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RIVERS OF HARAPPA

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PREFACE

RIVERS OF HARAPPA

The Indus River and its tributaries drain an area of 430,000 sq. miles (a million sq. km)more than four times the area of Great Britain, spread over four countries Afghanistan,China, India and Pakistan. The Basin is in three parts; first, the mountainous region where countless rivers and streams bring the monsoon rain and melting snows to the second, the immense plains of Punjab. In Punjab the waters are carried by five rivers (once seven, as mentioned in the ancient Vedic texts). These rivers then converge into one,the Indus, forming the third part, the Sindh. There is irrefutable evidence of another river running parallel to the existing ones in Punjab and Sindh variously called the sacred Saraswati and/or Hakra,

Between the rivers were vast tracts of relatively dry land where a pastoralist culture existed parallel to the riverine and settled grain growing cultures along the rivers. The two coexisted, met and interacted enriching the unique culture of the people of the Indus Valley and beyond. Archaeological evidence points towards a society that was at peace with itself and its neighbors, equitable in sharing of resources, without large palaces or religious monuments, with both men and women partaking equally in life. Technology in crafts, and societal concerns in water management and drainage speak of a developed sense of social responsibility. The variety and harmony, exhibited through absence of any evidence of weapons, celebration of violence and war in the arts and the relative uniformity in urban living styles is amazing and a lesson to the strife torn life in the region today. Throughout the area there was a standardization of weights, labelling of goods with small tablets and a highly developed system of conflict resolution.

Over the last one thousand years Punjab experienced social turbulence and war. A host of invaders and empire-builders, operating under racial or religious covers, gathered and looted the riches of the Punjab; nevertheless,below this turbulent layer has been the vast number of ordinary folks who have lived together in peace and harmony in a multi-faith society led by Jogis, Dervishes, Sufis and Gurus. The history of the turbulent past of Punjab is relatively short, the calm serenity of the vast population goes back to the 9,000-year-old Harappa Culture and Civilization. *Bhai-Chara*, tolerance has been the way of life inherited from the earliest residents of the Indus Basin.

With a slope of one foot per mile the region south of the foothills, is flat like a tabletop,enabling plying of sailing boats making use of the flow of water and wind to cover large distances. The rivers were the highways of the period enabling movement of people and goods and thus trade thrived. Going South the boats floated with the river and coming North they harnessed the sea breeze that nature provided every evening. A culture of song and music was natural in this idyllic setting.

The rivers of Harappa Culture thus engendered this peaceful and cultured living. Use of natural energy, water and wind, is the very basis of the trading in Harappa society. It also gave birth to mythical characters such as the SIND-BAD (river-wind) who was mentioned in the stories of Shehrezad of the thousand and one night fame and Western scholars and film makers turned him into the famous, commercial icon, Sindbad the Sailor.

In addition to agricultural produce there was high quality craft production with evidence of trading as far as Mesopotamia and Egypt to the West and South India to the East. Harappa culture settlements have been found along the Persian (Arab) Gulf and in the Red Sea enroute to Rome and rest of Europe. The vast maritime reach of the Harppa people, called Meluha by the Mesopotamians, make the Indian Ocean almost a household lake.

his is basically because they were a people wedded to trade and commerce where navigation along with the scientific knowledge of the stars and skies, Astronomy, developed far ahead of the rest of the world. The basis of trade is negotiation, deal-making, tolerance and peace engendering confidence and mutual respect among partners; no trade is possible under coercion. We are the inheritors of this peaceful culture and perhaps we can emulate it.

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UNLEARNING OF LEARNING: DIMENSIONS OF HARAPPAN EXCAVATIONS

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History has been explored all the time and different narratives have been presented by mainstream historians. These concepts and narratives are accepted and believed in but now is the time to raise questions and revisit, not the typical book-based sources but the unorthodox methods of record keeping that may include paintings, poetry, literature, artefacts, folk lore and folk songs. All these sources have their own stories to tell but before embarking on this journey of discovery, we have to unlearn whatever we have learned in the past century. New theories need to be explored and histories need to be rewritten, based on tangible findings, specially the histories of the ancient world and that includes the Harappan Civilization, which needs serious revisitation by archaeologists in general and art historians in particular, who have questions regarding the 'established facts' associated with the interpretations of the findings and the real reason behind the archaeological excavations. Situations are not as simple as they seem and if you dig a bit deeper, interesting facts are revealed, leading us to reconsider what we have been told was based on ground realities. The archaeological goals of the past need to be revisited, so perhaps we may get closer to the truths hidden in the mist of thousands of years. The current research is an attempt to explore the truth behind the archaeological excavations and research of the past centuries.

Initially I used to look for answers with reference to academic discourses but now I have started raising questions regarding the Eurocentric established norms by exploring indirect sources of history. Preliminary questions are about the established timelines and their dubious implementations. The world has revealed many sites that contradict the age-old concepts of Pre-Historic and Early Historic Eras. As an example, let us explore the Göbekli Tepe findings in Turkey. (Fig.1). The rocky blocks you see in the photo, which weigh several tons and reach nearly 7 meters high, are at least 11,000 years old according to C14 radiocarbon analysis. These are some of the many pillars that constituted the site of Göbekli Tepe, on the Turkish-Syria border. The civilization that built this site and other similar sites still has no name. In fact, until recently, their existence was completely unknown. We do know a few things about them though. They did not practice agriculture, since all the seeds found in Göbekli Tepe are wild and uncultivated. They also did not farm, since the numerous meat leftovers found (it appears they held huge feasts) are all game, not farm animals. In addition, the stylized statues in the center of the stone circle carry sashes(Stole/s waistbands). This means it was not cold at the time Göbekli Tepe was built.

All of these elements suggest that the home site is probably much older than it appears. Maybe even several thousand years older. Unlearning of Learning: Dimensions of Harappan Excavations.

This is not a funeral site, as no bodies were found. It is not a sanctuary either, for no god or deity is represented. It does not appear to be a city or a village, as there does not seem to be a proper water source to quench the thirst of a large group of people. What is this all about then? On the walls of Göbekli Tepe are engraved hundreds of snakes descending from above, from the sky. Where do these snakes come from? One theory suggested by astronomers, is that about 12,000 years ago, a swarm of asteroids or comets heavily bombarded the Earth, destroying entire territories on four continents.

Figure 1: Göbekli Tepe, Discovered in the 1990s in a Remote Part of Present-day Turkey, the Massive Megalith is Around 11,000 Years Old, One of the Oldest Known Significant Sites Created by Humans

This was a great disaster. Göbekli Tepe is probably a memorial from the time when fire snakes, that is fragments of comets falling from above, destroyed the world. But if Göbekli Tepe is a memorial to the cataclysm that struck us some 12,800 years ago, where are the cities of the builders? What were their customs? And especially where did they come from? We have no clue.

A point to ponder upon is the timelines of Paleolithic and Neolithic civilizations. Historians all over the world are encouraged to follow the Eras defined. There is a possibility that the time frames researched and proposed were applicable in some parts of the continents but not all over the world. If we apply the Eurocentric formula of Paleolithic and Neolithic Eras, then where would we place the megalithic architecture found in Turkey.

To think a bit further in history, there is such limited knowledge about the monuments that were constructed as late as the 11th and 12th century AD (Fig. 2, 3) and we have no idea regarding the techniques used by the creators, so how can we label thousands of years under a few brackets? How can we declare the pre-historic humans non-intelligent creatures? Were they stuck in caves for millions of years before there was an awareness of knowledge and information?

Figure 2: Machu Pichu 1420-1530

Figure 3: Gunung Padang in Java, Indonesia

We can understand it by the example of what if, in the far-off future, someone digs and comes across the huts of African tribes. Is he or she justified in labeling the whole Era as the people who lived in huts? On the other hand, what if a man from 1901 is brought back and made to stand in Times Square of New York today? The shock may cause him either to go crazy or to die of a heart attack. And I am writing about a gap of a mere 100 years. European theories have their validity but historians should be encouraged to unlearn the established historic narratives and to try to explore more avenues.

Figure 4: Kilasa Temple, 8th Century AD, Ellora

Another example is the latest finding of Gunung Padang, a pyramid hidden within a hill on an island in West Java, Indonesia, that could be the world's oldest pyramid. (Fig. 3) This was revealed by an interdisciplinary team of archaeologists, geophysicists and geologists, which included correspondent author Danny Hilman Natawidjaja from Indonesia's National Research and Innovation Agency – who writes in a paper that was published in October 2023, "The pyramid originated as a natural lava hill before being sculpted and then architecturally enveloped" between 25,000 BC and 14,000 BC. This makes Gunung Padang at least 16,000 years old. If the dates of its construction are correct then we will have to reconsider the whole timeline of South Asia or we can decide if it was a regional development but this again will put a question mark on the world timeline. In many cases, locals were not much involved in the research process of the archaeological excavations. Even now, the future explorations of those sites that do not meet the established timeline, are suspended and their fundings are stopped.

Coming to our part of the world, much has been researched by people from abroad, but how would a foreigner know that the symbols used on clothes by the washermen of Sahiwal, are similar to the characters of the Harappan script found on the seals.

It is high time that the regional archaeologists and historians take the lead and write their own history based on local findings, by employing local wisdom. The country-based governments need to encourage and financially sponsor local scholarship.

From a historical perspective, I want to share some of the observations based on years of historic studies related to the ancient civilizations of our region. Visits to the two major excavational sites of Harappa and Mohenjo Darro, revealed interesting ground realities. The most excavated areas of the two sites were commercial and jewelry markets, which is hardly 11% of the whole site. There were not any extended excavations during the British Raj. Why was this so? Old records reveal that in the Subcontinent, from 1888 onwards, the archaeological expeditions were facing a lot of pressure from the Government and all the research was halted. This was called the 'Buck Crisis', named after Sir Edward Charles Buck (1838-1916), who was a civil servant in Bengal. In 1892, he announced that the Archaeological Survey of India would be shut down and all the staff of the ASI would be dismissed by 1895, in order to generate savings for the budget of the Government. However, after a few years, intense excavations were resumed. Interestingly, in 1881, Alexander Graham Bell invented the first metal detector. Is it not possible that the excavations, were primarily initiated not to explore history, but to find buried gold, because the rich from Britian were investing heavily in archaeological excavations all over the world. The archaeologists and historians need to consider the possibility that most of the early excavations in the world were conducted to find treasures. Archaeological excavations were sponsored by the monied Europeans who were only interested in monetary gains, which were primarily the finding of gold and other treasures. It was much later that the excavated objects gained their value in the antique market that created interest for further excavations.

It is high time that there be a generous distribution of knowledge and information about the excavations and their findings. In the meanwhile, we should trust the local historians and remove the label of discredibility. Historically some of the highly credible European writers were firstly, ignorant, then they had agendas that led to terminologies such as Christian Art, Hindu Art, Jain Art, Islamic Art etc. Even designs/architectural terms were religionized such as Muslim motifs, Hindu design, Sikh arch etc. My proposal here is that the names should be regionalized instead of religiously divided, the way it has been done with Harappa so that now it has been decided that the name will be based upon the first identified location of this civilization. This overcomes the limitation of the Indus River, which was restricted only to a particular location. There is a commendable trend that needs to be followed in other namings and terminologies also.

To conclude, I will say that the rivers of any land are the veins of a society that help them navigate the regions. Ancient times were the free times when anyone could travel to any part of the world. Boundaries and concepts were fluid. Societies were globalized in a true sense.

The worst things that could happen to humanity are the visa and travel restrictions. We have to beg the authorities to allow us to move from one part of the world to another, which is a violation of human rights. However, this is imposed upon us in the name of political sovereignty. Can you imagine getting up, packing and going to ANY part of the world, the way our ancestors did? People moved according to the economic situation of a particular region. Cities were abandoned many times when they ran out of resources, just as agricultural lands are left for some time to get refertilized. There is no immediate solution to these restrictions imposed upon us but the first step for the solution of any issue is to raise awareness about the issue and start questioning. Let us start questioning. Maybe some day we will be able to free the rivers of Harappa which will lead to the freedom of humanity, which has been shackled in chains by capitalists and corporates, in the name of democracy and so-called human rights.

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For details
https://www.straitstimes.com/asia/se-asia/indonesia-s-gunung-padang-could-be-the-world-s-oldest-pyramid-study
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Find another website https://www.thoughtco.com/history-of-the-metal-detector-1992303

LAND OF THE HARAPPAN RIVERS: CLASS, GENDER AND SOCIETY

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1. Introduction

Archaeological evidence points to the existence of the Indus Valley civilization also known as the Harappan civilization, in a vast area drained by the river Indus and its tributaries as well as the now dried beds of the Ghaggar- Hakra- Sarasawati river system. In terms of time the civilization ranges from paleolithic early foraging, to the early food producing era, regionalization era and finally the localization era (Kenoyer 2008). In its mature stage the Indus Valley civilization extended over almost all of the Punjab province (Pakistani and Indian), a large part of Sindh, extending southwards to the Kathiawar peninsula and the eastern part of Balochistan, making it the most extensive of the old civilizations. It was a peasant-based civilization where agricultural surplus led to the growth of urban settlements which have defined it as the oldest representation of urban culture in the subcontinent. Interpretations of the Harappan civilization come from two sets of sources, western and Vedic traditions.

There appears to be general agreement among historians, archaeologists and anthropologists, that there is no evidence of political domination or political control by a clearly defined elite class. This raises a number of possibilities as to the type of political system under which the Harappan region functioned. Wankowski (n.d) has questioned whether it consisted of "one single state, multiple domains or city states, a decentralised egalitarian society, or a society run by changing assemblies of (possibly competing) inhabitants, and finally a stateless purely mercantile society" or something unique and different from other contemporaneous civilizations. Kenoyer and Meadow (1999) provide evidence of some degree of control of production and distribution based on the seals. Chakraborty (1983) views the Indus society representing, "a transitional stage from a primitive communal society to a society based on classes with many characteristic features of Marx's concept of the Asiatic society." It is debatable, however, whether classes in the strict Marxian sense existed in the Harappan civilization or social stratification based on occupation was what emerged with the advent of agriculture and the use of the plough that gave rise to the division of labor between women and men in particular. Similarly, the craft culture does not appear to distinguish between the contributions of the two sexes.

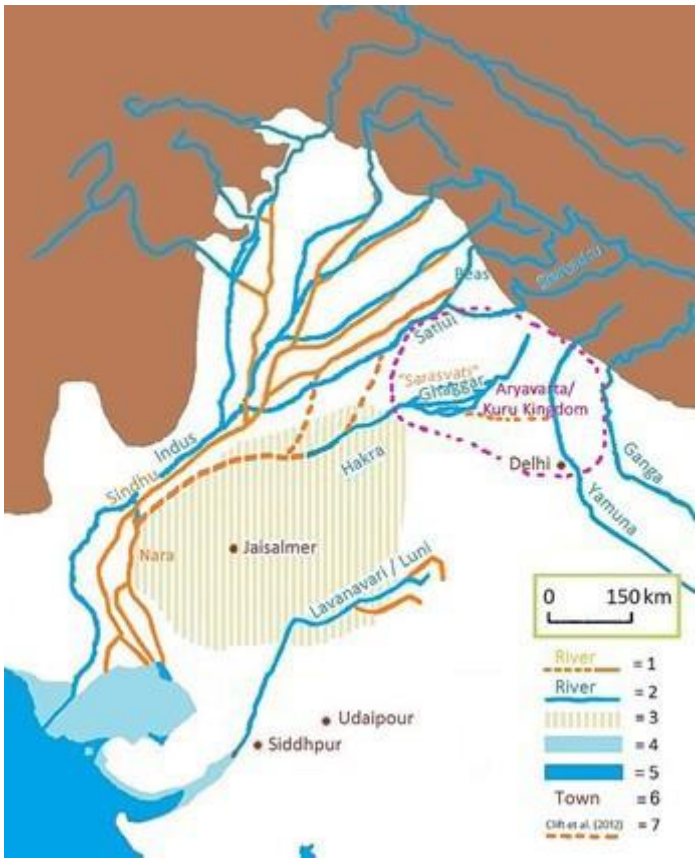

Figure 1: Pre-Harappan, Harrapan, and present-day river courses in Indus Valley. Vedic Sarasvati = present-day dried up Gagghar-Hakra. The dried-up Harappan Hakra-course is actually a Sutlej-Yamuna paleochannel (Clift et al. 2012, Singh et al. 2017). 1=ancient river 2=today's river 3=today's Thar desert 4=ancient shore 5=today's shore 6=today's town 7= dried-up Hakkra course, and pre-Harappan Sutlej paleochannels (Clift et al. (2012))

According to Dani and Thapar (1996) the absence of weapons or armaments, axes, spearheads, harpoons, arrowheads, razors, knives or any deadly or defensive weapons combined with absence of mass graves indicates "a high level of conflict resolution." An explanation of this lies in the need for peace for trade and commerce which were the mainstay of the civilization and urbanization. This argument can be extended to the possibility of a harmonious and balanced relationship between the two sexes. However, this has been questioned by Ratnagar (2016).

According to Stephanie (2013, Harappa.com), the seals reveal aspects of the fact that the Harappans were adept at trading and used to stamp clay on trade goods and for the identification of property. They also revealed that the Harappans were active in trading in Sumer and the Persian Gulf, as the seals have been found there. Interestingly, the seals detailed instructions for the shipment of trade goods, often warning those transporting the goods not to open the crates, thus illustrating the use of seals for the overall functioning of their society. There appears to be some ambiguity as to the origin of the seals, that is, whether they were local or part of trade items from other places.

Evidence from seals is rich on religious beliefs; however, while the use of religious symbols on seals, point to a religious oriented society, there is no evidence of an institutionalized religion (Dani & Thapar 1996; Stephanie 2013 in Harappa.com) indicating a multiplicity of religious ideas or a polytheistic society. Despite the stone statue of a priest king/ nobleman there is no evidence of priestly dominance. Depiction of women on seals and in the form of figurines also point to equitable male-female interaction. Initial interpretation of the seals identified the images as representing gods and goddesses, especially those that controlled fertility which was then portrayed as a major component of Harappan religious concepts. This view was in conformity with findings from most ancient civilizations and conformed to Vedic views.

The possibility that there was no one model of socio-political religious organization is supported by the non-existence of huge building structures and palaces; these are pointers to the existence of an equitable social order and a non-religious population (Yussouf, 2018). Social stratification appears to have been based on occupation and wealth or what is known as heterarchy (Green 2021). Heterarchy refers to the relation of elements to one another when they are unranked or when they possess the potential of being ranked in a number of different ways (Crumley 1995 in Harappa.com). Also, the division of labor between the sexes was not clearly defined. In the context of gender this also implies that the commonly assumed separation between the private and public spheres did not exist in the Indus civilization. According to Kenoyer (2000), there was more rigid social stratification in urban centers compared to rural settlements in ancient civilizations. Control was both economic and ritual. Although there are no temples, palaces or monuments in evidence in the Harappan region, the public and private expression of wealth is evident in the use of technology, techniques and raw materials to produce specialized crafts such as painted pottery with motifs, beads, bangles, necklaces and other ornaments, clothes and headdresses and carved seals seen as necessary symbols of rank, order and legitimization.

Gender archeology (visibility and equity) has emerged as an ongoing critique and sub discipline since the 1980s (Clark 1993; Conkey & Spector 1984). In the absence of deciphered texts, an understanding of gender in the Harappan riverine region can only

be derived from the material evidence available in the form of seals, figures and artifacts such as terracotta and faience amulets, comparisons with other ancient civilizations and treatises on the evolution of social structures at different technological and cultural stages.

In the case of the Harappan civilization it marks a shift from Neolithic to Bronze Age cultures associated with the use of metal. The aim of this paper is to draw together the varied and changing perspectives relating to gender and social stratification in Harappan society. In particular it highlights the social, cultural and economic role of women in a more egalitarian and relatively peaceful civilization.

2. Sex, Gender and Sexuality

Fig, 2

The use of the noun 'gender' goes back to what is known as the Middle English period (1150-1500), however as a social construct the term emerged in the 1970s while the concept of social roles of women and men can be traced back to the end of the Second World War. Butler (1990) suggested that gender "can be viewed as social performance or a way of being", thereby opening the way for a more nuanced approach to cultural differences. While social difference may not have been a primary or independent concern of ancient societies (Joyce 2000 in Clark 2003), the separation of sex (biological) and gender (social) is valid in that societies do react differently to the biological differences between men and women (Clark 2003). Additionally, sexuality or sexual identity is also largely socially constructed.

Clark argues that recent advances in feminist theory that "view sexual difference in the context of social difference and identity," can inform a critical examination of the body especially the figurines from the Harappan period. More recently, feminists are of the view that sex is also mediated through culture (Butler 1990), as for example, Western concepts related to clothing, which suggest that nude figures represent fertility. These are not valid in the case of Near Eastern civilizations (Westenholz 1998).

Gender ambiguity is based on the uncertainty regarding the sex of figures on some Harappan seals. Could it be seen in the context of Butler's thesis that sex is also mediated through culture? Reference has been made to effeminate cross-dressing (possibly castrated) priests in Mesopotamia and the hijras (neither male nor female) in Hinduism and later Islam. This is the natural phenomena of hermaphroditism. Initially Marshall (1931) classified figurines as male or female in the early excavations in Harappa and Mohenjo-Daro due to the absence of clearly defined genitalia and an over reliance on rudimentary breasts, headdresses and skirts. As such more figurines were identified to be female (Clark 2003).

However, more female figurines can also be interpreted as society according a special place to women culturally due to the reproductive role. The social perception of the Pleiades indicates the important role of females as mothers or wetnurses of newborn children, that is, a celebration of procreation, childbirth and childhood, womanhood and manhood (Kenoyer 1998). Furthermore, earlier descriptions focused on an exaggerated version of the female body indicating an obsession with fertility, a notion largely derived from Hindu Vedic myths. Modern perceptions challenge this view as the Harappa figurines do not "exaggerate the female body or necessarily represent fertility"(Ardeleanu-Jansen 1993). Also, the correlation of nudity and fertility is essentially a western concept of the female body. The discovery of a couple buried together in the Harappan site of Rakhigarhi has brought forth the suggestion that the institution of marriage developed in the Indus Valley civilization.

3. Women as a Social Construct

Fig, 3

There is a dichotomy in how societies have constructed women. As goddesses they are seen at par with men as warriors, battling predatory animals and having power. The reality is more mundane based on women's reproductive role, the division of labor, access and mobility. However, it is possible that in the Harappan region, women were considered at the same level as goddesses, thus according them a high social status. Paolo Biagi (2004) synthesizes the evidence of female clay figurines from Bronze Age sites in the Indus Valley to highlight the social and cultural roles of women in that society. He draws on earlier evidence from the Neolithic site of Mehrgarh, in Balochistan, as well as from mature Harappan sites like Mohenjodaro and Harappa. Based on this analysis he offers the following insights into the role of women as depicted in the figurines:

"Although little is known of the true role women played in the Indus Valley Civilization... there is little doubt that many of them represent fertility images, as suggested by characteristics depicted in the statuettes. The hairstyles, ornaments and dressing clearly indicate the important prominence assigned to women at that time in what appeared to be a nearly egalitarian society." (Fig. 2). However, recent interpretations of the female figurines with elaborate headdresses identify them as women of wealth and prestige opening up other avenues to understand the ethnic identity of the figure, and by extension, the demographic makeup of the Indus Valley civilization (The MAP Academy).

Fig, 4

Early interpretations of female figures were driven by stereotypical notions of women's social role derived from colonial perceptions of the nautch girls (female dancers who often performed at royal courts and in salons, especially in colonial India).

Thus, the bronze 'Dancing Girls' statuettes were seen to suggest specific, public activities played by women at that time. The identity and interpretation of the Dancing Girl figure (Fig. 4) continues to be debated by scholars today. Recently, scholars have challenged the original interpretation offered by the early 20th-century British archaeologist John Marshall, that the figure represents a dancing girl. They argue that the assumption that this represents a dancing girl is only based on her stance and is inaccurate and too simplistic.

Instead, contemporary scholars have proposed alternative interpretations, including that the figure may be a warrior—due to the asymmetrical ornamentation of her hands which leaves her right arm bare to possibly hold a weapon, her assertive stance and defiant facial expressions.

Other scholars have even speculated that her face represents Dravidian features—such as a broader nose, full cheeks and lips. Biagi (2004) identifies females as represented by mostly standing figurines, two dancing girls, and a third type is the image on a steatite seal. The third type is possibly the figure of a deity in yoga position.

The assumption that many figurines represent fertility images as in the case of figurines from Mehrgarh (Fig.4) has recently been overturned (Clark 2011). Aspects of Indus society such as childbirth and childhood, womanhood and manhood were specifically addressed by Kenoyer (1998) for the first time. There are, however, few female figurines depicted with infants or children and almost none in the case of males. Other interpretations are taken from Hindu (Vedic) myths as in the case of the Pleiades Seal.

3.1 The Spiritual Significance of Women Interpretation

The discoveries of more figurines of female as compared to male deities has been seen as an indication of the higher spiritual status accorded to women in the Harappan civilization. This idea has been overlooked because of the Priest-King statue, deemed as one of the outstanding discoveries from the city of Mohenjodaro.

Fig, 5

Biagi's (2004) interpretation of the presence of a large number of terracotta figurines of an almost nude female suggested the idea of a village mother goddess. Evidence of animism is derived from depiction of animals, both mythical and real, and trees. Mother goddess and terracotta figures of pregnant women with children and one seal showing a detailed birth scene are seen to indicate that the fertility cult must have exerted a great influence (Biagi 2004). The concept of the Mother Goddess has been challenged more recently by Ratnagar and others. According to Biagi (2004), the occurrence of specific naturalistic goddesses and their priestesses, suggests that the Indus people worshipped a goddess whose domain was the forest. The Harappan seals show goddesses at par with men warriors, hunters.

The goddess of war was connected with the tiger that was once native to the Indus Valley. A cylinder seal from Kalibangan shows a goddess in a long skirt and plaited hair holding the hands of two warriors in the process of spearing each other. Next to this scene, the same deity is shown with an elaborate horn crown and the back part of a tiger as a continuation of her body. The hair of the two warriors is arranged into the double bun' or chignon at the back of the head, characteristic of Late Early Dynastic Mesopotamian kings on the warpath. (Stephanie 2017, Harappa.com). The seal above shows a deity fighting off two tigers (Stephanie, 2014, Harappa.com). The female deity is standing on an elephant with a spoked wheel sign above her head.

The Plano convex molded tablet from Harappa shows a possibly female deity battling two tigers. "The thick jungles of the Indus Valley were full of tigers and leopards, so it is not surprising that the image of a ferocious feline is a recurring motif in ritual narratives on seals as well as molded tablets. The Mesopotamian epics show lions being strangled by a hero, whereas the Indus narratives render tigers being strangled by a figure, sometimes clearly male, sometimes ambiguous or possibly female. This motif of a hero or heroine grappling with two wild animals could have been created independently for similar events that may have occurred in Mesopotamia as well as the Indus valley." (Kenoyer 1998).

Fig, 6: The Harappan Goddess of War

3.2 Cults and Rituals

The likelihood that the large number of small female figurines excavated in the urban sites of the Harappan civilization were toys for children has been expressed by some scholars. However, Ratnagar (2018) states that:

"In recorded history it has been observed that a new social organization or settlement milieu was fertile ground for the emergence of new cults that established new rituals and thereby some kind of social and emotional assurance to residents facing hardship or fear". She explores this theory with reference to the figurines from Harappa and Mohenjodaro as perhaps being part of "some sort of cult, magic ritual or shamanistic performance to relieve pressure on specific women from specific types of situations in urban households in the two larger urban Indus metropolises."

Furthermore, referring to other figurines, Ratnagar (2018) is of the view that: "The individuality of the women's hair styles and adornment, the absence of total nudity, and the very uneven distribution of women figurines,where recorded, all appear to indicate a secret ritual to which either a woman ancestor was invoked, or else at which a woman with shamanic powers officiated." To what extent this is applicable to the Harappan civilization, however, remains debatable. According to Kenoyer (1998), regional styles of female figures are likely to be examples of local cults reflecting the multiplicity of levels from local cults to state religion in the Harappan religion or socio-ritual belief system. The practice of a more unified state religion was likely by elites and lower classes of different cities as has been interpreted from the seals. However, the absence of temples does not support this view.

Recent research especially by Clark and Kenoyer provide counter arguments to the interpretation of female figurines with headdresses as goddesses or fertility figures linking them to social class[1]. This raises the questions of what role these figurines played, what were they used for, and most importantly what did they mean to their makers? In other words, what was their relation to the hierarchy and social identity of people of different ages and genders (Harappa.com). In Clark's view (2003) the figurines had a symbolic role, while to others they played an educational or socialization role and were possibly used as toys to teach children. "Similar didactic, socialization and gender-formation roles have been ascribed to figurines in Africa, Iran and the Arctic where dolls are used for play but also to teach children about adult activities" (Insoll 2017).

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1. While the widespread 'Mother Goddess' fertility-deity characterisation has been widely discredited (e.g. Meskell 2017, p. 21; Lesure 2011, p. 11-12, 158, 204-5; Lesure 2017, p.37; Ucko 1962, p. 47), there remains the view that worship of the 'Mother Goddess' continued after the Indus Civilisation was supposedly subsumed by invading Aryan peoples,manifesting itself in popular worship of that deity in the Hindu religious pantheon (Gelderloos 2017, p. 117; Lesure 2011, p. 12).

3.3 Social and Cultural Role of Women

Figurines of women are perhaps the most plentiful of the figurines in the Indus Valley (Harappa.com).The reason for this is unknown, but it is proposed that women were given a special place culturally in society, due to their ability to produce offspring. Indeed, studies of burial sites at Mohenjo-Daro and Harappa have shown that a man was often buried with his wife's family.[2] The importance of women can be derived from the practice of matrilocality as evidenced by the existence of matrilocal burials in the Harappan civilization. Wikipedia defines matrilocality as: "In social anthropology, matrilocal residence or matrilocality (also uxorilocal residence or uxorilocality) is the societal system in which a married couple resides with or near the wife's parents. Thus, the female offspring of a mother remain living in (or near) the mother's house, thereby forming large clan-families,typically consisting of three or four generations living in the same place."

Evidence suggests that matrilocality was a cultural practice long established in the Indus valley, whereby a married couple resided with or near the wife's family or the husband had visiting rights only, with a limited role in the upbringing of children (Harappa.com). He does, however, in that of his sisters' children. This has been further corroborated by bio archaeologist Nancy Lovell (2015) based on her research which shows that females had greater homogeneity compared to males in particular cemeteries. These findings further posit the view that property was inherited from generation to generation, and overall, remained undivided.

Fig, 7

Furthermore, the presence of goddesses and women on one seal indicates the high status accorded to women. For instance, Stephanie's (2005) interpretation of the Pleiades seal identifies a deity with horned headdress and bangles on both arms, standing in a pipal (sacred fig) tree and looking down on a kneeling worshiper. The seal also shows a human head resting on a small stool. The picture is completed with a giant ram and seven figures in procession wearing a single plumed headdress, bangles on both arms and long skirts.

The Pleiades hold a prominent place as the mothers or wet nurses of the newborn infant in one of the most ancient and central Hindu myths, that of the birth of the war-god Rudra/ Skanda, who evidently represents, among other things, the victorious rising sun (and as vernal sun the new year). The Pleiades are said to have been the wives of the seven sages, who are identified with the seven stars of the Great Bear.

2. Harappa. Com (2016). A Glimpse at the Human Figurines of the Indus Valley Civilization - Jithin R. Veer

“The Satapatha-Brahmana (2,1,2,4) states that the six Pleiades were separated from their husbands on account of their infidelity; other texts specify that only one of the seven wives, Arundhati, remained faithful and was allowed to stay with her husband: she is the small star Alcor in the Great Bear, pointed out as a paradigm of marital virtue to the bride in the Vedic marriage ceremonies.” (Stephanie 2005).

3.4 Class, Social Stratification and the Division of Labor

The theory of the Asiatic mode of production was devised by Karl Marx around the early 1850s. The essence of the theory has been described as “[the] suggestion that Asiatic societies were held in thrall by a despotic ruling clique, residing in central cities and directly expropriating surplus from largely autarkic and generally undifferentiated village communities.”

In the Harappan region, social stratification was based on occupation and wealth as compared to Mesopotamia where it was more hierarchal in terms of class – upper, middle, lower. Major occupations in the Harappan civilization based on archaeological findings, include town planners, engineers, mathematicians, astronomers, technicians,carpenters, masons, brick makers, craftsmen, artisans, potters, artists, dancers, musicians, dyers, weavers, designers, administrators, traders, record keepers, geographers, geologists, metallurgists, economists, historians, writers/scribes, story tellers, farmers, cultivators,livestock farmers, fishermen/women. There is no clear evidence of the division of labor among women and men. However, it can be assumed that weaving dominated women’s work as indicated by findings from Mesopotamia (Nunning 2021).

Archaeological evidence suggests a degree of gender equality and inclusiveness in the Indus Valley Civilization. Artifacts depict women engaging in various activities, hinting at a society where women might have enjoyed certain rights and freedoms. Women engaged in artistic pursuits, as seen in pottery and figurines. Additionally,their role in economic activities, including trade and craft, adds nuance to our understanding of their societal contributions (Father of History). The presence of spindle whorls and terracotta figurines associated with agriculture, pottery and textile production is evidence of the important role played by women in key economic sectors (Harappa.com 2016). That women were a part of trade alliances and long-distance marriage contracts as trade insurance, has also been pointed out by Kenoyer. This, gives another perspective of women’s participation in Harappan society.

Most figurines, however, do not depict any particular activity or occupation being done by men or women. In some cases, males are shown as doing work normally done by women in other societies, including keeping birds and animal husbandry. Women are shown as presumably preparing food or grinding corn, as part of household activities,

but they could also have been grinding minerals for faience production or kneading clay for pottery production (Clark 2003).

Historical evidence points to the fact that village farming in early agrarian societies depended on the work of women. As societies moved from hunting and gathering to agriculture it was the women who as a consequence of the periodic requirement of a sedentary life to give birth and their knowledge of the fruits and seeds gathered by them, invented the domestication of plants and animals. Taking this argument further, especially in the early Harappan phase, the role of women in agriculture must have been paramount. With more men shifting to construct and work in urban spaces, the responsibility for food production was believed to lie in the female domain. This aspect has been ignored in the context of the Harappan civilization possibly because of the emphasis on its urban culture. Furthermore, Egyptian, Greek, Mexican and Hindu mythologies all have goddesses representing fertility and harvest. The feminine influence in stories related to the origin of farming is equally widespread as stated by Naithani (2021).

A comparison with the contemporaneous Mesopotamian civilization which provides much more information may be pertinent in determining the role women played in the economy of the Harappan civilization. Both were riverine, surrounded by deserts and relied on rivers for irrigation, resulting in high levels of agricultural production. They were urbanized with strong city building traditions and had strong trading links. According to Nunning (2021), the family, or rather the private household, was a place of production and reproduction from the very earliest civilizations until the advent of modern industrialization. Almost all women were not only involved in care giving, but also productive labor—and not just in the household. As surplus product increased in the first civilizations of Mesopotamia, the productive role of women in the richer patriarchal household also expanded.
She writes:

"For instance, if more barley was harvested, more goods could be produced in the household. Surplus barley made it possible for women to brew beer, which could both meet their own needs and allow them to run taverns as a household-related activity. With larger flocks of sheep and improved breeding, there was more wool to be spun and woven into yarn and cloth. This was primarily the work of women, perhaps involving the daughters and one or two slaves."

Thus, in richer houses, where there might be as many as a couple of dozen weavers, the "woman of the house" was the director of this production. Surplus cloth was often taken by men on trading expeditions, while the wives, had knowledge of manufacturing techniques and the different quality of the fabrics produced, and ran the business at home. The possibility of such instances of production and processing in the Harappan region cannot be ignored.

Although patriarchal control had great significance for those who had inheritable wealth, it could only ever be of qualified significance for the poor in society, men and/or women. Similarly, the emergence of the family and marriage as an institution is associated with the shift from hunting/gathering groups to settled agricultural communities. The earliest recorded evidence of marriage ceremonies comes from Mesopotamia in 2350 BC.

4. Conclusion

Familiar notions from earlier and later religions and civilizations have dominated perspectives on the Harappan civilization. These are now coming under scrutiny with the possibility of a uniqueness of the political, socio-cultural and economic systems in the Harappan region including in the context of gender.

The egalitarian aspects of the Harappan civilization are embodied in the matrilocal and hierarchic traditions as evidenced from the archeological findings. These are now being questioned as for example by Wankowski (n.d.) who has raised provocative questions by proposing that the "sociality of creation and subsequent use of 'headdress' initiation figurines were a method of exerting power and social control, at a distance, over the general population by an unknown ruling or priestly elite." Labelling of images as cultic images has been questioned by Ratnagar (2018). It has been suggested that the figurines were effectively used as 'stand ins' for powerful individuals or groups suggesting that the ruling elite may have had a predominantly female composition: the strongly 'female-looking' format of the figurines leads to the conclusion that this elite was either female or female-gender, or that particular format was used as a propaganda device. The figurines of pregnant women, female figurines feeding children and scenes of childbirth as part of a fertility cult (Ratnagar 2018) is questionable as they could be highlighting the importance of the reproductive role of women. The goddess portrayal is debunked by the fact that in the case of Harappa the figurines were found discarded on rubbish heaps and in Mohenjodaro they were found in the innermost rooms of households indicating a more private connection (Clark 2011).

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TWO LETTERS FROM BANO

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Dear Priest King,

I am writing to pay my respects and submit myself to the sovereignty and authority that has been attributed to you since ancient times. The title I have used to address you, translated as Hakim aala by 'your most obedient' curators at the National Museum Karachi (don't miss the sarcasm here), was courtesy of Sir John Marshal and his team,who excavated you from the ruins of Mohenjo Daro in 1926. I wonder how a calm, quiet, non-authoritative and apparently unassuming figure like you were considered the supreme religious and political leader of the fully developed urban center of antiquity. I believe such inferences about bygone people and events often project the mindset of the times they are made, making history not just about the past but more about the present. Learning history helps us understand the existing situation and predict the future for those who strive. This is exactly what I intend to do, to correlate your story with today's self-proclaimed leaders, their self-conceived roles, borrowed titles, false auras, and feeble characters.

My sole intention here is to avoid a fate similar to yours, that of the great people of the Indus, my ancestors, who built cities around 5000 years ago with advanced urban planning, sanitation and public services comparable to modern metropolises like New York. Your people made significant progress in farming, metallurgy and trading, constructing granaries to store crops and adorning themselves with embellished cloth, beads and heavy metals like gold and silver. The economic ties and other cultural exchanges with your contemporaries living in the Tigris and Euphrates valleys highlight your expertise in building fair foreign relations without geopolitical fear.

Unfortunately, we have not been able to decipher your script and are still unsure about your religious and political beliefs. Archaeologists and art historians have tried decoding the material evidence gathered from your land, ascertaining that you held social orderliness in high esteem. Only a righteous ruler would focus on developing strategies for public safety, social welfare, and community entertainment.

Your only portrait, the small statuette in the National Museum Karachi, is carved in soft steatite baked at over 1000 °C to harden it. We could not find more busts and statues of your kind, leading me to speculate that in your state, like many historical republics, representation was based on personal status and the role of elections was limited.

God forbid, I am not suggesting that you were selected and not elected. Borrowing Benjamin Rowland's description of the said statue, which he used to explain your ties with the people of the fertile crescent, 'the plastic conception of the head and certain other technical details is fairly close and yet not close enough to prove a real relationship', I humbly dare to ask you about any proximity with today's successors, rulers of this region, their facilitators or selectors. I am referring to the khadim-e aalas, kingmakers, umpires, qazis; recent versions of some Rustams, Nauratans, Marshals, Shastris, or some Bhais, Singhs and Musks.

Let me inform you of another conspiracy theory purported by Jonathan Mark Kenoyer in 2003, an American archaeologist interested in decoding the history patterns for the Global South, perhaps to help his masters to guide us better in conducting ourselves as good global citizens. He believes that your statue was broken and defaced deliberately as you lost prestige. Not sure if he is justifying his lord's actions in Iraq that year. This is what the anthropologist suggests and must not be taken as a threat by anybody like me. However, as an ingenious well-wisher of the people of this land, I would like to alarm all concerned parties not only about the political fate of our priests and kings but also about the extinction of a thriving civilization. The point of concern is that an inclusive socio-political system and a booming economy vanished from the face of the earth without any signs of foreign invasion, epidemic or apparent natural disaster. We have seen it once and learning from your story, we must try to avoid it again.

Yours Bano

PS: The gold disc you are wearing as a head band in the portrait bust is safely displayed at Harrappa Museum and the trefoil motif on your toga is still in fashion.

A LETTER FROM BANO

Dear Jamil Naqsh Sb,

I didn't have a chance to meet you in person, but have been introduced to your brilliance with brush and paint in capturing the female figure. The sensuous, gratifying female form often composed alongside pigeons, doves and horses was found to be erotic by most in Pakistan. I shall say that beauty lies in the eyes of the beholder and meaning and implications of visuals come from one's own psyche, otherwise these birds and animals symbolize peace, grace, elegance and nothing else.

I am writing not to analyze your work but to congratulate you on challenging the authority of the Westerners, specifically the British archaeologist Sir Mortimer Wheeler, in naming the Indus lady as 'The Dancing Girl'. I believe in the African saying that every story glorifies the hunter unless the lion gets to speak. You proved to be the lion and gave the lady a new name, the Fisher Woman. Not bad, but the romanticist in me prefers Tarar Sb's fantasy who came up with proper names; Paroshni, Pakli or Kaagri annotating her as an individual, not a category or a type.

The little lady, four inches in height, was dislocated during the 1947 Partition. Like other assets, the artifacts were to be divided amongst India and Pakistan. The famous Priest King and the Fasting Buddha, who were visiting India with her for an exhibition at the time of division returned to Pakistan but she had to let go of her home to stay in New Delhi National Museum. Perhaps women always have to make more sacrifices. It's also reported that the Pakistani 'patriarchs' specifically "asked for and received the King while India retained the Dancing Girl". Not sure if it's true but we can expect such absurdity from some of our fellows. Our very own artist and barrister Iqbal Geoffry, petitioned the Lahore High Court for the return of the statue which to him was like "Da Vinci's Mona Lisa to Pakistan". He had also petitioned against the NY State on behalf of the trees at Central Park hence was not taken seriously by the authorities in the power corridors.

You would know that the statue we are talking about is one of the two bronzes excavated from the ancient site of Mohenjo-Daro, cast through the lost wax technique. John Marshall, the archaeologist who found the figure and was convinced of the prehistoric craftmanship, described it as "a young girl, not more than fifteen years in age, her hand on her hip in a half- impudent posture and legs slightly forward as she beats time to the music with her legs and feet". The sculpture indeed depicts a confident, young woman adorned with a beaded necklace and bangles. We have evidence of lapidaries in the Indus region that had business with drilling and polishing stones. I wonder if our

lady owned agate, jasper or carnelian. The bangles could be of copper, clay or ivory. The ivory bangles called Chooda are still in fashion and are worn in a similar manner from wrist to upper arm. It is believed to bring prosperity and fertility to the married couple. Contrary to the female representations from the ancient cultures attributed mostly as 'mother goddesses' due to the enhanced reproductive organs, promising fertility and signifying their role as protector and nourisher, our lady is quite slim, agile and alert. I thank you for paying tribute to the resilient women of the Indus, glorifying them through your art and highlighting the female stronghold in an ancient thriving culture. You have indeed rectified the history of the region.

I shall finish my letter borrowing an American archaeologist Gregory Possehl's statement about the most captivating piece of art from the Indus Valley. He says, "We may not be certain that she was a dancer but she was good at what she did and she knew it". More power to the girls out there, the dancers, the musicians, the athletes, the teachers, the artists, the potters, the farmers, the builders, the home-makers and the leaders. May they be good at whatever they wish to do and whoever they want to be.

Bano
August, 24

Dr Sadia Pasha Kamran is a thinker, a theorist and an art historian. Her research on the contemporary art of Pakistan is well-received at national and international forums. She places the contemporary art of Pakistan within its socio-political as well as historical context and traces the development of the same as it transforms from traditional to modern in contemporary practices. Her book, "Bano's Companion to Feminist Art Women, Art & Politics in Pakistan" highlights the role and status of women artists in the development of contemporary Pakistani society.

گیت گہنے تے ہڑپہ

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ہڑپہ ساڈی تہزیب دا مُڈھلا نشان اے ۔ انج ای گیت انسانی جذبیاں دا ان ڈٹھ وکھاوا اے ۔ گہنے انسانی روپ وچ وادھے دا کارن بندے نیں تے نال ای نال کسے وی بندے دے اندر دے سُنہپ نوں وکھاؤندے نیں ۔

گہنیاں دی انسان نال کدوں جُڑت ہوئی اس دا نتراں ولدا دینا اوکھا اے ۔ ہاں ایہ گویڑ ضرور لایا جا سکدا اے پئی جدوں انسان نے پہلی وار اپنی نُہار پانی یاں کسے وی لِشکویں شئے وچ ویکھی تے اوہنوں اپنی سیہان ہوئی ۔ اوہنوں اپنا رنگ روپ دِسیا تے فیر اوہنے اس رنگ روپ نوں باہری شئواں نال ہور شنگارنا چھوہ دتا اس روپ دے شنگار واسطے اوہنے ہو سکدا اے سبھ توں پہلوں رُکھاں دے پتیاں تے پھلاں نوں ورتیا ہووے جیویں اوہنے اپنے سریر نوں ڈھکن لئی رُکھاں وناں دے پتر ورتے ۔ مینوں تے انج جاپدا اے پئی انسان نے رنگاں دا نکھیڑ وی پھلاں تے پتراں توں ای سکھیا یاں ودھ توں ودھ پتھراں اوہنوں جانکاری دتی ہووے ۔ گہنیاں مگروں جے اسیں گیتاں دی گل کریئے تے اوتھے وی ایہ ای سوال ساڈے اُتر دی اُڈیک کر رہیا اے پئی پہلا گیت کیویں رچیا گیا تے کیویں گایا گیا ۔ میری جاچے پہلے گیت دی رچنا انسان نے رُکھاں ، پھلاں تے من دے دُھر اندر لہہ جاون والے منظراں یاں مُکھڑیاں نوں ویکھ کے کیتی ہوئے ۔ کیوں جو انسان خوشیاں کھیڑیاں ویلے رُکھاں وانگوں جُھولدا اے ، ہواواں وچ اُڈدا اے تے پھلاں وانگوں مہکدا اے انج ای پیڑ دی حالت وچ اوہ ایہناں ساریاں شئواں توں مُکھ موڑ لیندا اے ایہ گل کرن دا مطلب اے پئی گہنے اتے گیت دا سانگھا انسان دی اندرلی حالت نال اے ۔ اوہ حالت جہڑی ان ڈٹھ اے جد کہ گہنے اتے شنگار ڈٹھ نیں انسانی جیون ایہناں دوہاں شکلاں وچ ای وسیا ہویا اے مطلب ٹینچیبل تے ان ٹینچیبل ڈٹھ اتے ان ڈٹھ اے ۔

ہڑپہ ساڈی گواچی ہوئی شئے سی ، جہڑی سانوں صدیاں مگروں لبھی کسے وی گواچی شئے دا ہوکا وی اسیں گیت راہیں ای دیندے ہاں جیویں ایہ گیت ۔

"اک کُڑی دی شئے گواچی ، بھلکے چیتا آوے گا ۔"

ہڑپہ ساڈی ڈٹھ روپ وچ تاں گواچی شئے سی پر نئیں اوہ ساڈے چیتے دے کسے نہ کسے خانے وچ سنبھیا ضرور پیا سی ۔ ہُن تسیں کہو گے پئی جے ایہ تہاڈے خانے وچ کدرے نہ کدرے سانبھیا پیا سی تے ایہدا تیرے کول کیہ ثبوت اے ایہدا ثبوت پکا پیڈھا میں تہانوں اپنے لیکھ دے اخیر اُتے دیاں گا پہلوں ایہ گیت ویکھو جہدا سانگھا بھنگڑے نال جُڑیا ہویا اے ایہ پنجاب دا اک لوک ناچ اے جہنوں بھنگڑا کہندے نیں اس ناچ دے مُڈھ وچ جدوں پہلا بندا بولی پاؤندیاں ہویاں پڑ وچ چھڑپہ مار کے آؤندا اے تے اُچی دینی آواز دیندا اے ۔

" اڑپہ " اس اکھر اڑپے نوں بھنگڑے دے اس پورے گیت وچ ویکھو

"اڑپہ ! ہریاں پیلیاں ، بھریاں پیلیاں

واڈھیاں کر کے ، جھولیاں بھر کے

جا وے جٹ میلے نوں"

اس اندر ایہ اکھر اڑپہ سانوں سدا دیندا اے پئی میری بھال کرو کہ میں کیہ آں ۔ اس دی بھال وچ جدوں میں وکھو وکھ ڈکشنریاں ویکھیاں تے پتا لگا پئی ایہ اک مُہمل لفظ اے تے میرا دھیان اک وار مڑ ہڑپہ ول ٹُر گیا اوہ وی تے خورے اج تیک اک مُہمل لفظ ای اے جہدے معنیاں دا سانوں اجے وی تھوہ نئیں لگا کیوں جو اساں اوہدا کُھرا کھوج نہیں ناپیا ڈکشنریاں اندر لفظ ہڑپہ دے وی معنے نِرے اینے دسے جاندے نیں پئی ہڑپہ اک ات پُرانی وسوں دے ایریاں والا شہر جہڑا 1921 وچ دریافت ہویا ۔

مِسٹر والٹر فیر سروس نے 1975 نوں اللہ ڈینوں نام دے سندھ اندر اک پُرانے پنڈ دی کُھدائی کیتی تے اوہنوں 1976 وچ گھنیاں دا بھریا اک مرتبان لبھا اوس نے اوہدے اُتے اپنی اک رپورٹ لکھی جہدے وچ اوہ لکھدا اے پئی اس توں پہلوں وی سانوں اجیہے گہنے مہنجوداڑو اتے ہڑپے دی کُھدائی ویلے وی لبھے نیں ایہ وی اونج دے ای نیں ایہناں وچ کوئی وکھریواں نہیں ، اوہ ایہ وی لکھدا اے پئی اجیہا زیور سانوں میسوپوٹیمیا اتے مصر توں وی لبھیا اے اوہ اس گل دی وی دس پاؤندا اے اکھے ہو سکدا اے عراق اتے مصر توں لبھن والا گہنا ہڑپے توں ای بن کے جاندا ہووے ۔

وکھو وکھ لکھاریاں دی آکھی موجب ہڑپے توں لبھن والے ایہناں گہنیاں وچ سونا چاندی تانبے اتے کائی یعنی کانسی دی ورتوں کیتی گئی اے اس دے نال نال وڈھ مُلے پتھر جیویں عقیق ، احمر اتے ہور کئی قسماں دے ۔ ایہناں تھاواں توں ملن والے گہنیاں وچ دند کھنڈ مطلب ہاتھی دند دے بنے چُوڑے اتے مِٹی

دے بنے گہنے وی لبھے نیں ایہناں گہنیاں دی ورتوں دا پتا سانوں اوہناں مورتیاں توں وی لگدا اے جہڑیاں ایہناں تھاواں توں لبھیاں نیں ۔

1. ہڑپہ اتے دوجیاں تھاواں توں لبھن والے گہنیاں وچ ست لڑیئے جُڑاؤ ہار

2. ہتھاں پیراں دیاں اُنگلاں اتے انگوٹھیاں وچ پاون والے چھلے

3. والاں وچ لاون والیاں سونے دیاں پتریاں

4. تویت

5. مُندریاں

6 .چُوڑیاں

7 .موٹے کڑے ایہ دو ونگیاں دے نیں کُجھ اُکا گول اتے کُجھ کھلے مونھ والے

8. ہاتھی دند دیاں چُوڑیاں

9. اوہ پتریاں جہڑیاں گِٹیاں اتے لک دوالے ولھٹیاں جاندیاں سن ویچی والا زیور

10. دند کھنڈ دا چوڑا ۔ ویچی اُتے چار ، ارک نیڑے دو تے دوہاں بانہواں وچ اکو جنہیاں پائیاں جاندیاں سن ۔ انج ای کھبے ہتھ وچ ایہ چوڑیاں نِکیاں توں وڈیاں ہوندیاں ہویاں موڈھیاں تیک چلیاں جاندیاں سن ۔

ایہ چوڑیاں 35 توں 50 ورھیاں دیاں سُہاگن سوانیاں دیاں قبراں وچوں لبھیاں نیں ۔ وکھو وکھ ویلیاں وچ ایہناں دیاں مُٹائیاں ہولیاں بھاریاں ہوندیاں رہیاں نیں ۔ ایہناں نکے موٹے گہنیاں توں اسیں ویلے دا گویڑ وی لا سکدے ہاں ۔

11. پتریاں جہڑیاں کلپاں وانگوں والاں وچ جڑیاں جاندیاں سن

12. والاں وچ لاون والیاں نکیاں سوئیاں

13. متھے دوالے لاون والی پتری جہنوں اسیں اج دی پنجابی وچ متھے داؤنی کہندے ہاں

14. چوکر ہار یا گلو بند

15. چھے لڑیا ہار جہڑا باریک کاغذ ورگے پتلے سن ۔

16. کناں وچ پاون والے گہنے جہناں نوں تاراں وچ پرو کے دھاگے نال کناں وچ لمکایا جاندا سی ۔

17. گھوگے دی شکل دیاں کوٗلیاں جھڑیاں سِر اُتے پائیاں جاندیاں سن اج پنجاب دے کُجھ علاقیاں وچ ایہناں نوں سگی پُھل کہیا جاندا اے ۔

18. نِکی سِپی دی شکل ورگا اک زیور جہنوں تانبے دی تار وچ پروکے لیڑیاں وچ سجایا جاندا سی جیویں اج سونے دے بٹناں دیاں لڑیاں

19.مرد داڑھی وچ وی نکے نکے موتیاں نوں پروندے سن

ایہناں گہنیاں توں وسیب وچ مالی پدھر مطلب مزدوراں اتے اُچے میل دے لوکاں دے جیون دے فرق دا وی پتہ لگدا اے گھٹ مالیت رکھن والے گہنے مزدوراں دے علاقے وچوں اتے وڈمُلے گہنے اُچے میل دے لوکاں دے علاقیاں وچون لبھے دسے جاندے نیں

طبقاتی ونڈ اپنی تھاں پر اپنے آپ نوں شنگارن دا جذبہ ہمیش ہر طبقے وچ صدیاں توں تُریا آؤندا اے ۔ اس جذبے وچ کوئی طبقاتی ونڈ نہیں ونڈ اوس ظاہری وکھاوے وچ اے تے اوہ اج وی سگویں دی سگویں موجود اے اس پکھ توں اک بولی ویکھو ۔

چاندی وچوں بو مار دی

سونا رل گیا روپ دے نال اے

ایہ گل کوئی اُتلے میل دی سوانی ایں کہہ سکدی اے میل دی ایہ اُچ جِھک نِرے گہنیاں وچ ای نہیں سگوں پہنن ، کھاون ، پیون اتے کوٹھیاں ، منڈھپ ماڑیاں وچ وی دسدی اے ۔

ہڑپہ توں لبھن والے گہنیاں توں اک گل ہور بڑی نِتری پئی میں جنے وی اس بابت لیکھ پڑھے ہن اوہناں وچ مینوں اجیہا کوئی گہنا نہیں دسیا جہڑا نک یا کن وچ موری کرکے مطلب وِنھ کے پایا جاندا ہووے سارے گہنے دھاگیاں اتے وکھ وکھ دھاتی تاراں راہیں ای پائے یا سجائے جاندے سن ۔

ہڑپے وچوں لبھن والیاں مہراں اجے پڑھیاں نہیں گئیاں جے پڑھیاں جاندیاں تے پک اے پئی اسیں دو کیہ خورے ہور کنے پیر اگے تُر جاندے اسیں گہنیاں دی ہی گل کر لیندے ہاں ایہ کیویں ہو سکدا اے کسے دی پیر گہنے پا کے نکلے تے اوہ ہؤکا نہ بھرے اوہدی وڈیائی کردیاں کوئی گیت نہ کہے ، ضرور عاشقاں گیت کہے ہوون گے ضرور کسے ہؤکا بھریا ہووے گا تے مُڑ ایہ ہؤکا گیت بنیا ہووے گا ایہ پک اے پئی کسے ضرور کہیا ہونا ایں ۔

مُنڈا تیریاں غماں دا ماریا

تے سُک کے تویت ہو گیا

تے اگوں اوہنے کہیا ہونا ایں

میرے ہتھ نوں گھڑا دے پؤنچی

وے لئے جا میرا گُٹ مِن کے

اج دے ویلے وچ نک دے اک گہنے نوں مچھلی کہیا جاندا اے ۔ ایہ اک نکی جہی تار ہوندی اے جہدے نا ل نکیاں نکیاں تِن پتیاں لگیاں ہوندیاں نیں اجہیاں پتیاں سانوں ہڑپہ توں وی لبھیاں نیں پر اوہ پتیاں ہارا ں وچ پروچیاں ہویاں نیں تے اجوکے دور وچ ایہ پتیاں سانوں نک دے اس گہنے وچ نطریں آؤندیاں نیں ا ک گہنے بارے اک بولی اے ، اکھے

تِن پت مچھلی دے

سارے گھر وچ چانن تیرا

انج ای ہاتھی دند دیاں چوڑیاں دا ذکر وی سانوں لوک گیتاں وچ لبھدا اے تُساں ویکھیا ہووے گا پئی کئی بالاں دے جماندرو بُلھ کٹے ہوندے نیں ایہناں نوں کھنڈا کہیا جاندا اے انج ای جے کسے ہاتھی دا دند کٹیا جاوے تے اوہنوں دند کھنڈ کہیا جاندا اے ہڑپے وچوں اس دند کھنڈ دیاں چوڑیاں اتے سگوں بانہاں دا پورا پورا چوڑا لبھیا اے یاں مورتیاں دے پایا ویکھیا گیا اے اس دا اج دے اک پنجابی لوک گیت وچ انج بھوگ پایا گیا اے

دند کھنڈ دا چوڑا لئے دے وے

تینوں روز ظالماں کہندی

ہزاراں ورھیاں توں دند کھنڈ دے چوڑے دی اس سدھر نے ہڑپے نوں کدے وی ساڈے چیتے وچوں وِسرن نہیں دتا ۔ پنجابیاں کسے نہ کسے ڈھنگ نال ہڑپے نوں اپنے چیتے دی اخیری تہہ وچ لُکائی رکھیا اے ۔

مغل بادشاہ بابر نے جدوں ایمن آباد اُتے حملہ کیتا تے نانک اوس ویلے اوتھے موجود سی اوہناں ایمن آباد اندر ساری ہوئی واپری اپنے اکھیں ڈٹھی تے پھر اوس نوں اپنیاں چار نظماں اندر درج کر دتا ایہ موقع دی گواہی سی پر اس گواہی نوں مگروں آون والے کسے تاریخ دان اپنی تاریخی لکھت دا حصہ نہیں

بنایا انج ہی جان مارشل نے 1921 وچ ہڑپہ ڈِسکور کیتا تے اوہدی گواہی نوں تاں منیا گیا پر پنجابیاں دے اس چیتے دا کدے کسے ذکر نہیں کیتا جہڑا اوہناں ہزاراں ورھے اپنے سینے وچ سانبھی رکھیا اسیں ایہ وی نہیں کہہ سکدے پئی کسے اس نوں لکھیا نہیں لکھن والیاں لکھیا پر اس اُتے کسے گوہ نہیں کیتا کیوں جو ایہ گھر دی گواہی سی نہ تے ایہ گواہ سمندروں پاروں آیا سی اتے نہ ایہدی چمڑی گوری سی ایہ تاں اک صوفی شاعر سی جہنے پہلی وار اپنی قلم راہیں ہڑپے دی دس پائی تے پنجابیاں دے چیتے وچ سانبھیا ہویا ہڑپہ اپنی قلم دی نوک نال کاغذ دے سینے اُتے اُتاریا ۔

جہلم ضلع دی تحصیل چکوال دے پنجابی شاعر شاہ شرف جنہاں دا مرن ورھا 1699 اے اوہناں اپنے اک شعر وچ ہڑپے دا انج ذکر کیتا اے

سُتا ایں تاں جاگ عمل سنبھال کے

ہڑپے مُہراں پا صراف وکھال کے

شاہ شرف سرجان مارشل توں وی 222 سال پہلوں ہڑپہ اتے اوہدیاں مہراں دی پرکھ دی گل کیتی اے پر اساں نا جاگے نہ عمل سنبھالیا نہ صراف بٹھائے نہ مہراں پائیاں تے لیکھے لگ گئیاں جان مارشل ہوراں دے ۔ بابے نانک وانگوں شاہ شرف دی گھر دی گواہی اُتے کسے کن نہ دھریا بھانویں اوس اُچی آواز وچ آکھیا ۔

سُتا ایں تاں جاگ عمل سنبھال ک

Iqbal Qaiser is a poet, short-story writer, researcher, historian and Punjabi Language and cultural activist. He has served as the Secretary General of Punjabi Adbi Sangat for two consecutive terms, following which he joined the Pakistan Punjabi Adbi Board in 1980 and continues to serve on its board. He has also founded Punjabi Khoj Gharh, a research and literary organization. Punjabi Khoj Garh has worked tirelessly for the promotion of Punjabi Language, art and culture, having organized several events, debates, photography and art exhibitions, and conferences including four international Punjabi conferences. He has published several collections of poetry, folk songs, columns and other writings. In 1998, he published his pivotal work, "Historical Sikh Shrines in Pakistan", a book that played a crucial role in the documentation and preservation of Sikh Monuments in Pakistan. His other Publications include books titled, “Ujjare Daraan De Darshan” (A History of Jain Temples in Pakistan), “Lalyani Di Tawereekh” and “Film ty Lahore”.

BETWEEN GUJARAT AND HERAT: TRACING CENTURIES OF CULTURAL EXCHANGE IN THE INDUS VALLEY

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The Indus Valley and particularly the Indus Delta region in southern Sindh was a unique geopolitical entity. This deltaic region was a large network of the Indus with its multiple inlets of various sizes, along with minor rivers and streams cutting through them. The region was a significant entrepôt in the trading network that had, since antiquity, been involved in maritime trade and remained prominent with its global commercial connections to other Indian Ocean ports – with its inter-coastal and seaborne commerce with Western India, the Persian Gulf, the Arabian and Red Seas and with its land and riverine connections with the rest of India, Persia, Central Asia, and further, upto China. In the medieval and early modern periods, the Indus delta country was a thriving center of commercial activities having an extremely important river port sited at the apex of the river Indus. This riverine emporium was the cosmopolitan city of Thatta which will be at the center of my subject today.

I am hoping that some of you are already aware that northwest of this city, separated now by the dry riverbed of the Indus, lies the extensive necropolis of Makli. Makli which is a UNESCO World Heritage Site is one of the largest pre-modern necropolises in the world. It is located on a long ridge northwest of the city of Thatta in southern Sindh. Makli's foundation was laid in the late fourteenth century as a center of Sufi culture and as a royal cemetery. However, its historical development continued through the next four centuries as it remained a place of burial for the successive Muslim dynasties of Sindh until the eighteenth century. Throughout these centuries,the cosmopolitan city of Thatta, always remained the center of governance. Its vast necropolis of Makli and other cemeteries located within the present-day Thatta district, serve as primary informants allowing us insights into the culture and identities of contemporary Muslim people of the lower Indus valley. In a recent interview for the documentary Makli: Art to Archaeology, renowned Pakistani archaeologist Ihsan H. Nadiem provocatively categorized the architectural style of certain monuments within the Makli necropolis as "Hindu"—a claim he had previously made in a book published about two decades ago. This perspective contrasts with earlier interpretations by other leading archaeologists and art historians, who analyzed the same monuments through the regional and religious affiliations of their Muslim patrons, labeling them as "Sindhi" or "Islamic." The issue at hand is not merely one of scholarly perception or terminology but rather of the broader classificatory framework typically employed to study historical structures in South Asia.

Early analytical discourses on South Asia's medieval history, particularly those from the 19th and early 20th centuries, tended to rigidly separate the material cultures of pre-Islamic societies from those of Muslim communities. This was largely an attempt to simplify the study of the region's complex medieval landscape, characterized by overlapping regional, religious, ethnic, political, and cultural influences. As a result, the excessively broad categories of "Muslim" and "Hindu" emerged as dominant frameworks for defining South Asian societies and cultural identities.

However, such simplistic and overly broad categories are problematic. The reason being that in creating a firm religious and regional divide among historic artifacts, the strictly contrasting "Hindu-Muslim" or "Indo-Sindhi" labels largely overlook or underplay the nuanced character of these artifacts – as I will demonstrate shortly. There are thousands of monuments and funerary artifacts spread across Makli's 6.5 km long topography. These monuments exhibit a variety of architectural forms, styles, construction techniques, ornamental motifs and building materials. For example, detailed examination of some monuments in stone draw their morphological connections to the extravagantly decorative and amazingly homogeneous expression of what is referred to as the sacred architectural tradition of Māru-Gurjara – the dominant style in the medieval temples from Western India.

Māru-Gurjara is largely perceived as having a geographic stretch limited to what are today the modern Indian states of Gujarat and Rajasthan, from where the style originated. A number of monumental structures sponsored by the 15th c Sindhi elite and built for ritual and commemorative purposes, "appropriated" the iconography, structural modules, architectural characteristics and features of Maru-Gurjara temples. To accurately describe and locate these features within the architecture allow me to make use of Sanskrit terminologies and architectural vocabulary. Where western terms appear unsuitable and often confusing, these terms are not only authentic but also culturally appropriate, being drawn from a body of surviving Sanskrit treatises on architecture, called the vāstuśāstras composed in medieval Western India.

For example, the royal canopy-type octagonal pavilions, called chatrī tombs of 15th c Sindhi princes, exhibit the closest morphological affinities to the open pavilion-type halls of the Māru-Gurjara temples. More accurately, for the form of these chatrī tombs, the Sindhi builders appropriated the octagonal ritual-dancing platform that in vāstuśāstras are called raṅgabhumikā and are often found as slightly raised columnar-podiums in the Māru-Gurjara temples. In such hybrid forms, therefore, rare features from the Maru-Gurjara architectural repertoire are preserved. But perhaps the architectural hybridity in Makli's architecture is nowhere as evidently articulated as in the mausoleum of the most celebrated ruler of Sindh – Sultan Nizam al-Din Jam Nindo.

This mausoleum truly epitomizes building traditions of late-medieval Sindh in its unusual combination of elements that primarily appropriates the Māru-Gurjara motifs and devices. But it also exhibits Islamic spatial paradigms. The form taken is that of the typical domed cuboid which has been frequently employed in Islamic lands. The building is laden with symbolism and allegorical clues in its abundant use of ornaments best exemplified in the most dominating feature of the mausoleum, that is, its extravagant multifaceted miḥrāb composition on the western wall. On the inside, the miḥrāb is a multipart feature that is carved with several Quranic verses manifesting the images of paradise - and themes emphasizing upon Nizam al-Din's divinity and legacy as a ruler. On the outside, in the complex arrangement of the mihrab's projection, morphological links between the points of sanctity in Indic temples and Nizam al-Din's tomb are made visible.

This miḥrāb projection appropriates bhadra (that usually projects from the center of the Māru-Gurjara temple's sanctum façade), and interestingly uses two mono-spired śikhara aediculae on both sides. It needs to be emphasized that the śikhara are superstructures that crown the main temple shrine – the mūlaprāsāda, which provides the focus of worship in Māru-Gurjara temples as it houses the principal deity.

Another novel motif extending the same thematic ideas is the zoomorphic single narrow frieze of haṁsas – the auspicious geese. The goose or haṁsa is an aquatic bird that is a popular Indic emblem associated with wisdom and divinity. In Hindu iconography the haṁsa is the vehicle of the principal god Brahmā, who is also often shown as seated on a blossoming padma – the lotus – an extensively exploited motif in this structure. Therefore, in this hybrid ornamental program of Nizam al-Din's mausoleum one can read the ideas of divinity inherently manifested from both the Islamic and non-Islamic perspectives.

It is important to note, however, that Māru-Gurjara architectural practices were not confined to Makli or Thatta alone. The patronage and reception of this style extended beyond the classical boundaries of Sindh, reaching various regions of Balochistan. This expansion challenges not only the established "Sindhi" and "Islamic"identities often attributed to these monuments but also calls into question the widely accepted geographical limitations of the Māru-Gurjara style and the very term Māru-Gurjara, which is inherently rooted in a regional framework. As these monuments illustrate, the actual scope of the Māru-Gurjara architectural style, during the late medieval and early modern periods, extended as far west as present-day Balochistan, encompassing the entirety of modern Sindh. In the north, its influence reached present-day southern Punjab, further complicating the notion of Māru-Gurjara as a strictly regional architectural identity. Likewise, close parallels to most of the brick monuments, and stone cenotaphs from the 15th and early 16th c are not to be found in Sindh or in the Indian subcontinent, but

in Iran and Central Asia. These structures appropriated several ornamental devices and techniques invested with Turco-Persian and Timurid influences.

For example, in the early 16th c the mausoleum of Kaus al-Sultan, the multiple vertical jambs framing the southern doorway display a fusion of Māru-Gurjara elements but also foliage that is thoroughly Timurid in conception with interlaced floral arabesque pattern, having twisting vine-like tendrils with stylized flowers, rendered in flat-cut relief. The same pattern appears on these two cenotaphs that present very interesting occasions of stone carvings to further explore the transmission of Turco-Persian, or more particularly Timurid artisanal traditions in sixteenth century Thatta of the two stone cenotaphs; one grave belongs to Shaykh Junayd al-Kazeruni, who died in December 1501, while the other belongs to his son, Shaykh Yahya, who died on November 14, 1513 CE. Without going into too many details, both cenotaphs introduce a variety of motifs that never appeared in Makli or Thatta before. However, these motifs are thoroughly Timurid in their conception and occur quite often across a variety of media and objects produced under Timurid patronage in late-medieval Central Asia and Iran.

Comparable, yet much finer Timurid models, exhibiting similar design vocabulary can be seen, for example: in the 15th c limestone cenotaph produced in Herat which is now in the Isabella Gardner Museum, Boston and the grey schist cenotaph attributed to Dawlat Mir ʿAli Shir Navaʾi (advisor of the last Timurid Sultan) dated to 1493, and now in the Museum of Islamic Art in Doha.

Moreover, in the cenotaph of Shaykh Yahya, the east and west facades are carved in the center with an ornamental polylobed mandorla motif filled with entwining floral arabesque, carved in flat-cut relief and flanked by palmette finials – an arrangement reminding one of the Persian arts of the book. This ornamental motif is often encountered in the Timurid wooden objects from the fifteenth century.

For example, close parallels to Shaykh Yahya's polylobed mandorla ornament are carved on the lowest panels of a pair of doors from Mazandaran (northern Iran), dated 1487, currently on display in the Aga Khan Museum in Toronto and also on the Timurid book binding from 15th-century Herat. The presence of these motifs on funerary artifacts in Makli, in addition to their occurrence on the contemporary Timurid wooden objects, textiles and books further suggest the shared artistic language not only across different media but also across regional boundaries, reflecting instances of direct importation of aesthetics from Iran and Central Asia to the lower Indus Valley.

So, with such diversity in the monuments, their styles, building materials, ornamentation and so on – how can we define a site like Makli and its architecture with monolithic identities? The use of terms such as Muslim, Indic, or Sindhi, confined within rigid

religious and geographic boundaries, becomes problematic. Such categorizations fail to acknowledge the complexities of intercultural interactions and, in turn, limit our understanding of South Asian artifacts and historical sites. As evidenced by the monuments at Makli, these structures simultaneously embody multiple cultural, regional and religious influences, challenging simplistic classifications and highlighting the fluidity of the architectural and artistic traditions in the region.

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INDUS DOWNSTREAM CHALLENGES: REVITALIZING THE INDUS DELTA THROUGH SUSTAINABLE ARCHITECTURE

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1. Introduction

Pakistan's Indus Delta is an ecological symbol and is home to a variety of flora and fauna with strong links between humans and their environment. This bio-diverse region not only supports the local ecosystem, but is also essential for the survival of the human inhabitants. The delta, often depicted as fan-shaped, spans approximately 3,000 square miles and extends along the coast for about 130 miles. Its uneven terrain features a network of both active and abandoned channels. The delta stretches from Korangi Creek to Sir Creek, which includes closed and open mangrove forests, and numerous islands (Zahdi, 2016). The land is highly fertile and used for agriculture,while also consisting of mudflats and barren areas intersected by tidal streams and channels. As the fifth largest delta in the world, the Indus Delta is notable not only for its size but also for its mangrove forests, which are the 7th largest globally and serve as vital "lungs" for Pakistan. The Avicenna marina is the common type of mangrove found in this region. The 600,000 hectares of mangroves surrounding the Indus Delta are considered the world's biggest dry-climate mangroves (Living Indus) (Muhammad Noman A. O., 2013). The Indus Delta was declared a Ramsar site and a wildlife sanctuary (Ramsar Site Information Service, 2002).

Blessed by the river, the deltaic region now faces major threats and challenges. Many areas of the delta have lost their ecological balance. Kharochan is one such region hit by climate change. It is also one of the first major climatic hit zones of Pakistan. The land of Kharochan lies between the sea and the delta plains on an archipelago of islands known as the Indus Delta zones. Kharochan is centrally located among these islands, formed by the Indus River. In Kharochan, there are no boundaries to distinguish the border between fresh water and saline water. The delta zones of the Indus, particularly the Kharochan zone, faces salinity due to the blockage of fresh water upstream, i.e., the building of dams, barrages, and canals. Today, only dust whirls over dry dunes that used to be a riverbed lined by small streams and creeks. The arteries have turned into saline canals, which have either submerged the surrounding land in the sea or reduced the soil's fertility.

The intrusion of seawater has also resulted in the exploitation of freshwater fisheries.

Nowadays, you can hardly find freshwater fisheries because of the salinity of the water. The community is fast losing its centuries-old and only source of livelihood, because of poor water flows in the river and the contract system for fishing in freshwater lakes and ponds (Dawn.com, 2010). Sea tides reach several kilometers inside the delta zone and have submerged thousands of acres of fertile land into the sea. The rate of tides is so powerful that it completely reshaped the islands over the years. Sometimes it also developed new mud flats and sandbars (Azam, "The Dying Delta and the Deluged Dwellers", 2022). Shifting tides deposit silt, creating new land formations or submerging existing ones, altering the region's borders throughout the year (Mansoor, 2015). The coastal strip, from about 5 to 20 miles inland, is flooded by high tides. The Indus delta has elongated, expanded distributaries and low sandy beaches (Lawrence Ziring, 2024).

This research, titled "Indus Downstream Challenges", explores the vibrant and diverse context of the Indus Delta and the catastrophic events that have turned this territory into an intolerable habitat and ecology. The research explores the potential of architectural intervention to revitalize a declining rural coastal community driven by a deep-seated curiosity and a commitment to community-driven development. It proposes a sustainable design approach that fosters ecological restoration and promotes economic revitalization. By focusing on vernacular design principles and adaptive strategies, we can create structures that are both sustainable and responsive to the unique challenges of the delta region. This research aims to support the inhabitants with resilient living spaces, while also emphasizing the importance of economic revitalization through sustainable practices and resource reuse. By revitalizing the delta's vibrant habitat, we can create a more inclusive and prosperous rural community.

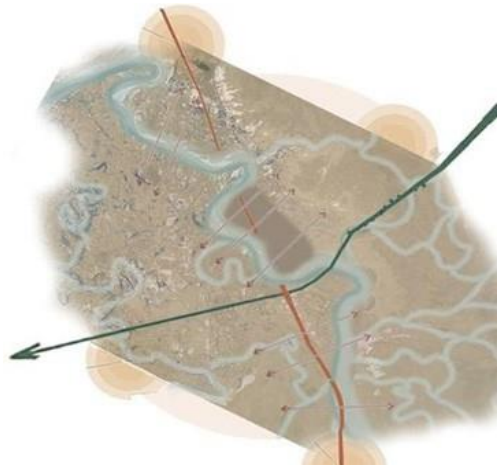


Fig 1: Showing the Kharochan region of the Indus delta along with the River Indus and its Arteries. Source: Google Earth (Created by Author)

2. Reasoning and Research Methodology

This research employed a mixed-method approach to gather comprehensive data on the environmental and socioeconomic dynamics of Kharochan. Qualitative and quantitative research techniques were combined to provide a nuanced understanding of the community's living style. Multidimensional field surveys were conducted to collect precise data on infrastructure, economic activity, and demographics. Structured surveys were administered to assess residents' living standards, including sources of income, electricity reliability, and road conditions. Existing literature and available data were reviewed to provide a broader context for the study. In-depth interviews and focus groups were conducted to capture residents' personal experiences, cultural practices, and perspectives on the delta region.

The mixed-methods approach allowed for data triangulation, providing a more comprehensive understanding of the research questions. Qualitative data were analyzed to identify key themes and narratives related to the ecology of the Indus Delta. Statistical methods were used to analyze quantitative data and identify trends and patterns. By combining these methods, this research was able to provide a rich and detailed understanding of the environmental and socioeconomic conditions in Kharochan.

The research includes a comprehensive literary review to explore the social and economic dynamics of the region. This includes analyzing various sources, government reports, articles and case studies.

2.1 Site Selection

The Kharochan delta was selected because of its strategic importance, vulnerability to environmental changes and bio-diversity. The area caters to both fishing and agriculture, making it an ideal setting for studying the impact of socioeconomic development and climatic changes.

- **Ecological Significance:** Kharochan boasts a diverse range of flora and fauna, comprising wetland ecology similar to the Sundarbans rain forests in Bangladesh.
- **Economic Activities:** Agriculture and fishing are predominant. Due to climatic events, it is vital to understand livelihood strategies in this deltaic area.
- **Cultural Practices:** The region has a rich cultural heritage and traditions, with highly fertile lands and a trajectory that declined from prosperous to disastrous conditions. Each period in this trajectory has added to the resilience of the community inhabiting this region.
- **Infrastructure and Services:** The state of essential services like water, power, and road infrastructure in the region has also highlighted the importance of Kharochan as a focus area within the Indus Delta.

2.2 Site Accessibility

Kharochan can be accessed from both Thatta and Sujawal district by crossing the river from Atharki Bundar to Kathiyar village. The following are the access routes to Kharochan.

ACCESS 1

ACCESS 2

2.3 Field Research

To gain a comprehensive understanding of the ecological conditions in Kharochan, field research was conducted during the peak fishing season of May 2024. This period allowed for the collection of both qualitative and quantitative data on key areas such as fishing practices, livestock husbandry, water availability, sea level changes, and agricultural activities. A detailed survey of the region was undertaken to assess the extent of ecological degradation. Primary data was collected through community surveys, involving direct interactions with local residents. Additionally, physical site visits were conducted to gather firsthand information from vulnerable areas.

2.4 Researched Group

Data was collected through 30 focus group discussions (FGDs) and 15 in-depth interviews with diverse local participants. To respect cultural norms, separate FGDs were conducted for men and women under the guidance of community leaders. Additionally, household surveys were conducted to gather insights into the living conditions, resource sharing, and challenges faced by residents, including children.

Survey Emphasis:
The questionnaire included both quantitative and qualitative questions to assess agricultural conditions, marine and freshwater fisheries, primary income sources, impacts of sea intrusion, soil quality, and river flow rates. Interviews focused on personal stories related to farming, fishing, customs, and community relations.

2.5 Ground Data Sampling
Instead of using a simple (SRS) method, I used a précised sampling method aligned with my study aims and objectives, facilitating detailed responses regarding community exposure to climate variability. Groundwater, river water, seawater, and drinking water samples were collected for laboratory analysis. Additionally, samples of wood, soil, mud and thatch were gathered to examine vernacular materials, informing future adaptive interventions.

2.6 Interviews
In conducting this research, I engaged both in person and telephonic interviews to gather information about fishing culture, agriculture, historical values and catastrophic events experienced by the residents of Kharochan. Additionally, I engaged with them to learn about red rice cultivation and overall rice capacity in the area. I also conducted in-person interviews to capture information and observations about Kharochan. These interviews were conducted with organization representatives, Government bodies, security personnel, doctors and reporters.

2.7 Architectural Analysis
The research also analyses existing architectural practice, structural integration and resilience towards climate devastation, focusing on:

- **Vernacular architecture:** investigating traditional building codes, techniques and materials; it also focuses on building strategies and local methods of construction in the region.
- **Sustainable strategies:** evaluating contemporary adaptive techniques and practices that could reinforce structures in support of local materials and skills with a sustainable approach.

3 Results
3.1 The River Indus
The Indus River is one of the largest rivers in the world, stretching 32000k.m. with a flow rate of 58 cubic miles annually. It became a major stream through the confluence of five rivers: The Jhelum, Chenab, Ravi, Beas, and Sutlej. In Sindh, near Thatta, the Indus River split into several distributaries forming a delta that meets the Arabian Sea at various points southeast of Karachi. (Nafis Ahmed, 2024).

Fig 2: The major rivers of Pakistan merging into one mighty River Indus. Source: Wikipedia

Fig 3: Shows rich indigenous construction techniques and vernacular architecture of Kharochan. Source: Captured by Author

3.2 Indus Delta

The Indus Delta is situated in the southern part of Pakistan and is the fifth largest delta in the world, hosting the 7th largest mangrove forests. The Delta is divided into multiple distributaries and features a fan-shaped landscape that includes creeks, estuaries, mud, sand, salt flats, mangrove habitation, marshes, sea bays, straits and rocky shores (Ramsar Site Information Service, 2002). The region is divided by the arteries of the Indus River and its natural canals. Kharochan is considered the most climatic hit zone of the region.

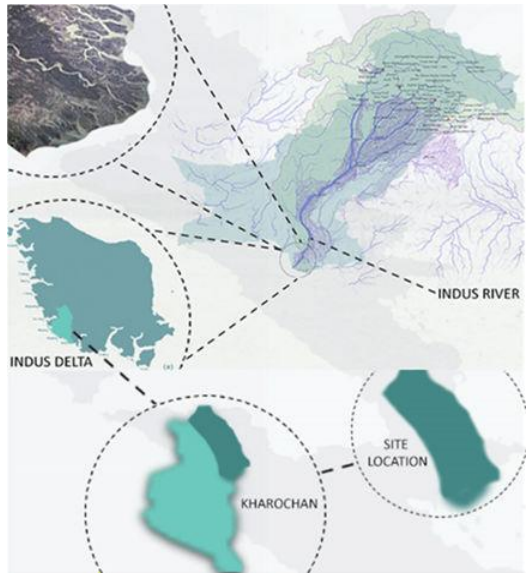
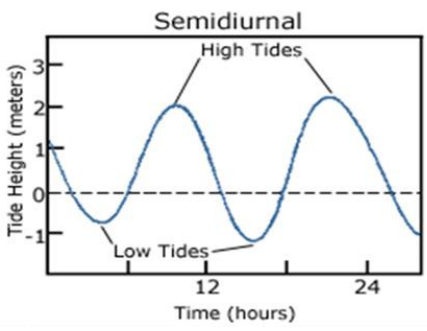


Fig 4: The position of the Indus Delta, and Kharochan in the deltaic region. Source: Created by Author

3.3 Tidal Current

The region of the Indus Delta receives primarily semidiurnal tides. A semi-diurnal tide mostly consists of two periods equal to high water and two periods equal to low water throughout the day (Liviu Giosan, 2006). There are two major types of tides that are found in the deltaic region: Ebb and flood. In the Ebb phase, the water level is failing, and during flood events, the water level rises (Webb, 2023).



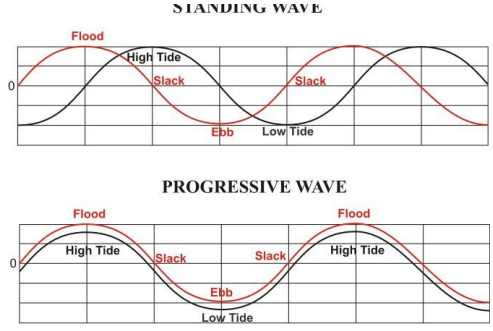


Fig 5: Shows Semidiurnal Tidal phenomenon Fig 6: Displays Standing and Progressive waves pattern. Source: NOAA

3.4 Embankment

No embankments were installed to safeguard the ecology and residents from rising sea levels, leading to significant land loss. Without these barriers, saline water infiltrates the land, severely damaging its fertility.

3.5 Saltwater Intrusion

Saltwater intrusion poses a significant threat to the existing ecology of Kharochan. Coastal sea levels have been rising at approximately 1.1 mm per year. Due to intrusion most of the land has become saline and lost its fertility. Over the past 40 years, precipitation in the region has declined by 10 to 15%. In the next 50 years, the Himalayan glaciers may retreat, and the flow rate may be reduced by up to 30% to 40%. (Environment, Climate Change and Coastal Development Department, 2022) (USDA, 2020).

3.6 Submersion of Land

The other major dilemma is the submersion of land. In recent decades, many farmers who once owned acres of land now have seen their properties submerged into the sea. Climate change has led to rising sea levels causing the delta region to sink. Additionally, human activities affecting upstream water flow have contributed to this sinking. (Shah,2019).

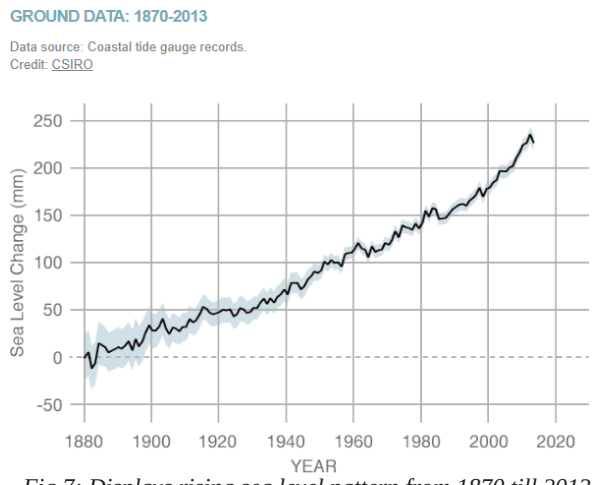


Fig 7: Displays rising sea level pattern from 1870 till 2013
Source: CSIRO

3.7 Water Condition in the Region

Freshwater conditions in the deltaic region are poor. Due to sea intrusion and blockage of upstream water, residents are compelled to use unhygienic or saline water, containing bacteria which is unsuitable for drinking or irrigation. Consequently, they often have to purchase low-quality water for daily use purposes (Muhammad Yar Khuhawar, 2018). Data analysis and GIS mapping reveal that most of the deltaic region's water quality is inadequate for consumption (Ghulam Shabir Solangi, 2019).

3.8 Water Depth and Quality

The water quality in the Indus Delta is predominantly poor, with mostly brackish and saline water. The PH level ranges from 7 to 8, as most wetlands have been inundated with seawater. Only the creeks and edges, where freshwater mixes with the sea, support a fresh ecology, which now occurs mainly during the monsoon and flooding periods. Water depth in the delta varies: sea bays typically have less than 6 meters of depth at low tide,while creeks hold 1-2 meters. In contrast, mudflats and marshes retain about 0.5 meters of water during low tide and rainy days (Ghulam Shabir Solangi, Altaf Ali Siyal, Pirah Siyal, 2019).

3.9 Human Intervention

The current state of the deltaic region is solely influenced by human intervention in upstream water flow, primarily through the construction of dams, barrages and canals. These infrastructures have halted the flow of sediments essential for delta formation. (Shah, 2019). There were many interventions on the Indus River that caused saltwater intrusion and land submersion. (Azam, The Dying Delta and the Deluged Dwellers, 2022).

Below are the major dams and barrages on the River Indus:

Structure	Year of Construction	Maximum Discharge Capacity (MS)
Tarbela Dam	1976	18,386
Mangla Dam	1967	24,630
Ghazi Brotha Hydropower project	2004	500,000
Jinnah Barrage	1946	950,000
Chashma Barrage	1971	1,100,000

Table 1: The major Dams/Barrages on the River Indus
Source: Data gathered from internet, Created by Author

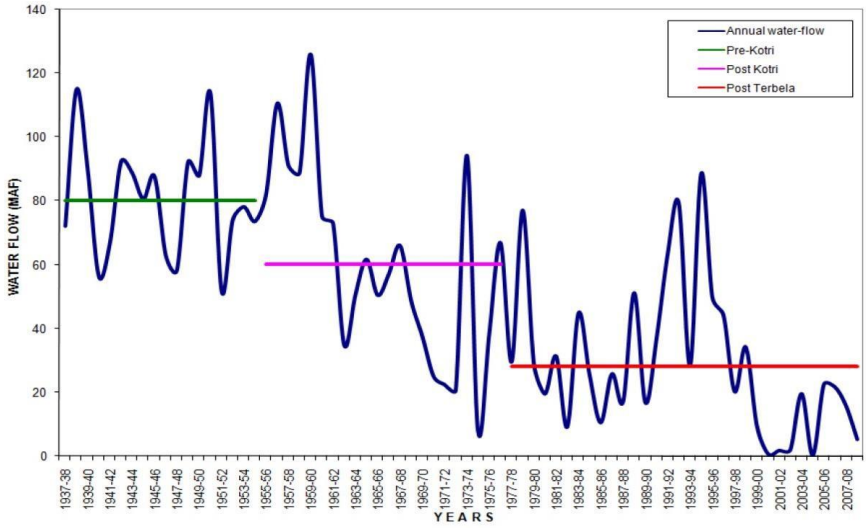


Fig 8: The rate of water flow in the region from 1937 to 2008
Source: Spatio temporal assessment of agriculture & mangroves

These interventions reduced the silt deposition capacity; the rate of silt was almost three times lower than in the 1960 graph; in 1960, 400 million metric tons of silt were deposited in the sea, but now it only reaches around 100 million metric tons per year (Sindh Irrigation Department, 2021).

3.10 Agriculture of the Delta

The Indus Delta was recognized as a fertile agricultural zone historically, supporting a variety of food crops and it exported to other regions of the country. Approximately 45% to 55% of people were dependent on the agriculture sector. However, the agricultural situation has deteriorated due to land degradation, saltwater intrusion, and rising salinity, severely impacting the sector. These challenges have largely affected the socio-economic conditions forcing people to seek alternative livelihoods. It is known that almost 60% of the land is affected by the sea intrusion (Zaigham, 2021) (Zaigham, 2019).

Crops:

1. Wheat
2. Sunflower
3. Tomato
4. Chilies
5. Mustard
6. Bottle/Ridged gourd
7. Capsicum
8. Rice
9. Cotton

The delta was once renowned for its red rice cultivation, but this important crop has sharply declined due to freshwater blockage, water logging, and saltwater intrusion. The given table shows the temporal differences in the region, and data analysis by the satellite images from 1998 to 2018.

Classes/Year	**1998**	**2008**	**2018**
Mangroves	21991	28712	70,850
Cultivated land	116928	88172	48,787
Soil	248564	217867	257,268
Wet soil	113519	80683	129,077
Salty soil	49873	99508	53,327
Water bodies	77595	112574	69,264

Table 2: The temporal differences of the Deltaic region in 1998, 2008 and 2018
Sources: Spatiotemporal assessment of agriculture & mangroves

The following map illustrates the spatial variation of uncultivated areas from 1889 to 2008.

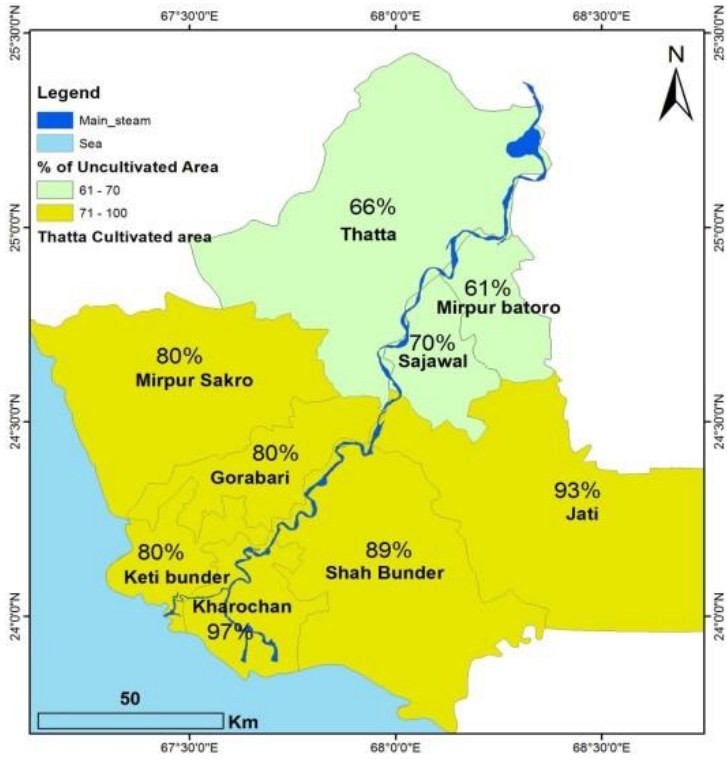


Fig 9: The variation of uncultivated areas.
Source: Spatiotemporal assessment of agriculture & mangroves

3.11 The Ecology of the Indus Delta

The Indus Delta features unique characteristics and a diverse ecosystem. It is home to various species including mammals, reptiles, land animals, freshwater species, marine species and seaweeds (Hussain Bux Bhagat, 2002). The climate of the region is mostly arid and subtropical, with moderate tides and strong river currents. Mangroves of the region unanimously hold 97% of the country's mangrove forests and play a pivotal role in maintaining biodiversity, supporting around 60,000 migratory birds. The water typology is predominantly brackish and saline (World Wildlife Foundation, 2002).

The main habitats of the Indus Delta comprise the following:

- Creeks
- Freshwater lagoons
- Marshes
- Estuaries
- Mudflats
- Sand flats

- Salt flats
- Mangrove swamps
- Bays
- Estuaries
- Rocky shores
- Barren lands

3.12 Ramsar Site

The Indus Delta is classified as a Ramsar site (1284), home to a diverse range of species: birds, fish, shrimps and land species. The area has a very rich cultural and archaeological background (Ramsar Site Information Service, 2002). It is the fifth-largest delta in the world and it holds the seventh largest mangrove forests (Ebrahim, 2020).

3.13 Climatic Condition of the Delta Region

The Delta region is highly vulnerable to climate change; the first section of Pakistan to experience its impact. The region was hashed due to air masses over land and sea, as well as flooding and droughts. Temperature has increased by 2°C since the past century, it is estimated the temperature will rise 3°C by 2050. The delta receives an impressive amount of rain, between 250-500mm annually, with an average temperature ranging from 21°C -30°C in July, and 10°C-21°C in January. Excessive water poses serious threats to agriculture and it also degrades the drainage capacity of the soil and increases water-logging. Additionally, reduced water availability could lead to drought conditions in the region.

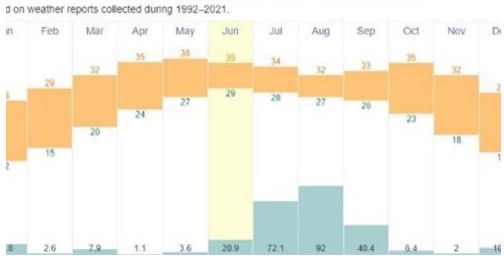


Fig 10: The temperature variations during the period of 1992-2021

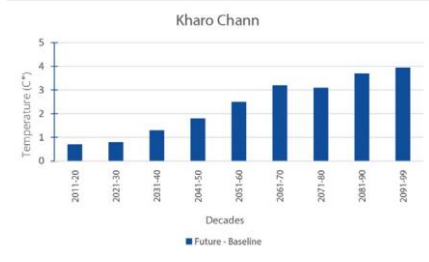


Fig 11: Shows consecutively temperature increasing pattern Source: Sindh climate change policy

3.14 The Land Situation of the Delta Region

The Land condition of the delta has drastically changed, and the catchment area of the Indus Delta has rapidly moved towards the formation of wetlands in the region. Blockage of river water results in land degradation and submersion. Sea intrusion also leads to the consequences of land salinity. Flooding, monsoon rains and cyclones also play vital roles in the reshaping of land and its arteries; it also results in creek mouth opening (Bijoy Mitra, 2024).

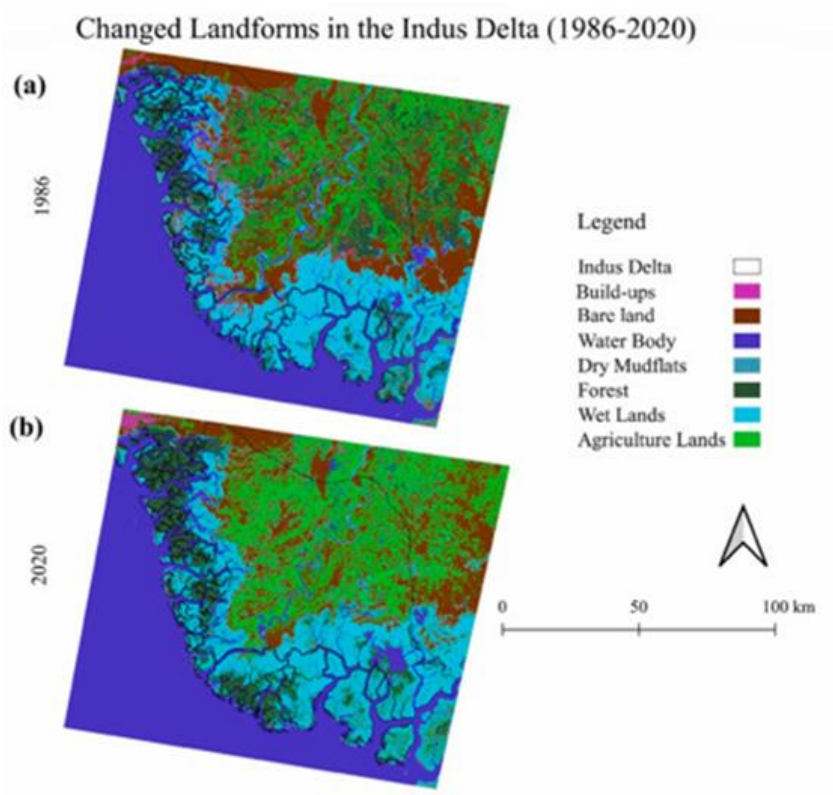


Fig 12: Shows the reshaping of land and its arteries Source: Google

3.15 Catastrophic Events of the Region

The Indus Delta has faced numerous catastrophic events over the decades, including cyclones, flooding, storms and excessive rain. Notably, cyclones and floods in 1999, 2000, and 2010 caused significant damage to the delta's ecology. Changing climatic conditions, soil degradation and land loss to the sea are major catastrophes of the region. Additionally, the exploitation of mangrove forests has led to soil erosion and negatively impacted both migratory and local species within the Indus ecosystem. (Govt. of Pakistan, 2017).

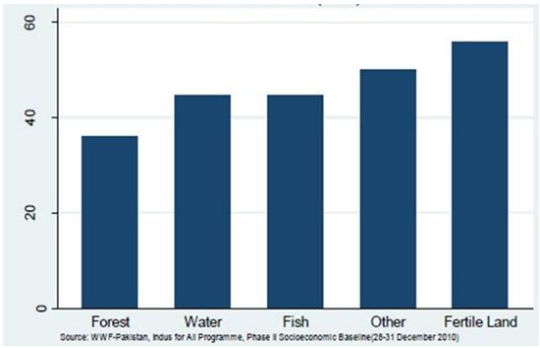


Fig 13: Shows the socioeconomic baseline of the region till 2010, Source: CCAP

3.16 Mangrove's Ecology (Timmar)

Mangrove forests are vital to the marine ecology of the Indus region, as tumbled leaves from mangroves provide nutrients to the habitat. Mangroves are highly adaptive to the environment and they have the strength to reverse the salt toleration and they thrive in saline water. Their root system acts as a prominent barrier against harsh storms and it also resists flood encroachment by sea or river. Additionally, roots stored sediment which led to the prevention of soil erosion.

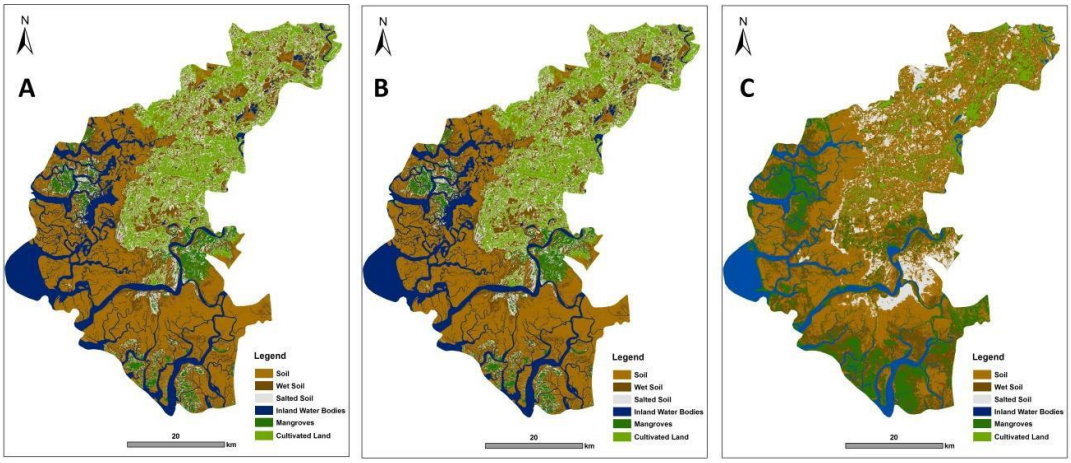


Fig 14: Shows land distribution and mangrove forests Source: Spatiotemporal assessment of agriculture & mangroves

3.17 Issues Connected to Major Sectors of Kharochan

Food security is compromised.	**Livestock wiping out because of lack of fresh water.**	**Coastal tourism is non existent due to poor infrastructure.**
Barren land.	Households were not managed.	Lack of infrastructure prevents residents from accessing sea resources.
Salinity of fertile land.	Unequal resource distribution raises concerns.	Irrigated land is submerged by rising sea levels, blockage of natural water flow.

Table 3: Shows major issues related to the region of Kharochan
Source: Created by Author

3.18 Fishing

Fishing is the primary source of earning for the residents of Kharochan, contributing 60% to the delta's economy.

4000 metric tons of fish are exported annually, including 2000 metric tons of shrimps and 2500 metric tons of prawns (Samina Kidwai, 2019). Fishermen often spend days or weeks at sea or in rivers, using both traditional and motorized methods. The best fishing season runs from August to November. The region's fishing boats are classified into two standards:

- Horo ship (bigger boat)
- Berhi ship (smaller boat)

Bigger boats travel far into the deep sea, while smaller boats only perform fishing in the deltaic zone or in the Indus River.

Fig 15: Smaller (berhi) boat unloading ice

Fig 16: Bigger (horo) boats docked at Atharki Bundar. Source: Captured by Author

3.19 Types of Nets Used for Fishing

Fig 17: Cast nets used to capture bigger Fish

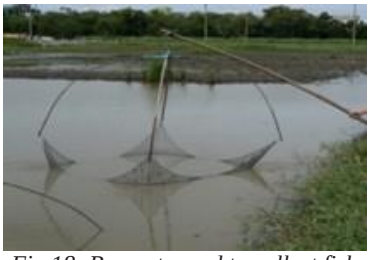


Fig 18: Bag nets used to collect fish from river Shores

Fig 19: Triangular nets used to capture fish during flooding seasons in small ponds.

Fig 20: Cage net used to capture crabs. Fig 21: Bhola net illegally destroys marine ecology, but is used by the residents due to few marine fisheries. Source: Captured by Author

3.20 Major Trades of Kharochan

FISHING

Fig 22 Residents catching fish from Indus River

TRANSPORTATION

Fig 23-24 Transportation mediums mostly used by the residents of Kharochan. Source: Captured by Author

AGRICULTURE

Fig 25: Agriculture of the delta in the region.

COAL MAKING

Fig 26: Small brick kiln plants used for making coal from wood.

SHOP RETAILERS

Fig 27: Retailers market in the region. Source: Captured by Author

3.21 Stargazing

The habitat of Kharochan features clear sky because of low carbon emission and minimal light pollution. With less human interference, the region offers excellent stargazing opportunities at night, making it a valuable source of eco-tourism.

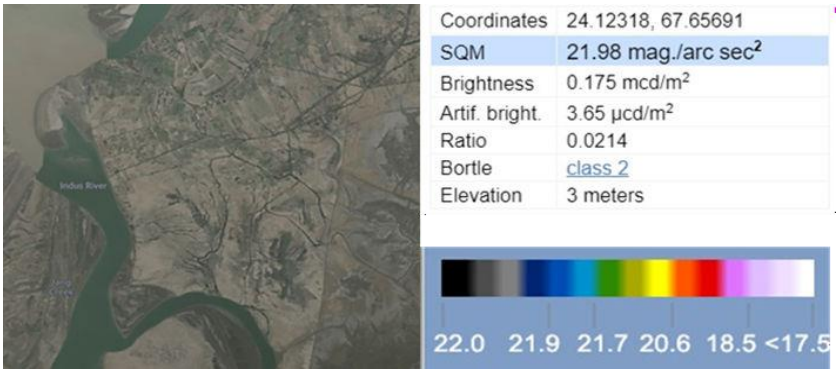


Fig 28: light pollution condition in the region of Kharochan
Source: Google

The night sky falls under class-02, allowing easy visibility of the Milky Way by the naked eye. The zodiacal light is bright enough to cast shadows and several messier clusters are also visible without optical aid.

4. Major Issues of the Region

4.1Fresh Water

Residents of Kharochan have faced water scarcity since the past decade. Despite living next to the river, they cannot get fresh water due to seawater intrusion and blockage of upstream water flow. They are forced to drink contaminated water that hosts many bacteria and they rely on stored rain or flood water in ponds. Residents also buy water for their daily usage from shops and filtration plants.

Fig 29-30: Shows fresh water ponds created by the residents for drinking and usage purposes. Source: Captured by Author

4.2 Health

Health is the major issue for the residents due to improper health facilities. The nearest health facility is 50 to 60 km away from the region; there are only small Basic Health Units (BHU's) with poor equipment, which only facilitate basic health concerns like fever,gastric problems and malaria. Additionally, doctors are not sincere in their duties; if a person suffers from a heart attack or has maternity emergencies, they face long, difficult journeys to avail medical aid, resulting in preventable deaths.

Fig 31-32: The condition of small Basic Health Units (BHU's) present in the region. Source: Captured by Author

4.3 Education and Sports

There is a population estimated at around 42000 in the region; despite this there are no proper educational facilities for inhabitants. The Government educational units were dismantled; only a few schools are run by NGO's on a small scale, with no playing facility for the residents. They are only left with barren land for activities.

Fig 33: Kathiyar School run by an NGO in the region

Fig 34: The remains of a destroyed government school in Jan Muhamad Jat. Source: Captured by Author

4.4 Infrastructure

The region of Kharochan in Sujawal District suffers from severe infrastructure deficit. There are no road networks, only uneven barren roads which become swampy at night due to fog. There is no electric supply in the region. They rely only on solar panels, and there are no gas connections, forcing residents to burn wood for cooking. Additionally mobile and internet access is minimal.

Fig 36-37: Road infrastructure condition in Indus delta. Source: Captured by Author

Flooding and unexpected rainfall also pose a threat; poor environmental conditions stem from human interventions. Over-fishing with Bhola nets harms marine animals, because fresh water fisheries and the agriculture sector are compromised due to shortage of fresh water. Additionally, there is deforestation in order to get wood for daily use.

Fig 35: Sea water intrusion in the arteries of the Indus river

Fig 36: Salinity on the lands of Kharochan

Fig 37: Transporting exploited wood from mangrove forests for daily use. Source: Captured by Author

4.5 Social Issues

A major social issue is lack of awareness in the region, which hampers residents potential to improve their living standards. The issue is rooted in poverty, lack of jobs facilities and insufficient government support. The middle man and clan lords exploit residents because of lack of awareness. Locals work tirelessly to earn pennies, as employment options are limited, leading some to engage in illegal activities to support families.

4.6 The Demographic Situation of Kharochan Region

The demographic situation in Kharochan is vulnerable due to climate impact and human intervention. The population has shrunk to about 30%, because people migrated from the region. According to the latest census,the total population of the Kharochan Union Council is between 40,000 and 42,000 (Abdul Majeed-General Secretary of WWF, Kharochan region).

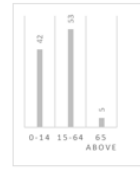
GENDER DISTRIBUTION OF THE RESIDENTS OF KHAROCHAN	AGE GROUP DISTRIBUTION OF THE RESIDENTS	URBAN VS RURAL AREA IN THE REGION
		
ACCESS TO EDUCATION BY RESIDENTS	**LITERACY RATIO OF KHAROCHAN**	**LANGUAGES SPOKEN BY THE RESIDENTS**
		

Table 4: Portrays the demographics of the Kharochan
Source: Data gathered by Author

5. Architecture of Deltaic Region

5.1 Construction Typology

The construction typology in Kharochan is distinctive, primarily constructed from vernacular materials and traditional techniques inherited from available knowledge. Structures often incorporate aesthetic elements/art-crafts from Sindhi culture, reflecting ancestral craftsmanship. The majority of structures are made up of wood, with mud cladding and thatched roofs, including bamboo or wood framing.

The structures in this area were mostly single-story because available techniques were not enough to bear excessive load due to weak, muddy soil. They use mostly wood for the strength of the structure, mud for insulation and thatch for roofing. Houses mostly consist of one to three rooms. The kitchen is adjacent to the house, with no space for the restrooms. Homes are built in clusters, expanding as families grow, on the periphery, but remain small due to financial constraints. Every structure embraces a verandah (chajjari) which serves as a multipurpose recreational space for sitting, and relaxation (Autaq), and also protects from the scorching heat.

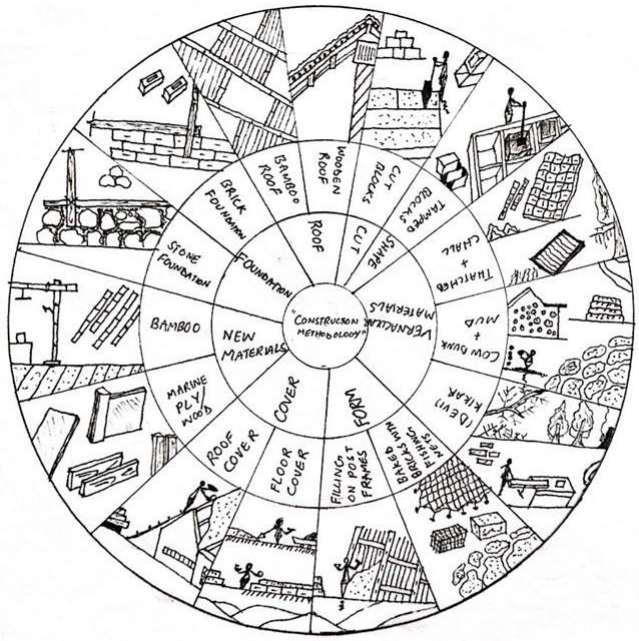


Fig 38: The construction techniques and vernacular materials used by the locals in the deltaic region Source: Created by Author

5.2 Materials for Construction

There are various locally available materials used for construction in the coastal habitat.

5.2 Wood

Wood serves as the primary support for structures, functioning as columns and beams. They tie wood together horizontally and vertically to enhance stability. Two types of wood are used Babur and Diyar.

Fig 39: Source: Captured by Author

5.2.2 Mud Cladding

Mud cladding is used to protect inhabitants from climate turbulence and it also helps in insulation. The mud cladding is made from three major components: Wheat debris, Mud and Cow dung.

Fig 40-41-42: Different types of mud cladding techniques used by the habitants for insulation. Source: Captured by Author

5.2.3 Roof

The roof of the structures primarily consists of wooden framing and thatched leaves including plastic sheet and mud plaster for stability.

Fig 43: A thatched roof with bamboo support.

Fig 44: Roof made from marine ply and wooden logs.

Fig 45: Wooden log roof with plastic sheet insulation. Source: Captured by Author

5.2.4 Walls Fabrication

The walls of the structure mostly consist of wood framing and twigs, that are tied together to hold the structure with mud plaster for better stability.

Fig 46: Walls made up of Diyar wood and mud plaster.

Fig 47: Shop walls built with straw bales and wood.

Fig 48: Warehouse made with marine ply and wood. Source: Captured by Author

5.2.5 Outdoor Spaces

The outdoor verandah is a covered space used for sitting in the daytime and sleeping at night time. These spaces also serve for gathering, playing and communal engagements.

Fig 49-50-51: show verandah (spatial) spaces of the structures Source: Captured by Author

5.2.6 Building Placement

The orientation of structures plays an important role in the region. Due to no electricity, the residents mostly build structures in the north direction to fight heat.

Fig 52: Play of light and wind inside the mosque

Fig 53: Architecture of the mosque in the deltaic region Source: Captured by Author

5.2.7 Openings

The Openings of the structures are designed smaller in size and placed smartly to enhance cross ventilation, so their structures remain cool throughout the seasons.

Fig 54 Placement of windows in the direction of the winds to resist heat in the house

Fig 55 Shop owner removed mud plaster to capture wind inside shop. Source: Captured by Author

5.2.8 Exterior and Interior

Structures in the region are mostly unpainted, with only mud plaster used on both sides of the building.

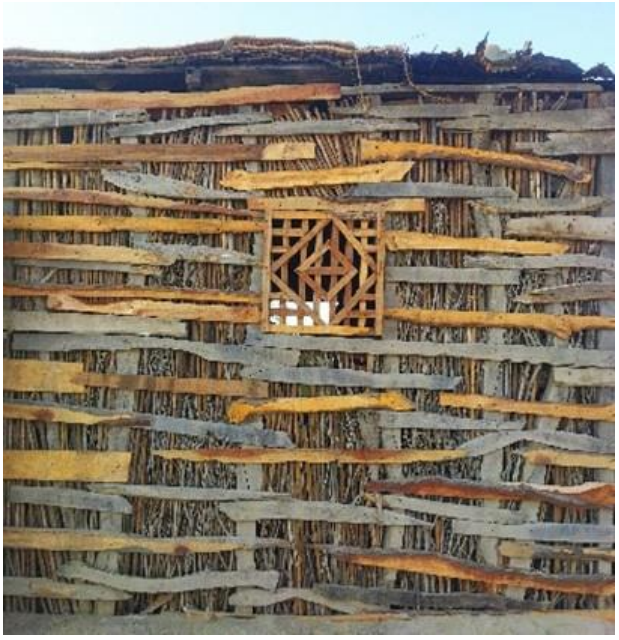


Fig 56: Architecture style of facades in the region of Kharochan Source: Captured by Author

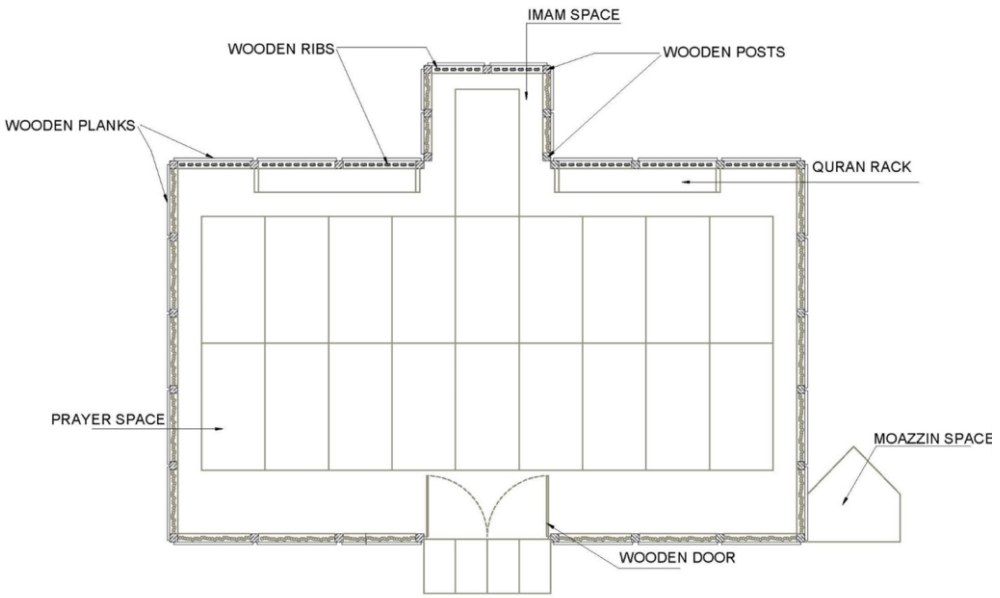
5.2.9 Art and Craft

The residents of Kharochan have a deep connection with their art, enthusiastically incorporating it into their structures through craftsmanship. They express their artistry in the openings, entrances, and other prominent features of their buildings.

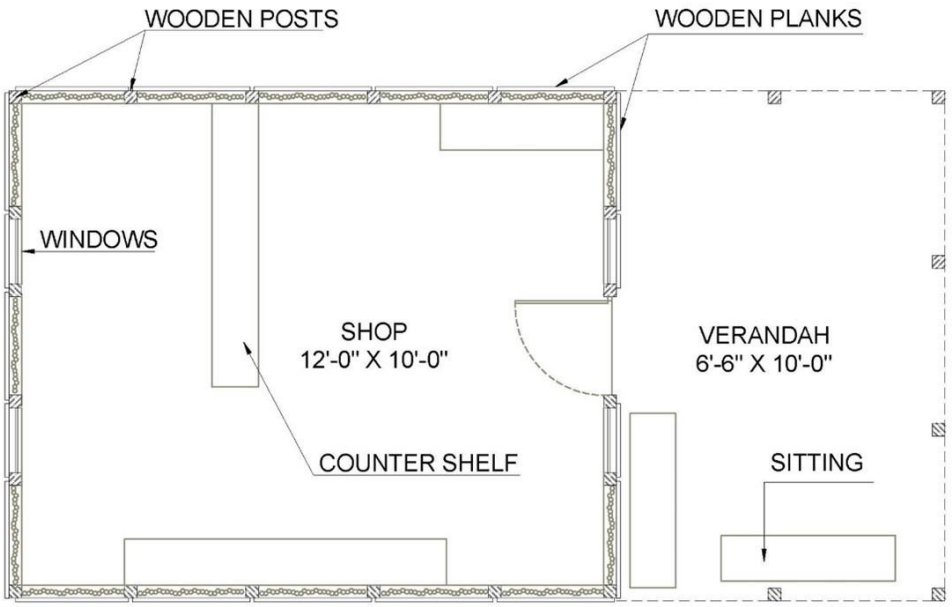
Fig 57-58: Ornamentation details performed by the locals on building facades
Source: Captured by Author

5.2.10 Planning Typology of the Region

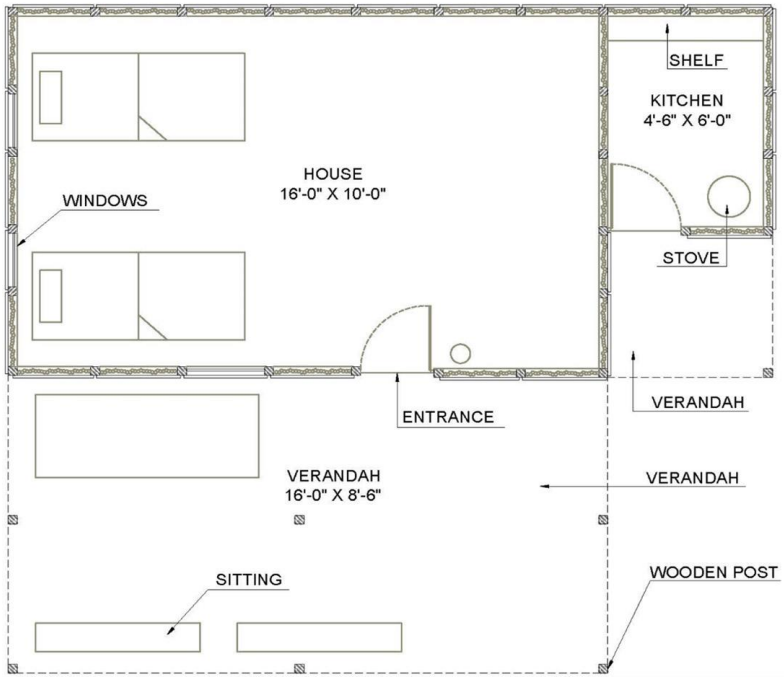
Planning typologies of the existing structures in the region of Kharochan.



Existing Mosque Planning



Existing Shop Planning



Plan of Existing Units

6. Recommendations and Future Directions

To tackle the complex challenges in the deltaic region, it is essential to implement comprehensive policies that prioritize ecological restoration and promote sustainable socio-economic development. This requires the engagement of government bodies, NGOs, and local communities to establish policies for coastal management, integrating insights from the region's ecology, sociology, and cultural heritage. These approaches include strategies for habitat restoration, sustainable fishing and agriculture with respect to community health initiatives. Additionally, educational programs, participatory work and training on climate resilience and sustainability would allow communities to better adapt to changes. Ongoing research, impacts of architectural implementations and GIS mapping of water quality, biodiversity and land use as highlighted in the research are crucial for decision-making.

Policy implementation: Developed upstream water flow policies are required through expert and communal engagements of the downstream residents to uplift the drowning ecology. Communal integration plays an important role in revitalizing the delta region.

Ecological restorations: Strategies must be developed for sustainable water resource management in the region. This can be achieved by restoration of degraded ecology safeguarding biodiversity and mangrove forests, which act as a natural buffer against sea intrusion and salinity.

Socio-economic restoration: Inhabitants must be provided alternative livelihoods and sustainable living to reduce the burden on the fragile ecosystem. Sustainable agriculture and fish farming may shift pressure from nature's exploitations.

6.1 Alternative Economic Initiatives

The outcome of this research focuses towards the needs for modern techniques of cultivation of crops and fish farming to reduce the impact on environmental exploitation and to use less water and advanced techniques. Provision of aqua phonic farming in the zone would help in the uplift of the drowning habitat. Implementing modern approaches in cultivation would also help in fighting future catastrophic events and also reduce the migration rate of the deltaic habitants. Fresh water fish farming practices in the farms would revamp the declined crescent of the deltaic zone and their culture.

6.2 Sustainable Living Style

The research also directs emphasis on the need for sustainable living units that combine vernacular materials and techniques with modern construction methods to counter issues, i.e. salinity, flooding and other environmental threats. Use of minimal architectural and construction intervention in design with integration of a water harvesting canopy

would combine to create a living unit that supports their life and nurture their future. These harvesting unithouses are a key element for the uplift of the residents of Kharochan.

7. Conclusion

The Indus Delta comprises a unique array of ecological elements: wetlands, mudflats, barren lands, creeks, mangrove forests, rivers and sea. It also includes great cultural and archaeological treasures. The Delta is home to numerous species and represents a vibrant footprint of tropical ecology. However, the region faces noteworthy challenges and catastrophic events due to environmental degradation and socio-economic pressure forced by human intervention and global warming; these factors also play a critical role in the loss of nature's resources to the sea. This research identifies the major consequences faced by the residents and the ecology of the Indus Delta in the face of land lost to the sea, salinity, food insecurity, freshwater scarcity and unprecedented natural disturbances.

The research also highlights the interconnectedness between the environment and its inhabitants, emphasizing the need for revitalization to support and uplift the region. The Indus Delta is at a critical juncture; while the environmental and socio-economic challenges are profound, the revival of the region solely depends on an adaptive and sustainable approach, ecological restorations and communal engagements. The research also underscores the importance of architectural interventions in revitalizing the delta's ecology to support residents' lives restoring the delta ecosystem as a viable living space for both humans and wildlife. By focusing on local knowledge, vernacular materials and traditional techniques, along with modern methodologies, a drowning habitat can be transformed and uplifted. The adaptive strategies coupled with policy support, highlight the framework for revitalizing delta ecological integrity and ensuring a resilient future for the inhabitants of the region.

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READING THE MOTIF OF THE RIVER IN PUNJABI SUFI POETRY

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The motif of "crossing the river" recurs frequently in the works of Punjabi poets, inviting a range of interpretations and scholarly discussions. Critics and scholars have explored the metaphor's deep symbolic significance, often tying it to spiritual themes in Sufi poetry. Early critics, in particular, delve into its abstract, mystical meanings,viewing the river as a metaphor for spiritual trials, transformation, or the journey toward enlightenment. This motif is also closely linked to characters from Punjabi folklore, such as Ranjha and Sohni from the Qissa tradition. In the works of poets like Shah Hussain and Bulleh Shah, references to these figures crossing the river serve not just as folklore but as symbolic acts of transcending worldly boundaries, reflecting the mystic's journey toward union with the Divine.

In Shah Hussain's verses, the motif of a journey is central as Heer expresses her fear: "main vi Jhok Ranjhan de janan, Naal meray koi chalay," and "Nee vi doongi, tilla purana, Sahnhain taan patan milay." She voices concern, saying, "The River is deep, and the old raft is of little use. The ferry is the haunt of tigers and looks intimidating". Syed Najm Hosain [1] interprets these lines as reflecting the timelessness of the river, writing: "The river has flowed between desire and fulfillment for centuries. It is ancient, unfathomable,and causes both life and death." Thus, it is appropriate to say that the river, as a force of nature, represents both a threat of death and a promise of renewal. In closely examining the central role of the river in the tales of Sohni-Mahiwal and Heer-Ranjha, we find that in the case of Sohni, it brings death, but it also symbolizes a world of new possibilities in Heer-Ranjha's case. Ranjha must cross the river to renew himself. The river brings him to a new place and this is where his love-story begins, thus Syed Najm Hosain writes,

"The journey beyond the river is a transition as radical as death"

In another way we find that in analyzing river spaces in Asia, contemporary analysts observe that in modern terminology where human settlements are often referred to as cities, "all rivers reach beyond the boundaries of cities" [2] . Here the underlying emphasis is how rivers continue to shape and extend human habitation. This perspective highlights the evolving and concrete relationship between humans and rivers, where rivers not only influence the geography of settlements but also hold cultural and symbolic significance that transcends physical boundaries.

Thus, the recurrent motif of crossing rivers embodies the historic sensibility of the Punjabi people and reflects their deep relationship with the powerful natural entity: the river. The imagery arises directly from the environment, with rivers playing a central role in both the physical and symbolic landscape. The sixteenth-century Punjabi poet Shah Hussain was born and lived in the heart of Punjab, in the city of Lahore. Shah Hussain's simple poems in the kafi form resonate with the idea of crossing rivers, streams, or waters, and this theme continues in the work of Bulleh Shah, the eighteenth-century poet. For instance, in the following lines, the term "par langhna" (crossing over) carries both literal and metaphorical weight in these works. The motif of crossing a river resonates in Heer's voice in Shah Hussain's kafi, as translated by Carla Petievich: "I must go to Ranjha's place, won't someone come with me?" Heer expresses her fear, exclaiming, "The streams are deep, the raft is old, and tigers stalk the landing." [3]. Here, the river translated as the streams becomes a symbol of danger, standing between her desire and its fulfillment. In one of Bulleh Shah's short kafi's, he writes:

"Ik aukha waila aaway ga, sab saak sain bhaj javay ga, kar madad paar langahaway ga, o Bulleh Shah da Sultan kuray"

("A difficult time will come, all support will flee, but he will help you cross over, he who is Bulleh Shah's Sultan"). In the preceding lines, we find that for Bulleh Shah, life's most challenging moments, are often expressed through the metaphor of crossing over (paar langhawana). Bulleh Shah's verbal expression follows in the footsteps of the predecessor poet, Shah Hussain, who used similar imagery to depict life's trials. Shah Hussain mentions the difficult terrain of life as:

"Aukhi ghati, Bikhra Painda, Hun hi Samajh Khaloi".

("A difficult ravine, an arduous path understand this now"). Life's journey portrayed as convoluted and perilous is intensified further with the metaphor in the next line: "Karkan kappar Shah daryavaan, thiv muhana dhoe" ("Don't roar like a mid-river shoal; as a mariner, carry yourself to shore"). The words Shah daryawan also refers to one of the demons held in awe by people living close to the rivers [4].

Bulleh Shah also invokes the river as a symbol of oneness when he writes: wahdat dai darya dai andar sab jag dissay tarda ("In the stream of oneness, the entire world is visible"). Taufiq Rafat's translation of this kafi further emphasizes that the central idea in the line is that in the waters of unity, no one drowns [5]. Elsewhere, Bulleh Shah compares love to a raging river, writing: Hun main Shau darya wan paya, tha tha lehrain day mun aaya, ghuman ghaira pakar bhawaya, upron barkha rain andairi ("Now I am like the river of love, swelling with waves, storming in circles, with rain and wind from above"). This image of a turbulent, overpowering river reminds one of the terrors felt by Sohni as she

drowned in the raging waters of the Chenab, highlighting a parallel between human emotions and natural forces.

This brings to light a fascinating aspect of the age - old human relationship with rivers which begins with an acknowledgment of their overwhelming power. The Western humanist theory, which traditionally relied on binary, dualistic interpretations of concepts such as nature/culture and human/nature, is being increasingly replaced by a post-humanist vision. This new perspective emphasizes, as Rosi Braidotti describes, "the auto-poetic force of living matter," acknowledging the inherent vitality and agency of all forms of life [6]. Post-humanism challenges the rigid separation between human and non-human actors, recognizing that post-humanist values have long been embedded in our historical experience as humans. This shift encourages us to rethink the boundaries of what constitutes the "human" within a broader, interconnected framework. This prompts us to revisit older poetry and texts that highlight the symbiotic, interconnected relationship between humans and the non-human forces that shaped their lives. The numerous depictions of rivers in Punjabi poetry compel us to consider how the poets express humility before the powerful forces of nature.

This view shapes "ontological and historical humility" and recognizes the inescapable view of the non-human in the making of the human and in this way it challenges the notion of human agency [7]. In a study on the river and its relationship with ecology, Howard Dick points out that, in Asian cities, "people accepted the tides and monsoons as part of the rhythm of life" [8]. Human existence, like rivers, tides and monsoons, is tied to the flow and rhythms of the natural world.

The existence of rivers is inseparable from human life which is a reflection of an intense and deeply rooted relationship. Scholars often assert that the stories of Heer-Ranjha and Sohni-Mahiwal represent abstract ideals of love for the divine. For instance, Ranjha's crossing of the river is interpreted as a symbol of the human soul's deep yearning for union with Heer or the divine, while Sohni's drowning represents her final merger with the divine through death. Thus, water carries both mythical and mystical import. However, I argue that there is more to these narratives.

To fully appreciate the significance of these stories, we must move beyond dualistic readings that separate the abstract from the concrete: the binary between the transcendental and unseen versus the physical and present reality. Instead, we need to position the poets within their immediate contexts and examine how their environments shape the poetry they create. By doing so, we understand how the river metaphor is not just symbolic but also connected to the physical and cultural landscapes these poets inhabited.

A compelling example of this connection is found in the works of the underrepresented nineteenth-century poet, Piro Preman. In her verses, Piro borrows the river metaphor but renders it in a way that is distinctly tied to her surroundings. In one of her poems in Siharfi form, we find a direct reference to the Indus River, highlighting the immediate, lived reality of her environment [9]. Piro's use of the river is not merely abstract; it connects the spiritual and the physical, suggesting that the river is not only a symbol of divine love but also an integral part of the human experience of life, struggle, and transcendence.

To begin with, Punjab, previously known as Sapta Sidhu he land of seven rivers as been profoundly shaped by its waterways, particularly the Chenab and Ravi, which have a direct influence on the lives of its people [10]. In Ganesh Das's work, "Char Bagh- i-Panjab". He explores the history of these rivers and their connections the daily lives of the inhabitants. Das writes, "The river Sindh separates Hindustan from Kabul and serves as the boundary for the Punjab" [11]. He further notes the doab called the Sindh Sagar, which is bounded by the Jhelum and Indus rivers. His descriptions illustrate how the river begins in the cold mountains of Chillas, Kaghan, and Darband, eventually flowing into Baluchistan before joining the five rivers of the Punjab, where he poetically describes, "The river becomes a veritable sea." In essence, Das's geographical observations and descriptions pivot on the flow of the rivers as this emphasizes how the natural features shape not only the landscape but also the cultural and social fabric of the Punjab. It also connects us back to the pastoral and agricultural life of the people of the Punjab. Their agro-pastoral lifestyle made Punjabi's producers of cotton, and thus, weaving and spinning cloth emerge as recurring metaphors in these works. The rivers and their flowing channels symbolize the connectivity of the common people and their customs.

The material realities, craftsmanship, and livelihoods of countless people depended on the flow of the rivers,which symbolized a deep connection with the people. This explains the central role of rivers in Punjabi folklore, as seen in the stories of Heer and Sohni-Mahiwal. The rivers are portrayed not just as natural entities but as living, formidable forces shaping the lives of the main characters. Ranjha must cross the river to meet his beloved,while Sohni braves the waters every day to see her lover. Their fortunes, fates,and even tragedies are intricately tied to the rivers.

Piro Preman, a lesser-known nineteenth-century poetess and mystic, wrote in the mystical genre of Siharfi. In her verses, she makes significant mention of the river Indus, drawing upon its powerful symbolism in her poetry. In a beautiful line from her poem, Piro compares herself to the river Sindh, her verses flowing as freely and vibrantly as the river itself. She boasts of her liveliness, playfulness, and flirtatiousness, mirroring the river's vivacity in her poem titled Siharfi Sanjhi. She writes:

Friends, if someone told you the rules of the game are easy,
I have many names and forms; the universe is like a sheep's skin,
I am playful like the river Sindh, yet I stand alone in the wide world,
Gulab Gurudas is my fortune, and as Piro submits, the game becomes easier.

Anand Venkatkrishnan observes that "South Asian poetry frequently maps the body onto the world and vice versa" [12]. Just as Radha's tears in Surdas' verse melt Krishna's heart, creating a unique emotional landscape, Piro draws upon the river as both a metaphor for her inner self and a force shaping her world. The river becomes a dynamic force in her poetry, reflective of the tangible realities of the people and their surroundings.

A non-dualistic perspective, as advocated by post humanists, emphasizes the tangible connections between the external and internal worlds, language and life, as well as the mind and the world. Thus, the presence of the river in Punjabi poetry is not merely symbolic but deeply rooted in the lived experience of the common people. The vocabulary associated with rivers—such as patan, ghat, nadi, darya—does not fully translate into English, losing the nuances of local context and meaning, however the words both underscore the richness of the original language and convey the cultural and natural significance of rivers.

As rivers are destroyed and mistreated, the function, appearance and role of water risk becoming exoticized and distanced from the center of human life. Once integral to our ecosystems and daily existence, water may increasingly be viewed as a rare, distant resource, disconnected from its natural and cultural significance. Conversations about the relevance of rivers to Punjabi poets need to be reframed in the current context, where our rivers, such as the Ravi and the Indus, are now in a state of deep anguish and crisis. The poetic legacy that once celebrated these rivers as lifelines of culture and spirituality must now contend with their environmental decline and urgent need for preservation.

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THE ORIGIN OF FOLKLORE AND HARAPPAN RIVERS

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1. Introduction

The Harappan Civilization, was thus entitled after its first site was discovered near Harappa in Punjab, Pakistan. It has since been considered as the first multifaceted civilization in ancient South Asia in the early 20th century. This Civilization was thriving around 2500 BC. The impact and scope of this civilization are now clearer, surrounding southeastern Afghanistan, Pakistan, and parts of northwestern and western India1.[1]

This Civilization was the foundation of the urbanism in this region. The cities were equipped with several wells, bathing rooms and a rich system of drains. In Harappan cities there were no palaces or temples as was common in Mesopotamia and Egypt. This evidence proposes that the urban system of the Harappans was designed to facilitate the entire public equally, reflecting an early concept of humanism. It is the largest civilization according to its geographical aspect among four ancient civilizations, of Egypt, Mesopotamia and China. For almost eighty years, researchers have been evolving innovative tactics to realize better the finely carved seals and the well-planned cities of the Harappan people, which present a culture that was quite dissimilar to other ancient Civilizations.[2]

The story of Harappan Civilization started from the banks of Rivers. The major settlement of the Civilization were founded on Mohenjo Daro and Harappa, which were based along the Indus River and River Ravi. Exploration of different sites disclosed the dry bed of a huge river Saraswati, admired in the early literature of the Rig Veda, which was also considered a major river of this Civilization. The rivers were not only lifelines of an ancient society but also holders of stories that continue to form the cultural identity of the region. The rivers have always held a unique place in mythology and folklore.

1. "Archaeological and anthropological studies on the Harappan cemetery of Rakhigarhi, India". Published online 2018 Feb 21. doi: 10.1371/journal.pone.0192299. https://www.ncbi.nlm.nih. gov/pmc/articles/PMC5821334/ (Accessed on 19 September 2024)

2. Jonathan Mark Kenoyer. "Ancient Cities of the Indus Valley Civilization" (New York: Oxford University Press, 1998), 15.

Ancient Civilizations were connected with different myths, which were often used to explain natural phenomena such as the changing of seasons and the phases of the moon and sun. Myths[3] exist from the beginning of humanity. The whole world stands on belief systems because nothing is certain in this world. Ancient cultures thought that these happenings were organized by gods and goddesses, and myths were generated to describe their actions. Myth was spread through folklore in the form of stories. The influence of mythology was seen in most of the aspects of the functions of society and people took reference from it. Folklore passed myths on from one generation to another as a precious piece of information·

The relationship between ancient society and folklore[4] grew gradually. Folklore usually revealed the basic human experiences, emotions and expressions like birth, death, love, fear, anxiety and the struggle for survival of a community. In many cultures, rivers were believed to be sacred and associated with goddesses or spirits. In South Asian culture, folklore originated from oral traditions that had long been used to transmit knowledge, values, traditional and cultural identity. Folklore often used symbolism to highlight the connection between the origin of folklore and Harappan rivers. The researcher has gathered and analyzed facts from various academic sources that showed that Harappan Rivers were the main source of inspiration in originating folklore.

2. The Relationship between Harappan Civilization and the Rivers

The Civilization flourished and originated on the banks of the rivers and their influences are reflected in all aspects of life. There were the main rivers, Indus, Saraswati (Ghaggar - Hakra), and Ravi. Scholars acknowledge the rivers played a significant role in the Harappan economy, culture, and settlement patterns. The Harappans had a knowledge of their natural environment, especially the river systems, and efficiently used these resources to support their society. The seven significant rivers Ganga, Yamuna, Godavari, Saraswati, (underground river) Narmada, Sindhu (Indus) and Kaveri cover the length and breadth of the Subcontinent and join people with diverse life styles, languages, outfits etc. The Saraswati, supposed to be a significant river, ran parallel to the Indus in the region now known as the Ghaggar-Hakra riverbed. Archaeological evidence suggests that many Harappan settlements were situated along this river, which was vital for agriculture and trade. Geological studies suggest that the Saraswati was a major river during the early phases of the Civilization, but it gradually dried up, which might have contributed to the decline of Harappan culture.

3. Nasir Ahmad Baba, Sakshi Sharma. "Myth and Folklore used by the Literature Intellectuals to Portray Real Life Situations". IJCRT2308209 International Journal of Creative Research Thoughts (IJCRT) www.ijcrt.org b869

4. Geo-mythology, the field that explores the connection between legends, local folklore, and the physical landscape, has provided invaluable insights into this phenomenon.

The Indus River was the lifeline of the Civilization, providing water for agriculture and other basic necessities of life. The Indus River, historically known as "Sindhu," is one of the subcontinent's most important rivers.

Local folklore personifies it as a powerful god named Sindhu, worshipped by the early inhabitants of the Harappa Civilization. Mythologically, it is also referred to as the "Lion River," highlighting its vital role in the socio-economic and spiritual lives of the people. The River Ravi[5] was considered in Hinduism as a manifestation of the goddess Parvati, worshipped during Navratri. The Indus and Ravi rivers hold deep spiritual and cultural significance in South Asia, symbolizing the divine and natural world through rich folklore and legends that highlight their importance in the region's history and heritage.

3. Natural Resources Deployment in Harappan Civilization

The Harappans were primarily an agricultural society. They developed advanced agricultural techniques, relying heavily on the rivers for irrigation. The seasonal flooding of rivers like the Indus provided rich silt deposits,which made the land fertile for growing crops such as wheat, barley and peas. The rivers provided abundant fish, an important part of the Harappan diet. The presence of fish and marine motifs in their seals and pottery indicates the significance of aquatic resources. Hunting along the riverbanks also provided food and materials, as suggested by archaeological finds of animal bones. They practiced flood[6]-based farming, harnessing the natural flooding cycles of the rivers to irrigate their fields.

4. Water Management Techniques in Harappan Society

The Harappans exhibited advanced water management skills. In this Civilization at most sites, wells were dug to provide water for the inhabitants. The number of wells at Mohenjo-Daro appeared to exceed the normal needs of a large urban center. They also built reservoirs and tanks to store water, ensuring a stable water supply even during dry seasons. This indicated a strong understanding of water conservation and management and its spiritual importance in the lives of Harappans. The Harappans constructed sophisticated drainage systems in their cities, with brick-lined wells and public baths,such as the Great Bath in Mohenjo-Daro. This highlighted the importance of water in both daily life and ritual practices. In all religious practices water plays a significant part and is purified with mantras. Big Ponds and wells are still associated with the temples and ashrams in South Asia.

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5. The Ravi River holds religious significance for Hindus and Sikhs. The Sikhs revere it as a site where Guru Nanak, the founder of Sikhism, meditated.

6. Myths like the story of Manu, who survives a great flood, may reflect cultural memories of severe floods in the Harappan region.

5. Trade and Transportation

Rivers served as natural highways, facilitating trade and communication between various Harappan cities and beyond. The Indus River, in particular, was central for transporting goods such as pottery, metals, and agricultural products. The early ancient Civilizations were associated with each other, and there is evidence of trade and other cultural contacts between them. However, there was a significant difference between their artistic styles, rituals, symbols, tools and social organization. The Harappans engaged in extensive trade with regions as far away as Mesopotamia, Egypt and the river systems played a key role in these interactions. The ancient inhabitants of the region recognized the divine power of these rivers, venerating them as symbols of fertility and mother goddesses.

6. The Cultural and Religious Significance of Rivers in Harappan Civilization

Almost all major cities of the Harappan Civilization were situated near the banks of the rivers. Rivers/water were likely viewed as sacred entities, playing a central role in spiritual life. The construction of large public baths and the well-designed water supply systems suggest a ritualistic use of water[7]. The admiration for rivers in later Indian religions, where rivers like the Ganges are worshipped as goddesses[8], might have roots in Harappan practices. Remarkably, the Saraswati[9] River has been consistently mentioned in traditional stories, folklore[10], oral customs, worship and in religious texts like the Vedas, the Brahmanas, the Aranyakas and the Upanishads for the past 4,500 years. Vedic life revolved and evolved around this river[11] .

The association between rivers and the Harappan Civilization is well-established, and researchers have observed similar traditional rituals continuing into the Vedic era, indicating a possible continuity of Harappan practices. The researcher speculates that festivals and fairs may have been held near rivers, as it is a common belief that lots of believers would take a dip in the river to cleanse themselves of sins.

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7. Jonathan Mark Kenoyer. "Ancient Cities of the Indus Valley Civilization" (New York: Oxford University Press, 1998), 120.

8. Arpita Chattaraj. "Sacred Water and Cultures of Worship: Some Observations on the River in India". Humanities Bulletin Volume 4, Number 2, 2021.

9. For a long time, the River was considered a mystery River since no such physical entity seemed to exist. Recent findings point out the River did exist and played a major role in sustaining the ancient Civilization.

10. The title of the "Father of Folklore in India" is often attributed to Natesa Sastri (1859–1906). He was a pioneering folklorist and scholar who dedicated much of his life to collecting, documenting, and preserving the folk traditions, tales, and cultural heritage of South India. His work, particularly the collection titled "The Folklore of Southern India," is highly regarded for its comprehensive documentation of oral traditions and folktales in the region.

11. Ramaesh N Rao, Avinash Thombre. "Communicating Across Boundaries: The Indian's Way" (Vanagaram: Notion Press, 2021), NA

From Vedic eras the rituals and rites are related to the rivers and still continue, sometimes more dynamically than in the past[12] . Although the seals provide a written narrative, the inability to decipher the text has prevented researchers from making definitive claims, unlike the more fully understood Mesopotamian and Egyptian Civilization. In South Asian mythology, even visible in the artifacts of the Harappan Civilization, the seven major rivers, saptnadis, have spiritual connotations. These deified as seven main goddesses are the Ganga, Yamuna, Saraswati, Sindhu, Krishna, Godavari, and the Narmada. These goddesses signify an interaction of love, wisdom and power; they are seen as life-giving and nourishing the land. The water indicates the cycle of birth and death and the release of a soul. In keeping with the belief of the purifying strength of rivers, death is followed by cremation on the bank of the river. The belief is so strong that in the lack of a river, crematoriums are usually located near water bodies. Or if this is not possible the remains are taken to the Ganges or the closest river for submersion[13].

South Asia is a land of diversity. Water is the common thread and in Hinduism the river's names are associated with a deity, mainly goddesses. Brahama Putra is one of the few with a male name. Worshipping these deities[14] has a feminine slant for most rivers, with hymns praising the mother goddesses connected to the rivers.

Worship activities often take place along riverbanks and waterside steps, serving as gathering spots for women to engage in traditional tasks such as collecting water and washing laundry. In many communities, women play a dynamic role in preserving and passing on traditional information and stories. Women also sing local songs while collecting or planting fodder, often comparing their lives to the constant movement and giving nature of rivers. These songs reflect their deep connection with rivers through different seasons. Based on ancient cultural evidence, it can be speculated that women were likely the first to transmit oral traditions and serve as narrators of folklore in Harappan society.

7. Harappan Seals and Artifacts: Tales of Their Era

Harappan art, seals, and pottery portrayed the motifs such as water animals, fish, and boats, emphasizing the significance of rivers in their daily life.

12. Ibid.

13. Wantzen, K.M. ed; "River Culture: Life As a Dance of Rhythm of the Waters" (Paris: UNESCO Publishers, 2023), 34..

14. For instance, the prayers for the goddess Ganga known as Ganagatakam praises Ganga as the life giver and a staircase to heaven. In some traditions, the Narmada River is considered even more sacred than the Ganges. Legend holds that while bathing in the Ganges requires visiting her, merely seeing the Narmada is enough to cleanse one's sins. The Yamuna River is connected with the god Krishna, and symbolizes a life-giving energy. The Kaveri is personified as a goddess, regarded as another figure who brings sustenance and fertility to the land.

The Mohenjo Daro seal depiction of a Harappan boat, most likely a reed boat but possibly a planked boat. Source: https://maritimehistorypodcast.com/ep-011-harappa-erythraean-sea/ (Accessed on 30th September 2024)

The well-depicted boat from the terra cotta amulet found at Mohenjo Daro https://maritimehistorypodcast.com/ep-011-harappa-erythraean-sea/(Accessed on 30th September 2024)

The representations of boats on a seal and amulet emphasize the significance of rivers in Harappan culture. Both artifacts depict similarly shaped boats, featuring a cabin between them. These art pieces indicate that the Harappans effectively utilized river and marine resources to connect with other civilizations. In the second example, the researcher notes the presence of birds, suggesting that the amulet may depict a narrative involving birds and boats, possibly related to a folk story of that time. In ancient cultures, birds held a considerable mythological power, serving as messengers between the gods and symbolizing freedom and the soul.

Harappan script was invented around 2600 BC and reflected the social, political and ritual formation of this civilization. The importance of aquatic and riverine resources can be observed. For example, fish motifs were first painted on pottery and marine shells. The fish was a prominent motif in early Harappan painted pottery and the ancient text on

seals, may be symbolizing the god of Waters. Its dominance in Harappan iconography highlights the significant role of this deity. The researcher connects the fish symbol with Dashavataras[15] which refers to Vishnu[16] the god of existence . This is as popular Narayana which means, "who live in the river". In Vedic history, Vishnu's life started from water as a fish and continues as a tortoise, boar and lion to a perfect human being.

Matsya[17] folklore is associated with the unusual anthropomorphic role of fish. In this story Vishnu predicted and protected creatures of the world at the time of a great deluge. The continuation of Harappan rituals into the Vedic period may be attributed to the similar geographical and climatic conditions of the region. Numerous references to folklore in ancient texts highlight the significance of fish and their influence on culture. However, due to the inability to decipher Harappan texts, researchers cannot make definitive claims; all theories remain speculative.

"Fish" Motif on Harrapan Pottery. Source:https://www.harappa.com/ script/parpola8.html (Accessed on 30th September 2024)

15. Dashavataras described the ten incarnations of Vishnu. Each of these incarnations has a particular mythology and is the object of devotion (bhakti).

16. Vishnu, the preserver among Hinduism's three main deities, descends to protect the good, destroy evil, and restore balance.

17. In this story, Vishnu appears as a fish to Manu, seeking protection. As Manu cares for the fish, it grows larger until he places it in the ocean, realizing it is Vishnu. Vishnu warns Manu of an impending flood that will destroy the world, instructing him to gather sages and creatures on a boat. When the deluge begins, Vishnu returns as a horned fish, using the serpent king Vasuki to tether himself to the boat, protecting them during the flood.

A seal has been discovered which is supposed to be the depiction of "Proto-Siva," named "Pashupati", having three faces, seated on a throne. The figure appears in a yoga posture, bordered by a fish, an alligator, and a snake. The figure is supposed to be a god, wearing bangles on both hands and many necklaces. Maybe wearing bangles on both arms projected the spiritual significance of a female to prevent evils. The deity has a water buffalo horn on her head which depicts the water buffalo was considered to have spiritual powers. The god was surrounded by two stick figures along with a Harappan text which means the main focus is a god. "Pashupati" is a Sanskrit word meaning lord of living creatures".

Definitely the seal demonstrates an important event, the myth of a story of that era. These seals may symbolize the importance of the god as the protector of all creatures. It indicates that the Harappan Civilization included worship of a mother goddess, and of a lord of Yogis and animals, like Shiva, a great god of today[18].

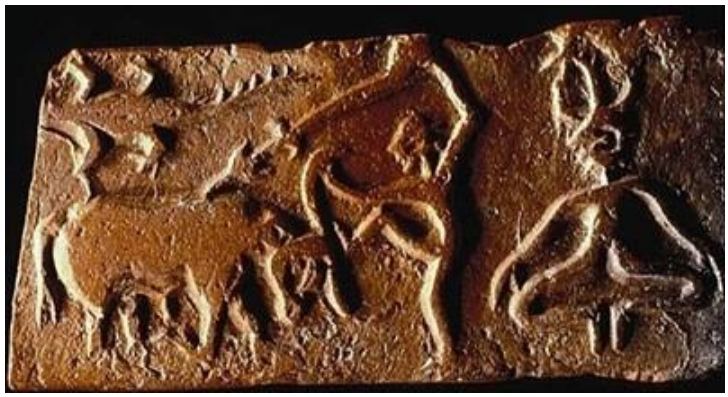
Mohenjo-Daro Seal, popularly known as the Pashupati seal.
Source: https://www.bibhudevmisra.com/2016/01/shiva-as-bada-dev-gond-symbolisms-on_23.html (Accessed on 30th September, 2024)

In the seal the female figure appears to push the two tigers forcefully with her hands. Researchers speculate that this carved seal story is close to Mesopotamia's Gilgamesh epic. The Mesopotamian subject shows lions being repressed by a hero, whereas the Harappan narratives renders tigers being strangled by a figure, sometimes clearly male, sometimes ambiguous or possibly female. This motif of a hero or heroine tackling two tigers could have been shaped independently for similar events that may have occurred in Mesopotamia as well as in the Harappan Civilization[19].

18. NA. "Regional Survey of the World: The Far East and Australasia 2003". 34th Edition (London: Europa Publication, 2003), 38.
19. Jonathan Mark Kenoyer. "Ancient Cities of the Indus Valley Civilization" (New York: Oxford University Press, 1998), 114.

A female deity battling two tigers and standing above an elephant. Source: https://www.harappa.com/blog/story-tablet-harappa (Accessed on 30th September, 2024)

In another seal narrative, the story depicts a man striking a water buffalo. The man's hair is tied in a bun at the back of his head, and he holds a spiny spear. He is seen pressing the buffalo's head with his foot, attempting to kill the animal. The seal is divided into two sections: one shows the hunter's actions, while the other features a deity seated in a yogic posture, wearing bangles on both hands and displaying a meditative expression. This scene suggests a sacrificial ritual performed in the presence of a god. The ritual of sacrificing a water buffalo is linked to the goddess Durga in Hindu mythology, and it is possible that this practice originated in the Harappan civilization and was documented on this seal. Additionally, the research notes a gharial above the hunter's head, indicating that crocodiles were once common in the Ravi and Indus rivers.



Harappan Molded tablet H95-2486 depicting an individual spearing a buffalo. Source: https://www.harappa.com/blog/story-tablet-harappa (Accessed on 30th September, 2024)

The imagery on these seals demonstrates that mythological stories held a significant place in Harappan society, as art reflects the culture of its time. These myths, conveyed through folklore, were preserved on artifacts. The presence of elements like boats, fish, gharials, and water buffaloes highlights their importance in folklore and underscores the connection between rivers and these cultural stories.

8. Literature Review

This study started from collecting, verifying, discussing and examining the data and information for the research. The researcher employed a content analysis approach to analyze the data which included:

A review of existing literature as was available in books, research papers and journals. Through an examination of the archaeological evidence and a comparative analysis of folklore from other ancient cultures, the researcher proposed some theories suggesting that the earliest folklore of this region may have been linked to its ancient rivers. Previous literature has offered extensive information on Harappan art, culture, and infrastructure, but has not specifically addressed the relationship between folklore and the Harappan Rivers. This research paper aims to fill that gap, providing valuable insights for future researchers.

9. Discussion

The Harappan Civilization was raised around from 2600 to 1900 BCE, though the Rigveda is thought to have been collected from about 1500 BCE to 1200 BCE. This shows a major historical gap, during which the urban hubs of the Harappan civilization declined, leading to the rise of Vedic culture. Harappan Civilization may have declined due to climatic changes and resource depletion. The Vedic period marked a shift towards a more rural and agricultural society. The Rigveda reflects this transition, emphasizing the importance of cattle, agriculture, and the worship of various deities associated with natural elements.
The Rigveda is primarily associated with the region around the Saraswati River, which some scholars believe links to the Ghaggar-Hakra river system that was significant during the Harappan period. This connection highlights the continuity of settlement patterns and cultural practices in the region. The importance of the rivers and water[20] is highlighted throughout the epics of the Mahabharata and Ramayana. It is a common faith that bathing in the divine rivers and intake of some drops of water before the last breath can help to get rid of sins[21].

20. There are a lot of spiritual personalities in the epics who always lived in the rivers, as physical purity associated with mental purity was believed a must in realizing eternal truth.
21. K. Shadananan. "Role of Water in the Development of Civilization in India, a Review of Ancient Literature, Traditional Beliefs and Practices". The Basis of Civilization-water Science? (Wallingford:
IAHS,2004), 163

While no Harappan myths have survived, later South Asian traditions of divine beings causing natural disasters may have roots in Harappan beliefs. Fertility deities associated with rain and harvest in these traditions likely reflect Harappan concerns about water, possibly influencing Vedic or local myths.

10. Conclusion

Throughout human history rivers are deemed responsible for nurturing and causing death and devastation. The dual feature of the river as the demolisher and the protector is signified in the myths and religious practices of different cultures.

The development of the Harappan Civilization was deeply dependent on natural resources, water management, and trade networks, highlighting the crucial role of rivers. Rivers were not only essential to the society's survival but were also seen as symbols of fertility and associated with mother goddesses. The region's geography and climate further fostered the growth of civilizations over time.

Considering the significance of rivers in Harappan culture, it is likely that the earliest social and cultural activities occurred along the riverbanks. Since rivers were associated with goddesses and both symbolized fertility, it is possible that early folklore was narrated by women, who were the first storytellers.

The Rigveda, one of the most renowned ancient texts of South Asia, does not provide a direct account of the history or cultural traditions of the Harappan civilization. However, some scholars have identified indirect connections, suggesting links between the language of the Rigveda and the Harappan script found on seals, and pottery such as fish symbols. These seals also depict figures like a goddess, Shiva, and a yogic posture—symbols that later became significant beliefs in the Vedic period and are now central to Hinduism. Despite these theories, the deciphering of the Harappan script remains a topic of ongoing debate and research.

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ECHOES OF THE PAST: THE LEGACY OF THE HARAPPAN CIVILIZATION IN CONTEMPORARY PUNJABI FOLK SONGS

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1. Introduction

The Harappan civilization, an epitome of South Asian history, thrived between 2600 and 1900 BCE (or even earlier) in the Indus Valley. As one of the world's earliest urban centres, its impact on the region's social and cultural skeleton was both prominent and long-lasting. Today, the remains and remnants of this ancient civilization continue to influence various areas of South Asian life, which include art, architecture, oral traditions and so on. One area where this legacy is particularly profound is in Punjabi folk songs (Tappe, Giddhe, Mahiye etc) (Figure 01), which serve as a stock of historical memories and cultural continuity. These songs believed to have been passed down through generations, give insight into elements and themes that can be traced back to Harappan cultural traditions. These songs offer a unique lens to explore the common points of ancient and contemporary cultural life.

Figure 1: Gidha Dance Performance representing Punjabi Culture. (Encyclopedia n.d.)

This paper aims to explore how elements of Harappan civilization have persisted in Punjabi folk songs. Through an interdisciplinary approach, this research combines archaeological evidence, historical records, and ethnomusicological analysis to examine the cultural continuities embedded in these oral traditions. The study pinpoints specific cultural elements such as agricultural practices, river reverence, and social structures, which appear to have been preserved over time. In doing so, the research contributes to an understanding of how oral traditions/ folk songs maintain historical memory and how folklore serves as a diverse medium for cultural projection.

2. Harappan Civilization: A Brief Overview

The Harappan civilization, also known as the Indus Valley Civilization, was a sophisticated urban culture that spanned present-day Pakistan and northwest India. Characterized by advanced city planning, agriculture and trade, the Harappans made significant contributions to the social and cultural development of South Asia. Their cities, such as Harappa and Mohenjo-Daro, were organized with an emphasis on cleanliness, infrastructure and water management. Agriculture, particularly the cultivation of wheat and barley, was central to their economy,while trade networks extended as far as Mesopotamia (Wheeler 1968).

Despite the collapse of the Harappan civilization around 1900 BCE, its cultural legacy has survived through the ages. Archaeological findings suggest that many of the Harappan practices, particularly those related to agriculture, craft production, and social organization, influenced subsequent cultures in the region. The persistence of these practices is evident in South Asian art, architecture and folklore, particularly in the agrarian traditions of the Punjab region (Figure 02).

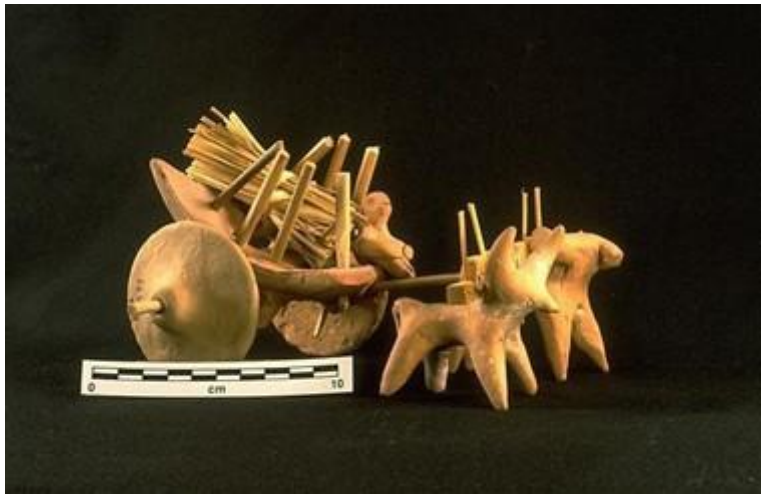

Figure 2: Toys from Harappan Civilization which show the Agricultural background of the era (Harappa.com n.d.)

3. Punjabi Folk Songs

Folk songs in the Punjab region are a powerful vehicle for cultural transmission, serving as both entertainment and a medium for preserving the values, beliefs, and traditions of rural communities. These songs are often performed during significant life events—such as weddings, harvest festivals and religious celebrations—and cover a wide range of themes, including love, loss, work, and spirituality. The oral tradition of folk songs ensures that cultural knowledge is passed down from generation to generation, often retaining motifs and narratives that have ancient origins. (Kent 2018).

Folk songs in the Punjab also offer insight into the region's historical continuity, including elements that can be traced back to the Harappan civilization. This continuity is particularly evident in the recurring themes of agriculture, river worship and social hierarchy—key aspects of Harappan life. By analyzing these elements in folk songs, we can uncover how deeply Harappan cultural practices have influenced contemporary Punjabi society.

4. Agricultural Practices in Punjabi Folk Songs

Agriculture was a cornerstone of Harappan society, and its significance is still reflected in the rural traditions of the Punjab (University n.d.). Harappan cities were surrounded by fertile plains where wheat, barley, and other crops were grown, practices that continue in the Punjab today. These agricultural activities are a common theme in Punjabi folk songs, which often celebrate the rhythms of rural life, the joy of harvest and the cycles of nature.

For example, folk songs sung during the harvest festival of Baisakhi often glorify the land, the crops and the labor of the farmers—much like the agricultural motifs found in Harappan-era artifacts. The connection between the earth and sustenance is a recurring theme, suggesting a deep-rooted cultural memory that reveres agriculture as a fundamental aspect of life. The continuity of these agricultural motifs highlights the persistence of Harappan practices in the cultural psyche of the region.

Figure 3: Toy Cart from Harappan Civilization times.

5. River Reverence and the Indus in Punjabi Folk Tradition

Rivers, especially the Indus, played a crucial role in Harappan society, both economically and spiritually. The Indus River provided the water necessary for agriculture and trade, but it also held a place of reverence in Harappan cosmology. Archaeological evidence suggests that the river was worshipped, and it may have been considered a life-giving force, integral to the well-being of the civilization.

This reverence for rivers has also persisted in Punjabi folk songs, where the waters are often depicted as sacred and life-sustaining. The river is frequently invoked in songs related to marriage, fertility and spiritual purity, echoing the Harappan worldview that placed rivers at the center of life. The deep spiritual connection to the land and its rivers, embedded in folk songs, is a testament to the long-standing cultural reverence for these natural elements, passed down from the Harappan era.

6. Social Structures and Gender Roles in Folk Songs

Another significant aspect of Harappan society that has been preserved in Punjabi folk songs is the social structure. The Harappan civilization is believed to have had a highly organized social system, though the specifics remain elusive. Some scholars suggest that the society may have been relatively egalitarian, while others point to evidence of hierarchy and stratification. Regardless, the division of labor, particularly along gender lines, appears to have been a defining feature of Harappan life.

This division of labor is mirrored in Punjabi folk songs, which often portray distinct roles for men and women. Men are typically depicted as the primary breadwinners, working in the fields or engaging in trade, while women are shown managing the household and nurturing the family. These songs also reflect the cultural expectations and constraints placed on women, as well as their resilience and agency within the social order. The portrayal of gender roles in these songs suggests a continuity of social structures from the Harappan period, though adapted to the evolving context of Punjabi society.

7. Oral Traditions and the Preservation of Cultural Heritage

One of the central arguments of this research is the role of oral traditions in preserving cultural heritage. Folk songs are not merely entertainment; they are a living archive of historical memory. In the case of Punjabi folk songs, they provide a direct link to the past, offering a window into the lives, beliefs, and practices of ancient civilizations like the Harappans. These songs allow us to trace the transformation of cultural elements over millennia, demonstrating how traditions are adapted, reinterpreted, and maintained.

The persistence of Harappan themes in Punjabi folk songs underscores the importance of oral traditions in maintaining historical continuity. Despite the lack of written records from the Harappan civilization, these songs offer valuable insights into the cultural and social values that have been transmitted orally across generations. This highlights the dynamic interplay between history and folklore, where the past is not only remembered but actively shaped by the present.

8. References to Punjabi Folk Songs

1. "Mitti Da Bawa" (The Doll of Clay)

This traditional folk song reflects the deep connection between the land and the people; it is a motif that can be traced back to the agricultural foundations of the Harappan civilization. The song describes a doll made of clay, symbolizing both the earth and human fragility. The agricultural significance embedded in the song resonates with Harappan reverence for the land as the source of sustenance. The lyrics emphasize the nurturing qualities of the soil, echoing the ancient civilization's dependence on fertile lands for crop cultivation. Sample Lyrics (Translated):

"The doll is made of clay, oh mother, it crumbles back into the soil.
In its arms, we shall return, the soil that feeds us all"

Figure 4: Clay Toys (Example of Mitti da Bawa) (Khan n.d.)

2. "Ik Meri Akh Kashni"

This folk song is a quintessential example of Punjabi women's songs, often sung during weddings. It features a longing for the river waters, symbolic of fertility and purity. The theme of water as life-giving and sacred directly parallels the reverence for the Indus River in Harappan society, where rivers were central to both agriculture and spiritual life. This connection underscores the enduring cultural memory of river worship, a motif that has been passed down from the Harappan era to contemporary

Punjabi society.
Sample Lyrics (Translated):

"One glance of mine can draw water, The river flows to my call.
The life it brings is eternal; in its depths, I see the past".

3. "Jugni"

"Jugni" is one of the most iconic folk songs in the Punjab, with various versions existing across different regions. This song often touches upon themes of journey, life cycles, and the natural world—key aspects of Harappan culture, where movement and trade were central to economic life. One version of "Jugni" refers to the sacred rivers and fields, drawing a parallel to the Harappan reliance on rivers like the Indus for agricultural and spiritual sustenance. In addition, "Jugni" often reflects on social roles, particularly the lives of women, which connects to the division of labor and social structures present in Harappan society.
Sample Lyrics (Translated):

"Jugni crossed the river, she saw the fields so green.
In the land, her spirit is serene, in the river's flow, she found herself".

4. "Tappe" (Couplet Songs)

"Tappe" are a form of Punjabi folk song sung in couplets, often at social gatherings like weddings or harvest festivals. Many "Tappe" feature agricultural themes, highlighting the cycles of planting, harvest, and community life, echoes of the agrarian economy that defined Harappan society. One common "Tappa" sung during the harvest season praises the richness of the wheat fields and celebrates the abundance of food. The celebration of agricultural success is a reflection of the importance of crop cultivation, which was central to Harappan economic and social life.
Sample Lyrics (Translated):

"Our fields are ripe with golden grain, The harvest brings us joy again.
The earth blesses us in its embrace, we sow the seeds with hands of grace".

9. Integration of Folk Songs into the Analysis

The incorporation of specific Punjabi folk songs into this research provides a tangible connection to Harappan cultural practices. Songs like "Mitti Da Bawa," which emphasize the land and its life-giving properties, highlight how agricultural reverence has persisted in Punjabi culture since the Harappan era. The recurrent motif of the river in songs like "Ik Meri Akh Kashni", underscores the spiritual and economic importance of water—a theme that was central to Harappan civilization.

Furthermore, “Jugni” reflects social structures and gender roles, touching upon themes of movement and trade that were also integral to Harappan society. Lastly, the celebration of agricultural abundance in “Tappe” reveals how seasonal festivals and community activities, rooted in agricultural success, have remained vital aspects of rural life since ancient times.

These folk songs serve as cultural repositories, preserving motifs from the Harappan era and illustrating how ancient practices have been woven into the fabric of Punjabi folk traditions. The continued relevance of these themes in contemporary songs is a testament to the deep cultural memory embedded within oral traditions, linking present-day Punjab with its ancient past.

10. Conclusion

The legacy of the Harappan civilization endures in the cultural practices and oral traditions of contemporary Punjab. Through an interdisciplinary analysis of Punjabi folk songs, this paper has identified key cultural elements—such as agricultural practices, river reverence, and social structures—that can be traced back to Harappan society. These findings illuminate the enduring influence of the Harappans on South Asian culture, as well as the role of oral traditions in preserving historical memory. This exploration contributes to the fields of cultural anthropology and ethnomusicology by highlighting the importance of folklore as a medium for understanding ancient civilizations. By examining the continuity and transformation of cultural motifs, we gain a deeper appreciation of the dynamic relationship between history and tradition in shaping regional identities. Ultimately, the echoes of the Harappan civilization in Punjabi folk songs remind us of the profound and lasting impact of ancient cultures on contemporary life.

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TRANSCENDING BOUNDARIES OF THE HARRAPAN RIVERS THROUGH THE TREFOIL MOTIF

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1. The Trefoil Motif

The word "trefoil" comes from a Latin word trifolium meaning a three leaved plant. The graphical form of the trefoil is composed of three overlapping rings, used in various architectural forms, pagan and Christian symbolism and textiles. The existence of this motif has been prevalent in the Indus Valley civilization as well as in other ancient civilizations. Its most well-known portrayal is its depiction on the shawl worn by the famous priest king statute found at Mohenjo-Daro. In the region of the Indus Valley, on other than materials, it has been found in enhancing things. For example, Tipu Sultan's attar (scent) coffin where the highest point of the lip frames a scalloped trefoil plan. "In the Indus Valley human advancement, the trefoil theme is unmistakably highlighted on the robe of one of the most known sculptures, where it is accepted to represent solidarity and interconnectedness". (Kenoyer,1998).

"The figure is draped in an elaborate shawl with corded or rolled-over edge, worn over the left shoulder and under the right arm. This shawl is decorated all over with a design of trefoils in relief, interspersed occasionally with small circles, the interiors of which are filled in with a red pigment…there is a shallow pitting in the middle of each foil suggesting the point of a drill…"(Mackay, 1931, I, pp. 356-357). The motif's reiteration in this setting recommends a more profound social and philosophical worth put on equilibrium and concordance, ideas basic to the cultural designs of old Indus individuals. There are also beads and other jewellery items with the trefoil pattern found in various Indus sites. (Figure 1) (Figure 2)

Figure 1: Terracotta bangle fragments decorated with red trefoils outlined in white on a green ground from late Period 3C deposits in Trench 43. This image shows both sides of the two fragments.

Figure 2: Inlaid bead. No. 53 (L445). Steatite. An exceptionally fine bead. The interiors of the trefoils were probably filled in with either paste or color. The former is the more probable, for in the base of each foil there is a small pitting that may have been used for keying a colored paste. The depth of the cutting is 0.05 inch. Level, 3 feet below surface. (John Marshall, opcit., p.517

1.1 The Trefoil in Mesopotamia

Likewise, in Mesopotamian culture, especially during the Neo-Sumerian time frame, the trefoil theme has been tracked down on different ornaments, including a steatite bowl from Ur. This repetitive image was frequently connected with strict and stately articles, where it might have addressed the heavenly trinity or the pattern of life, demise, and resurrection (Frankfort, 1954). Not just in the Indus Valley, Mesopotamian, and Egyptian settings, the trefoil motifs show up conspicuously in Celtic culture, where it can be seen in ornamental craftsmanship, including gems, compositions and design. The Celtic trefoil is related to the idea of the trinity, addressing life, death, and resurrection, or land, ocean, and sky, mirroring the Celt's profound association with nature and its components (Laing and Laing, 1995). In ancient Greece, the trefoil motif can be found in earthenware and building subtleties. It was utilized as an enriching component, frequently representing perfection and equilibrium. The Greeks, as other old societies, were attracted to the numerical agreement inferred by the trefoil shape, which they connected with the goals of excellence (Mill operator, 2010).

1.2 Trefoil Motif in Asia

Further east, the theme is likewise present in Chinese craftsmanship, where it shows up in embellishing designs on stoneware and materials. In the Chinese setting, the trefoil image has been connected to the Daoist equilibrium and the interconnectedness of everything in the universe (Thorp and Vinograd, 2001). These models from various areas feature the trefoil theme's capacity to rise above geological and social limits, mirroring a common

human comprehension of equilibrium, harmony, and infinity. Its emblematic importance appears to act as a visual portrayal of widespread subjects that resound across ancient cultures.

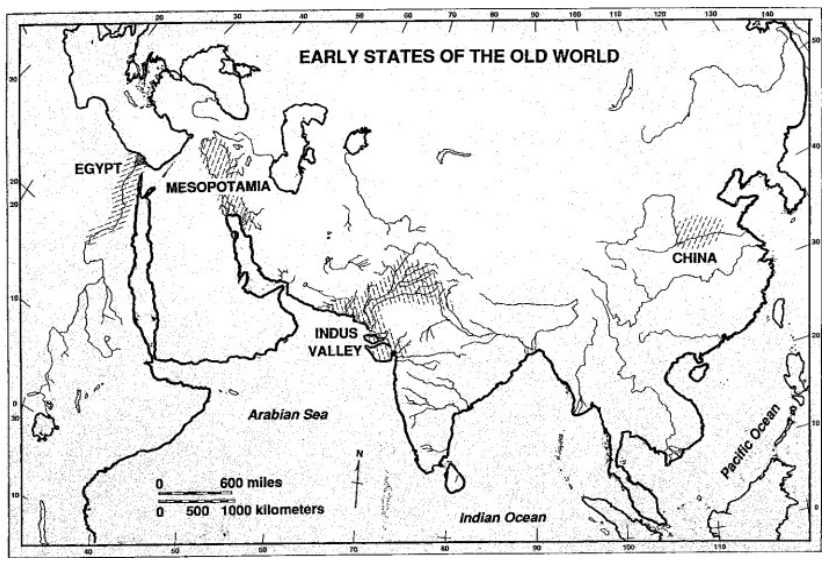

Figure 3 Map of the Early States of the Ancient World by Mark Kenoyer,

1.3 Cultural Exchange in Eurasia

This research is based on whether the extensive utilization of the trefoil motif reflects autonomous social turns of events or recommends diverse trades along ancient trade routes like the Silk Route. The trefoil theme's presence across these different societies proposes that it was a strong visual language addressing shared ideologies. Whether representing the heavenly, nature, or philosophical solidarity, the trefoil theme resounded with major civilizations across the Ancient World. The system for investigating the trefoil theme across Ancient Settlements includes a few key stages. Initially, a thorough index of relics highlighting the motif will be made, coordinating them by area and time period. Key curios from various societies, like the Indus Valley, Mesopotamia, and Egypt, will be chosen for contextual investigations to break down their social and emblematic importance.

1.4 Interpretation of the Trefoil in Various Cultures

Across many cultures, the trefoil motif a recurrent sign in ancient art reflects common notions of divinity, cosmology, and connectivity. The Priest-King statue from Mohenjodaro, which is a notable example of the Indus Valley Civilization, has a trefoil design that modern Ajrak artists describe as kakar, which represents cloud forms and harmony with nature (Bilgrami, 1998). This has further been debated at various points among scholars as it goes against the popular opinion of the trefoil motif representing the cotton plant in the Indus Valley Civilization.

The motif's Mesopotamian interpretations further connect it with cosmic oneness by depicting it as three fused sun disks that stand for the interdependent energies of earth, water, and sun that are essential to life (Bilgrami,1998). The trefoil is connected to the trio of Ra, Isis, and Osiris in Ancient Egyptian settings. These three deities are vital to divine order, rebirth, and celestial direction. Funerary books that describe the Pharaoh's ascension to the sky, such as The Book of the Divine Cow, are especially full of this symbolism (Mark, 2009). Despite geographical differences, the trefoil pattern is a potent visual language used throughout various civilizations to convey unity, divinity, and the cyclical aspect of life.

2. Literature Review

The trefoil's geometric composition, consisting of three interlocking circular forms, conveys symmetry, harmony, and balance (Clark, 2012). This tri-partite design has been connected to balance and wholeness which can be traced among ancient civilizations. Geometrically, the three-fold symmetrical trefoil knot symbolizes order on three planes and in turn, ideas of sathya and ananta, eternity and incompleteness, that are found in so many ancient cosmos models. (Jones and White, 2010). The motif's aesthetic appeal and structural properties made it a recurring design element in artifacts and architecture across different cultures.

The Priest-King's statue from the Indus Valley Civilization prominently displays the trefoil motif, which stands for harmony and connectedness (Kenoyer, 1998). The motif's frequent appearance on this artifact might be a reflection of its significance in religious and social contexts, perhaps signifying a connection to divine structures or community cohesion (Wright, 2010). According to scholars, the motif's recurrence in different artifacts indicates its function in communicating spiritual beliefs and collective identity (Possehl, 2002).

The trefoil motif, which represents cosmic cycles and divine forces, is frequently connected to religious and ceremonial contexts in Mesopotamia. The belief in the harmony of opposing forces, including life, death, and rebirth, is a reflection of Mesopotamian culture (Winter, 2000). Deities from Mesopotamia, associated with the sky, earth, and water, were frequently represented in triadic forms, with the trefoil symbolizing the unity of these elements (Frankfort, 1951). The motif's prevalence underscores its role in conveying complex theological and cosmological concepts.

The trefoil motif appears in both sacred and funerary settings in ancient Egypt, including Tutankhamun's funerary couch. This motif, which represents eternal life and divine order, embodies the Egyptians 'cyclical understanding of life, death, and rebirth (Hornung, 1999). Its significance in Egyptian religious practices is highlighted by its inclusion in

funerary art, which emphasizes the culture's emphasis on cosmic cycles and the continuity of existence (Wilkinson, 2003).

Ancient Greek architecture, philosophy, and ceramics all frequently used the trefoil motif. The trefoil most likely symbolizes the cosmic order and balance that Greek philosophers like Pythagoras and Plato saw in geometric shapes (Cornford, 1937). Furthermore, the motif's triadic structure fits with mythological stories like the Fates the three women who controlled the thread of life reinforcing its symbolic association with balance and destiny (Burkert, 1985).

The trefoil motif's broad use in many civilizations begs the issue of where it came from. According to theories of cross-cultural dissemination, the motif proliferated via networks of creative commerce, facilitating the sharing of visual concepts (Renfrew, 1972). On the other hand, proponents of independent creation contend that the motif developed concurrently in several locations due to comparable experiences and symbolic interpretations (Trigger,2003). The trefoil's worldwide appeal and significance are highlighted by its persistent expression of unity, balance and infinity, regardless of its origins.

3.Methodology

An interdisciplinary methodology has been utilized, consolidating Art history, Archeology and Anthropology to investigate the existence of the motif in various ancient civilizations. Furthermore, case studies of archaeological finds from the three ancient civilizations, that is, The Indus Valley Civilization, Ancient Egyptian Civilization and The Ancient Mesopotamian have been conducted in order to understand and study how the motif has travelled across the ancient World. A comparative analysis of the interpretation of the motif has been drawn which concludes how shared aesthetic values have transcended geographical boundaries. Lastly, the discoveries will be introduced through subjective portrayals and quantitative information, for example, outlines and guides, offering bits of knowledge into the trefoil theme's spread and its effect on antiquated visual and social language. Then, further examination will investigate the symbolic significance's and elements of the theme at every stage, taking into account strict, philosophical, and creative settings. A similar report will then, at that point, feature both normal subjects and social varieties in the motif's utilization, uncovering its general allure and restricted transformations.

3.1 Case Studies: The Trefoil Motif across Ancient Civilizations

3.1.1 Analysis of the Priest King's Robe from The Indus Valley Civilization.

The figure is draped as an elaborate shawl with corded or rolled-over edge, worn over the left shoulder and under the right arm. This shawl is decorated all over with a design of

trefoils in relief interspersed occasionally with small circles, the interiors of which are filled in with a red pigment. There is a shallow pitting in the middle of each foil and roundel suggesting the point of a drill and also the existence of any gems. (Mackay, 1931, I, pp. 356-357). There are also beads with the trefoil pattern.

Figure 4 Statue of the Priest King from Mohenjo-Daro,

The trefoil motif, with its mathematical and emblematic profundity, fills in as a captivating contextual analysis when analyzed across different ancient civilizations. Its portrayal in the Indus Valley, Mesopotamia, Ancient Egypt, and different areas offers important experiences into the common creative and emblematic language of ancient Civilizations. To investigate its social and cultural importance, examining certain artifacts that include this motif across these various societies is fundamental.

In the Indus Valley, the trefoil theme is perhaps most outstandingly addressed on the robe of the Minister Ruler sculpture from Mohenjo-Daro. The unpredictably designed robe, improved with the trefoil, proposes that the theme was of high symbolic significance. Researchers like Kenoyer (1998) contend that the theme probably represented solidarity and concordance, the guiding principle of the Harappan culture. Given the absence of understandable content, quite a bit of what is perceived about the Indus Valley's way of life comes from its artistic representation, and the trefoil's repetitive presence in strict settings focuses on its more profound emblematic implications. The Cleric Ruler's sculpture is a pivotal relic for this contextual analysis, as it reveals insight into the social jobs the trefoil played in Harappan culture. A picture of this sculpture is incorporated here to represent the theme's position and importance.

3.2 Mesopotamia
3.2.1 Neo-Sumerian Steatite Bowl from Ur

In Mesopotamia, the Statuettes from the late third millennium BC in Ancient Mesopotamia depict a bearded creature with a divine horned headdress, often lying down with its head turned. C.J. Gadd suggested that these bulls with trefoils might represent the Bull of Heaven. Also, a small Statuette of a calf made in marble, measuring around 5.3 cm has also been unearthed at Uruk. The Statuette is covered with inlaid trefoil motifs in blue stone, presumably lapis lazuli.

Frankfort (1954) takes note that in Mesopotamian cosmology, the trefoil might represent the heavenly set of three, addressing the interconnectedness of normal components like earth, water, and sky. This translation aligns with the more extensive Mesopotamian belief of equilibrium among contradicting powers, reflected in their strict and imaginative articulations. The bowl, as a custom item, gives an illustration of how the trefoil theme was incorporated into everyday objects, supporting the possibility of infinite solidarity. A picture of the bowl, exhibiting the trefoil configuration, would give important visual setting to its emblematic and creative use in Mesopotamian culture.

Figure 5 Sumerian marble calf with inlaid trefoils of blue stone. From the late Uruk era, (Jemdet Nasr period) 5.3 cm. long

Figure 6 Statuettes from the late third millennium BC in Ancient Mesopotamia depict a bearded creature with a divine horned headdress, often lying down with its head turned. C.J. Gadd suggested that these bulls with trefoils might represent the Bull of Heaven,

3.3 Ancient Egypt
3.3.1 The Funeral Couch of Tutankhamen

The trefoil motif is extensively displayed on one of the most important artifacts of ancient Egypt, Tutankhamun's funeral couch, highlighting the motif's profound metaphorical depth in Egyptian funerary rites.

Within the opulent burial items in the young pharaoh's tomb, the funeral couch was adorned with complex trefoil patterns that held religious and symbolic significance. The trefoil pattern was an essential component of the elaborate burial preparations for Egyptian rulers, serving as a means of communicating beliefs regarding the afterlife. Edwards (1976) asserts that the trefoil patterns represented the Egyptians' understanding

of life, death, and resurrection and were more than just ornamental designs. Instead, they were symbolic of deeper cosmological ideas. The reason the trefoil motif occurs on Tutankhamun's funeral couch is mostly due to its relationship with the cycle of life, death, and rebirth. According to Aldred (1978), the three-part pattern most likely represented the triadic forces of nature, which are birth, death, and the afterlife. These forces were important to the Egyptian conception of eternity. Egyptian religious concept was based on the fundamental idea of an eternal afterlife where the soul may be raised from the dead and carry on with its journey. As a result, the trefoil motif developed to embody these concepts visually, signifying the continuity that endures after death and the interdependence of life's phases. The pharaoh's tomb itself, which was stocked with items to help in the afterlife, revealed a society that was very concerned with making sure that death gave way to eternity.

In the larger context of Egyptian funerary art, where symbolic patterns were used to safeguard the departed and guarantee their safe passage to the afterlife, the function of the trefoil on the burial couch is equally significant. The sofa was decorated with images meant to evoke heavenly protection and ensure resurrection. It was used in funeral ceremonies and put within the tomb. When placed with other symbols, the trefoil would have been crucial in preserving the pharaoh's soul and facilitating his successful transition into the afterlife. The trefoil motif on Tutankhamun's funeral couch (Figure 5) is a key visual that helps explain how this ancient culture expressed its deep spiritual and cosmic ideas through mathematics and pattern.

Figure 7,8 Tutankhamen's funeral couch

By putting the trefoil's purpose in the context of the tomb's overall design, these graphic depictions demonstrate how important the motif was to the spiritual story that Tutankhamun's burial complex contained. The trefoil's significance as a decorative feature and a vital symbol within the ancient Egyptian belief system that upheld concepts of rebirth and the eternal nature of the soul is further reinforced by its presence on objects as sacred as the funeral couch.

4. Comparative Analysis

A comparative analysis of the trefoil across these three civilizations reveals shared themes of unity, harmony, and balance, as well as distinct cultural, religious, and societal contexts that shaped its use. This analysis will explore the potential for cultural exchange and independent evolution, drawing on philosophical and religious underpinnings that might explain the motif's prevalence.

4.1 Unity and Harmony through the Trefoil Motif

One of the most significant commonalities in the use of the trefoil motif across these ancient civilizations is its association with unity and harmony. In the Indus Valley, the trefoil motif on the Priest-King's robe suggests a connection to peaceful coexistence, as the motif was intricately incorporated into religious and societal symbols. Similarly, in Mesopotamia, the trefoil on the Neo-Sumerian steatite bowl appears in ritual contexts, symbolizing cosmic unity, particularly in relation to the divine triad of earth, sky, and water. In Ancient Egypt, the trefoil motif on Tutankhamun's funeral couch embodies the unity of life, death, and the afterlife, underscoring Egyptian beliefs in eternal life and the cyclical nature of existence. Across these cultures, the motif conveys a balance between opposing forces, whether natural, spiritual, or cosmological. The shared emphasis on harmony and interconnectedness suggests that the trefoil was a versatile and adaptable symbol, resonating with diverse cultures due to its universal aesthetic and philosophical appeal.

4.2 Development of the Trefoil Motif

A central question in this comparative examination is whether the trefoil pattern developed through parallel evolution or through cultural interchange. The trefoil motif may have spread over regions due to trade routes, migration, and political relations. For instance, the exchange of artistic motifs and symbols, such as the trefoil, may have been made possible by the existence of vast trade networks between the Indus Valley and Mesopotamia.

Comparably, the Egyptian impact that extended across the Mediterranean and into the Near East may indicate that the trefoil pattern has permeated several cultural contexts. The motif's varied applications and meanings in each culture, however, might also indicate separate development. Given the motif's straightforward geometric shape, it is conceivable that it developed naturally in various cultures as a response to shared aesthetic values. The reason for the trefoil being such a diverse motif is its adaptability in various religious frameworks. Taking into account the more extensive philosophical and strict implications of the trefoil theme, it becomes obvious that this motif echoed with cosmological thoughts across societies. The theme's recurrent use hints at its possible part in addressing the harmony between contradicting powers —life and death, earth and

sky, concurrence of society, nature and the heavenly, repeating more extensive Eastern ideas of solidarity and association.

Mesopotamian cosmology comparably emphasized balance, especially in how it might interpret the universe as administered by divine powers that expected submission. The trefoil's presence in Mesopotamian relics recommends that the theme was key to communicating this enormous equilibrium. In ancient Egypt, where the hereafter assumed an important place, the trefoil's relationship with restoration and timelessness highlights human progress and repetitive re-establishments. The theme's recurrent appearance in funerary craftsmanship proposes that Egyptians saw it for the purpose of guaranteeing the departed one's protected entry to the hereafter, where they would be joined with the heavenly powers of creation and recovery.

Thus, the trefoil motif serves as a fascinating lens to explore the cross-cultural symbolism of unity, harmony, and balance. Whether arising from direct cultural exchange or independent evolution, the trefoil reflects shared human concerns with order, the divine, and the cosmos. The motif's appearance in religious, funerary, and artistic contexts underscores its versatility and depth, making it a key symbol in the ancient world's visual and spiritual lexicon. This transfer of the motif thus, hints at not just the psychological exchange among the ancient societies but also proves the harmony of co-existence.

The table below summarizes the comparative analysis of the three ancient civilizations

Civilization	**Symbolic Interpretation**	**Functions/Uses**	**Visual Representation**
Indus Valley	Unity, harmony, connectivity (Kenoyer, 1998).	Found on the Priest-King statue, possibly denoting collective identity and divine connection (Wright, 2010).	Repeated motif on artifacts; symmetrical and geometric patterns.
Mesopotamia	Divine forces, cosmic cycles, harmony of opposites (Winter, 2000).	Used in religious and ceremonial contexts to symbolize life, death, and rebirth; unity of natural elements.	Triadic forms reflecting the ological and cosmological concepts.

Ancient Egypt	Eternal life, divine order, cosmic cycles (Hornung, 1999).	Found in funerary contexts, such as on Tutankhamun's couch; represents continuity of existence (Wilkinson, 2003).	Integrated into sacred art; associated with cyclical beliefs of life and death.

Table 1 Comparative analysis of the interpretation of The Trefoil Motif in the Ancient World.

5. Conclusion

Almost similar theories of cross-cultural diffusion postulate that the three-part trefoil design spread with other acculturation as legitimate artistic trade networks. Meanings associated with the trefoil design in distant regions like the Indus Valley, Mesopotamia, Egypt, and Greece, allude to the importance of the theory that there was a movement of visual ideas across cultures. Regardless of whether it represented complex cosmological beliefs, religious facets or aspects of social constructs, the trefoil was an appropriate and powerful symbol. Theories of cross-cultural symbolism and those of independent invention account for the spread of this practice around the world, and they also agree that the motif represents unity, balance and infinity. In geometric pattern and social settings, the trefoil design indicates evidence of cultural blending of societies and their perspectives of the world.

This research on the trefoil motif across ancient civilizations, specifically in the Indus Valley, Mesopotamia, and Ancient Egypt, reveals significant insights into its symbolic meaning and cross-cultural connections. The trefoil motif, characterized by its three interlocking lobes, consistently appears in various religious, funerary, and artistic contexts, symbolizing unity, harmony, and balance. While its precise meaning varies between cultures representing societal peace in the Indus Valley, cosmic forces in Mesopotamia, and eternal life in Ancient Egypt, its recurrence across these diverse regions suggests it held a universal appeal. This shared use of the motif highlights common human concerns with cosmology, life cycles and the divine, even in geographically distant societies.

Understanding the prevalence of the trefoil motif not only illuminates the artistic and religious practices of these civilizations but also offers important insights into their potential interconnectedness. The motif 's consistent presence raises the question of whether it spread through trade routes and cultural exchanges, or whether it arose independently due to similar aesthetic and symbolic needs. In either case, the trefoil motif servesas a key example of how visual symbols can transcend cultural boundaries, offering a windowinto the shared values and beliefs of ancient societies.

Future research could explore other shared motifs across additional civilizations, such as the Celts or Greeks, to further investigate the diffusion or parallel evolution of symbolic designs. Expanding the scope to include more artifacts or comparative studies of additional motifs would deepen our understanding of ancient cultural interactions. Additionally, further investigation into the philosophical and religious frameworks that gave rise to such symbols would enhance our comprehension of how ancient societies visually articulated their worldviews.

Ultimately, the study of shared motifs like the trefoil can offer profound insights into the interconnectedness and universal concerns of humanity throughout history. It could further investigate the transmission routes of the trefoil motif, exploring archaeological evidence of trade or contact between these civilizations and others, such as the Celts and Greeks, where similar motifs also appear. Additionally, delving deeper into the religious and cosmological frameworks of these cultures could provide further insight into why the trefoil became such a powerful symbol of unity and balance across civilizations.

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INDIGO AS A MILIEU OF HARMONY AND SUSTAINABILITY: ANCIENT PRACTICES AND MODERN TRENDS IN THE TEXTILE INDUSTRY

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1. Introduction

A natural dye with an eternal legacy, indigo stands right at that crossroads between harmony and sustainability. This study explores the little-known dimension of age-old practices of indigo plantation and usage, especially in the context of the Harappan civilization, to understand the attainable solutions for the environmental issues of the contemporary textile industry. Returning to ancient practices of indigo production will help traverse that thin line between the wisdom of yore and innovations of today.

The Harappan civilization, which dates back about 2500 BCE, utilized the resource of rivers to grow indigo in an environmentally friendly manner. Indigo manufacturing also engages in natural fermentation and oxidation, hence saving the environment with minimum waste. The advanced methods adopted by the Harappans in the process are authenticated with archaeological remnants such as pieces of terracotta carrying traces of dye (Bilgrami, 2000). Those approaches ensured minimal disruption of the environmental component, where human endeavors were wound in through a circular economy that integrated human activity with nature, a practice being increasingly emulated by modern industries (Prasad, 2018).

The current textile industry has shifted predominantly to synthetic dyes, which cause immense damage to the environment. These synthetic methods dirty up the rivers, waste tons of water, and release harmful chemicals into the ecosystems. Natural indigo affords a sustainable option to synthetic dyes wherein it is biodegradable and has fewer negative environmental effects (Kabish et al., 2023). Ancient techniques should be revived and then adapted to modern textile production so that participating industries are able to harmonize the relationship and reduce their carbon footprint.

1.1 Research Aims

- To examine the sustainability of indigo cultivation and dyeing during the time of the Harappan civilization and contrast it with synthetic dye products that are being used in present times in the textile industry.
- To propose how ancient indigo techniques can be revitalized and integrated into contemporary textile production to reduce the industry's ecological footprint and promote sustainable water resource management.
- The bridging of historical wisdom with modern innovation, providing sustainable solutions for the textile industry by reintroducing natural indigo as an eco-friendly alternative to synthetic dyes.

2. Methodology

The study employs the research instrument of comparison between ancient and modern indigo-making processes to show how both ancient traditional and modern contemporary use of indigo can be assessed and evaluated for environmental sustainability. Data were extracted from historical sources and modern scientific studies in understanding the numerous eco-friendly practices applied during ancient times for indigo cultivation, especially in the Harappan civilization, with the environmentally damaging effects of modern synthetic dye production. The present paper seeks to find these two systems and discover sustainable practices of old that can be revived again to change contemporary textile manufacturing and its evil ways. It involves certain steps which are as follows:

2.1 Historical Data Collection

The historical aspect of the research involves the study of archaeological finds and written records concerning the use of indigo within the Harappan civilization. To analyze it, primary artifacts, such as the shards from evidence of terracotta, show traces of indigo dye; an overview of documented historic texts, explaining ancient procedures involving indigo, will be researched. Thus, we see how Indigofera tinctoria was cultivated by the Harappans and subjected to natural fermentation and oxidation to produce bright blue dyes. This information helps establish the environment-friendly methods adopted by the Harappans, who made use of river-fed irrigation, natural mordants and minimal waste practices. Moreover, the research focus stays on how rivers support the indigo crop and their role in an ecological milieu.

2.2 Current Review

Simultaneously, the work establishes a profound literary review of modern scientific study to understand the environmental implications involved with synthetic indigo

production. Studies are reviewed on chemical additives that may be used in modern processes of dyeing, such as sodium hydrosulfite and caustic soda; these are used to make a synthetic indigo aqueous solution.

Focusing on water use, chemical pollution, and waste management problems of the modern textile industry, especially in the production of denim, the review underscores large-scale environmental damage brought about by toxic wastewater discharge from dyeing factories and its subsequent long-term impact on local ecosystems and communities. The following reviews, described in section 3, briefly describe the unsustainable modern synthetic dyeing process and the need for finding an environment-friendly alternative.

2.3 Analysis

One of the most important aspects of this approach is a comparative analysis between ancient and modern indigo production. The comparative analysis identifies the key differences between the sustainable approaches of ancient societies such as the Harappans and the unsustainable practices in the modern textile industry. This study compares the use of water and pollution effects along with the overall ecological impact of these two systems.

To explore this closed-loop nature of ancient practices wherein very little waste would be generated and resources reused compared to synthetic dyeing methods which require vast amounts of resources and create massive waste, this research evaluates these aspects to provide a comprehensive understanding of how historical practices can be valuable for the reduction of environmental harm caused by contemporary dyeing processes.

2.4 Sustainability Impact

The last step would be a feasibility study to ascertain the possibility of modern textile production introducing ancient times' cultivation of indigo to ensure more sustainable development. The feasibility study would be accompanied by case studies of companies that have been successful in taking natural indigo dyes into their chains of production. This paper looks into how the traditional methods of dyeing can be scaled up, if natural dyes are biodegradable, and their potential for minimizing water pollution along with chemical wastes in the production of textiles.

It is an attempt to study how modern technological advancement and innovation support the integration of natural, environmental-friendly dyes, such as indigo, into a large-scale production process, thus paving a sustainable future in the world of fashion and textiles.

3. Historical Significance of Indigo in Harappan Culture

3.1 Cultivation of Indigo in the Harappan Era

The Harappan civilization (circa 2500-1500 BCE), one of the world's earliest urban

cultures, is widely regarded as the first to use indigo for textile dyeing. Archaeologists findings in Mohenjo-Daro and Harappa, key cities of the Indus Valley Civilization, have uncovered terracotta fragments and dyeing platforms with traces of indigo dye. Such findings suggest that the Harappans had established subtle methods for extracting and using indigo, thereby being some of the earliest users of natural dyes in the world (Bilgrami, 2000). The setting of Harappa was also very conducive since it was adjacent to rivers, making it favorable for growing indigo plants and undertaking the dyeing process due to rich natural resources.

The rivers in the Indus Valley significantly supported indigo production because they provided the critical irrigation water required for the cultivation of the Indigofera tinctoria plants. Indigo consumes very large amounts of water in the production process both in the cultivation phase and in the dye extraction phase; thus, river systems constituted the most important role in sustaining the feasibility of the dyeing process in the Harappan period. The river-fed irrigation permitted a consistent and sustainable means of growing the indigo plant, thereby enabling the Harappans to produce this prized blue dye in large quantities for both local use and trade (Siva, 2007).

3.2 The Process of Indigo Cultivation and Dyeing

The culture of Indigofera tinctoria, the plant source of indigo dye, was much interwoven in the agriculture of the Harappans. The steps begin with cultivating the indigo crop around rivers, as depicted in Figure 3.1, for it was irrigated accordingly. The leaves of the indigo crop needed to be subjected to various natural fermentation and oxidation processes before attaining the blue color.

Figure 3.1. A representation of circular working platform area and workmen's quarters in the mid- ground, associated with processing something using water, possibly preparation of indigo dye or dyeing (Extracted from Harappa: The Ancient Indus Civilization, n.d.)

The indigo leaves had to be soaked in water for several days in this process. On those days, action of bacteria would break down plant material and release the indigo dye. The mixture was stirred for oxidation purposes to leave the solution with this distinguishable blue color. In this way, the dye could be applied to textiles using natural mordants, such as alum or iron, so color adhered to the fabric and stayed good (Prasad, 2018).

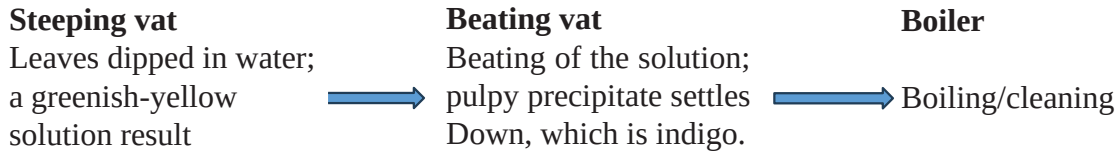

Figure 3.2. A representation of the indigo manufacturing cycle depicted

The process by which the Harappans indigo-dyed their clothes was also, therefore, effective and organic in that it came from only natural materials. Water to cultivate as well as dye came directly from the rivers. No synthetic chemicals involved in the manufacture of modern synthetic dyes accompanied the entire system; no toxic wastewater or environmental degradation ensued. This sustainable approach indicates that the Harappans had been fully responsive to nature and advanced in their knowledge of natural processes as Siva (2007) noted.

3.3 Cultural and Economic Significance of Indigo

Indigo occupied an important position not only in the economic life of the Harappan civilization but also in its everyday culture. Indigo was used not just for producing simple garments but also played a significant role in the production of ceremonial clothes and in rituals. In this sense, the symbolic meanings that follow the use of color in ancient civilizations, wherein blue is claimed to be a divine or after life impression, is highly reflected in the application of indigo-dyed textiles in Harappan burial practice. These have deep blues that would correspond to the indigo dye; in many ancient civilizations, these have been attributed to life after death or the divine world (Prasad, 2018). Needless to say, the economic value of indigo is immense. Being one of the most demanded products, indigo occupied a significant place in the trade routes connecting the Harappan civilization with other ancient civilizations. The export of textile products dyed in indigo to Mesopotamia and Egypt stands testimony to the influence exerted by the Harappan economy. Indigo, thus, was not just a cultural artifact but also an important feature of international trade in setting up the Harappan civilization as an economic power of olden days (Siva, 2007).

3.4 The Global History of Indigo

3.4.1 Indigo Across Cultures

The expeditions across the world from the Indus Valley soon spread to other parts of the world, making indigo highly prized by many ancient civilizations. The blue dye was held in high esteem in Egypt, where it was used for linens that adorned the robes of royalty and priests. In Mesopotamia, indigo was related to wealth and power, as well as a measure of social standing for usage in fabrics (Kumar, 2014). The Greeks and Romans especially favored indigo for its deep color value. Often used on the garments of the rich,this dye was thus highly valued over several centuries. “Indigo” is derived from the Greek word

"indikon", meaning "from India," because the plant originally hailed from the Indian subcontinent (Prasad, 2018).

Indigo became a significant product during the colonial period in Europe, where European powers were motivated to dominate its production and trade. Most important in the cultivation of indigo in Bengal during the 18th and 19th centuries is the British East India Company. Indigo plantations spread across India, and local farmers were often used by compulsion in trying to grow the crop in harsh conditions. This exploitation led to several revolts; the most notable one was the Indigo Rebellion of 1859, during which Indian farmers protested against oppressive practices by British planters (Prasad, 2018).

3.4.2 Colonial Indigo Plantations

Indigo plantations in colonial Bengal are a tremendous landmark moment in the global history of the dye, since under British rule the dye achieved prominence as an export item because it was shipped out to Europe's textile manufacturers. Yet the production of indigo under colonial rule in India was indelibly marked by exploitation and violence. Making Indian farmers grow indigo instead of food crops due to which they were kept in a state of poverty and debt, resulted in this large-scale resistance in the plantations (Kumar, 2014). The Indigo Rebellion of 1859, also known as the Nil Vidroha, was a significant event in the history of Indian resistance against British colonial rule. Farmers in Bengal refused to grow indigo, and the rebellion was marked by widespread protests and violence. This uprising ultimately led to the decline of indigo cultivation in India, as synthetic indigo began to replace the natural dye in European markets (Prasad, 2018). Exploitation of Indian farmers is also such a dark chapter in the history of indigo production, which sums up the complex relations between colonialism, agriculture, and global trade (Kumar, 2014).

3.4.3 The Decline of Natural Indigo

Synthetic indigo, produced at the end of the 19th century by Adolf von Baeyer, a German chemist, spelled the end for natural indigo production. Synthetic indigo was always constant in its result, and it was cheaper to produce than natural indigo. It thus proved favorable for textile manufacturers. By the early 20th century, synthetic indigo had largely replaced natural indigo (as represented in Figure 3.1, in global markets, leading to the decline of indigo plantations in India and other parts of the world (Siva, 2007).

Figure 3.2. The natural and synthetic indigo dyeing processes, showing the industrial chemical tanks used for synthetic dyes alongside traditional, eco-friendly indigo dyeing vats.

The modern indigo cultivation primarily revolves around the use of synthetic indigo, which is chemically produced rather than grown from indigo plants like Indigofera tinctoria. It starts with the synthesis of indigo dye, in labs, from chemical sources using aniline derivatives, made from petrochemical components. This is the reason synthetic indigo has been preferred for production over the traditional method: its very stability and scalability and subsequently its cost-effectiveness at that scale - particularly for denim industries. The synthesized indigo is then reduced to water-solubilize by sodium hydrosulfite, among other reductants, to then be absorbed by the fabrics in the industrial vats for coloring. This process also contributed to the environmental degradation associated with modern textile production, because many synthetic dyes contain toxic chemicals that can leach into waterways and harm ecosystems (Crewe, 2008). The example of denim jeans - a staple product that depends on synthetic indigo - shows a particularly compelling example: it has a large environmental impact because of its water usage, chemicals used, and waste production (see Figure 3.4).

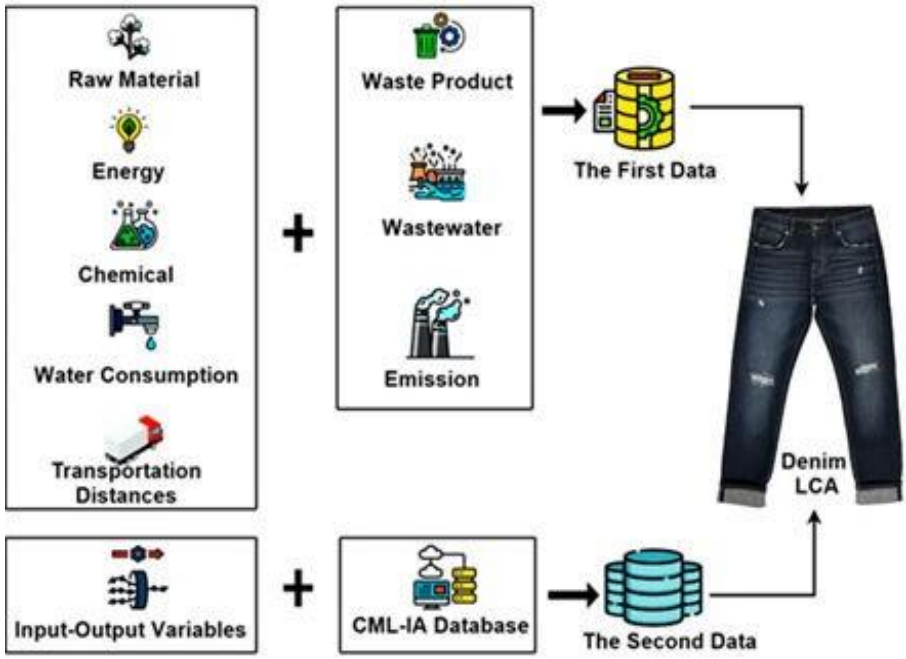

Figure 3.3. A representation of Jeans production (its whole process from raw material to main product)

It is known that the production of just one pair of jeans consumes about 2,000 gallons of water, in the dyeing process. The toxic chemical sodium hydrosulfite, among other things, is used to make synthetic indigo soluble in water, and untreated wastewater from dyeing processes causes severe water pollution mainly found at large-scale production sites in China and India (Prasad, 2018; Siva, 2007).

Even though natural indigo has declined, there is renewed interest in the dye today, owing to some of the negative aspects of artificial dyes. Natural indigo is seen as a more sustainable alternative, and efforts are being made to revive its cultivation in countries like India, Ethiopia, and Guatemala. This revival, however, is not only because of environmental concerns but also as a way to preserve the cultural heritage associated with indigo production (Kabish et al., 2023). For instance, the block-printing method may find its beginning from the Harappan civilization, with the discovery of terracotta stamps and seals that were possibly used to print designs on fabric; later manifested in Sindh Ajrak textiles (Figure 3.5). This has enabled the textile artisans the possibility of creating diversities in design through layers of dye (Bilgrami, 2000).

Figure 3.4. A representation of Ajrak block printing via natural dyes

3.5 Contemporary Relevance of Indigo

3.5.1 Environmental Impact of Synthetic Dyes

Environmental damage caused by synthetic dyes is one of the latest concerns of the world. In the textile industry, synthetic dyes are highly used, accounting for most water pollution in the industry. The chemicals used in synthetic dyes are usually toxic and non-biodegradable, hence causing long-term damage to the environment.

These dyes can contaminate waterways, harm aquatic life, and pose health risks to humans who come into contact with polluted water (Crewe, 2008). On the other hand, natural indigo is biodegradable and non-toxic, thus giving it a much higher environmental advantage over synthetic dyes. Textile production using this kind of dye can greatly reduce the industrial carbon footprint by minimizing water pollution and reducing the quantity of harmful chemicals used in producing fabrics.

Besides, indigo culture has positive environmental impacts since the plants improve soil quality and prevent erosion (Kabish et al., 2023). Since the textile industry is becoming challenging with the demand for making it more environment-friendly, natural indigo is becoming a hopeful remedy for many environmental challenges the industry faces (Cardon, 2010).

Table 3.1
Environmental Impact of Synthetic vs. Natural Indigo Production

Factor	Synthetic Indigo	Natural Indigo
Water Pollution	High, due to toxic effluents	Minimal, uses natural processes
Carbon Emissions	High, energy-intensive	Low, eco-friendly
Health Hazards	Carcinogenic chemicals involved	Non-toxic and biodegradable
Sustainability	Not sustainable	Renewable and eco-friendly

3.5.2 Revitalization of Natural Indigo

Revival of natural indigo production is triggered by ever-increasing demand for environment-friendly products and a long-term vision of lowering the environmental footprint of textile production. Indeed, in Ethiopia, the government is promoting indigo production as one of many means of positive resourceful agriculture and rural employment (Kabish et al., 2023). These initiatives may not only decrease the ecological impacts of the textile industry but also create economically viable means for communities whose economic livelihood is based on agricultural production.

Natural indigo is also gaining popularity in the fashion industry, where it is being used by designers who prioritize sustainability. The use of natural indigo in eco-friendly fashion is part of a broader trend towards sustainable materials and ethical production practices. By using natural dyes, fashion brands can appeal to environmentally conscious consumers while also reducing their reliance on harmful synthetic chemicals (Kabish et al., 2023).

In addition, natural indigo is gaining a new place in the functional properties of materials other than as textile dye. Research findings have shown that indigo has antimicrobial and

UV-protection features, therefore utilized as medical textiles and for outdoor garments and other specialized applications (Kabish et al., 2023).

These multiple beneficial applications increase the attractiveness of natural indigo as an all-polymer, environmentally friendly replacement for synthetic dyes. For further elaboration, table 3.2 is drawn to provide a comparison between indigo cultivation in ancient and modern times.

Table 3.2
Comparison of Ancient and Modern Indigo Cultivation Practices

Aspect	Harappan Era (2500 BCE)	Modern Cultivation (2023)
Water Sources	River-fed irrigation systems	Groundwater, canal irrigation, and rain-fed agriculture
Cultivation Techniques	Manual cultivation, hand-picking	Mechanized farming, selective breeding
Processing	Sun drying, natural fermentation	Chemical additives, accelerated fermentation techniques
Environmental Impact	Minimal waste, eco-friendly	Varies; often involves chemical pollution, especially in synthetic production

Note: The Harappan civilization's eco-friendly, resource-efficient methods sharply contrast with modern industrial methods, which rely heavily on synthetic chemicals and mechanization, resulting in greater environmental degradation (Siva, 2007).

4. Future Prospects for Sustainable Indigo Cultivation

4.1 Integrating Ancient Practices into Modern Textiles

The sustainable practices of ancient civilizations, such as the Harappans, offer valuable lessons for modern textile production. The Harappans' use of natural indigo in a closed-loop system, where resources were reused and waste was minimized, is particularly relevant in today's context of environmental degradation. By studying ancient dyeing techniques, modern industries can develop methods that minimize water usage, reduce chemical inputs, and promote the use of renewable resources (Kumar, 2014). An example where ancient practices can be applied to the modern production stage is the use of natural mordants.

The use of a mordant is that substance which combines with the dye to fix it on the fabric: in the old days, natural mordants such as alum and iron were used. These two are not only excellent mordants but also not harmful to the environment as synthetic mordants currently used. By reverting to natural mordants, the textile industry can reduce its reliance on synthetic chemicals and move towards more sustainable production methods (Cardon, 2010).

The ease with which the large-scale production of natural dyes can occur is further exacerbated by advances in technology. Innovations in dye extraction and processing are helping to increase the efficiency of natural dye production and are more viable for the large-scale use of the textile industry. Considering all the factors outlined above, it is logical to assume that natural indigo would be the first choice for the future of the textile industry (Kabish et al., 2023).

4.2 Technological Innovations in Natural Dyeing

Technological innovations are now being used to scale up the production of natural dyes, such as indigo. For instance, researchers have developed new methods for extracting indigo dyes from plants in a yield in a maximizing and environment-sensitive manner. These include methods that reduce the quantity of water and energy consumed in the extraction process and more efficient ways of applying the dye to textiles (Kabish et al., 2023).

At the same time, scientists are also researching ways to further improve the productivity of indigo farming using biotechnology. By genetically engineering plants to produce indigo pigment at a higher concentration, these could lead to lesser land and other inputs for indigo farming. Innovations like these could make natural indigo more viable in comparison to synthetic dyes as well, in terms of cost and environmental implications (Kabish et al., 2023).

Also, new technologies for the production of natural dyes can have wide implications in developing countries for rural communities. Such new technologies for increasing efficiency in scalable natural dye production can help open up new economic opportunities for farmers and artisans whose livelihoods depend on indigo cultures. In this regard, reviving natural indigo can not only add to environmental sustainability but also to social and economic development (Cardon, 2010).

Table
Technological Innovations in Natural Indigo Dyeing

Innovation	Description	Impact on Sustainability
Biotechnology in Indigo Plants	Genetic engineering to enhance pigment yield	Reduces land use, improves dye quality
Water-Efficient Dyeing Methods	New methods that minimize water consumption	Reduces water waste, minimizes pollution
Natural Mordants	Use of plant-based mordants instead of chemicals	Eco-friendly, non-toxic

5. Conclusion

This paper delves into the rich cultural heritage of indigo cultivation and dyeing practices, focusing primarily on the sustainable processes adopted by the Harappans. It becomes clear that an enormous environmental cost is paid for the switch to synthetic dyes, in comparison to the ancient practices of making dyes for textiles. Natural indigo contrasts sharply with modern synthetic dye production, one of the most resource-intensive and polluting of all textile industry processes.

The findings of this study highlight the potential benefits of reintroducing and revitalizing ancient indigo techniques. The sustainable practices of the Harappans, including natural fermentation, minimal waste generation, and river-fed irrigation, offer valuable insights for reducing the environmental footprint of contemporary textile production. By integrating these practices into modern manufacturing, the textile industry can reduce its reliance on harmful chemicals and promote more sustainable water resource management, thereby addressing one of the industry's most pressing environmental challenges.

Further, this study highlights the necessity of blending historical knowledge with innovative solutions. Utilizing the nature-friendly and non-toxic feature of natural indigo can provide the textile industry with an opportunity to offer eco-friendly alternatives to synthetic dyes, thus contributing to the future ahead. The reintroduction of natural indigo in mass production becomes a feasible solution while meeting sustainability objectives and preserving cultural heritage. Moreover, this revival of ancient indigo cultivation techniques would provide a good opportunity to lower the environmental footprint of the textile industry by integrating the past with a futuristic approach.

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GUARDIANS OF THE HARAPPAN RIVER SUTLEJ: ANCIENT FORTIFIED SITES IN BAHAWALPUR DIVISION

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1. Introduction

The Bahawalpur State was established in 1727. In 1947, it joined Pakistan and later merged into the One Unit plan in 1954. Today, the Bahawalpur Division of South Punjab encompasses the area of the former Bahawalpur State region. The forts and fortified structures of Bahawalpur can be generally categorized into three periods based on their construction time: Ancient Era, Medieval (500 to 1500 CE), and Early Modern Era (1485 to 1800 CE). Here focus is Ancient fortified structures and more specifically sites which established near the riverine area. Figure 1 helps visualize the courses of rivers of the Punjab from which Sutlej, Chenab and Indus bounded Bahawalpur Division.

In antiquity, the Sutlej flowed further east, joining the **Ghaggar-Hakra (Sarasvati) system**, which passed through Cholistan and into Sindh. This connection likely nourished many **Indus Valley Civilization** sites. Later, tectonic shifts and gradual desiccation caused the Sutlej to divert westward, abandoning the Hakra and merging with the **Beas** and **Indus systems**. Medieval records, including those of Al-Biruni (11th century), suggest the Sutlej was already a major western tributary of the Indus by then. In **1255**, the Sutlej diverted from the Hakra riverbed and shifted northward. During Mughal period ffrequent floods and erosion caused minor shifts in its bed, but the river largely remained aligned westward into the Chenab-Indus system. By **1593**, it abandoned the Hakra channel further and moved even more to the north, eventually merging with the Beas River. After undergoing several minor course adjustments, the Sutlej finally and permanently abandoned the Hakra river system in **1796**i since then, these rivers are flowing in their path given in B part of figure 1.

Figure 1: Change in the Courses of the Rivers of the Punjab

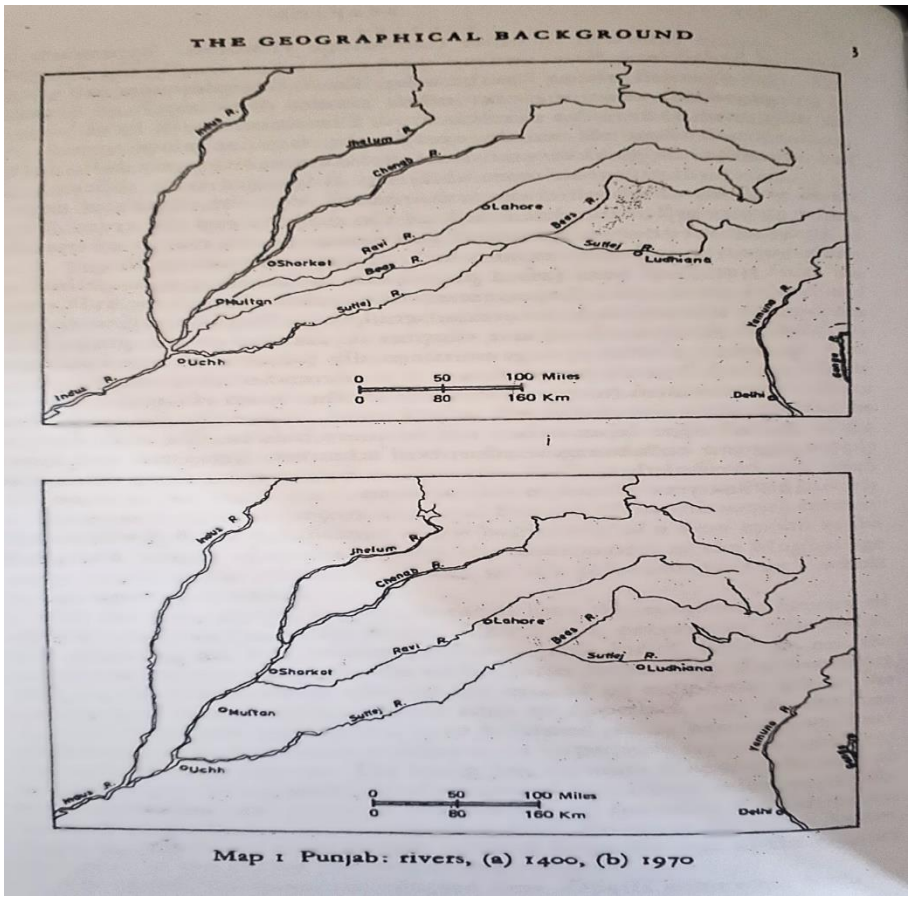


Figure 1: Source: Irfan Habib, (2004) "The Geographical Background" in The Cambridge Economic History of India edited by Dharma Kumar and Tapan Raychaudhuri, Vol. I: c. 1200-1750, Cambridge: Cambridge University Press, 1982 reprinted (New Delhi: Orient Longman, 3.

By the late 19th century, the Sutlej had **moved slightly southwards** in Bahawalpur State, closer to the emerging Bahawal Canal system. The Sutlej originally flowed east into the Ghaggar-Hakra (supporting Harappan settlements), then shifted west to join the Beas-Indus system, and in modern times has been reshaped by colonial canals and post-Partition water treaties. This shift exposed many Harrapan sites which needed to be discovered here few are discussed.

2. Methodology

This study is an archival investigation based on historical primary sources, providing a qualitative description of ancient sites located along riverbanks. It utilizes original documents, such as old maps, travelers' accounts, administrative records, and other historical narratives, to reconstruct the historical landscape and understand the significance of these locations over time. Additionally, while field visits were conducted to verify and obtain the coordinates for several places. This combined approach of archival research and modern mapping techniques aims to offer a comprehensive perspective on the historical evolution and geographical context of these riparian sites. Moreover, Survey of some of these sites are also been conducted under the patronage of MAHSA Project of Cambridge University. Still this survey for MAHSA project is continue so this is a preliminary study.

3. Ancient Sites of the Riparian Area of Bahawalpur Division

In the Bahawalpur Division, numerous ancient sites in the riparian area have been lost over time, primarily due to revolutionary environmental hazards such as inundations and floods, and secondarily, as a result of the gradual process of urbanization. Initially, inundations and floods buried these sites under thick layers of mud, gradually transforming them into mounds known as Dhers. In the next stage, as urbanization expanded to these Dhers, they were levelled and converted into agricultural land, for the purpose of capitalizing the richness of the fertile alluvial deposits present on these sites. Some details of these fortified sites along with their approximate coordinate and distance from river is discussed in Table no 1.

Table no 1: Distance of Ancient Places from Sutlej River

Sr.	Name of Place	Distance from River	Hint for Location
1	Pir Khalis	1.5 km south-east of Sutlej	In the Bahawalnagar District
2	Moza Pir Sikandar	This place discovered in dry bed of the Sutlej River	Moza Pir Sikandar, a small village, is situated in South-west of Bahawalnagar City at the distance of 9 miles.
3	Baharamka	1.6 km south-east of Sutlej	In Bahawalnagar District
4	Khai bodla	3 km north of Sutlej	In Bahawalnagar District
5	Mari Shoq	12 km south-east of	In Bahawalnagar

	Shah	Sutlej 12.3 km south-east of Sutlej	District
6	Raika Tiba	Almost 8 km away from Sutlej River	Situated on the Bank of Bahawalwah Canal, in the northeast of Qaimpur City, in Bahawalpur District
7	Raka Tiba	Almost 8 km away from Sutlej River	Situated near the Bahawalwah Canal, in the northeast of Qaimpur City, in Bahawalpur District
8	Ali Ashab	10.2 km south-east of Sutlej	Near Bahawalpur City, within Musafar Khana Police Circle
9	Sui Vehar	11.6 km south of Sutlej	
10	Uch	15.5 km south of Sutlej and 11 km east of Chenab (approximately)	Uch City
11	Munde Shahid	25 km south-east of Sutlej(approximately)	Near Nu Gazi Kabrain, near Ahmadpur East
12	Mau Mubarak	26.7 km east of Indus River	In Rahimyar Khan District
13	Bhutta Wahan	14.7 km south-east of Indus River	In Rahimyar Khan District
14	Pattan Minara	39.5 km east of Indus River	In Rahimyar Khan District
15	Sarwahi	31 km south-east of Indus River	In Rahimyar Khan District

Source: Measured on Google Map by author

4. Bahawalnagar District

I. In 1833, Captain Wade, Political Agent Ludhiana Agency[ii] was travelling on the western bank of the Sutlej River. He saw unusually large bricks at a village called Bharam-ke on his way. These bricks were said to have been unearthed from ruins exposed by the river about three months prior. Villagers described the ruins as part of a fort wall and turret, which was submerged over six feet below the surrounding ground. The bricks were marked with three curved lines resembling a horseshoe, leading Hindus in our group to associate them with the Treta Yug era. To this day, there exists a place named as Bahramka in Bahawalnagar District, in the north of Minchinabad on the bank of Sutlej River. iii This seems Hindu Site.[iv]

II. **Khai Bodla,** located in Minchinabad Tehsil, is characterized by its ruined fortifications and large structures made of pakka masonry, indicating its former prosperity. During Akbar's reign, the village covered an area of over 10,000 acres and boasted more than 200 wells. The Bodla community, which founded the town, disbanded by the late 18th century. At the time of Akbar, Khai Bodla village spanned a little over 2,700 bighas or 1,350 acres and is currently owned by the descendants of the early Bodlas. Presently, this location is situated on the northeastern side of Qasim ka near Santeka, along the bank of the Sutlej River in Bahawalnagar District. [v]

III. The village of **Pir Khalis** is very ancient. It was the place where Timur Shah (Tamerlane) halted to cross the Sutlej in 1398 C.E., on his way to Bhatner, and marks the spot where the Sutlej was flowing at that date.[vi]

IV. In the north of Moza Pir Sikandar, a small village, a Buddhist site was discoved in 1970. This ancient place is situated on the southern bank of Sutlej River. And it was 20 feet below the water lever. It was seen by divers only; its walls were 5 feet thick and brick size was 10 x 13 feet burnt brick. Walls were covered with plaster.[vii]

4.1 Bahawalpur District

V. According to Bahawalpur Gazetteer of 1904 in 1860s Minchin, Political Agent of Bahawalpur State witness an ancient ruined town known as Rai-ka-Tibba near the town of Qaimpur. He explained that perched atop a mound, it featured a large irregular-shaped enclosure surrounded by double walls filled with huge masses of burnt clay, indicating its former immense strength. The interior was found to be filled with calcined bones of animals and humans, including adults and children. The strength of the walls suggests, they were designed to guard against external attacks while preventing escape from within inferring it must be a fortification. The site's antiquity is such that there are no known traditions regarding its former occupants. Rai-ka-Tibbaviii is located on the border of the

desert, with a deep depression in front indicating that the Sutlej River once flowed below it. Given the ability to safely guard a large number of prisoners, animals, and humans, it is believed that this place may have been an ancient fort. [ix]. During the recent visit to this location for the MAHSA project, it was observed that the site represents twin settlements traditionally believed to have been founded by a brother and sister. Local accounts narrate their story, and the division of mounds into two distinct groups reflects this tradition. The sister's settlement is known as Rai ki, named after her, while the brother's settlement is called Rai ka, after him. These two sites lie adjacent to each other. According to local traditions, the combined settlements once spanned nearly 100 acres, of which around 25 acres still survive. Both were located about 8–10 km from the Sutlej River, near the Bahawal Canal, on a smaller branch locally called Rehmanabad Wali Nahar. Today, only a few mounds remain at Rai ki, as much of its land has been converted into fields, whereas the site of Rai ka still preserves a relatively large expanse of mounds.

VI. **Munde Shahíd,** an ancient ruined fort near Ahmadpur East, features a naugaja tomb. General Cunningham suggested that these naugaja tombs were originally recumbent statues of Buddha, created to symbolize his attainment of Nirvana. Since Buddha was believed to have passed away facing east, the Nirvana statues were oriented from north to south. This directional alignment was similar to that of early Muslim tombs, prompting early Muslims to use the statues as ready-made graves for their leaders who fell in battle. Colonel Minchin (b. 10 August 1829- d. 1899)x described Munde Shahíd as "the resting place of one of the Arab leaders." The presence of several naugaja tombs scattered along the sandhills indicates that Buddhism was likely the dominant religion in Upper Sindh at the time of the Arab conquest.xi It seems a Buddhist site.[xii]

VII. Rai Sahasi II undertook repairs on the Uch Fort, which was later occupied by Chach. The town of Uch was located on the left bank of the old Sutlej River. Shah Husain's destruction of Uch's fortifications left the town defenseless, allowing him to advance on Multan in 1525. Subsequently, the fort was repaired by the Makhdums but ultimately destroyed by the Nawab of Bahawalpur in 1806. [xiii]

VIII. **Sui Vehar** is located 9.6 km southwest of Bahawalpur and features a tower in 1870 it was standing about forty-five feet tall, with twenty feet above ground and the remainder buried in a mound. There was also more than 20 feet deep base structure of this stupa. Some assert that several years ago, the top portion, approximately eight feet high, collapsed due to an earthquake, which most probably consisted of hemispherical dome, harmika, and chhatri which because these are standing features of Buddhist monastic complexes across South Asia. The ruined tower once consisted of a compartment around eight feet square on the first floor. The tower is sturdily constructed with large bricks measuring 17x13x3.5 feet each, and the upper compartment's floor is made from the

identical brick types. In the center of the tower, a narrow masonry shaft leads to a small recess, where a copper plate, a few coins, and fragments of oxidized iron were discovered.[xiv]

IX. In the **Musafarkhana** Police circle, near Bahawalpur City, there are said.to be seven tombs, known as the Ali Ashab, but only six of them are visible. Five of these are 9 and the sixth 3 vard long. It is not known when the large ancient town, the ruins of which still exist, was destroyed, but it is said that it was washed away by the Kalron wali chhal or flood from the Kalran village.[xv]

4.2 Rahimyar Khan District

X. Sarwahi was an ancient fort parallel to the forts of Mau, Uch and Bhutta Wahan. In 1838 it was recorded that its area was almost 1800 square feet. This Fort was one of the six fortresses repaired by Rai Sahasi II, who allowed Chach, to get its control.[xvi]

XI. Bhutta Wahan was a robust ancient fortification and served as a settlement for the Bhati Rajputs. The fort was built in parallel with Mau Fort.[xvii]

XII. The Mau Fort was built by Rai Hans Karor as a residence for his mother, named Mau. Subsequently, it became the residence of Shaikh Hakim, ruler of Sindh, these both personalities are reported as contemporary of Christ. Located 9.6 km north of Rahimyar Khan Station, the Mau Fort was one of the six fortresses repaired by Rai Sahasi II, who allowed Chach, to get its control.[xviii]

XIII. Pattan Munára, also known as Pattan, Fattan, or Pattanpur, is located 8 km east of the Rahim Yar Khan Railway Station, on the eastern bank of the ancient Indus riverbed. It is one of the largest ruin sites in the region. The most prominent ancient structure amid these ruins is a tower that once stood at the center of a Buddhist monastery, surrounded by four smaller towers. These four towers, connected to the central tower at its upper level, remained in a dilapidated state until the early 18th century, when Fazl Ali Khan Halani dismantled them, using the bricks and stones for new fortifications at Dingarh Southxix, Sahibgarh, and Bhagla. It is said that Alexander the Great passed through this area. [xxxxi]

5. Other Locations

The Native Political Agent of Bahawalpur State, Murad Shah, recorded on 17th December 1868:

Table No 2: Tibbas and Thers mentioned by Murad Shah in 1868

#	Tahsil	Place	Form of Place	Further information
1	Bahawalnagar	Tibba Khajal/Jajjal Wala	Tibba	From Fatehgarh Fort 22.4 km in the east this tibba was situated. It was 55 feet high. Above that tibba there was a 22 feet high tower, which was constructed by Miran Imam Shah Kardar of Bahawalnagar.
2		Tibba Marri Shouq Shah	Tibba	From Shahar Farid on 19.2 km distance in east this tibba was situated. The height of this tibba was 9 feet.
3		Tibba Therri	Tibba	Near Mauza Phugal, Fordwah stream. 12.8 km in the south of Minchinabad City. The height of tibba was 4 feet and in excavation burnt bricks were discovered.
4		Tibba Rai ka	Solid Ther	It was a solid Teher/Bher 4.8 km in East of Qaimpur.
5		Kahtar	Ther	In the South of Khairpur Khas.
6		Ther Taanuli wala	Ther	In the south of Khairpur Khas at the distance of 6.2km this ther is located.
7		Tibba Rehta	Ther	It was some ancient city, in the north of mouza Jamapur at the

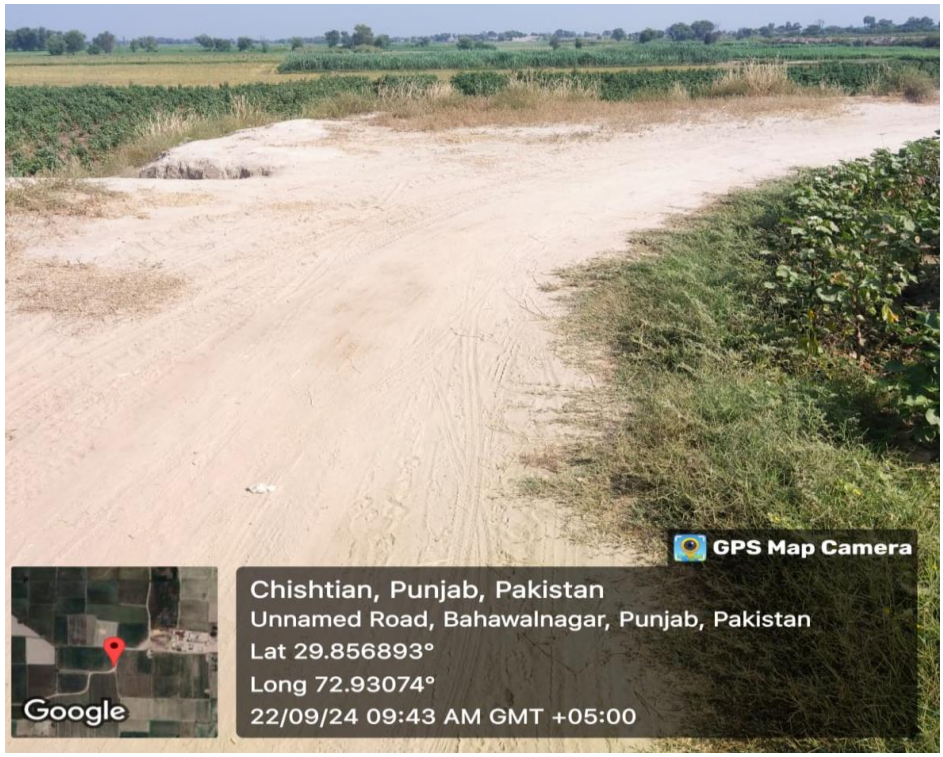
				distance of 6.2 km.
8	Khairpur	Ther Chakwera	Ther	Adjacent to Lahora Katora, at the distance of 9.6 km from Hasilpur Peshkari
9		Tibba Raja Karan	Tibba	9.6 km in the south of Hasilpur this tibba is located.

Source: The original table was regenerated by the Masood Shahab (1975) "Bahawalpur ka Qila Tibba aur Burj Wagara" in Alzubair: Bahawalpur ka Asar-e-Qadeema.Bahawalpur: Urdu Academy.

From above table in another historical source there is a discussion about first tibba, tibba Jajjal. Traces of an old city Tibba Jajjal remain 12.8 km south of Hasil Sarhu in District Bahawalnagar. It is widely held that before changing its course, Sutlej River meandered close to this city that now flows 19.3 km north-west of the site. As per the accounts of the local inhabitants, Rai Jajja Bhatia contracted this burnt-brick city. He used to stay in a palace present in this city and indulged in hunting during the rainy season when the weather was comparatively pleasant. In present days, people go with purpose of finding copper and silver coins.xxii

Moreover, from above table author took approximate coordinates of tibba Mari Shoq Shah are following:

Figure no 3: Approximate Coordinates of Tibba Mari Shoq Shah



Source: Measured by the Author

6. Conclusion

Bahawalpur boasts a rich heritage, with numerous ancient sites that warrant discovery and preservation to better understand the nation's history. Collaboration between historians and archaeologists is essential for locating these sites. By combining legacy data, archival records, modern archaeological survey techniques, and advanced mapping methods on a unified platform, this region can be thoroughly explored and documented. This effort marks the beginning of a new chapter in history, where archaeological sites will be identified through archival data, providing archaeologists with valuable information to uncover these locations.

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RIVERS AS RHYTHMIC INFLUENCERS

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1. Introduction

The rivers of the Harappan Civilization, which flourished between 3300 and 1300 BCE, were essential to daily life, trade, and agriculture. These rivers impacted the people's cultural and spiritual lives in addition to providing food. Though a great deal of research has been done on Harappan religion, trade, and urbanism, not much has been studied about their music and the forces that influenced it. This essay explores how rivers influenced Harappan music, putting forth the theory that the rhythmic currents and seasonal fluctuations of the rivers inspired their musical instruments and activities.

2. Contextual Background

The rivers of the Indus Valley Civilization were emblematic of the civilization's cultural values in addition to serving as vital conduits for trade and agriculture. The daily routines, customs, and possibly even the rhythms used in Harappan music were impacted by the course of the Indus and its tributaries. Musical objects found at Mohenjo-Daro, Harappa, and other sites suggest that music was used in social and ceremonial contexts and may have been connected to the seasonal patterns of riverine life.

3. Literature Review

There is a dearth of scholarly research on Harappan music, with most of it concentrating on terracotta instruments including rattles, flutes, and whistles along with a few stringed instruments. The relationship with other ancient river societies indicates that water sources frequently influenced music, ritual, and soundscapes.

4. Themes

Harappan music's rhythmic structures and tonal patterns may have been affected by the sounds, seasonality, and flow of rivers. Based on field evidence some musical instruments appear to imitate natural sounds, such as the gurgling of streams or the rising and falling of river tides.

4.1 River Rituals and Ceremonial Music

River-related ceremonies, such as fertility or cleansing rites, were probably performed with music. The fact that musical instruments are found in religious and burial settings suggests how important sound was to these events,which were entwined with the cyclical cycles of the rivers.

4.2 Riverine Materials and Musical Instruments

The reeds, terracotta, and animal hides that were utilized to make Harappan musical instruments came from the riverine environment, indicating a clear relationship between the rivers and musical expression.

5.Conclusion

The hypothesis presented in this study is that the Indus Valley Civilization's musical traditions were significantly influenced by its rivers. The Harappans' intimate ties to their environment may be heard in their music, which probably reflected the seasonal variations and rhythmic flows of the rivers. Understanding this link in its entirety will require more multidisciplinary research that brings together environmental studies, musicology, and archaeology.

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2024

RIVERSOF HARAPPA

Over the last one thousand years Punjab experienced social turbulence and war. A host of invaders and empire-builders, operating under racial or religious covers, gathered and looted the riches of the Punjab;nevertheless, below this turbulent layer has been the vast number of ordinary folks who have lived together in peace and harmony in a multi-faith society led by Jogis, Dervishes, Sufis and Gurus. The history of the turbulent past of Punjab is relatively short,the calm serenity of the vast population goes back to the 9,000-year-old Harappa Culture and Civilization. Bhai-Chara, tolerance has been the way of life inherited from the earliest residents of the Indus Basin.

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