

Impact of Environment on the Decline of the Harappan Culture

Dr. Shree Kamaljee

Associate Professor (Geography), N.L.S. College, Jaitpur-Daudpur, Jai Prakash University., Chapra (Bihar)

Abstract: Environmental determinism asserts that facet-features of nature lay the framework of the intricate maze for the abiotic and biotic interactions and cradle the consequent phenomena. Man as a natural being appeared during the course of biological evolution and brought forth his cultural landscape vis-a-vis the natural dictates. The emergence of the Indus Valley civilization in the Indus plains, its spread, development and decline are all interpreted in the light of the environmental fluctuations unable to be contained by the then inhabitants with their knowledge and technology. Still it gives a jig-saw puzzle as to how this great 5000-year-old civilization touched its silent demise. This paper is an attempt to rationalize the facts behind the growth and death of the city civilization of the Indus Valley. The paper uses archaeological and ecological approaches to scrutinize the evidences found in Rajasthan and the area around it. The analysis suggests that the rise and fall of the Harappan culture may be attributed to the fortune of the rivers in the north-western India.

Key word: -Geological age, Archaeology, Ecology, Radio carbon dating, Palynology, Varve deposit

Introduction: Environmental Determinism asserts that facet-features of nature lay the framework of the intricate maze for the abiotic and biotic interactions and cradle the consequent phenomena. Man as a natural outcome of the biological evolution is not an exception. Geological history of the Earth indicates that during (Table 1) the Holocene Epoch (started circa 10,000 years ago) of the Quaternary Period (started circa 1 million years ago) present man appeared on this planet after the retreat of the snow-cover that continued till the end of the Pleistocene Epoch (known as a Great Ice

Age) circa 10,000 years ago. Man, by the development of his intellect, has established his control over the animals and the vegetation world. He has accelerated some changes in the landforms and has converted the Earth into a place favorable for his existence. Nonetheless, the directions and extents of his cultural attainments have been greatly decided by the superimposing dictates of the natural environment. In the midst of the stiff struggles for better existence in the arena of nature, man has carved out early civilizations after the advent of the Copper Age. (Fig. 1)



**TABLE 1
GEOLOGICAL HISTORY OF EARTH**

It is no wonder that the Copper and Bronze Age in India is represented by a highly developed civilization, namely the Indus Valley Civilization expressed through the

Sumerian Civilization of the southern Babylonia in the Dazla-Farat Valley of the West Asia, this 5000 years old city civilization lying in the Indus Plains got its astonishing

	ERA	PERIOD	EPOCH	Absolute in years before
1	CENOZOIC (70 million years)	(a) Quaternary	Recent (Holocene) Pleistocene	present (10,000) (1,000,000)
		(b) Tertiary	(i) Pliocene (ii) Miocene (iii) Oligocene (iv) Eocene (v) Paleocene	(12,000,000) (25,000,000) (35,000,000) (60,000,000) (70,000,000)
2	MESOZOIC (200 million years)		Cretaceous Jurassic Triassic	(130,000,000) (165,000,000) (200,000,000)
3	PALEOZOIC (500 million years)		Permian Carboniferous Devonian Silurian Ordovician Cambrian	(235,000,000) (285,000,000) (325,000,000) (350,000,000) (410,000,000) (450,000,000)
4	PE-CAMBRIAN (EOZOIC) (About 4 billion years)			

Harappan Culture. Contemporary to the expressions through the excavations at Mohenjo Daro (1925-1927) Pak-Sindh; Harappa (1926-1931), Pak-Panjab; Chanhu Daro (1935-1936), Rangpur, Bikaner (in the dry valley of river Ghaggar or old Saraswati), Ropar, Alamgirpur, Kalibanga, Lothal and at certain other places in their neighbourhood. Copper and Bronze tools, stone implements and statues, human and animal skeletons, ivory and metal ornaments, painted pottery and terracotta seals show the ingenious creativity of the agriculturists as well as manufacturers, hunters and breeders of animals of Harappa and Mohenjo Daro. Wheat growing, hunting, animal husbandry, household industries related to diurnal utilities, maritime trade through navigation exemplify their approaches towards life and culture.

The remains of the dead city of Mohenjo Daro, with its rows of well-arranged, brick-built storeyed mansions boasting of doors, stair-cases, baths and wells, its broad and straight highways as well as ingenious drainage system excite our admiration for the people who planned the city. The well-fed big bath with galleries and rooms on all sides and a quadrangle in the centre begets the architectural interest even today. Equally striking is the great granary at Harappa. These features of the Harappan Culture confirms our conjecture that possibly the whole lower and middle basin of the Indus right up to Baluchistan was once dotted with settlements having similar ways of living.

Here is a billion-dollar question as to how and why this great civilization kept declining overtime. As a curiosity quenching

argument, environmental aberrations unable to be copied by the inhabitants during the Harappan Culture Period are held responsible for the gradual and silent demise of this civilization. It is an undeniable truth that the changes in the land configuration and climatic characteristics have affected the rise and fall of empires and patterns of human interactions.

This paper is an attempt to cull out the latest facts and evidences for putting forth the logical explanations of the decline of the Harappan Culture in the area under study.

Area under Study

The Area of the Indus Valley Civilization lies in the middle and lower Indus basin and plains of Rajasthan, The Punjab and the pene-plain of Gujarat. It is spread in the western and north-western parts of India and the eastern part of Pakistan. Situated in the fertile plains of the Indus and its tributaries, together with valleys of the Ghaggar, Luni, Banas etc. the area is encircled in the north and north-west by the massif of the Himalaya, Karakoram, Safed Koh, Kirthar and Suleman Ranges with a few passes namely Bolan, Khyber and Gomal in the west and Karakoram in the north, regularly trodden by the people and the burden carrying beasts. In the east and the south is the fertile crescent made by the Yamuna and the Ganga. Only the Arravalis and the western desert make an infertile segment.

Data Base

- (i) The data come up through the ecological and Archaeological studies have been treated.
- (ii) Data from Stratigraphy
- (iii) Maps furnished by the Survey of India

Methodology

The paper sifts the evidences found from the Archaeological Excavations and Ecological Investigations of the area under study. The stratigraphic and ecological approaches have been adopted to scrutinize the facts from Rajasthan and the area around it. The qualitative analysis of rainfall and valley shifts have been done to reach the logical conclusions

Discussion

The excavations, findings, dating and stratigraphic studies have been intensely conducted to causally interpret the decline of Harappan Civilisation. Sir Aurel Stein (1931) and Sir John Marshall (1931) made evaluation of the multiple archaeological evidences from Baluchistan and Sindh. They declared that the climate in these regions during the Indus Valley Civilization was wetter than it is to-day. This theory remained unquestioned for three decades. Then the anthropological approach was brought to bear on the archaeological problems of the region. Robert L. Raikes, a hydrologist and Robert H. Dyson, an archaeologist, teamed up in 1961 and examined the evidences furnished by Stein and Marshall and supported their theory.

In 1971 Gurdip Singh made another attempt to explain the climate change based on the palynological evidences. He took climate change of the entire Holocene Epoch in the north-western India and not just the Harappan period. He collected the palynological evidences from Sambhar Lake, Didwana Lake of semi-arid belt (25-50 cm average annual rainfall) and Lankaransar from the arid-belt (less than 25 cm average annual rainfall) besides Pushkar Fresh Water Lake in the semi-humid belt (50-60 cm average annual rainfall)

The pollen records from the first three lakes were sequenced climatically by Mr. Singh;

Phase I (A) Before 8000 BCE : It was indicated by the sand deposits made by the wind at the base of the lake sediments. This shows an unsuitable environment for habitation.

Phase II (B) Pollen zone B (c 8000 BCE-c7500 BCE) : The a little higher rainfall (25 cm more than now) led to the first sedimentation in the lakes of Rajasthan.

Phase III (C) Pollen Zone B (c 7500 BCE-c 3000 BCE): It is represented by a slight decline in rainfall but an unexpected increase in carbonized vegetable remains in the lake deposits at all sites. The Cerealia type pollen with the sediments indicates the scrub burning and the primitive cereal agriculture.

Phase IV (D) Pollen Zone C (c 3000 BCE- c 1000 BCE) : The considerable rise in rainfall

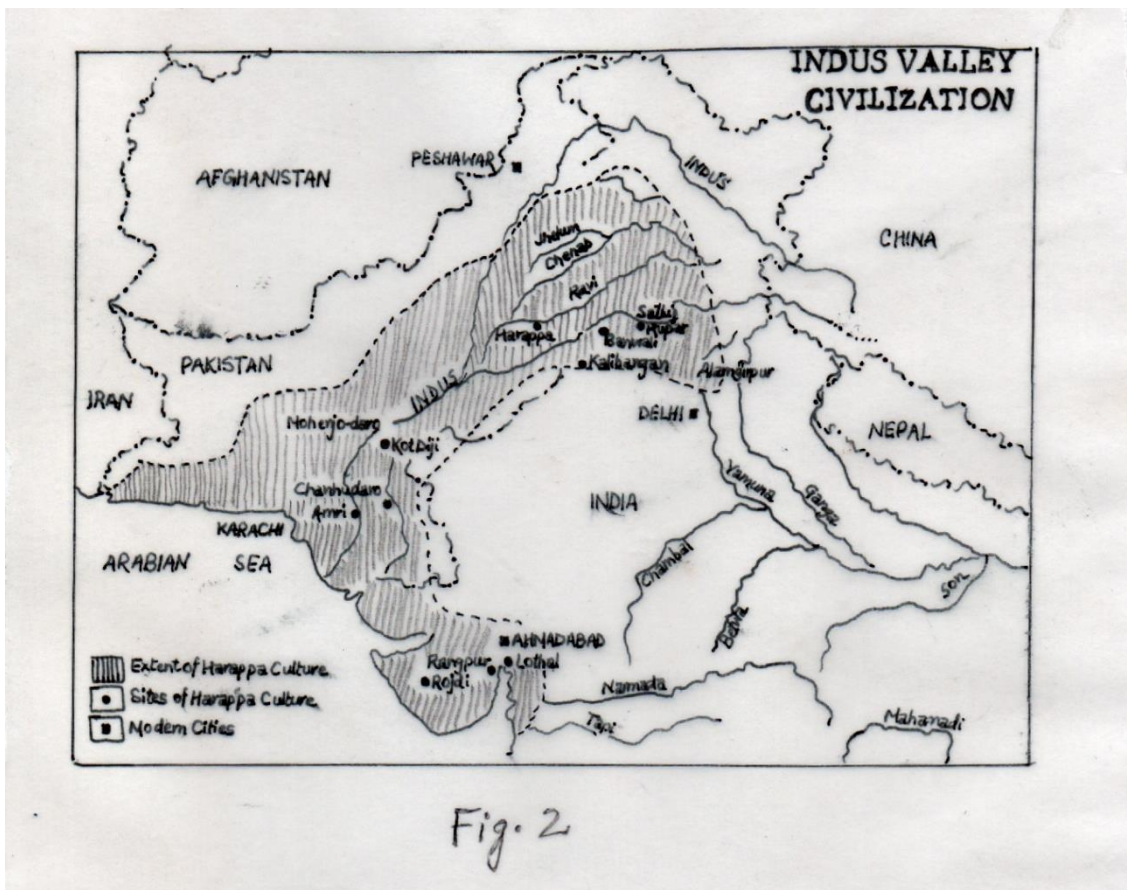
in the arid belt encouraged sedimentation with pollen of Cerealia type in the lakes. The evidence of scrub-burning in the form of carbonized remains suggests the pre-Harappan levels at Kalibangan structures. This led to Neolithic-Chalcolithic Cultures in the North-West India and Eastern Pakistan, resulting in the prosperity of the Indus Culture.

During c 1800 BCE – c 1500 BCE, the arid belt Lunkaransar started drying but in the semi-arid area, Lakes were getting saline. At Sambhar, it began about 1000 BCE. The dry period after c 1800 BCE explains why there is a cultural gap between the decline of the Harappan Culture and the beginning of the succeeding Painted Grey Ware Culture (c 1000 BCE – c 600 BCE)

Between c 1500 BCE – c 1000 BCE there was a slight increase in rainfall by 1000 BCE.

Phase V Early Centuries to the Present :The rate of sedimentation in Lunkaransar and assemblage of pollen in it confirms the present environmental conditions in the area. The region has been having almost no cultivation of cereals, tree vegetation or existence of cereals, aquatic species since then. The region seems to comprise scanty and sandy vegetation around the Lunkaransar Lake

Examination of Evidences of Palynology: The geographical distribution of the Harappan sites gives the following facts (fig-2) ;



- i. In the west Rajasthan, Harappan sites are absent except around the Ghaggar where the lakes taken for climatic sequences are located. It is drained by the Luni.
- ii. Even in the north Gajarat, Harappan sites are absent, though this area is drained by the Banas, the Sabarmati, the Mahi and their tributaries.
- iii. The west Rajasthan and north Gujarat should have more Harappan sites than hyper-arid Cholistan desert of Pakistan if the increased rainfall was the causative factor in the emergence of the farming based Harappan Culture.
- iv. The densest distribution of Harappan sites is on the

extinct Hakra-Ghaggar Valley and not on the Indus.

Conclusions

The Harappan Culture is mainly the culture of the Hakra-Ghaggar Valley and the fluctuations of the fortunes of this river have been guiding the rise and fall of this Culture. The decline in the material prosperity and civic standards forced the population to migrate from the lower Indus Valley into Saurashtra and from the Hakra-Ghaggar Valley into Punjab, Haryana and the Upper Yamuna-Ganga Doab. The shift of the courses of the Yamuna and the Sutlej to east and west respectively led to migrate the population towards north Punjab and the upper Yamuna-Ganga Doab where the rivers provided the ecological conditions the Harappans had long been accustomed to exploit. The increase in population and the availability of the limited land led to the density of the late Harappan sites in the districts of Ludhiana and Saharanpur.

References :

1. Gupta S. P. 1978. *Origin of the form of Harappan Culture : A new*

proposition. Puratattva 8 (1976), pp. 141-6.

2. Jansen, M. 1980. Settlement patterns in the Harappan Culture. In H. Hartel (ed.), *South Asian Archaeology 1979*, Hopkins, Berlin, pp. 251-69.
3. Mittre, V. Palaeobotany and the environment of early man in India. In S. B. Deo (ed.), *Archaeological Congress and Seminar Papers*, Nagpur, 1972; pp. 206-12.
4. Ramaswamy, C. Monsoon over the Indus Valley during the Harappan period. *Nature* 217 (5129), 1968; pp. 628-29.
5. Singh, G. *The Indus Valley Culture, Archaeology and Physical Anthropology in Oceania*, 1971; Vol. 06, No. 2, pp. 177-89.
6. Sharma, D. 1966. *Rajasthan through the Ages*, Vol. 1. Dharti Prakashan, Bikaner.
7. Thapar, R. 1966. *A History of India*, Penguin, London