreme Court of Pakistan in the summer of 2018. On 4 July, the Supreme Court issued a directive for the immediate construction of two large dams and set up a dam fund to collect donations for the project. To build support for the cause, the Chief Justice emphasized that the dams were “essential for Pakistan’s survival and security”, and that whosoever opposed this national cause was “a traitor and an enemy of the state” [1]. A couple of months later, the Chief Justice banned Indian television channels in Pakistan, arguing that “India is shrinking the flow of water into Pakistan, why shouldn’t we close their channels?” [2]. The dam debate was at the center of a refashioning of hydrosocial relations in response to an impending water crisis at national and international scale throughout the year.

The second story is about fetching and sharing water. On 31 September, Asia Bibi’s appeal against her death sentence on blasphemy charges was granted, ending a ten-year dispute that started over a cup of drinking water [3]. In June 2009, Asia Bibi had an altercation with her Muslim coworkers who

resented that Asia—a Christian woman—drank water from the communal cup. In parts of Pakistan, Christians are treated as untouchables, and Asia’s coworkers accused her of contaminating the cup. The altercation culminated in a charge of blasphemy against Asia. A lower court found Asia guilty and sentenced her to death. The Supreme Court, however, decided to acquit Asia. In the summer of 2019—a decade after the initial incident—Asia Bibi fled Pakistan to seek asylum in Canada, out of fear that religious hardliners would pursue her death regardless of the Supreme court’s decision. Although the story is remembered now for the way it demonstrates the injustices of Pakistan’s blasphemy laws, at the root of the incident lies the simple—but culturally loaded—act of drinking water out of a shared cup.

Water runs through both stories with different affective and material intensities. Asia Bibi’s story is located at the scale of the highly gendered everyday labor of fetching water. The story of the dam, on the surface at least, seems to play out upon a very different scale—the scale of the national. Upon closer examination, both stories have cross-scalar and transregional conditions and consequences. For example, Asia Bibi’s case is just one of thousands of blasphemy cases, disproportionately directed at Pakistan’s poor and minority communities, that have thrown the country’s federal constitutional and human rights communities into a state of paralysis and confusion. Although rooted in everyday persecutions and tensions, blasphemy reveals and impacts national level structures. While the dam fund is always discussed in national terms, it has impacted the everyday lives of millions. For example, many Pakistanis had their salaries involuntarily docked for the dam fund. Many millions were also subjected to thousands of hours of public service messages on TV, radio, and print media.

This paper links these distinct but profoundly interconnected scales of socio-hydraulic contest through a dynamic interaction between representational strategies of depoliticization and repoliticization [4,5]. This dynamic is inherently inter-scalar, and demonstrates a stable structure over time. It connects historical periods usually conceptualized as distinct and markedly different. Granted, there has been meaningful and drastic change in the political structures governing water development in the Indus Basin over the past century. These changes include not only the shift from British rule to Pakistani and Indian rule, but also the shifts between civilian and military rule in Pakistan. Despite these shifts in governance and rule, we argue that there exists a remarkable stability in the knowledge/value structures underpinning water development in the Indus Basin since the late 19th century. It is these knowledge/value structures that entrench the dynamic of depoliticization and repoliticization in the politics of the Indus.

Pakistan has the world’s largest contiguous irrigation system, stretching from the Arabian Sea to the Himalayan foothills [6,7]. This gigantic hydrosocial assemblage brings together the material and affective energies of rivers, canals, peoples, lands, plants, animals, and minerals into a complex network of mutual becoming. It sustains the predominantly agrarian economy and provides 68% Pakistan’s food needs [8]. The agricultural sector employs almost half the country’s population and “uses as much as four fifths of available water” [9] (p. 527). This stunning hydrosocial machine is running out of steam as Himalayan glaciers, which account for 40% of Indus flows, recede due to global warming. The Indus system in Pakistan vacillates between surplus and scarcity, between droughts and floods. Population growth, increased food and sanitation needs, and increased economic and industrial activity further exacerbate these already formidable challenges. Pakistani water experts have asserted that the country, which crossed the water scarcity line in 2005, will essentially be dry by 2025 [10]. Indeed, there is no lack of doomsday narratives that plot population growth against water availability in colorful visual graphics despite evidence that the problems in Pakistan are more to do with distribution and access, rather than physical scarcity [11,12]. The academic and expert focus on quantifying water resources has the effect of erasing the complex social and political struggles that produce water as a resource in the first place. This approach is depoliticizing, and comes at the expense of a more socially and historically informed understanding of the material and affective struggles around water.

This paper sketches a scale-sensitive social history of water in the Indus Basin that focuses on the knowledge/value structures that entrench a dynamic of attempted depoliticization—and a

simultaneous repoliticization—of water governance and development. The historical geography of the Indus presented in this paper revolves around shifts in political regimes. While these shifts are important in terms of the overall context, we demonstrate the importance of the structural continuity in depoliticizing ways of knowing water. In the register of time, then, this paper treads a line between rupture and continuity in the periodization of the Indus waterscape. In the register of space, on the other hand, the paper highlights the importance of the scalar dimension of hydropolitics and depoliticization. Scales are understood as a contradictory tension between discrete yet relationally connected levels of knowing, narrating, and experiencing social and political activity. The repoliticization of water, as an ongoing cultural process and as a response to state efforts at depoliticization, may seem to occur primarily at a discrete scale—such as the international or the everyday. However, as we illustrate with the politics of building dams and fetching water in the Indus basin, spatial politics play out in arenas that are simultaneously discrete and connected—just as the temporal aspects of Indus politics are characterized by both rupture and continuity.

The rest of the paper is divided into four sections. The next section brings together the literature on the historical geography of the Indus and on politicization in critical water geography. Section 3 presents a stylized periodization of water politics in the Indus Basin in Pakistan over the past century and a half. Section 4 highlights the theoretical and historiographical implications of our periodization, particularly for notions of post-coloniality and the modern/traditional dichotomy in water resources geography. The final section concludes by calling for greater attention to the politics of knowledge—especially the depoliticizing impulse of technocratic knowledge—in the history and politics of river basins.

2. Literature Review: Political Waters

The governance and development of rivers has powerfully shaped state and society in colonial and postcolonial India and Pakistan. Historians and geographers have long understood the political history of Punjab and Pakistan through the socio-hydrological relations that define the country's agrarian and demographic landscape. Ali [13] described it as “truly a hydraulic society, where patterns of dominance and subordination are pervaded by the fact that the water that sustains cropping comes not from the heaven but through human agency and human control (p. vii)”. Similarly, Gilmartin [14] narrated the story of the comingling of “blood and water” in shaping the socio-spatial relations in colonial and postcolonial Pakistan and Naqvi [15] detailed the entangled history of transformation of the Indus rivers and the society from the ancient period to the present. Mustafa [12,16] revealed the way power impacts the circulation of water through agrarian communities and the everyday struggles of the people to access water. Akhter [4,17] detailed how state-led technocratic and centralized water infrastructure development contributed to regionalist sentiment in the absence of a unified nationalist ideology, and Daniel Haines [18] traced the continuity of developmentalism practices and discourse by the state in South Asia with relation to Indus water infrastructures. These authors stressed that water powerfully shaped socio-political structures and practices. However, the nature of water is itself determined by its journey through the bends and curves of a socio-physical landscape marked by inequalities of power and access. While states and societies have been shaping their waterscapes for thousands of years, a drastic change in the scale of these interventions occurred in the context of the encounter with the British empire.

The mode of natural resource governance shifted significantly in colonial India [19]; while for colonial managers water was a “passive and calculable, unchanging and devoid of history” [20] (p. 34), for natives it was both a resource and a sacred being, a secular-sacred hybrid. For example, Chatterjee [21] narrated how urban management of water in Calcutta was informed by the colonial logic of power. He read colonial documents which are ripe with instances of natives refusing to drink water from the municipal pipes because they thought it was a sin. Capturing Ganga waters and constricting them to the pipes running down all the way to the lavatories of the modern house could easily be perceived a repulsive idea given the spiritual connection with the river of the local communities. However, charged with the mission of what Chatterjee called a selective modernization

in the colonial quarters, the colonial rulers constructed these natives' aversion to appropriate the sacred waters and put them to work for the Empire.

Similarly, Gilmartin [14,22,23] detailed how imperial management of water and people went hand in hand, albeit water imagined in the modern/secular discourse of imperial science and people imagined in the "traditional" categories of caste and kinship in the discourse of "the science of the empire". This created a hybrid (traditional/modern) assemblage in which the native peasants had dual/hybrid identities. In the hydraulic infrastructure of canal, water courses, and the irrigation fields, peasants were imagined as rational water-users who helped realize "water's duty" (a measure of the efficiency of hydraulic engine) at the point of its entry into the field of agricultural production. On the other hand, in the bureaucratic (infra)structures of the Empire, they were imagined as members of caste-based community at the level of the village. Straddled between the two worlds—modern and precolonial—peasant communities were charged with the dual role of production of modern commodities and reproduction of traditional communities.

Weil [24] problematized the power–knowledge nexus in terms of flood control. He detailed how local knowledges of water and the environment in general were consciously and forcefully silenced to make room for positivist engineering discourse. Weil's analysis reveals how flood as a category of analysis was wrested away from the people and appropriated by colonial engineers. Mustafa, in a similar way, deconstructed the concept of flood to reveal the limitations of colonial knowledge which did not consider the fact that the occasional floods replenished the top layer of land with alluvial soils brought down from the mountains and hills.

The boundary between pre-colonial and colonial modes of water management in South Asia are thus a well-worn theme in the literature, although not without dissenting voices. Shah [25], for example, provided a snippet of precolonial water management in India and argued that there was no glorious past of "sustainable water management" that Agarwal and Narain [26] described. She suggested that precoloniality in the contemporary analysis is imagined as the other of the colonial discourses and does not necessarily reveal the precolonial object of analysis. Taking a longer historical perspective, Morrison [27] argued that the ecological impacts of large-scale interventions into the waterscape did not begin with the British colonial era but have instead marked the historical geography of South India for a thousand years. Despite these challenges to the conventional understandings of colonial rupture, what is not disputed is the institution of nature–culture binary through a simultaneous depoliticization and repoliticization of nature within the modern discourses of natural sciences. Imagined as the other of traditional knowledges and practices around water and water use, these modern knowledges invested great epistemic powers in the hands of professional engineers associated with the imperial state, which began in 19th century South Asia.

The entry of a professional and state-backed authority on water resources introduced a new dynamic in the region—the dynamic of depoliticization and the accompanying repoliticization. Critical geographers have discussed how technological and data-centric solutions are often enrolled by states in attempts to bypass political conflict and ideological struggle. The notion that socio-natural problems can be depoliticized by resituating them on the terrain of supposedly objective and technical grounds is closely tied to the development of liberal political philosophy [28]. In critical water geography, this theme has circled on the enrollment of water metering technology and the bureaucratic water engineers (or the "hydrocracy") in hopes of rising above the ideological and political contests that inevitably arise from large-scale interventions into the waterscape [10,24–26]. Rather than understanding depoliticization as a unidirectional force, however, it is more useful to understand depoliticization and repoliticization as part of a political dynamic, in which attempts to depoliticize and squash ideological conflict in the name of technology inevitably usher in attempts to repoliticize [4,5].

The epistemic assumptions of water management and the transformation of water–society relations were consolidated early under colonial rule. It was the positivist science of hydrology and hydraulic engineering which imagined the rivers shorn of any cultural, spiritual, affective, and social properties except the possible promise of raising crops and livestock mostly for the benefit of the empire that

determined water management practices, institutions, and rules. Local knowledge and practices were considered when they did not conflict with (or actively complemented) the imperial calculus of use and profit. A review of the history of the transformation of water–society relations under colonial and postcolonial states in the Indus Basin reveals important continuities in the way states have managed water resources—namely, by invoking “expert knowledge” and scalar dimensions. The local practices of water use and management and local knowledges on water is generally contrasted with professional knowledge of the experts, and the national needs are invoked to bypass regional or local concerns. We analyze this transformation of water–society relations under colonial and postcolonial rule by dividing the history into two major periods and four sub-periods.

3. Periodizing Indus History: Rupture and Continuity

This section provides a preliminary periodization of water development in the Punjab, with a focus on the area that is today Pakistan. We argue that, even as various changes occurred in terms of technology and political regime, a relatively stable epistemological approach to water resources and water development has remained in place. This techno-managerial approach to water resources—adopted wholesale in the colonial period but maintained in the post-colonial era—is premised on the suppression of political struggle and contestation around water resources. However, instead of technology and technocracy transcending politics—the hope of technocratic approaches—attempted depoliticization instead can bring about re-politicization in the form of protest and heightened contestation [25,26].

What follows is a stylized and necessarily selective periodization of major changes in the waterscape of the Indus in Punjab. We divide the phase of British rule into two periods, corresponding to the early and late phases of British colonization of the region. The post-independence period after 1947 is also divided into two periods—before and after 1991. In the political history of Pakistan, the early 1990s inaugurated the short-lived reemergence of democratic governance in Pakistan after a decade of military dictatorship. The year also signals one of the landmarks of Indus waters governance in Pakistan: the 1991 waters apportionment between the provinces. Despite significant changes in the political structures of governance in the country—from imperial to nationalist rule, from military dictatorships to elected parliamentary governments—we argue that the knowledge/authority structures around water development retain a fundamentally unchanging quality. This is the technocratic approach to water as a quantifiable, ahistorical, and geographical substance whose governance, development, and planning is best left to experts. Depoliticization via water development expertise is a structural theme of Indus history for the past century and a half, as it is in many regions of Asia, Africa, and Latin America [5,29–31]. The colonial ideology of hydraulic mission [32] resonated with the development and modernization theories of the second half of the twentieth century, which promoted the western model of development and application of western science as the universal solutions to the problems of underdevelopment in the “traditional” societies [33]. This approach informed water resource management and development in the postcolonial Pakistan and facilitated further entrenchment of the technocratic paradigm and the modern hydrocracy. However, the struggles to repoliticize the waterscape are just as inevitable and structurally located in techno-natural landscapes shaped by expert-led development [4,34,35]. We bring this contradictory and ambivalent dynamic between ruptures in political regimes and a relatively stable knowledge–value structure to the surface in the following periodization.

Imperial Phase 1: 1849–1886

Punjab was one of the last regions to succumb to colonial violence and political pressure. It became part of the British Indian Empire (which was at that time still managed by East India Company) when the last Anglo-Sikh war ended in the defeat of the armies of Maharaja Duleep Singh, the last ruler of the Sikh Empire. The immediate concern of the new governors of Punjab was the pacification of the large Sikh armies and the establishment of the new governing institutions and practices. The War of Independence came quickly on the heels of Punjab’s accession to colonial rule in 1857. Punjab not

only remained relatively tranquil during the war but also provided men and materials to support the imperial cause on the northwestern frontiers. This cooperation in the war effort established a lasting partnership between the Punjabi ruling elite and the colonial state which later determined the socio-political makeup of the state and society on the one hand, and the distribution of land and resources on the other [36]. Right after the war, revenue demands were reassessed in each district and the colonization of the agricultural land in the *doabs* (the interfluvial lands between rivers in Punjab) began in full swing.

Early in the process of colonization, the British declared all the unclaimed pastoral lands in the central doabs of Punjab the “Crown Wastelands”, without any due consideration of the rights and livelihoods of the nomadic pastoral tribes who dwelled these lands, known as *bars* in the local language. Bhattacharya [37] and Gidwani [38] provided a commentary on the use of the term “waste” in the “Crown Wastelands” by the colonial administrators. These commentaries provide an insightful analysis of the waste–value dialectic in the colonial discourses. While on the one hand Indian peasants are imagined as lazy, backward, and in a socio-political state which is more akin to the “state of nature” than civilization, on the other hand a certain environmental orientalist discourse imagines the local environments, including the rivers as parts of nature with its inherent tendency to go to waste. The colonial empire put the “lazy natives and the wasteful nature” (rivers) to productive use.

During this phase, the colonial administrators of Punjab experimented with different methods of canal irrigation. A great deal of effort was put into excavating the old inundation canals which had fallen to disrepair and neglect due to a long period of instability and turmoil before the British took control. As the colonial officer encouraged excavating and building of inundation canals, questions regarding the potential benefits of investment in the irrigation infrastructure and the amount and necessity of water charge and water rights were actively debated among the colonial managers. In a letter to the commissioner of Rawalpindi division on 13 August 1867, the deputy commissioner of Shahpur district W.G. Davies detailed that “... upwards of one hundred and fifty miles of inundation canals have been opened out ... and that upwards of twenty thousand acres are irrigated by these channels ... ” [39] (p. 42) adding Rs. 7500 to the government revenue. He emphasized, “... this is information, which the government may like to be placed in possession of, now that measures connected with irrigation, are the subject of so much discussion and attention” (p. 41). In response to this letter the financial commissioner of Punjab observed, “It appears ... questionable how far private individuals have a right to take a cut from rivers ... without paying water tax” (p. 44).

To this observation, the secretary to the government of Punjab responded by stating that “... there can be no doubt that the government has the right to demand water rent from the lands irrigated by these canals; and, when definite resolution shall have been come to in regard to inundation canals and their management—a subject now under consideration in the Irrigation Department—this will be provided for” (p. 44). In the absence of detailed information on the hydrologic character of the landscape and its potential to return dividends, the colonial state was cautious to invest on a large scale in the irrigation sector, especially when the memories of the war of 1857 were still fresh. The best strategy in the given circumstances was to encourage small scale investment from private individuals and use the data to compute and assess the potential benefits of investing in the irrigation infrastructure development. Davies, one of the pioneer canal building enthusiasts in Punjab, in the same letter cited above summarized this strategy “... to foster the disposition to expend money in such works (excavating canals) on the part of men possessed with capital, combined with energy, local influence, and an honest desire to carry out schemes for reclaiming wastelands” (p. 42).

Thus, the first phase of water management could be considered the “institutional” phase in which local lands, rivers, and drainage structures were surveyed, mapped, calculated, and defined. Along with that, local communities were collected, counted, and enumerated in colonial discourses through colonial census-taking and sociological inquiries conducted mostly by colonial bureaucrats. One such example of colonial sociology is Ibbetson’s *Punjab Castes* [40]. While colonial hydrology and hydraulic engineering translated the local water landscape into scientific-colonial discourse,

colonial sociology translated the people into caste hierarchies of peasant and non-peasant types. To complete the land and water entitlement, and to put both nature and the native to productive use, new laws of property, civil procedures, and water management were instituted. The Canal and Drainage Act of 1873 worked for more than a century as the overarching law governing water management and distribution until it was replaced with the Punjab Provincial Irrigation and Drainage Authority Act in 1997. In the main canal building sector, the colonial government did not invest a great deal in the beginning, but, as Gilmartin [14] argued, encouraged the local elite to dig canals.

Encouraged by their success in the initial small-scale irrigation project, the colonial governors took on the task of reorganizing the social and physical landscape of Punjab on a gigantic scale according to the imperial logic of power and revenue extraction informed by the modern ideas of efficiency and value. Local and small-scale irrigation practices fell victim to the large-scale irrigation development projects. Gradually, the management of water bodies and the infrastructure for water distribution shifted from the communities to the colonial managers, thus emerging a specialized community of hydraulic engineers whose objective techniques and methods were supposed to be free of political influences and the intricate questions of rights and customary use. They dealt with an objective, external nature and translated it into the modern discourses of hydrology with its calculus of efficiency and waste. This depoliticization of nature, however, was immediately re-politicized as different claims to water, land, and revenue were negotiated between the local communities and the colonial administration. This pattern of simultaneous depoliticization and repoliticization, entangled with the various questions of scale and knowledge, was established earlier on, which has informed the politics of water management and distribution in Punjab at different times and scales.

Imperial Phase 2: 1886–1947

In this phase, massive canal building projects were started which continued until the partition of the subcontinent into independent states of India and Pakistan. In 1886, Sindhnai and Sohag Para canals were complete, and the newly irrigable lands were allocated to local elites and peasant communities for different reasons. In 1892, Chenab Canal became functional and made huge tracts of land available to be allocated to the native communities. During this period, nine colonies were set up, which made 130 million acres of land available for agricultural use [13]. The sparsely populated *doabs* were settled with diverse communities from different parts of Punjab. The landscape was dotted with neatly planned village spaces which hosted people ranging from landless peasants and nomadic and “criminal tribes” to yeoman farmers, industrial agriculturalists, and retired army and police officers. It was during this phase that, through the control of rivers and land, Punjabi elite were coopted into the structures of imperial rule. Punjab became the “food basket” of colonial India, while its share in the imperial army far surpassed all other provinces combined. Punjabis made up more than half of the British imperial army [13,14,18].

Thus, the British successfully created an expansive irrigation system and associated population settlement scheme when they incorporated Punjab into their empire. This transformation of the physical landscape was premised on a political settlement with the local landed elite [14,41]. In Punjab, the British had encountered a landscape not marked by clear and defined property rights in land, but instead by a complex web of entitlements, use rights, revenue extraction rights, and other forms of economic dominance rooted in cultural relations of caste and inherited privilege. Into this complex landscape, the British introduced private property rights in land and conferred upon what they took to be the local elite the power to alienate land and to evict and dispossess traditional agrarian and pastoral users of the land [42]. The latter half of the 19th century was thus marked by a relatively rapid and vicious introduction of private property relations in the landscape of Punjab. This was to change quickly at the turn of the century, as the British took a half-step back from their radical changes.

The ability to alienate land in Punjab had the effect of thrusting the newly formally empowered landlords into debt relations. As they mortgaged and sold land to fund their expenses, a disturbing (to the British) pattern began to emerge: the landed elites who they hoped would be their bulwark

in the Punjab were being bought out by other money-rich classes, often located in urban centers. The economic strategy of the British—market and property reforms—was thus seen to be clashing with the political strategy of cultivating a stable and dependable local elite [43]. The response to this situation was the introduction of the Punjab Alienation of Land Act of 1900. This act—with impacts on the social and economic structure of Punjab (and, indeed, Pakistan) that cannot be underestimated—limited the ability to buy land in Punjab to “agricultural tribes”. Determining which “tribes” were agricultural and which were not, however, required a vast exercise in mapping the local population and declaring some tribes as properly “agricultural”, as opposed to mercantile or urban. In this way, the British hoped to limit the hemorrhaging of land away from their local allies in the countryside to the urban group that they historically associated with challenges to their regime [14,36]. Indeed, one scholar called this “the greatest single piece of social engineering ever attempted in India” [44] (p. 355). The supposedly technocratic and value-free introduction of private property thus unleashed a dynamic that required an explicit repoliticization of the landscape in the form of demographically limiting the market for land.

A dynamic in the canal colonies was closely related to this depoliticization–repoliticization dynamic for land in Punjab. The canal colonies existed as an administrative anomaly in Punjab, with the Irrigation Department and the Canal Officer holding certain magisterial and administrative powers that were normally handled by other departments. In 1906, doubling down on the tradition of authoritarian paternalism that had developed under the early administration of the Lawrence brothers [41], legislation was passed limiting the right to inherit cultivated land in the Chenab Canal Colony and also increasing the number of restrictions and regulations faced by cultivators in the colony [44]. In combination with other factors, including heightened occupancy rates for cultivators, the 1906 legislation caused widespread mobilization and agitation by cultivators in the Chenab Canal Colony, referred to as the “1907 disturbances”. This type of agitation in the privileged canal colonies was unprecedented, and ruffled feathers in the governance apparatus of British India, from Lahore to Delhi to London. The 1906 legislation was quickly rescinded, and the rights of cultivators in the canal colonies restored and brought into greater alignment with the rest of Punjab.

The second phase of the British colonial period in Punjab was therefore marked by a depoliticization–repoliticization dynamic that could be seen in the contradictory attempts of the British to introduce capitalist reforms in the economic sector while maintaining a paternalistic policy aimed at controlling and cultivating a loyal agrarian base in the political arena. The capitalist notions of efficiency and productivity informed the management of “natural resources”, such as water, and determined the routes of their flows, deliveries, and “duties” through the landscape—at each step, the calculus of profit and use determining the bends and curves of the rivers, canals, and distributaries. The colonial imperative of political order and stability, on the other hand, informed the management of peoples and communities in the Doabs of Punjab. The two, however, did not always complement each other. Occasionally, their antagonism refashioned the depoliticization–repoliticization dynamic in fundamental ways, even though it unfolded as a product of the same dynamic. One major reason that this antagonism emerged so often is the fact that the understanding, management, and use of nature and natural resources were governed by the modern discourses of natural sciences that came from Europe, whereas the colonial imperative of political order demanded that the subject communities be governed under the traditional and customary laws of the people themselves. Thus, a sort of modern nature versus traditional society contradiction was etched into the very fabric of the socio-spatial relations and politico-economic structures in Punjab.

This contradiction also informs one major set of literature on the politics of water in postcolonial India and Pakistan [19]. While some scholars have pointed out the inherent coloniality of the way water–society relations have been fashioned in colonial India, others have reassessed the value and utility of pre-colonial water management technologies in the wake of impending water crises and climate change. Emphasizing the sustainability and egalitarian character of these water management and use technologies, they have argued for strengthening and reviving those indigenous and precolonial practices for a better water–society articulation in the wake of impending global environmental crisis.

Although the assumptions that some precolonial practices could be accessed and revived, and their egalitarian and sustainable character, have been put to rigorous critique by scholars across a range of disciplines [25,45–47], the fact that this set of literature reveals a repoliticization of a depoliticized colonial nature in accordance with the narratives of national development has been relatively less explored. Understanding these narratives from the perspective of simultaneous depoliticization–repoliticization dynamic reveals significant insights into the scalar dimensions of water governance.

Postcolonial Phase 1: 1947–1991

Not much changed in terms of the major rules governing the politics and management of water in the postcolonial period except one: the 1947 Partition of the subcontinent was enacted on the Indus Basin which had to be divided between India and Pakistan along with all other common resources previously owned by the British Indian Empire. The water infrastructure of the Indus was developed with the view of integrated basin wide management of water, but the partition had changed the political realities of the region. Now it had to take into account the hostile political environment between the neighboring countries who shared the rivers of the basin. Michel Arthur Aloys [48], in his seminal study of the effect of this double partition of land and waters between India and Pakistan, narrated the protracted processes of negotiations which were vehemently contested on both sides. Although the discourses of water have been influenced by the India–Pakistan rivalry (see, e.g., Bisht [49] and Aloys [48] on interconnection between water and Kashmir conflict), the states across the borders have continued their unwavering trust in the technical, managerial discourse of water management. Although a former chairman of TVA called the water dispute between India and Pakistan a “powder-keg” [50] (p. 23) prompting the world players to intervene to keep this conflict from escalating into war, the two governments managed to ratify the Indus Waters Treaty (IWT), which exemplifies the developmental, technical, and managerial approach. Under the IWT, Pakistan initiated massive water development projects which Mushtaq Gaadi [51] called the second colonization of the Indus Basin. Two major dams and several link and distributary canals were built within the short span of ten years to meet the terms of the IWT.

With the availability of new water, and opening of new lands, two questions became very important in this phase. Since the water infrastructure developed in this phase drastically altered the water character of the landscape, new water-related problems such as water-logging and salinity emerged. The use of tube-wells, planting trees, and some other solutions were suggested but these problems were never completely solved. The approach remained firmly managerial and technical. The second question, and politically the most important one, arose around the issues of water distribution among the provinces of Pakistan. In the aftermath of the IWT, the waters from the three western rivers, namely the Indus, Jhelum, and Chenab, were diverted using the link canals to make up from the loss of waters to India in the three eastern rivers—the Beas, Ravi, and Sutlej. Thus, Punjab’s loss of water under the treaty was compensated by the huge investment in water infrastructure that diverted water from the western rivers to feed the agrarian economy of the province. The province of Sindh found itself the final loser in the water equation after the IWT. As questions arose concerning Punjab and predominantly Punjabi civil-military bureaucracy’s influence on the affairs of the central government, there developed a feeling of mistrust between the smaller federating units of the country and Punjab. Ever since, this mistrust has defined water governance in the country.

This general feeling of mistrust found its expression in the anti-Kalabagh dam movement of the 1980s. Although not the only hydropolitical issue in Pakistan during the time, Kalabagh was certainly the most prominent one. Interestingly the politics of water at this juncture of the country’s history was intimately entangled with the struggles of political elite to establish control over the federal government. The military-led ouster of Prime Minister Zulfikar Ali Bhutto—a left-leaning populist hailing from Sindh—in 1977 and the consequent suppression of political and ideological dissent found some expression in the form of an anti-Kalabagh dam campaign. The campaign was mainly spearheaded by Sindhi intelligentsia and segments of civil society. While it could not significantly alter

the political milieu of the country, the anti-dam movement symbolized resistance to the dictatorial power of the military dictator General Zia-ul-Haq. It successfully stalled the construction of the new dam, even though the government vowed to build it to seek legitimacy as the overseer of the country's road to progress and development. Inspired by the global voices highlighting the environmental costs of big dams, the movement wove together different threads of resistance at local, provincial, and global level to successfully resist the apparent "depoliticization" of the dam politics as a project for "national" development.

After General Zia's death in a plane crash in 1988, the country was restored to electoral democracy following eleven years of military rule. The nationwide elections brought a Nawaz Sharif-led coalition to power, and after a long period of military rule, the political elite of the country decided to deal with the issue of inter-provincial conflict within the scope of the constitution. The constitution provides the Council of Common Interests (CCI) for the resolution of inter-provincial conflicts, which had given the task of resolving water conflicts between the provinces. The CCI negotiated the first ever water-sharing formula among the provinces of the country, called Water Apportionment Accord of 1991 (WAA).

Postcolonial Phase 2: 1991–Present

Under the Water Accord of 1991, the Indus River System Authority (IRSA) was set up to resolve water conflicts among the provinces and to oversee water distribution mechanisms in line with the predetermined shares for each province agreed upon in the Accord. With increased political instability, and later military rule under Parvez Musharraf, followed by the onset of the War on Terror, the question of water generally took a back seat. However, in the first decade of the twenty-first century, the country experienced a massive energy crisis. The shortage of electricity reached to the extent that many small towns experienced up to twenty hours of blackouts; the situation was not much better in the big cities. Since the question of electricity production is closely connected with dams in Pakistan, the specter of Kalabagh Dam and the development of new water resources rose again in 2005. Under the rule of another military dictator—General Parvez Musharraf had taken control, ousting Nawaz Sharif in 1999—the federal government decided to put its weight behind the dam campaign. General Parvez Musharraf vowed to build the dam, without any concern for dissenting voices. When the public resistance increased to a point that a strong military general in complete control of power could not pursue his goal, he set up two committees to build consensus concerning the dam question. The Technical Committee on Water Resources was set up to consider technical questions concerning availability and distribution of water, and the need and potential for building big dams. Similarly, The Parliamentary Committee on Water Resources was also set up to hammer out a political solution for the dam question in the light of the Technical Committee's report. The assumption here was that nature and natural sciences could be "depoliticized" to assess, measure, collect, and store natural resources on a national scale, while the political questions of access, distribution, and availability at different scales could be negotiated later. The Technical Committee could not produce a consensual report; the calculation of the members from Sindh and the other members of the committee differed widely even on the basic question of the annual water availability in the Indus Basin [52]. Before the Parliamentary Committee could seriously consider the question, the political situation of the country changed with the opposition to Musharraf's rule becoming more vocal and stronger.

Since then, three other provinces of the Pakistani federation have passed successful resolutions in their provincial assemblies against the construction of Kalabagh Dam [53]. The question of dams has become newly relevant as the country continues to experience electricity shortages. A couple of big floods in 2010 and 2014 and a massive drought during 1997–2001 have also provided reasons to the dam advocates to push more aggressively for investments in the water sector. These floods and droughts coupled with the questions of electricity generation have brought the dam debate back to the forefront of the national politics, with significant geopolitical implications [54,55]. The state recently declared a water emergency by signing into law the country's first ever water charter and water policy; the language of both documents reveals the same insistence on technical and managerial approaches.

On the other hand, mostly Punjabi-dominated bureaucracy has been working towards another mega dam. Since the funding for the dam is unavailable, the Chief Justice and the Prime Minister have set up dam funds and have requested Pakistanis across the globe to invest in the future of the country.

4. Scales of Politicization and Depoliticization: From Building Dams to Fetching Water

If you visited Pakistan in the latter half of 2018, a proliferation of posters and banners in every major city would have exhorted you to contribute to the Prime Minister and Chief Justice's Dam Fund. All major banks displayed huge adverts in front of their buildings offering to collect funds for the dams. Television networks ran advertisements showing desiccated earth, dying children, and helpless women searching for water in deserts, with the captions "save water, save life" and "save water for your future" On 3 August 2018, the federal government "notified deduction of two-day salary of officers and one-day salary of employees as a donation to the special fund set up by the Chief Justice of Pakistan for the construction of Diamer-Bhasha and Mohmand dams" [56] without the consent of the public servants. The chief of Pakistan's powerful army presented a check for one billion rupees to the Chief Justice of Pakistan on 10 September setting an example for everyone to follow. Special arrangements were made in the country's embassies and consulates abroad to facilitate fund collections. The newly elected Prime Minister sent a targeted message to Pakistani expats to donate to the dam fund for the survival and better future of the country.

The country seemed to be in the grip of some sort of a dam fever. Anybody who questioned the validity or utility of this narrative, pointed out the ecological costs of big dams, tried to highlight the issues of access and distribution, suggested other strategies to tackle the water challenge, or pointed out the need to build consensus before building dams was criticized as unpatriotic, playing dirty politics, or declared an enemy of the nation outright. The Chief Justice who had single handedly taken up the task of constructing the dam threatened to invoke Article Six of the constitution—treason—against the dam critics calling them "traitors and enemies of the state" [1]. With powerful elements of the state and society seemingly convinced that large dams are the only way forward, it has become increasingly difficult to open the dam question for debate or bring in diverse voices on the ideologies of water stewardship.

This politics of depoliticizing the dam question is not a new phenomenon, but a recent instantiation of the same old pattern of depoliticization–repoliticization dynamic which for a century and a half has constituted water management and distribution practices of the colonial and postcolonial states in the Indus Basin. To bypass conflict and to avoid the more difficult task of addressing the diverse concerns of various stakeholders at different scales, the state invokes the idea of national development and expert knowledges. The idea of nationwide development sneaks into the politics of scale to appeal to the collective sense of community. Resisting voices, then, could be shown to be mobilized by regional, local concerns which could either be silenced, or ignored in the larger interest of the nation. Invoking expert knowledge lends weight to this strategy in number of ways. It generally shares the scaler concerns of the narratives of national development and allows the state to produce and claim an objective nature which later could be distributed, again according to the calculus of efficiency and use at the national scale. Each effort to depoliticize water, however, has always produced a simultaneous repoliticization that opens possibilities for dissenting voices to draw attention to the concerns marginalized by the official narratives. Depending on the historical and geographical context, and the balance of political forces at a given moment, repoliticizing voices can come from within the state apparatus as well as from other sections of national or even transnational society.

This contention on both sides is informed by a distinct set of concerns regarding the paramount authority of "scientific" data and technical expertise regarding water governance. The central state in Pakistan has tended to bypass the complex processes of political negotiations by invoking the sanctity of the national interest. The marginalized political and cultural communities, on the other hand, push for reorienting hydrosocial relations towards concerns of unequal access, power, and vulnerability at multiple scales. Thus, while the agents and unstable alliances of politicization and depoliticization

might shift according to context, the animating logics remain stable. The former presents itself as above politics, while the latter resists this gesture. While this dynamic may take on different institutional and historical form in other historical geographies, this paper focuses on the Indus Basin.

The periodization of the Indus we present revolves around shifts in political and governance regimes which have a large impact on the overall context in which water development occurs. However, there is a constant knowledge/value structure that spans these political shifts, and it is arguably the most important factor shaping the politics of water resources governance. This is the approach to water as a quantifiable and depoliticized natural resource which is best measured by ostensibly objective and rational engineers and technocrats. The tension between this state-led depoliticization and the efforts at repoliticization it inevitably encounters has shaped Indus politics in lasting ways across colonial/postcolonial and military/civilian divides to a much greater extent than has generally been acknowledged.

The push for large dams has permeated everyday life in Pakistan and the ideology of water stewardship channels the affective, political, and economic energies of the state and the society to maintain the structure of hydrosocial relations that were inaugurated during the period of British colonial rule. If the prevalent water crisis reveals anything, it is the uneven distribution across different sections of the society. Considering unequal access and vulnerability to water related hazards as the biggest issue of Pakistan's water sector, Mustafa asserted, "There is sufficient water for golf courses, lawns, ornamental plants, sugarcane fields, but not for poor people's domestic needs, or poor and women farmers' kitchen gardens and food crops" [57]. Instead of questioning the narratives that inform these unequal and unjust relations between different sections of the society on the one hand, and between the society and water on the other, the state and its colonial infrastructure of water management doubles down on its tried policy of a combined control over peoples and waters through "expert" knowledge and nationalist sentiment. The apparent depoliticization achieved in this process masks a politics of appropriation premised upon a knowledge system that allots inferior status to the place-based practices of water management and use. This framing contrives a complicated interplay of the politics of truth, scalar dimensions of water crises, and collective national development as the common goal to discredit the dissenting voices.

By setting up the dam fund, the judicial and civil bureaucracy along with the Prime Minister of the state have deeply politicized the question *by taking most politics out of it* and invoking narratives of inevitability and survival. Politics in the water sector has worked in sometimes paradoxical or unexpected ways. While the Pakistani state has invoked the political language of rights as lower riparian in its conflict with India, a similar acknowledgement of the rights of the lower riparian within the state—e.g., Sindh—have not been recognized [58]. Instead, the internal resistance is silenced by invoking technical discourses. The institutional practices of water management have been deeply impacted by these technical, managerial discourses since their inception within colonial hydrology. Local people are rarely consulted and their own knowledge of water and water resources are rarely taken into account. The political questions of distribution and rights are silenced with the language of efficiency and management imperatives. Resistance is countered with the narratives of inevitability as dams and a certain version of water development are invoked as matters of life and death of the state and society.

Water in the Indus basin has been perceived as more than a mere calculable, passive resource that is devoid of history [59]. On 31 October, the Chief Justice of Pakistan overturned the death sentence of Asia Bibi which invoked protests throughout the country, bringing it to almost a standstill within one day. Asia Bibi, a local Christian, had dared to drink water from the same cup as her Muslim co-workers, who did not like sharing pots and pans with Christians who are generally treated as untouchables in many parts of Pakistan. The small feud resulted in the Muslim women accusing Asia of blasphemy; she was then sentenced to death by the local court. When the governor of the province Salman Taseer tried to help Asia Bibi by pointing out the colonial nature of the blasphemy laws and vowing to defend her case in the court, some hardliners of the Muslim community in the country turned against him.

Several *fatwas* or religious edicts were issued against him declaring him *wajib-ul-qatal* (“deserving of death”) and demanding he be killed. Encouraged by these pronouncements, the governor’s own bodyguard assassinated him in broad daylight on 4 January 2011. Arrested and later sentenced to death by the court, this bodyguard, Mumtaz Qadri, is now celebrated as a hero by certain sections of the Muslim community in Pakistan. Just a few weeks before the verdict on Asia Bibi case, the Chief Justice had set up a dam fund while vehemently rejecting the politics involved in water and terming dam fund critics as traitors to the national cause. By invoking the water scarcity narrative at the national scale as a question of collective survival, he could conveniently overlook the “storm in a cup of water” which resulted in the killing of a governor, the death of a “hero”, many public protests and losses to the economy, and its reverberating influence on the terms of public debate in Pakistani society.

Even as the state understanding of water as a quantifiable and depoliticized entity has been the dominant (but contested) force at the scale of regional and international water politics, this story of fetching water shows the real efficacy of a different type of water operating at a different scale.

Treating water as free from cultural and historical context is a convenient discursive strategy, but it does not erase the social imbalances, power hierarchies, and asymmetric vulnerabilities across lines of gender and community that mark the social landscape in Punjab. These political tensions and fractures that mark the society cannot but enter the hydrosocial web of relations that impact not only national politics and economics, but the domain central to social reproduction: the everyday and the domestic. Water is a material that connects all the various domains of social life, and yet is inevitably approached in inherently pluralized and uneven ways. From international geopolitics to the cultural politics of fetching water, there are many water worlds that present challenges to state efforts at depoliticization [60].

5. Conclusions

This paper presents a periodization of the historical geography of the Indus waterscape. For more than a century, various state authorities have attempted to know and transform the Indus as a quantifiable natural resource. This understanding of the Indus assumes that knowledge of nature is separable from the political domain. State experts have been at the center of large-scale infrastructural transformations of the Indus. However, attempts to depoliticize the Indus through state-backed expert knowledge encounters, as delineated in this paper, challenges to repoliticize natural resource governance. This is because water is known and understood by large sections of society as not simply a quantifiable natural resource. Instead, water is imbued with political, economic, and cultural meanings that vary over space and across scale. Water is imbued with what Rizvi [61] has called a “moral ecology”.

We introduce this paper with two images of hydrosocial politics operating at two seemingly very different scales: the dam at the scale of national politics and the well at the scale of everyday domestic social reproduction. As stressed above, however, the effort to build the dam has stretched into millions of everyday lives—and the communalized politics of fetching water at the village scale has had national and international implications for Pakistan. Water politics thus cuts across and through scale. What cannot be missed across these scales however is the social and spatial struggle that revolves around a politicized understanding of water. Focused mainly on the regional and international scale, our periodization of the historical geography of the Indus tries to show that state-led attempts to depoliticize water have always led to political struggle and pushback by actors insisting on water’s repoliticization. This dynamic, between politicization and repoliticization in the water sector, exists across a variety of political regimes: colonial/post-colonial, and civilian/military in the post-colonial period.

The focus on scales of politicization and repoliticization thus goes beyond shifts in political regime to shed light on a deeper dynamic shaping the historical geography of the Indus waterscape. This dynamic is thus shown to exist in a mode of knowing water exclusively as a quantifiable resource, and thus as best managed by experts, engineers, and technocrats. Just as this dynamic spans major

divides in the political periodization of the Indus, it also moves across scales and social domains. While we provide a broad overview of connections across periods and scales, much more work is needed that connects the scalar and cultural dimensions of water politics. This is especially urgent in waterscapes such as the Indus, where the engineered basin is absolutely central to the lives, livelihoods, and future of so many.

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References

1. Yasif, R. Dam Opponents Are Traitors: CJP. Available online: <https://tribune.com.pk/story/1803970/1-cjp-warns-applying-article-6-dam-critics/> (accessed on 6 February 2020).
2. Pakistan Bans Indian TV Channels. Available online: <https://www.bbc.com/news/world-asia-46003662> (accessed on 21 February 2020).
3. Zakaria, R. A Death Sentence over a Cup of Water? Available online: <https://newrepublic.com/article/151723/death-sentence-cup-water> (accessed on 21 February 2020).
4. Akhter, M. Desiring the data state in the Indus Basin. *Trans. Inst. Br. Geogr.* **2017**, *42*, 377–389. [CrossRef]
5. Hui, W. Depoliticized Politics, from East to West. *New Left Rev.* **2006**, 29–45. Available online: <https://newleftreview.org/issues/II41/articles/hui-wang-depoliticized-politics-from-east-to-west> (accessed on 7 April 2020).
6. Wolters, W.; Bhutta, M.N. Need for integrated irrigation and drainage management, example of Pakistan. In *Towards Integration of Irrigation and Drainage Management: Proceedings of the Jubilee Symposium*; Snellen, W.B., Ed.; ILRI: Wageningen, The Netherlands, 1997; pp. 5–14.
7. Rahman, M. Irrigation and farm water management in Pakistan. *GeoJournal* **1993**, *31*, 363–371. [CrossRef]
8. Economy Punjab Portal. Available online: https://www.punjab.gov.pk/about_punjab_economy (accessed on 5 February 2020).
9. Kreuzmann, H. Scarcity within opulence: Water management in the Karakoram Mountains revisited. *J. Mt. Sci.* **2011**, *8*, 525–534. [CrossRef]
10. Wasif, S. Pakistan May Run Dry by 2025: Study. Available online: <https://tribune.com.pk/story/1112704/pakistan-may-run-dry-2025-study/> (accessed on 21 February 2020).
11. Akhter, M.S. The political ecology of the water scarcity/security nexus in the Indus Basin: Decentering per capita water supply. In *Imagining Indus: Overcoming Water Insecurity Indus Basin*; Springer: Cham, Switzerland, 2017; pp. 21–33.
12. Mustafa, D.; Akhter, M.; Nasrallah, N. *Understanding Pakistan's Water-Security Nexus*; United States Institute of Peace Washington: Washington, DC, USA, 2013.
13. Ali, I. *The Punjab Under Imperialism, 1885–1947*; Princeton University Press: Princeton, NJ, USA, 2014.
14. Gilmartin, D. *Blood and Water: The Indus River Basin in Modern History*; University of California Press: Berkeley, CA, USA, 2015.
15. Naqvi, S.A. *Indus Waters and Social Change: The Evolution and Transition of Agrarian Society in Pakistan*; Oxford University Press: Karachi, Pakistan, 2012.
16. Mustafa, D. To each according to his power? Participation, access, and vulnerability in irrigation and flood management in Pakistan. *Environ. Plan. Soc. Space* **2002**, *20*, 737–752. [CrossRef]
17. Akhter, M. The hydropolitical Cold War: The Indus Waters Treaty and state formation in Pakistan. *Polit. Geogr.* **2015**, *46*, 65–75. [CrossRef]
18. Haines, D. *Rivers Divided: Indus Basin Waters in the Making of India and Pakistan*; Oxford University Press: Oxford, UK, 2017.
19. D'Souza, R. Water in British India: The Making of a 'Colonial Hydrology'. *Hist. Compass* **2006**, *4*, 621–628. [CrossRef]

20. Selby, J. *Water, Power, and Politics in the Middle East: The Other Israeli-Palestinian Conflict*; IB Tauris: London, UK, 2003.
21. Chatterjee, P. The disciplines in colonial Bengal. In *Texts of Power: Emerging Disciplines in Colonial Bengal*; University of Minnesota Press: Minneapolis, MN, USA, 1995; pp. 1–29.
22. Gilmartin, D. Water and waste: Nature, productivity and colonialism in the Indus Basin. *Econ. Polit. Wkly.* **2003**, *38*, 5057–5065.
23. Gilmartin, D. Scientific empire and imperial science: Colonialism and irrigation technology in the Indus basin. *J. Asian Stud.* **1994**, *53*, 1127–1149. [[CrossRef](#)]
24. Weil, B. The Rivers Come: Colonial Flood Control and Knowledge Systems in the Indus Basin, 1840s–1930s. *Environ. Hsty.* **2006**, *12*, 3–29. [[CrossRef](#)]
25. Shah, E. Seeing like a subaltern: Historical ethnography of pre-modern and modern tank irrigation technology in Karnataka, India. *Water Altern.* **2012**, *5*, 507–538.
26. Agarwal, A.; Narain, S. *Dying Wisdom: Rise, Fall and Potential of India's Traditional Water Harvesting Systems*; Centre for Science and Environment: New Delhi, India, 1997.
27. Morrison, K.D. Dharmic projects, imperial reservoirs, and new temples of India: An historical perspective on dams in India. *Conserv. Soc.* **2010**, *8*, 182–195. [[CrossRef](#)]
28. Winner, L. *Autonomous Technology: Technics-Out-of-Control as a Theme in Political Thought*; MIT Press: Cambridge, MA, USA, 1978.
29. Mitchell, T. *Rule of Experts: Egypt, Techno-Politics, Modernity*; University of California Press: Berkeley, CA, USA, 2002.
30. Scott, J.C. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*; Yale University Press: New Haven, CT, USA, 1998.
31. Ferguson, J. *The Anti-Politics Machine: "Development," Depoliticization, and Bureaucratic Power in Lesotho*; University of Minnesota Press: Minneapolis, MN, USA, 1994.
32. Molle, F.; Mollinga, P.P.; Wester, P. Hydraulic bureaucracies and the hydraulic mission: Flows of water, flows of power. *Water Altern.* **2009**, *2*, 328–349.
33. Kreutzmann, H. From modernization theory towards the 'clash of civilizations': Directions and paradigm shifts in Samuel Huntington's analysis and prognosis of global development1. *GeoJournal* **1998**, *46*, 255–265. [[CrossRef](#)]
34. Akhter, M. Infrastructure nation: State space, hegemony, and hydraulic regionalism in Pakistan. *Antipode* **2015**, *47*, 849–870. [[CrossRef](#)]
35. Swyngedouw, E.; Williams, J. From Spain's hydro-deadlock to the desalination fix. *Water Int.* **2016**, *41*, 54–73. [[CrossRef](#)]
36. Gilmartin, D. *Empire and Islam: Punjab and the Making of Pakistan*; University of California Press: Berkeley, CA, USA, 1988.
37. Bhattacharya, N. *The Great Agrarian Conquest: The Colonial Reshaping of a Rural World*; SUNY Press: Albany, NY, USA, 2019.
38. Gidwani, V.; Reddy, R.N. The afterlives of "waste": Notes from India for a minor history of capitalist surplus. *Antipode* **2011**, *43*, 1625–1658. [[CrossRef](#)]
39. Government of Punjab Public Works Department (Irrigation Branch). *Correspondence Regarding the Irrigation of Sind-Sagar Doab*; Government Printing Press: Lahore, India.
40. Ibbetson, D. *Panjab Castes*; Superintendent, Government Printing: Punjab, India, 1916.
41. Talbot, I. The Punjab under colonialism: Order and transformation in British India. *J. Punjab Stud.* **2011**, *14*, 4.
42. Nazir, P. Transformation of Property Relations in the Punjab. *Econ. Polit. Wkly.* **1981**, *16*, 281–285.
43. Washbrook, D.A. Law, state and agrarian society in colonial India. *Mod. Asian Stud.* **1981**, *15*, 649–721. [[CrossRef](#)]
44. Barrier, N.G. The Punjab Disturbances of 1907: The response of the British Government in India to Agrarian unrest. *Mod. Asian Stud.* **1967**, *1*, 353–383. [[CrossRef](#)]
45. Mosse, D. Colonial and contemporary ideologies of 'community management': The case of tank irrigation development in South India. *Mod. Asian Stud.* **1999**, *33*, 303–338. [[CrossRef](#)] [[PubMed](#)]
46. Prakash, G. *Another Reason: Science and the Imagination of Modern India*; Princeton University Press: Princeton, NJ, USA, 1999.

47. Harding, S. Introduction: Why focus on modernity. In *Sciences from Below: Feminisms, Postcolonialities, and Modernities*; Duke University Press: Durham, NC, USA, 2008; pp. 1–19.
48. Michel, A.A. *The Indus Rivers: A Study of the Effects of Partition*; Yale University Press: New Haven, CT, USA, 1967.
49. Bisht, M. The Politics of Water Discourse in Pakistan. *ICRIER Policy Ser.* **2011**. Available online: http://icrier.org/pdf/Policy_Series_No_4.pdf (accessed on 29 April 2020).
50. Lilienthal, D.E. Another “Korea” in the Making? *Colliers Wkly.* **1951**, *23*, 56–57.
51. Gaadi, M. Re-colonizing the Indus Basin Irrigation System. In *The Politics of Managing Water*; Bengali, K., Ed.; SDPI-Oxford University Press: Karachi, Pakistan, 2003; pp. 97–105.
52. Abbasi, A.N.G. *Report of Technical Committee on Water Resources*; Government of Pakistan: Islamabad, Pakistan, 2005.
53. Ghazanfar, M. Kalabagh dam and the water debate in Pakistan. *Lahore J. Policy Stud.* **2008**, *2*, 153–180.
54. Akhter, M. Adjudicating infrastructure: Treaties, territories, hydropolitics. *Environ. Plan. E Nat. Space* **2019**, *2*, 831–849. [[CrossRef](#)]
55. Akhter, M. Geopolitics of dam design on the Indus. *Econ. Polit. Wkly.* **2013**, 24–26.
56. Govt Notifies Deduction of Salary for Dams. Available online: <https://www.dawn.com/news/1424629> (accessed on 6 February 2020).
57. Mustafa, D. Finally, a water policy. *Dly. Times* **2018**. Available online: <https://dailytimes.com.pk/234861/finally-a-water-policy/> (accessed on 12 March 2019).
58. Palijo, R.B. *Sindh-Punjab Water Dispute: 1859-2003*; Center for Peace and Civil Society: Hyderabad, Pakistan, 2003.
59. Aijaz, A. Yazīd: Configurations of the Self around Interests and Identities. *Lit. Geogr.* **2018**, *4*, 204–220.
60. Barnes, J.; Alatout, S. Water worlds: Introduction to the special issue of Social Studies of Science. *Soc. Stud. Sci.* **2012**, *42*, 483–488. [[CrossRef](#)]
61. Rizvi, M. The moral ecology of colonial infrastructure and the vicissitudes of land rights in rural Pakistan. *Hist. Anthropol.* **2017**, *28*, 308–325. [[CrossRef](#)]



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