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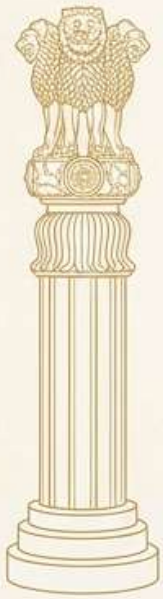
# Itihaaskar JRF

UGC NET History (Code 06)

## Module 1 – Ancient India

Complete Notes • 16 chapters



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# Harappan Civilization — Complete Notes

**The world's largest Bronze Age urban civilisation · c. 3300–1300 BCE · From Balochistan to Gujarat, from the Himalayas to the Deccan**

🔴 HIGH — 8–12 PYQs (LAST DECADE) — ONE OF THE MOST HEAVILY TESTED TOPICS IN UGC NET HISTORY; TESTED ACROSS EVERY DIMENSION: SITE IDENTIFICATION, TOWN PLANNING FEATURES, ECONOMY, TRADE, RELIGION, SCRIPT, SOCIAL ORGANISATION, AND THE DECLINE DEBATE. EXPECT 2–3 DIRECT QUESTIONS PER PAPER.

### WHY THIS TOPIC MATTERS

- **PYQ pattern:** Town planning features (Great Bath, granary, drainage); site-specific finds (which seal, which object found where); trade evidence (Persian Gulf connections, lapis lazuli sources); script characteristics; decline theories; comparison of Harappan and Vedic cultures
- **Recent trend (2023–2026):** Analytical questions on the decline debate — testing specific scholars and their positions; questions on Rakhigarhi genome study (2019) and its implications; questions distinguishing Early, Mature, and Late Harappan phases; questions on non-Harappan contacts with the IVC (Mesopotamia, Central Asia)
- **Biggest traps:**
  1. The **Great Granary at Mohenjo-daro** — what Wheeler identified as a granary is now contested; the "granary" label is still used in textbooks but JRF-level answers should note the debate
  2. **Pashupati seal** — the seated figure with animals is called "proto-Shiva" but this identification is contested; safe term is "horned deity" or "deity surrounded by animals"
  3. The IVC had **no confirmed writing that has been deciphered** — do not treat the Indus script as "a writing system we understand"; it is undeciphered
  4. Confusing **Lothal** (Gujarat, IVC dockyard) with **Dholavira** (Gujarat, IVC largest in India) — both are Gujarat sites; their distinctive features are frequently confused
  5. The decline is **multi-causal and debated** — never state a single cause as the answer; the safe position integrates climate change, river changes, epidemic, and internal decline
- **Strategy:** Master the site matrix (site → region → distinctive find), the town planning features analytically (not as a list but as evidence for state capacity), the trade network in detail, and at minimum four distinct decline theories with their scholarly proponents

### CHRONOLOGICAL ANCHOR — HARAPPAN CIVILIZATION

- **c. 7000–3300 BCE** — **Pre-Harappan / Mehrgarh sequence** — agricultural foundation in Balochistan; pottery and copper technology develop
- **c. 3300–2600 BCE** — **Early Harappan (regionalisation era)** — proto-urban centres; **Kot Diji**, **Rahman Dheri**, **Amri** cultures; incipient standardisation
- **c. 2600–1900 BCE** — **Mature Harappan (integration era)** — peak urbanisation; standardised weights, script, bricks; **Mohenjo-daro**, **Harappa**, **Dholavira**, **Rakhigarhi**, **Lothal** flourish
- **c. 2600 BCE** — Mature Harappan cities established; estimated population 5 million across the civilisation
- **c. 2500–1900 BCE** — **Peak of Indo-Mesopotamian trade** — Harappan seals at Ur, Lagash; **Meluhha** references in Akkadian texts
- **c. 1900 BCE** — **Collapse/transformation begins** — Mohenjo-daro and Harappa decline; population disperses eastward and southward

- **c. 1900–1300 BCE** — **Late Harappan (localisation era)** — regional cultures; **Cemetery H** at Harappa; **Jhukar** culture (Sindh); **Rangpur/Prabhas** (Gujarat); **Ochre Coloured Pottery** (Doab)
- **1921–22** — **Modern discovery**: Harappa by **Daya Ram Sahni** (1921); Mohenjo-daro by **R.D. Banerji** (1922)
- **1924** — **John Marshall** announces the discovery to the world in *Illustrated London News*
- **1946** — **Mortimer Wheeler** excavates Harappa; proposes "Aryan invasion" decline theory
- **1955–56** — **S.R. Rao** excavates Lothal
- **1990s–2000s** — **Rakhigarhi** identified as the largest IVC site
- **2019** — **Rakhigarhi genome study** (Vagheesh Narasimhan et al.) — ancient DNA from IVC-period skeleton at Rakhigarhi shows no steppe ancestry

## 1. DISCOVERY AND HISTORIOGRAPHY — HOW WE KNOW WHAT WE KNOW

The Harappan Civilisation was entirely unknown to modern scholarship until 1921–22. Its recovery fundamentally rewrote the chronology of South Asian civilisation — proving that a sophisticated urban culture existed in the subcontinent two millennia before the Mauryan Empire and roughly contemporaneous with ancient Egypt and Mesopotamia.

**The discovery sequence:**

- **Alexander Cunningham** (ASI Director General) visited Harappa in 1853 and 1873; collected a seal but failed to recognise its significance; noted that local farmers were using Harappan baked bricks as building material and as ballast for the Lahore-Multan railway line — an act of unknowing destruction that stripped significant stratigraphic context from the upper levels of both Harappa and Mohenjo-daro before systematic excavation began
- **Daya Ram Sahni** (ASI) excavated Harappa in **1921** — the first systematic work; identified the site as a major ancient settlement
- **R.D. Banerji** (ASI) excavated Mohenjo-daro in **1922** — independently; initially thought the site was Buddhist (Kushan period); the discovery of Harappan-style seals connected it to Sahni's Harappa
- **John Marshall** (ASI Director General) recognised the connection between the two sites and in **1924** announced to the world in *Illustrated London News* the discovery of "a new civilisation of the prehistoric age"
- **Ernest Mackay** continued excavations at Mohenjo-daro (1927–31) and Chanhu-daro (1935–36)
- **Mortimer Wheeler** excavated Harappa in **1946** and brought modern stratigraphic methods to the field; his work established the basic periodisation; his "Aryan invasion" theory for the decline, though later abandoned, dominated scholarship for decades

> The IVC's discovery under British auspices shaped its initial interpretation. John Marshall's framing — a "lost civilisation" suddenly revealed — fitted colonial narratives about India's prehistoric past as a mystery awaiting European decipherment. Wheeler's interpretation of the "massacre" at Mohenjo-daro as evidence for Aryan invasion (partly to corroborate the Rigvedic *vrtra* myth) was explicitly tied to using archaeology to validate textual (Vedic) history. Post-independence Indian scholarship (B.B. Lal, S.R. Rao, Shereen Ratnagar) progressively challenged both the interpretation and the methodology of the colonial-era excavations.

## 2. GEOGRAPHICAL EXTENT AND PHASE CLASSIFICATION

### 2.1 Geographical Extent — Larger than Egypt and Mesopotamia

The Harappan Civilisation at its peak (Mature Harappan, c. 2600–1900 BCE) covered an estimated **1.5 million square kilometres** — larger than the contemporary civilisations of ancient Egypt and Mesopotamia combined. Its distribution:

- **Westernmost site**: **Sutkagen-dor** (Makran coast, Balochistan, Pakistan) — a coastal trading post on the Arabian Sea
- **Easternmost site**: **Alamgirpur** (Meerut district, UP) — on the Hindon River, a tributary of the Yamuna
- **Northernmost site**: **Manda** (Akhnoor, Jammu) — on the Chenab River at the foothills of the Himalayas
- **Southernmost site**: **Daimabad** (Maharashtra) — on the Godavari; the southernmost known IVC site

This distribution covers modern Pakistan (the core zone — all five rivers of the Punjab plus Sindh), northwest India (Rajasthan, Gujarat, Haryana, Punjab), and outliers in UP, Maharashtra, and Jammu.

> The IVC was not uniformly distributed across its territory. Settlement was concentrated along:
> - **Indus River and its tributaries** (Jhelum, Chenab, Ravi, Beas, Sutlej) — the Punjab core
> - **Ghaggar-Hakra river system** — a now-dry or seasonal river running through Rajasthan and Haryana; this may be the Rigvedic **Saraswati**; some scholars argue the **highest density of IVC sites** was along the Ghaggar-Hakra, not the Indus — with implications for the "Indus" vs. "Saraswati" naming debate
> - **Gujarat coastal zone** — Kutch and Saurashtra; connected to maritime trade
> - The Ganga-Yamuna Doab sites (Alamgirpur, Hulas) are outliers at the extreme eastern frontier

### 2.2 Phase Classification

The IVC is now classified into three broad phases, within each of which regional variants existed:

**Early Harappan (c. 3300–2600 BCE) — "Regionalisation Era" (Shaffer's terminology):**

- Pre-urban settlements; village-sized communities with early craft specialisation
- Regional pottery traditions still dominant: **Amri ware** (Sindh), **Kot Diji ware** (Punjab/Sindh), **Sothi-Siswal ware** (Rajasthan/Haryana), **Rahman Dheri** (Gomal valley)
- Gradual convergence toward shared material culture begins
- **Kot Diji** (Khairpur, Sindh) — the type-site for early Harappan; occupation begins c. 3300 BCE; shows destruction by fire at the transition to Mature Harappan — possibly violent conquest, possibly accidental

**Mature Harappan (c. 2600–1900 BCE) — "Integration Era":**

- The phase that defines "Harappan Civilisation" in popular and academic discourse
- Standardised material culture across the entire distribution zone: standardised **brick sizes** (ratio 1:2:4), standardised **weights and measures**, shared script, shared iconography on seals

- Five to six **major urban centres** (Mohenjo-daro, Harappa, Dholavira, Rakhigarhi, Ganweriwala, possibly Judeirjo-daro) with populations estimated at 30,000–80,000 each
- Hundreds of smaller towns (Lothal, Chanhu-daro, Surkotada) and thousands of village settlements

**Late Harappan (c. 1900–1300 BCE) — "Localisation Era":**

- Gradual urban decline; abandonment of major cities
- Regional cultures diverge: **Cemetery H culture** at Harappa (new burial tradition, new pottery); **Jhukar culture** (Sindh — simplified Harappan); **Rangpur/Prabhas culture** (Gujarat — late survival of Harappan elements); **Painted Grey Ware** culture begins to emerge in the Doab
- Population movement eastward toward the Ganga plains and southward toward the Deccan
- Writing disappears; standardised weights disappear; urban planning disappears

## 3. MAJOR SITES — DETAILED PROFILES

### 3.1 Mohenjo-daro ("Mound of the Dead")

**Location:** Larkana district, Sindh, Pakistan; on the right bank of the Indus.
**Excavators:** R.D. Banerji (1922), John Marshall (1924–27), Ernest Mackay (1927–31), Ernest Mackay and others; more recent excavations by Pakistani archaeologists.
**Estimated population at peak:** 40,000–50,000.

Mohenjo-daro is the **best-preserved and most extensively excavated** Mature Harappan urban site, and the primary basis for reconstructions of IVC urban life.

**Town planning:**

- The site is divided into a **western elevated mound** (the "Citadel" or Acropolis) and an **eastern lower city** — a bipartite layout repeated at Harappa and other major sites
- The **Citadel** (approximately 200 × 400 m; elevated on a mudbrick platform c. 12 m above the plain) contains the major public structures
- The **Lower City** (approximately 800 × 400 m) contains the residential and commercial areas

**Key structures at Mohenjo-daro:**

*The Great Bath:*

- Dimensions: approximately **12 × 7 metres**; depth approximately **2.4 metres**
- Construction: brick-lined tank with gypsum mortar; the floor and walls sealed with **bitumen (natural tar)** to make them watertight — a sophisticated waterproofing technology
- The bath is surrounded by a **colonnade** (a covered walkway with columns) and small rooms — interpreted as dressing rooms or priests' changing rooms
- Water supply: a large well adjacent to the bath; drainage from the bath into a large covered drain
- **Interpretation**: Wheeler interpreted it as a **ritual bathing tank** — a prototype of the Hindu *kund* tradition; Marshall similarly emphasised the ritual dimension; **Shereen Ratnagar** questions whether it was purely ritual — it may have been a public bathing facility with mixed social and ritual functions; the rooms around the bath have been interpreted as changing cubicles for bathers; the **priest-king hypothesis** (a religious authority controlling access to the bath) is speculative but widely cited

- The Great Bath is the **most iconic structure** of the IVC and a guaranteed PYQ item

*The "Granary":*

- A large mudbrick structure (approximately **45 × 15 metres**) on the Citadel, identified by Wheeler as a **granary** (grain storehouse) — a central institution for redistributing agricultural surplus
- **Problems with the granary identification**: no grain has been found inside; the internal structure (raised wooden platforms with air channels beneath — to prevent damp) is consistent with a granary but not definitive; **Shereen Ratnagar** argues there is no conclusive evidence for a granary function; some archaeologists now interpret it as a **large hall or assembly building**
- The granary question is directly relevant to political organisation debates: if true, centralised grain storage implies state-level redistributive economy; if false, the evidence for a centralised state weakens

*Assembly Hall:*

- A structure with multiple columns — interpreted as a public assembly space or court; evidence for some form of civic or administrative function

*The "Priest-King" Statue:*

- A small (17.5 cm) **steatite bust** found at Mohenjo-daro; depicts a bearded man wearing a shawl with trefoil design; half-closed eyes; traditionally identified as a "priest-king" — a ruler who combined religious and political authority
- The identification is entirely speculative — there is no evidence the figure is either a priest or a king; it may be a deity, an ancestor, or a votive figure; the trefoil design on the shawl has parallels in Mesopotamian religious iconography

*Dancing Girl:*

- A **bronze figurine** (10.5 cm) of a young woman in a confident pose — right hand on hip, left arm decorated with bangles; discovered in a house in the Lower City
- Technically accomplished lost-wax casting; the figure is often described as "dancing" though the pose is more accurately a relaxed, confident stance
- Evidence for: bronze-casting skill; women as subjects of artistic representation; possibly a performer or cult figure; the bangles parallel bangles still worn in South Asia

*The "Unicorn" Seals:*

- The most common seal type across the IVC — a single-horned animal (identified as a bull in profile, appearing "unicorn-like" because the second horn is behind the first from a profile view) in front of a "standard" (a composite object of unknown function — possibly a filter for ritual liquid, a feeding trough, or a sacred emblem)
- Over 60% of all IVC seals carry this motif — standardisation of iconography across the entire civilisation is striking evidence for a shared cultural or religious system

## 3.2 Harappa

**Location:** Sahiwal district, Punjab, Pakistan; on the left bank of the Ravi River.
**Excavators:** Daya Ram Sahni (1921), Marshall (1920s), Wheeler (1946), recent American-Pakistani team (HARP project — Mark Kenoyer and others, 1986 onwards).
**Estimated population at peak:** 23,000–35,000.

Harappa's upper levels were significantly damaged by brick robbing (railway construction) before systematic excavation; it is less well-preserved than Mohenjo-daro.

**Key findings:**

- **Two mounds** (Mound AB — Citadel; Mound E — Lower City; Mound F — "Granary" area)
- **Granary at Harappa**: Wheeler identified a series of **12 brick platforms** with ventilation passages and a wooden superstructure as a granary — his primary evidence for a centralised redistributive economy; adjacent to the "granary" he found a **working floor** with circular depressions for husking grain; the granary identification at Harappa is slightly more secure than at Mohenjo-daro but still debated
- **Coffin burials in Cemetery R-37**: extended burials with heads pointing north; pottery, ornaments, and animal bones as grave goods; modest variation in grave wealth suggesting limited social differentiation — not the extreme hierarchy of contemporary Mesopotamian royal burials
- **Cemetery H**: a later burial tradition at Harappa, dating to the Late Harappan phase; distinctive painted pottery with peacocks, pipal leaves, stars — entirely different iconography from Mature Harappan seals; associated with a population that overlaid the Mature Harappan occupation; some archaeologists link Cemetery H people with post-Harappan cultural transitions
- **Bronze tools and weapons**: axes, chisels, knives, spearheads — found in workshop debris suggesting on-site manufacture
- **Terracotta figurines**: humans and animals; female figurines with elaborate headdresses and applied clay pellets (interpreted as deity figures or votive objects)

## 3.3 Dholavira

**Location:** Kutch district, Gujarat, India (on Khadir Island in the Rann of Kutch); now a **UNESCO World Heritage Site** (inscribed 2021).
**Excavators:** J.P. Joshi (ASI, initial discovery 1968); R.S. Bisht (ASI, systematic excavation 1990–2005).
**Estimated population:** 15,000–20,000.

Dholavira is the **largest known IVC site in India** (Rakhigarhi is larger overall) and the best-preserved IVC site on Indian soil, providing the most detailed picture of IVC town planning for Indian students.

**Unique features of Dholavira:**

*Three-part town plan:*

- Dholavira has a **tripartite** division: Citadel (highest elevation), Middle Town, and Lower Town — compared to the bipartite (Citadel + Lower City) layout of Mohenjo-daro and Harappa; the middle town may represent an intermediate social class between the elite of the Citadel and the general population of the Lower Town

*Massive stone architecture:*

- Unlike most IVC sites which use baked brick, Dholavira makes extensive use of **dressed stone** — a local adaptation to the available building material (limestone) in the Kutch environment; the gateway structures at Dholavira are partially stone-built, unlike the purely brick construction elsewhere

*Signboard inscription:*

- A **large wooden signboard** (approximately 3 metres long) with **10 large Indus script signs** (each approximately 37 cm high) was found near the north gate — the **largest Indus script**

**inscription** known; the signs are made of **gypsum inlay** on a wooden backing; the size and prominent placement suggest public display — a sign or announcement visible to people entering the city; if the Indus script can ever be deciphered, this may be one of the first "texts" to yield meaning

*Water conservation system:*

- Dholavira is located in the semi-arid Rann of Kutch — water management was existential; the city has the most elaborate **water management system** of any IVC site:
  - **16 large reservoirs** cut into the rock or built within the city walls, fed by two seasonal streams (**Mansar** and **Manhar**) channelled through the city
  - Total water storage capacity estimated at c. **250,000 cubic metres** — enough to sustain the population through long dry periods
  - Sluice gates, overflow channels, and distribution channels — evidence for careful hydraulic engineering
- This water system has no parallel at any other IVC site and is the most sophisticated ancient water management system known from South Asia before the historical period

*Stadia or public space:*

- A large open area (approximately **283 × 47 metres**) in the Lower Town, interpreted by Bisht as a **ceremonial ground or public gathering space** (*stadia*-like); if correct, this implies large-scale public events or assemblies

## 3.4 Rakhigarhi

**Location:** Hisar district, Haryana, India; on the now-dry Ghaggar-Hakra riverbed.
**Excavators:** ASI (A.K. Sharma, 1997–2000); ongoing excavations by **Vasant Shinde** (Deccan College).
**Significance:** With an estimated total area of approximately **350 hectares**, Rakhigarhi is now considered the **largest known IVC site** — surpassing both Mohenjo-daro (250 ha) and Harappa (150 ha).

**Key findings and significance:**

- Large cemeteries with well-preserved skeletal remains — the primary source for the **2019 ancient DNA study**
- Multiple mounds suggesting a complex, multi-phase urban settlement
- Evidence of **drainage systems, baked brick streets, wells** — confirming full Mature Harappan urban infrastructure
- The **Rakhigarhi genome study** (2019, published in *Science* — Vagheesh Narasimhan, David Reich et al.): ancient DNA extracted from a skeleton at Rakhigarhi showed **no steppe ancestry and no ancestry from ancient Iranian farmers** (the two possible external sources for Aryan migration); the genome cluster with **South Asian hunter-gatherers** (AASI — Ancient Ancestral South Indians); this has been interpreted by some as evidence against the Aryan migration thesis — but the mainstream position is that the skeleton predates the migration (it is from the Mature Harappan period, c. 2600–1900 BCE) and the Aryan migrations came later (c. 2000–1500 BCE), after the IVC decline; the study does not disprove migration but shows the IVC population was largely indigenous in ancestry

## 3.5 Lothal

**Location:** Saragwala, Ahmedabad district, Gujarat; near the Gulf of Khambhat (Cambay).
**Excavators: S.R. Rao** (ASI, 1955–62).
**Estimated population:** 2,000–5,000 (a town, not a major city).

Lothal is the most important IVC site for **maritime trade** and is one of the most heavily PYQ-tested sites.

**Key findings:**

*The Dockyard:*

- A large rectangular basin (approximately **219 × 37 metres**; depth c. 4 m) connected to the river/estuary by an inlet channel with a **sluice gate** — to control water levels and allow ships to enter and exit
- **S.R. Rao** identified this as a **tidal dockyard** — ships could enter when tides raised the water level; the sluice gate maintained water level in the basin at low tide; this made Lothal a purpose-built maritime trading port
- **Challenge to the dockyard identification**: **Shereen Ratnagar** argued that the basin is too small for ocean-going ships and that the tidal connection is not well-established; she interprets it as a **freshwater reservoir**; the dockyard identification is still used in textbooks but the debate should be noted at JRF level
- The majority position (S.R. Rao's interpretation) is still widely accepted and is what PYQs test

*Evidence for long-distance trade:*

- Persian Gulf-type **circular button seals** (different from the standard square IVC seals) found at Lothal — suggests direct contact with Gulf traders
- **Terracotta model of a sailing ship** — possibly the earliest depiction of a sailing vessel in South Asia
- **Copper objects** with high nickel content — a signature of Oman copper, suggesting direct trade with the Arabian Peninsula

*Other important finds:*

- **Ivory workshop** — evidence of ivory processing, suggesting trade in raw ivory (from Indian elephants) or finished goods
- **Bead factory** — evidence of carnelian bead production; carnelian beads from Lothal have been found at IVC sites across the network and at Mesopotamian sites
- **Fire altars** — structures with ash deposits interpreted as fire-worship installations; used by some scholars as evidence for an early fire-cult (precursor to Vedic yajna?)
- **Double-burial** — a man and woman buried together in the same grave; unusually, both are laid in the same orientation; interpreted (tentatively) as evidence of **sati** or joint burial practice; this claim is controversial and not mainstream

## 3.6 Kalibangan

**Location:** Hanumangarh district, Rajasthan; on the south bank of the Ghaggar River (ancient Saraswati).
**Excavators:** A. Ghosh (ASI, 1960–61); B.B. Lal and B.K. Thapar (ASI, 1961–69).

**Key findings:**

- **Pre-Harappan (Sothi-Siswal) occupation** below the Mature Harappan levels — one of the clearest stratigraphic demonstrations of Early → Mature Harappan continuity
- **Ploughed field** (Pre-Harappan period): criss-cross furrows in a fired surface — the **earliest evidence of ploughing in South Asia** (c. 2800 BCE); the furrow pattern (one direction for one crop, perpendicular direction for another) is consistent with multi-crop simultaneous cultivation still practised in the region
- **Fire altars** on the Citadel — a row of fire altars with ash deposits and animal bones; interpreted as ritual fire installations; **B.B. Lal** connected these to Vedic fire rituals; critics argue fire altars are not exclusive to Vedic culture and predate the Vedas
- **Cylindrical seals** — in addition to the standard square IVC seals; cylindrical seals of Mesopotamian type, suggesting direct contact or cultural exchange

### 3.7 Surkotada

**Location:** Kutch district, Gujarat.
**Excavators:** J.P. Joshi (ASI, 1971–72).

**Key finding**: Evidence of **horse bones** — identified by J.P. Joshi and later claimed as evidence for the horse in IVC culture; if confirmed, this would undermine the conventional distinction between non-horse IVC and horse-using Vedic Aryans; **Richard Meadows** (American archaeologist, specialist in archaeozoology) examined the bones and concluded they are from a **horse-like equid (Indian wild ass or onager), not a true horse** (*Equus caballus*); the horse question at Surkotada remains unresolved but mainstream scholarship does not accept horse presence in Mature Harappan culture

### 3.8 Chanhu-daro

**Location:** Nawabshah district, Sindh, Pakistan.
**Excavators:** Ernest Mackay (1935–36).

**Key finding**: A **bead factory** — the most extensive evidence for the industrial-scale production of IVC beads; also evidence for **inkpot and stylus** objects — materials that could potentially be writing implements, though the connection to the Indus script is speculative; the only major IVC site **without a Citadel** — its entire area was a lower city of craft workshops and residences.

### 3.9 Banawali

**Location:** Fatehabad district, Haryana; on the Saraswati/Ghaggar river system.
**Excavators:** R.S. Bisht (ASI).

**Key finding**: One of the few IVC sites to yield **a lapis lazuli workshop** — suggesting that raw lapis (imported from Badakhshan, Afghanistan) was processed and fashioned into beads and ornaments at Banawali before being traded to other sites; also has evidence of a **ploughed field** similar to Kalibangan.

### 3.10 Sutkagen-dor and Coastal Sites

**Sutkagen-dor** (Makran coast, Balochistan) is the westernmost IVC site — a fortified outpost on the Arabian Sea coast, likely serving as a waystation for maritime trade between the Indus ports and Mesopotamia. No major habitation; primarily a trading post/fort.

**Balakot** (Las Bela, Balochistan) — a coastal IVC site with evidence of **shell-working** industry; marine shells were a major trade commodity.

## 4. TOWN PLANNING — EVIDENCE FOR STATE CAPACITY

Harappan town planning is the most frequently discussed and most heavily tested aspect of the civilisation. Its significance lies not merely as an architectural achievement but as **evidence for the level of social organisation** — the ability to plan, resource, and maintain urban infrastructure implies social institutions of considerable power and complexity.

### 4.1 The Citadel-Lower City Pattern

The bipartite urban layout (elevated western Citadel + lower eastern residential area) is consistent across Mohenjo-daro, Harappa, and other major sites. The interpretation of this pattern:

- **Wheeler's interpretation**: the Citadel housed political-religious authorities (a "theocratic" state); the Lower City housed the general population; the elevation of the Citadel was both defensive (it was a raised fortified platform) and symbolic (height = authority)
- **Shereen Ratnagar's critique**: the Citadel's "public buildings" may not be administrative — the Great Bath may be a community facility, the "granary" may not be a granary; she argues the evidence for a centralised political authority is weaker than Wheeler supposed
- **Current position**: the bipartite layout clearly indicates **social differentiation in space** — different groups occupied different elevations; but whether this reflects a state hierarchy or a more diffuse form of community organisation remains debated

### 4.2 The Grid Pattern and Drainage System

**Street grid:**

- Streets were laid on a **cardinal grid** (north-south and east-west orientation) — the clearest evidence for pre-planned urban design, as opposed to organically grown settlements
- Major streets (approximately **9–10 metres wide**) intersected smaller lanes (approximately **1.5–3 metres wide**); the street width implies wheeled vehicles (bullock carts) — the larger streets are wide enough for two carts to pass
- **Street lighting**: terracotta lamp-posts found along streets — evidence for artificial illumination of public spaces at night; implies civic organisation that maintained public infrastructure

**The drainage system — the most sophisticated of the ancient world:**

- **Every house** in the Lower City of Mohenjo-daro and Harappa was connected to a covered drainage system — an urban infrastructure achievement that would not be matched in most parts of the world until the 19th century CE
- Structure: small drains from each house led to larger street drains; street drains were covered with **flat brick slabs** that could be removed for cleaning; the drains connected to larger sewer channels that carried waste to the city perimeter
- **Soak pits** and **cesspools** at intervals; evidence that solids were separated from liquid waste in some locations

- The sophistication of the drainage system implies: (1) centralized planning and enforcement (every house had to conform to a standard drainage connection); (2) a **sanitation authority** or equivalent institution with power to mandate connections; (3) ongoing maintenance (drains were cleaned — archaeologists have found clean-out debris deposited adjacent to drain channels)
- This is the primary material evidence for a **functioning civic authority** in the IVC — even if that authority was not a king or a state in the Mesopotamian or Egyptian sense

### 4.3 Standardised Bricks

Across thousands of IVC sites spanning 1.5 million km², baked bricks are made in a **standard ratio of 1:2:4** (thickness : width : length). Common brick sizes: 7 × 14 × 28 cm at Mohenjo-daro and Harappa (the exact dimensions vary slightly by site but the 1:2:4 ratio is invariant).

The significance of standardised bricks:

- Production **could not be standardised** without a common measurement system and a mechanism to ensure compliance — whether a guild system, a state authority, or a market mechanism
- The brick ratio is **structurally optimal** for building walls — it ensures maximum interlocking strength; this reflects empirical engineering knowledge
- Some sites deviate from the standard (Dholavira uses a slightly different ratio) — suggesting local variation within a broadly shared system, not rigid central control

### 4.4 Wells

- **Private wells inside individual houses** — a remarkable feature; many Mature Harappan houses had their own wells, built with wedge-shaped bricks that curved the well shaft precisely
- Mohenjo-daro had over **700 wells** — the highest density of wells in any ancient city; this ensured water independence for individual households, reducing dependence on central water distribution
- The well technology (wedge-brick construction) is an IVC invention with no Mesopotamian parallel

### 4.5 Fortifications

- Both the Citadel and, at some sites, the Lower City were enclosed by **thick mudbrick walls** — defensive or flood-control structures (the distinction matters: flood-control walls need to be high and strong but not defensive in design)
- **Wheeler** interpreted these as **defensive fortifications** and used them (along with the "massacre" skeletons) to argue for military conflict and eventual Aryan invasion
- **Alternative interpretation**: the walls protected the elevated Citadel from flooding — the Indus and its tributaries were subject to catastrophic seasonal floods; a massive mudbrick platform and surrounding walls would protect both the buildings and the inhabitants from flood events
- The flood-control interpretation is now more widely accepted for the Citadel platforms; the outer walls of some cities may have served both purposes

## 5. ECONOMY — AGRICULTURE, CRAFTS, AND TRADE

## 5.1 Agricultural Base

The IVC was fundamentally an agrarian civilisation. The agricultural surplus produced by the surrounding countryside sustained the urban population.

**Crops cultivated:**

- **Wheat** (*Triticum* spp.) — the primary staple; multiple varieties
- **Barley** — equally important; evidence from grain impressions in pottery and carbonised grain deposits
- **Cotton** (*Gossypium arboreum*) — the IVC is the earliest known civilisation to **cultivate and weave cotton**; cotton textiles were a significant export commodity (Mesopotamian texts mention *sindu* — linen/cotton cloth from Meluhha); carbonised cotton seeds at Mehrgarh (Phase II) and cotton fabric impressions on IVC copper objects
- **Sesame** — oil crop; important for cooking and lamp fuel
- **Mustard** — oil crop
- **Dates** — grown in the Sindh coastal zone
- **Peas, lentils** — legumes providing protein and nitrogen-fixing benefits to the soil
- **Rice** — limited evidence; primarily in Gujarat sites; not a major IVC crop (rice became important in India later, primarily in the Ganga plains)

**Agriculture technology:**

- **Ploughed fields** at Kalibangan and Banawali — evidence for **ox-drawn ploughs**; the ploughed field at Kalibangan is the earliest direct evidence of ploughing in the world
- **Irrigation**: the presence of a major agriculture in the semi-arid Sindh and Rajasthan implies irrigation; the Indus flood plain was naturally irrigated by annual floods (similar to the Nile), but supplementary canal irrigation likely existed; no direct archaeological evidence for IVC canals has been found, but hydrological modelling suggests it
- **Granaries**: if Wheeler's granary identifications are accepted (disputed), they imply centralised grain storage — collecting surplus from farmers and redistributing to craftspeople and traders

**Domesticated animals:**

- **Zebu cattle** (*Bos indicus*) — the most important; used for ploughing, transport, dairy, and possibly meat; bull imagery on IVC seals is ubiquitous — the bull was economically and symbolically central
- **Buffalo** — used for heavy agricultural and transport work
- **Sheep and goat** — for wool, milk, meat
- **Elephant** — terracotta figurines confirm familiarity; possibly used for heavy labour
- **Dogs** — domestic companions and possibly herding animals
- **Horse** — **NOT confirmed** in Mature Harappan sites; the presence of horse is one of the key distinctions between IVC and Vedic culture; the Surkotada claim (J.P. Joshi) is rejected by most specialists (Meadows)
- **Camel** — some evidence at late Harappan sites; important for later Central Asian trade routes

## 5.2 Craft Production

The IVC was the first South Asian civilisation to develop **industrial-scale craft production** — the manufacture of standardised goods for long-distance trade.

**Bead production:**

- **Carnelian beads** (red-orange semi-precious stone) — the most prestigious IVC export; manufactured at **Chanhu-daro**, **Lothal**, and other sites; the production process involved multiple stages: rough shaping, heat treatment to improve colour (brilliant orange-red), grinding to final shape, drilling with a flint drill bit; the finished beads were traded across the entire IVC network and to Mesopotamia
- **Steatite beads** — carved from soft soapstone; the square steatite seal blanks were carved with the Indus script and animal imagery; steatite was also used for small figurines and beads
- **Faience** — a manufactured glazed material (ground quartz with a copper-based glaze); the IVC was the first South Asian civilisation to produce faience; used for beads, small figurines, and bangles; faience technology may have been shared with or developed independently from Egyptian and Mesopotamian faience traditions
- **Shell bangles** — cut from large marine shells (*Turbinella pyrum* — the chanke or conch); manufactured at coastal sites (Nageshwar near Lothal, Balakot); found at inland sites hundreds of kilometres from the coast; a major trade commodity

**Metallurgy:**

- **Copper**: cast and worked copper tools (axes, chisels, knives), weapons (spearheads), ornaments; copper sources include Rajasthan (Khetri mines), Oman (Arabian Peninsula — high nickel copper found at Lothal)
- **Bronze**: tin-bronze objects found at some sites; tin sources uncertain (possibly from Afghanistan or central Asia); bronze use was limited compared to Mesopotamia
- **Gold**: ornaments; limited; gold sources possibly from Karnataka (later a major gold region) or trade
- **Silver**: ornaments; limited; silver sources from Afghanistan
- **Lead**: limited use; sources from Rajasthan
- **Iron**: **NOT present** in Mature Harappan; the Iron Age in South Asia begins over a millennium after the IVC peak; this is a critical diagnostic distinction — the IVC is a **Bronze Age** (technically Chalcolithic) civilisation

**Textiles:**

- Cotton textile production confirmed by: spindle whorls (for spinning thread) ubiquitous at all IVC sites; cotton fabric impressions on copper objects; the *Dancing Girl* figurine's woven textile garment
- Wool from sheep and goat was also used; linen (flax) is not confirmed

**Pottery:**

- Wheel-made, kiln-fired, standardised pottery — high-quality red ware with black painted designs; standardised forms across the network
- **No painted narrative scenes** on IVC pottery (unlike contemporary Egyptian and Mesopotamian pottery) — the imagery is geometric, floral, and animal; this absence of narrative art is one of the major interpretive puzzles of IVC iconography

## 5.3 The Trade Network — Internal and External

**Internal trade:**

- The IVC operated a sophisticated internal exchange network across its 1.5 million km² distribution:

- **Raw materials** moved from sources to manufacturing centres: copper from Rajasthan → Mohenjo-daro workshops; lapis lazuli from Badakhshan, Afghanistan → Banawali and other sites for bead production; carnelian from Gujarat → Chanhu-daro and Lothal for bead production; marine shells from the Gujarat coast → inland sites
- **Finished goods** moved from manufacturing centres to consumers across the network

- The **standardised weights and measures** (see Section 6.2 below) are the clearest evidence for internal trade regulation

**External trade — Mesopotamia (the most PYQ-tested aspect of IVC trade):**

- IVC trade with **Mesopotamia** is confirmed by multiple lines of evidence:
  - **Harappan objects in Mesopotamia**: IVC seals found at **Ur**, **Lagash**, **Nippur**, **Kish**, and other Sumerian/Akkadian cities; carnelian beads of IVC type at Mesopotamian sites; etched carnelian beads (a technique unique to the IVC) at Mesopotamian sites
  - **Mesopotamian objects in IVC sites**: Mesopotamian-type **cylinder seals** and **Gulf-type circular seals** found at Lothal and other IVC sites; lapis lazuli (available in both Mesopotamia and IVC sites from the same Badakhshan source)
  - **Cuneiform texts**: Mesopotamian texts from the Akkadian and Ur III periods (c. 2350–2000 BCE) refer to trade with **Dilmun** (Bahrain), **Magan** (Oman/Makran), and **Meluhha** — the latter is now widely identified with the **IVC** based on the commodities mentioned: carnelian, lapis lazuli, copper, timber, ivory, peacocks, and **sindu** (cotton cloth)
  - The **Meluhha identification**: Akkadian texts describe Meluhha merchants living in Akkadian cities, a Meluhha village near Lagash, and goods including "black wood" (Indian blackwood?), "gold, copper, carnelian" — consistent with IVC export commodities
  - **Trade route**: the primary route was **maritime** — from Gujarat/Sindh coast → Makran coast (Sutkagen-dor as waystation) → Magan (Oman) → Dilmun (Bahrain) → Mesopotamian cities; this was a coastal sailing route hugging the Arabian Sea coast

- **The Gulf intermediary**: **Dilmun** (Bahrain) appears to have served as a **trading entrepôt** — a middleman between IVC and Mesopotamian merchants; Dilmunite seals are found at both IVC sites and Mesopotamian sites; some scholars argue that Gulf merchants controlled the trade rather than IVC merchants travelling directly to Mesopotamia; the truth was probably a combination — IVC merchants sailed to Dilmun and Gulf/Dilmunite merchants carried goods onward to Mesopotamia

**External trade — Afghanistan and Central Asia:**

- **Shortugai** (Kunduz province, Afghanistan) — an IVC settlement in Afghanistan, approximately 1,500 km north of the Indus; its purpose was almost certainly **resource procurement**: lapis lazuli (Badakhshan mines are nearby) and possibly tin; this outpost demonstrates the IVC's active long-distance resource acquisition strategy
- **Tepe Yahya** (southeastern Iran) — IVC-type objects; possible indirect contact
- Central Asian **BMAC** (Bactria-Margiana Archaeological Complex) sites have yielded IVC-type objects, suggesting contact through overland routes through Afghanistan

**What the IVC exported:**

- Cotton textiles (*sindu*)
- Carnelian beads (especially etched carnelian — a uniquely IVC technique)
- Ivory (combs, figurines, inlays)

- Lapis lazuli beads (re-exported after working from raw Afghan lapis)
- Copper objects
- Possibly timber (from Himalayan forests via the Indus)
- Possibly spices and aromatics

**What the IVC imported:**

- Tin (for bronze alloy — sources possibly in Afghanistan or central Asia)
- Lapis lazuli (from Badakhshan — raw material)
- Silver (from Afghanistan)
- Possibly horses (later period — from Central Asia; but horse is not confirmed in Mature Harappan)

## 6. STANDARDISATION — WEIGHTS, MEASURES, AND SCRIPT

### 6.1 The Indus Script

The Indus script is one of the great unsolved puzzles of ancient civilisation. Its undecipherment means we cannot read any IVC text — every interpretation of IVC religion, political organisation, and economy that depends on written records is unavailable to us.

**Physical characteristics:**

- Approximately **400–450 distinct signs** — too many for a pure alphabet (which typically has 20–30 signs) but fewer than a pure logographic system like early Sumerian (which had 1,000+ signs); most scholars classify it as a **logo-syllabic** system or a **partially undeciphered mixed script**
- Written direction: **right to left** in most cases (some inscriptions show boustrophedon — alternating left-right and right-left — and rare left-to-right examples)
- Inscriptions are found on: square steatite seals (the most common medium), copper tablets, terracotta tablets, pottery, ivory rods, and the Dholavira signboard
- Average inscription length: **5 signs** — the shortest average of any known writing system; this brevity makes decipherment extremely difficult because there are few long texts to provide context

**What we know without decipherment:**

- The signs are **standardised** across the entire IVC distribution — a sign used in Harappa is identical to its use in Mohenjo-daro, 600 km away; this implies a **literate class** (scribes) who maintained consistent graphic conventions across a large territory
- Many seals have the same combination of animal image + script signs — these may be **owner's marks, trade labels, or identity tokens** used in commerce
- Some signs recur with high frequency (function words or titles?); some combinations recur (proper names? product categories?); but without a bilingual text (a "Rosetta Stone" for the Indus script) and without a known related language, decipherment remains elusive

**Decipherment attempts:**

- **Asko Parpola** (Finnish Indologist) — the most systematic and respected decipherment attempt; proposes the language is **proto-Dravidian** (ancestor of Tamil and other Dravidian languages); uses Sumerian logograms for comparison and Tamil phonetics; has produced partial, contested readings; the proto-Dravidian hypothesis is linguistically plausible (given that Dravidian languages are now