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Author(s):

Dr. Muhammad Yusuf Awan

Faiqa Khilat

Farah Jamil

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# **Role of Geography in the Formation of Character of the Civilizations of Egypt, Mesopotamia and Indus Valley**

Dr. Muhammad Yusuf Awan\*

Faiqa Khilat

Farah Jamil

## **Abstract**

Beginning with the inception of humankind on the planet Earth, the struggle to survive gradually led to the development of the society and the establishment of culture and civilization. Collection of food and protection from wild animals and natural disasters were the immediate concerns. The pursuit of basic necessities such as food and shelter induced humankind to make advances and progress from foraging and hunting towards cultivation and food processing. The commencement of agriculture brought qualitative changes and humankind progressed from living in temporary settlements to the establishment of permanent settlements. This gave in turn caused the emergence of more advanced cultures and civilizations. At the beginning of the age of tilling, settlers preferred locations which offered unrestrained access to water, fertile land and a comfortable climate. Every location had its own geographical characteristics which played a fundamental role in the formation of the character and type of architecture of its respective civilization. Major early civilizations which were contemporary to each other included the Egyptian, Mesopotamian and Indus Valley civilizations. Natural boundaries surrounding the fertile strip along the banks of the river Nile in Egypt enabled Pharaohs to form a strict slave system. The area situated between two ancient rivers Tigris and Euphrates hosted the renowned Mesopotamian civilization. The Indus river and its tributaries, mainly the five rivers of the Punjab, provided the people of the Indus valley with a large tract of very fertile land. They cultivated the land extending from the Himalayan peaks in the north to the Arabian Sea in the south, vastly expanding their civilization and architecture. This paper compares these three civilizations with reference to their geography, highlighting its effects on their particular developmental pattern and architecture. The current research provides the apparent picture of how geography affects the overall growth of civilizations and also the marked similarities and disparities among them based on their different geographical locations.

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Department of Architecture, School of Architecture and Planning, University of Management and Technology, Lahore, Pakistan

\*Corresponding author: [sap.dean@umt.edu.pk](mailto:sap.dean@umt.edu.pk)

**Keywords:** agriculture, civilization, contemporary developments, Egypt, geography, Indus Valley, location, Mesopotamia, permanent settlements, rivers

### Introduction

A significant factor affecting the developmental lines of a civilization is the geographical characteristics of the particular area where it flourishes, as described in this paper. Before 10,000 BCE, that is, prior to the agricultural revolution, people relied on foraging, hunting, and fishing and were not yet producers of food. Then, a new age started with agricultural revolution when people acquired the knowledge of growing crops. With the development of agriculture, permanent settlements sprang up all over the world which led to the development of particular cultures and civilizations. These permanent settlements also gave birth to particular styles of architecture which varied from area to area. During this new age, early settlers selected suitable areas for their settlements, mainly river banks at different locations. Among the famous early major civilizations were Egyptian, Mesopotamian and Indus Valley civilizations. The geographical location of a civilization and its physical surroundings played a fundamental role in the formation of its character and in defining its architecture. Building typology and building materials also varied across different civilizations because of the varying nature of the geography and topography of their respective areas.

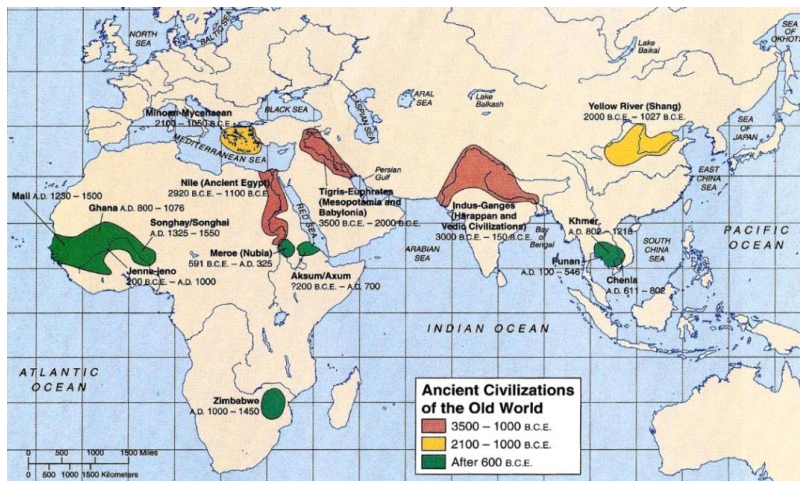
Egypt is naturally protected by sea and deserts and its soil is fertilized by the river Nile, which floods frequently and brings very nourishing soil with it. All prospects of the ancient Egyptian civilization were associated with the river Nile. The restricted natural boundaries across the Nile enabled Pharaohs to form a very strict slave system. The developed and cultivated area in Egypt is in the form of a narrow fertile strip along the banks of the river Nile. This is the most attractive region in Egypt for permanent settlers. Beyond the fertile strip, towards its west is the large Sahara Desert with almost no water and food. To its east is the eastern Egyptian desert, a barren range of mountains with almost no water and food and parallel to it is the Red Sea. To the north, it is bordered by the Mediterranean Sea. To its south is a semi-hilly and a semi-desert area. Thus, the most attractive fertile strip is surrounded by all sides and does not allow any expansion of it for further development. So, it is like a natural prison because it is difficult to escape as well as to invade.

Another location with a vast fertile area located in between two main rivers, the Tigris and the Euphrates, hosted the renowned Mesopotamian civilization which was contemporary to the Egyptian civilization. Due to frequent floods, the region of Mesopotamia faces numerous challenges of protection from floods. The

people of Mesopotamia were more hardworking than those of Egypt because of this geographical variation.

Indus Valley Civilization (IVC) was blessed with a vast area supported by fertile lands and a number of rivers. The presence of river banks and fertile valleys provide more opportunities for the establishment of permanent settlements with many agricultural advantages. Five rivers of the Punjab and other northern rivers all drain into the Indus river and ultimately into the Arabian Sea. Together, they irrigate a large area which is beneficial for agricultural development and growth of the civilization. People have an enormous area to move about, resulting in widespread adoption of similar lifestyle, art and architecture.

This paper presents a comparative study of three contemporary ancient civilizations, that is, ancient Egyptian civilization, the Mesopotamian civilization and the Indus valley civilization based on their respective geography, climate and architecture. It gives an evident impression of the disparities in the expansion pattern of their settlements. Furthermore, the study helps to identify the dominant factors that affected the formation of these ancient civilizations.



Map 1. Ancient civilizations of the World

## 1.1. Objectives of the Study

- To understand the role of geographical characteristics in the formation of the character of a civilization developed at a particular location.
- To identify the similarities and disparities among three of the early civilizations mentioned above with reference to their character.
- To find out why building typology in these three civilizations was different.
- To compare the architectural characteristics of these three civilizations.

## 2. Research Methodology

This research is primarily focused on three early contemporary civilizations which developed in the history of mankind between 3500 BCE and 1000 BCE, as shown in Map 1. Qualitative research was done based on the review of literature available in the form of historical books and other information gleaned from the relevant websites. To sharpen the theoretical framework, different maps were reviewed and combined to get an overall map of these three contemporary civilizations. Auto-Cad software was used to draw a comprehensive map of these three civilizations.

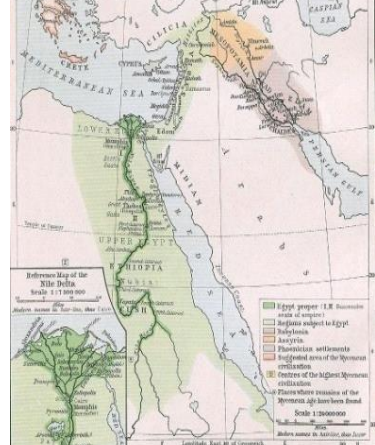
## 3. Results and Discussion

There are two basic physical requirements for the survival of human beings, that is, water and fertile land. It has been observed that geographical locations are very much important for the commencement of any civilization and they affect its growth pattern. By comparing the three main civilizations of Egypt, Mesopotamia and Indus Valley, a clear idea of the differences in their growth pattern can easily be perceived. The following table shows a comparative analysis which depicts the variations among them on the basis of their location and geography.

### 3.1. Geographical Location and Comparison

Table 1

*Comparison of the Respective Geography of Egyptian, Mesopotamian and Indus Valley Civilizations*

Name of Civilization	Map	Surrounding Geography	Rivers
<p><b>Egyptian Civilization</b>                      Egyptian civilization popularly depicts the ancient civilization of Moses and Pharaohs developed independently around 3150 BC in Northeastern Africa, presently modern Egypt. The area was divided into upper and Lower</p>			

Egypt (Micheal Fazio & Wodehouse, 2004)



(Manley, 1997)

**West**

To the west of the river Nile is a vast desert now known as the Sahara Desert or the Libyan desert.

**North**

In the north, there is the Mediterranean Sea.

**East**

In the east, there is the eastern desert and barren mountains spreading across the area known as the Sinai Peninsula. Across the barren mountains is the Red Sea that is divided into two gulfs known as the Gulf of Aqaba and the Gulf of Suez that clutch the land area of Sinai in between them. This pattern of geography expands towards the north east,


**Nile River**


The Nile has great importance in the geography of Egypt. Without this river, Egypt would be entirely a desert. It flows in a south to north direction. Approximately, 10-30 miles of land along the both banks of the river Nile is fertile. Beyond this fertile strip of land, there are deserts. This land constitutes a narrow fertile strip along with the banks of the river. The Nile had great importance in the development of the ancient Egyptian civilization (Mieroop, 2010).

River branches that combine to form the Nile include

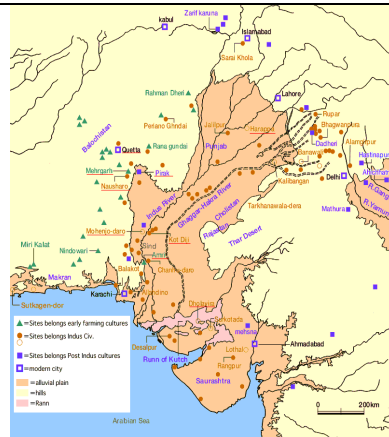
- *White Nile*
- *Blue Nile*

The source of Blue Nile is Lake Tana in Ethiopia and

	<p>that is, the area currently known as the Gaza Strip, Israel and Jordan.</p> <p><b>South</b> In the south, there is a semi-desert area currently known as Sudan (Manley, <a href="#">1997</a>).</p>	<p>White Nile emerges from Lake Victoria in Uganda.</p> <p>Most of the water in the Nile, approximately as much as 90%, comes from the Blue Nile.</p> <p>Both branches meet at a place now called Khartoum, the capital city of Sudan.</p>
<p><b>Mesopotamian Civilization</b></p> <p>Mesopotamia is a Greek word meaning land between two rivers. This area at present hosts the countries of Iraq, Kuwait and Iran. A civilization developed between the two rivers during 3000 BCE and 1600 BCE (Gross, <a href="#">2003</a>). It is also known as the civilization of the two rivers (Finkelstein, <a href="#">1962</a>).</p>	 <p>(Time Maps, <a href="#">n.d.</a>)</p>	

	<p><b>West</b> Mesopotamia borders the Syrian desert to the west.</p> <p><b>North</b> In the north, there are mountains of Turkey and Iraq. These mountains are different from that of Egypt because water is available due to the presence of natural streams and from seasonal rains. Due to the availability of water, agriculture is possible even in the mountainous region. As a whole, Mesopotamian region is also known as the fertile crescent.</p> <p><b>East</b> In the east, there was Persia, presently modern Iraq and Iran. This region is semi-desert.</p> <p><b>South</b> In the south, there is Persian Gulf and the vast spread of the Arabian desert.</p>	<p><b>River Euphrates</b> The river Euphrates originates from Turkey and flows through the northern mountains of Mesopotamia. It passes through Syria and enters into Iraq.</p> <p><b>River Tigris</b> It also originates in the Turkish mountains. It is a rough and fast flowing river and it flows in a zigzag pattern. In ancient times, the rivers flowed separately before falling into the Persian Gulf. Today, both rivers unite before falling into the Persian Gulf (Time Maps, <a href="#">n.d.</a>).</p>
<p><b>Indus Valley Civilization</b></p> <p>It developed in the northwestern areas of South Asia during 3300 BCE-1900 BCE which are currently distributed among the countries of Pakistan, India and Afghanistan (Wright, <a href="#">2009</a>).</p>	 <p>The map shows the Indus Valley Civilization region in South Asia, highlighting major sites such as Mehrgarh, Harappa, Mohenjo-daro, Lothal, and Surkotada. The Indus River and its tributaries are also depicted.</p>	





(Crystal-links, 2016)

As compared to the other two civilizations, Egypt and Mesopotamia, the Indus Valley Civilization (IVC) had the most fertile land available extending from the Himalayan ranges in the north to the Arabian Sea in the south. It comprised two valleys (Mountjoy, 2004).

- Indus Valley Civilization developed in the western and south western parts of the subcontinent.
- Ganges Valley Civilization developed in the eastern and south eastern parts of the subcontinent.

Five rivers of the Punjab which join the Indus river are as follows,

- *River Jhelum*
- *River Chenab*
- *River Ravi*
- *River Bias (It flows from the north of the river Sutlej)*
- *River Sutlej (It flows from the south)*

Ganges valley is mainly irrigated by the river Ganges which also originates from the great Himalayan mountains and it covers the central areas of the subcontinent.

### 3.2. Civilizations' Characteristics

Due to the differences in the geographical settings of the three civilizations, corresponding differences occurred in their various characteristics. Major

differences among them are observed in the domains of art and architecture, building typology and construction materials used by these civilizations.

### 3.3. Development Pattern of Egyptian Civilization

Ancient Egyptian civilization was founded at about 3150 BC. It developed in the narrow fertile strip along the Nile. The Pharaohs of Egypt were successful in creating a rigid slave system because of the geographical constraints. The natural settings of the region enabled the Pharaohs to establish such a system of enslaving people. The barren mountains proved an obstacle for the slaves to escape to the surrounding area. The slaves had to work for three months in cultivation and harvesting and the rest of the nine months of the year in the construction of the great monumental structures. Finally, this rigorousness of Pharaohs resulted in the *Hijrah* (Exodus) of Bani Israel under the command of Hazrat Musa (Moses).

**3.3.1. Architecture.** The architecture of ancient Egypt is one of the most influential ones found in history. Egyptians developed a vast array of diverse structures and great architectural monuments along the Nile. Their authority and competence is reflected in the historic architecture of Egypt. The monumental structures found in Egypt include pyramids, tombs, sphinxes, temples, and palaces (Mieroop, [2010](#)). The great pyramid complex of Giza is shown in Figure 1. It is a combination of pyramids including the pyramid of Cheops or Khufu, the pyramid of Chephern or Kharfa and the pyramid of Mykrinus or Menkhaura. The great pyramid measures about 764 X 482 (Gosh, [2010](#)).



*Figure 1.* The great Pyramid of Giza

Another monument standing in front of this whole complex is the Great Sphinx of Giza shown in Figure 2, which has a height of 481 feet and a base of 756 feet. These structures depict a high grade skill in architecture and the engineering capabilities of exceedingly competent craftsmen and workers. The monuments of Egypt were decorated with stone carvings, paintings and three dimensional sculptures (Somers Clarke, [1991](#)).



*Figure 2. The great Sphinx of Giza*

The exterior walls were tapered with concealed columns and piers and had small openings. A variety of symbolic motifs were painted in bright colors depicting the faces of scarab, beetle, vulture and solar disk. The sculptors of that time had great expertise in their art and skills that can be perceived from their crafted ornamentation and varied experimentation with materials.

**3.3.2. Building materials.** The construction materials most used in the Egyptian architecture were mud, sun dried bricks strengthened with reeds, palm branches, and papyrus (Fletcher, [1996](#)). Other materials used in substantial quantities were cellent stone, limestone and granite (Gosh, [2010](#)). An enormous and well-composed architecture was developed from the basic, naturally available material of mud reinforced with reeds. The clay from the Nile was placed in moulds and dried in the sun to strengthen it and then used in construction (Somers Clarke, [1991](#)). Mud and straw were placed in a mould to give them a brick like shape which was easier to build with. This material helped in keeping the houses cool and acted as an insulator in the hot and humid climate of Egypt. The inner courts had huge stone columns supporting flat roofs.



Figure 3. Sun dried bricks used for construction in Egypt

### 3.4. Development Pattern of Mesopotamian Civilization

About 3000 BCE, another significant civilization was developing in Mesopotamia within the valleys of rivers Tigris and Euphrates. Mesopotamia is home to four major civilizations known as Sumerian, Akkadian, Babylonian, and Assyrian civilizations (Micheal Fazio & Wodehouse, [2004](#)). Their territory stretched from the present day Iraq and Kuwait northwards to Turkey. The first significant culture that developed in Mesopotamia was the Sumerian culture in its southern part near the Persian Gulf. Akkadians followed the Sumerians and they established their economic and social foundation in Mesopotamia. In turn, they were followed by (Potts, [1996](#)) Babylonians and Assyrians. The uniquely fertile soil of Mesopotamia enabled people to begin farming. Frequent flooding left beneficial silt in the plain. An extensive irrigation system was developed that carried the river water to the cultivated land. Due to frequent flooding, no strict system of slavery could be formed by Mesopotamians as that of Egypt. The location of Mesopotamia allowed it to be at the crossroads of major trade routes and therefore, the people were more advance and knowledgeable than that of Egypt (Potts, [1996](#)).

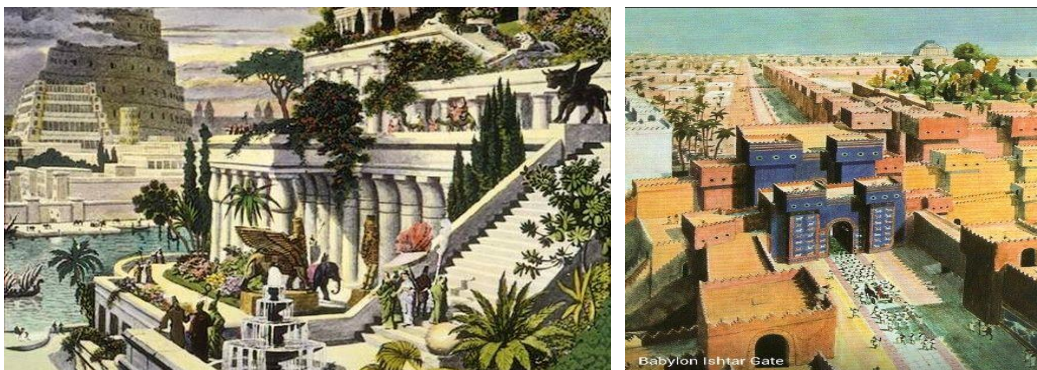
The region of Mesopotamia had relatively less mountains and more flat area than that of Egypt and the people had the opportunity to escape from the area, effortlessly. The geography of Mesopotamia posed challenges for the successive governments to establish their writ because there were considerable chances of revolt (Wandrei, [2015](#)).

**3.4.1. Architecture.** The architectural remains of the Mesopotamian civilization were found in the region irrigated by the Tigris and Euphrates river systems. These remains were found in the ancient cities of Ur, Uruk, Babylon and

Khorsabad. Their ancient inhabitants developed structures such as palaces, ziggurats, temples, and courtyard houses. They lacked natural barriers and thus constructed walled cities as part of defensive measures against any invaders. The availability of water provided by the two rivers led to the advancement of engineering and they constructed dams, canals, drains, reservoirs and aqueducts. The well-renowned monument of Mesopotamia is the Ziggurats of Ur and Uruk shown in Figure 4. The Ziggurats had three to seven stories in which the upper stories had temples for their gods and the lower stories housed the administration of the irrigation system. Other significant ancient structures included the 'Hanging Garden' of Babylon and 'Ishtar Gate' shown in Figure 5. The palace of Nebuchadnezzar and the palace of Sargon at Khorsabad at the bank of the river Tigris were monumental palaces found in the region. Ishtar Gate was another monument which provided the entrance to the city of Babylon (Micheal Fazio & Wodehouse, [2004](#)).



*Figure 4. Ziggurats of Ur and Uruk*



*Figure 5. Images of the hanging garden of Babylon and Ishtar gate*

**3.4.2. Building materials.** Mesopotamians used the naturally available clay and silt of the rivers and streams to manufacture the sun dried bricks used extensively in construction. These sun dried bricks were strengthened with sand, straw and/or reeds. Kiln baked bricks were also used in construction but only in the construction of palaces. This was because of the scarcity of wood needed for burning them in kilns and hence they became expensive. Moist mud and lime, sometimes mixed with a tarlike material for waterproofing, was used as plaster (Gale, [n.d.](#)). In earlier development of Mesopotamian architecture, the main construction materials used were sun dried bricks, timber and natural stone. The facades were finished with mud and decorated with metals, red bricks and blue glazed tiles.

### **3.5. Development Pattern of the Indus Valley Civilization**

The Indus Valley Civilization (IVC) developed mainly in the region of South Asia which now comprises modern day Pakistan between 3300 BCE and 1900 BCE (Wright, [2009](#)). Numerous archeologists and scientists have excavated the sites of IVC which show their culture and lifestyle. With reference to the map of IVC, its location was a very favorable one as it was well protected by the Himalayan mountain range and the river Indus flowed through the valley. The overflowing of the river left the alluvial soil best for agriculture and irrigation system (Mountjoy, [2004](#)). Moreover, sometimes heavy and abnormal flooding is the main reason of the decline of a civilization. There was a vast land available for IVC to develop, so the Indus tribe developed different types of civilizational characteristics than Egypt and Mesopotamia (Coote, [1992](#)) which included the following:

- Development of sovereign states
- Wide areas for the movement of people to other agricultural lands and rivers
- Absence of slavery
- A well planned city with a systematic street layout
- An efficient municipal system with covered drains and water supply system
- Development of a variety of art and architectural marvels which showed influence from the Mesopotamian civilization

Archeologists carried out excavations and found remains of two ancient cities of Mohenjo-Daro and Harappa in Pakistan. A variety of buildings were developed in these cities. Some of the important buildings included houses, great baths, city walls, wells, assembly halls and granaries.

**3.5.1. Architecture.** The ancient people of the Indus valley built houses just like today which were made of sun dried or kiln fired mud bricks. These bricks

were so strong that they could last up to several years. Houses comprised indoor and outdoor kitchens. These were well planned on the basis of central courtyard planning keeping in view the hot and dry climate. The rooms were designed all around the periphery of a central courtyard so they were shaded. Great public baths were also an impressive structure of IVC. One such bath was excavated in Mohenjo-Daro and is shown in Figure 6 (Harappa, [n.d.](#)). It was constructed with kiln burnt bricks along with gypsum in mortar to make it waterproof, so that water could not escape it. It had a pool of 12 meters in length, 7 meters in width and 2.5 meters in depth.

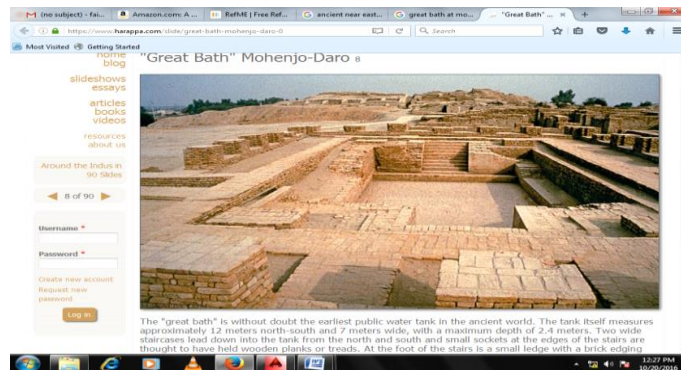


Figure 6. Excavated site of great bath at Mohenjo-Daro

Apart from the architecture, the inhabitants developed well planned city layouts on the basis of the grid iron pattern. There are evidences of the existence of efficient drainage systems in their cities. These cities were surrounded by massive walls and gateways which provided protection from flooding. For the storage of food items, the inhabitants made granaries. Figure 7 shows the remains of a granary at Harappa made of burnt bricks and located close to the river for easy transportation.

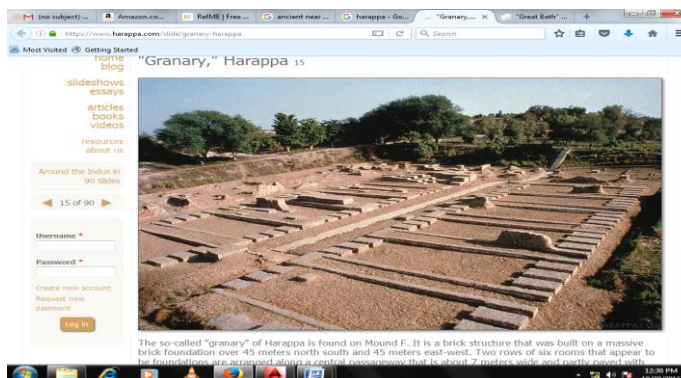


Figure 7. Remains of a granary at Harappa

**3.5.2. Building materials.** For IVC, geologically every type of building material was available. The inhabitants used sun dried bricks, burnt bricks, clay products and gypsum with mortar in the construction of buildings. The main construction materials were sun dried bricks, timber and natural stone. Wood was readily available in the northern areas like Swat, Chitral and Gilgit. The use of timber can be seen in many historical traces of furniture, toys and decorations. In Rajasthan, red sand stone was also naturally available and it was used in the construction of many of the buildings.

#### 4. Conclusion

The detailed study of the three civilizations revealed that the geographical characteristics of their location and its surroundings played a vital role in the formation of the specific character of each civilization. The common factors among them were their being contemporary and agriculture based civilizations. Thus, there were similarities among them. Whereas the dissimilarities were based on the effects of their particular geographical location.

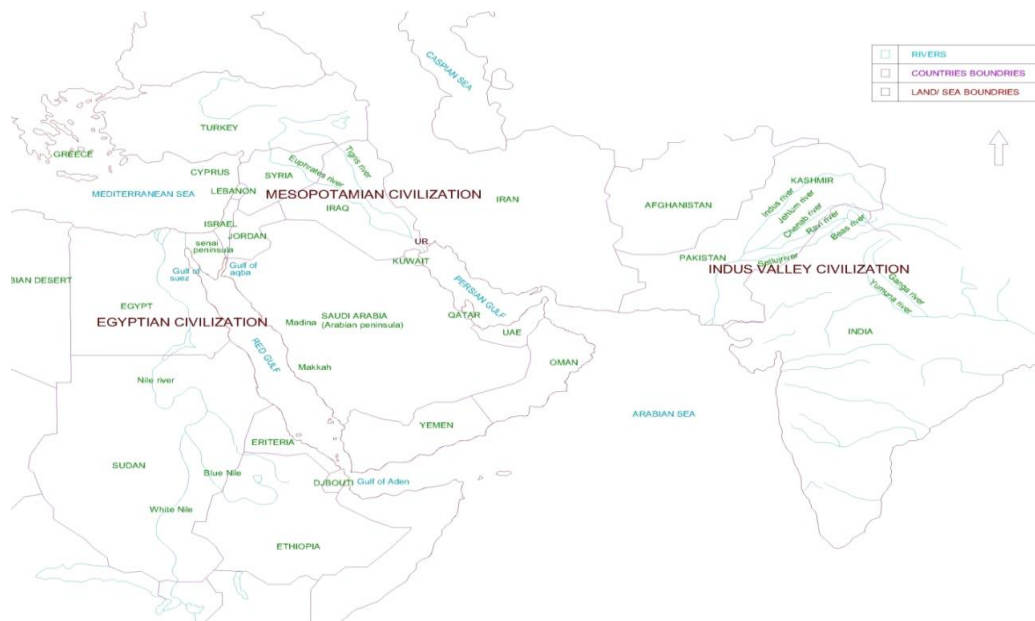
Egypt is located at the bank of the river Nile which made it an attractive site for early settlers. The land is fertile, water is available and climate is suitable and comfortable to live. It is surrounded by natural barriers on all sides. These barriers made it difficult to correspond to the surrounding locations. The surrounding locations are barren, with minimum availability of water and without a comfortable climate. Thus, Egypt was like a hungry bird's cage for early settlers where food was readily available and people from surrounding locations were attracted towards it in case of famine. Gradually, they were enslaved by the Pharaohs. The slaves could not escape due to the hurdles created in their way by the complex geographical characteristics. Thus, the pharaohs were facilitated to form the most rigid slave system in Egypt.

The geographical situation of Mesopotamia and its surroundings is different. There are two rivers, Tigris and Euphrates, with a vast fertile land in between them. Water is available but requires to be carried afar by drawing canals from the river. It resulted into the development of irrigation canals. It was this geography which did not allow the formation of a rigid slave system such as that in Egypt.

The Indus valley is much larger than Egypt and Mesopotamia. There is an Indus river with its numerous tributaries including the five rivers of the Punjab. There are numerous river banks where migrations of early settlers were easily possible. So, a slave system could not be easily established.



All the three civilizations developed their specific architecture built with locally available materials. Egyptian pyramids, tombs and temples were built with the available high quality stone which prove to be long lasting and durable. The Mesopotamian Ziggurats and palaces were built with clay products including burnt bricks and glazed tiles. This was because of the absence of stone in the valleys. The buildings in the Indus valley were mainly built of burnt bricks but stone was also used in the northern areas where it was abundantly available. An extremely good quality of timber was also available, particularly in the northern areas, and it was used in a creative, innovative and decorative manner. The current study concludes that geographical location played a significant role in the formation of a civilization and the development of its particular architecture. Map 2 is the Auto-cad generated map which shows the three selected civilizations while highlighting the main rivers and their surroundings.



Map 2. Location of three contemporary civilizations: Egypt, Mesopotamia and Indus valley

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