



Climate Change and the Decline of Indus Valley Civilisation

A new study titled 'Neoglacial climate anomalies and the Harappan metamorphosis', conducted by an international team of scientists suggests that **climate change may have led to the decline of the Indus Valley Civilisation.**

- The study looked at **sediments from the Arabian Sea from the continental margin of Pakistan**, reconstructed the Indian winter monsoon for the last 6,000 years, and examined undersea fossils and marine DNA.
- The seafloor near the mouth of the Indus is a very low-oxygen environment, so whatever grows and dies in the water is very well preserved in the sediment. Hence, it was used as a sample.
- Indian monsoon is the annual phenomenon that collects moisture from the Indian Ocean and spreads it over the Indian subcontinent in the form of rainfall. It influences climate in the region on a large scale and is crucial for the prevalence of annual weather patterns. A sizable population in the region, which is engaged in agriculture, depends on monsoon for their livelihood and survival even in the present time.

A Brief History

- More than 4,000 years ago, the Harappa culture thrived in the Indus River Valley of what is now modern Pakistan and northwestern India.
- They built sophisticated cities, invented sewage systems that predated ancient Rome's, and engaged in long-distance trade with settlements in Mesopotamia.
- However, by 1800 BCE, this advanced culture had abandoned their cities, moving instead to smaller villages in the Himalayan foothills.

Findings of the Study

- First, a **wetter winter monsoon** may have led to urban Harappan society turning into a rural one, as inhabitants migrated from a summer flood-deficient river valley to the Himalayan plains.
- Later, a **decline in the winter monsoon** could have played a role in the demise of the rural late Harappans.
- **A shift in temperatures and weather patterns** over the Indus Valley caused summer monsoon rains to gradually dry up, making agriculture difficult or impossible near Harappan cities.
- Records for the last 4,500 years generally indicate that temperatures were lower than the Holocene thermal maximum. A general cooling, known as the neoglaciation, occurred between 2,500 and 4,500 years ago.
- **Floods in the Indus and tributary rivers became less severe** and probably less predictable which affected the Indus people who depended a lot on inundation agriculture.
- Changing character of the Indian monsoon affected atmospheric temperatures and the flow of rivers originating in the Himalayas. Both the changing temperature and the changes in river flow would have influenced the crops that were grown in the region.
- **Ghaggar-Hakra**, which is the probable course of the Saraswati river, dried at the same time.
- Between 4,500 and 3,000 years ago, strong winter monsoons were characterised by "early neoglacial anomalies (ENA)" that is characterised by changes in wind and precipitation patterns that are evident across the eastern Northern Hemisphere and tropics.
- It was this coordinated climate reorganisation that may have helped trigger the transformation of the urban Harappan civilisation into a rural society. During that time the Indo-Aryan culture was arriving in the region with Iron Age tools and horses and carts.

Significance of the Study

- The Indus story is important today because it provides us with a vivid example of what climate change could do to people. The Indus people were smart and had ways to cope with climate.
- The study provides a powerful lesson for today as the migration out of Syria and African countries has some roots in climate change.
- Also, sea level rise in recent times due to climate change can lead to huge migrations from low lying regions like Bangladesh, or from hurricane-prone regions in the southern U.S.
- The Harappans could cope with the change by migrating but owing to the existing rigid political boundaries with the increasing tendency of protectionism, this option is nearly closed in today's global scenario which ultimately can cause political and social convulsion.

Harappan Civilisation

- A flourishing civilization emerged on the banks of the river Indus in the second half of the third millennium BCE and spread across large parts of western India.
- A marked feature of this ancient civilization was the vivid imagination and artistic sensibilities exuded by the numerous sculptures, seals, potteries, jewelleryes found at the excavation sites.
- **Harappa and Mohenjo-daro - the two major sites of this civilization** - are among the earliest and finest examples of urban civic planning. The planned network of roads, houses and drainage systems indicate the planning and engineering skills that developed during those times.
- Some of the important sites of the Indus Valley civilization and their archaeological findings are:
 - **Harappa in present Pakistan** - granaries with big platform, stone symbol of lingam and yoni, mother goddess figure, wheat and barley in wooden mortar, dice, copper scale and mirror.
 - **Mohenjo-daro in present Pakistan** - bronze dancing girl, the sculpture of bearded priest, the great bath, the great granary.
 - **Dholavira in Gujarat** - giant water reservoir, unique water harnessing system, stadium, dams and embankments, inscription comprising 10 large sized signs like an advertisement board.
 - **Lothal (Manchester of Indus Valley Civilisation) in Gujarat** - dockyard, double burial, risk husk, fire altars, painted jar, modern day chess, terracotta figure of ship, instruments for measuring 45, 90 and 180-degree angles.
 - **Ropar in Punjab** - dog buried with human oval pit burials.
 - **Balathal and Kalibangan in Rajasthan** - bangle factory, toy carts, bones of camel, decorated bricks, citadel and lower town.
 - **Banawali in Haryana** - toy plough, barley grains, oval-shaped settlement, the only city with radial streets.
 - **Alamgirpur in Uttar Pradesh** - impression of a cloth on a trough.

Guidelines for Reduction of Trans Fatty Acids

The Health Department and the Food Safety wing have launched an initiative to enforce dietary guidelines, involving the reduction of trans fatty acids (TFAs), salt and sugar in commercially available foods in **Kerala**.

- The initiative is being launched with technical support from the **World Bank, WHO and the Food Safety and Standards Authority of India (FSSAI)**. Unhealthy diet is pushing up **Metabolic Syndrome (MS)** and premature deaths due to non-communicable diseases (NCDs) among Keralites.
- **Metabolic syndrome (MS)** is a cluster of metabolic abnormalities — high blood pressure, high

blood sugar, abdominal obesity, abnormal cholesterol or triglyceride levels — that occur together, raising risk of heart disease, stroke and diabetes.

- Earlier, **Kerala also announced a 14.5% “fat tax”** on pizzas, burgers, sandwiches and tacos sold through branded outlets, in sync with the World Health Organization’s advocacy of using fiscal tools to promote healthy eating.
- WHO recommends that trans fat intake be limited to less than 1% of total energy intake and has called for the total elimination of TFAs in global food supply by 2023.

Trans-fats

- There are **two types of trans-fats** found in foods- naturally occurring and artificial trans-fats.
- **Naturally occurring** trans-fats are produced in the gut of some animals and foods made from these animals may contain small quantities of these fats.
- Artificial trans-fats on the other hand are **created by the process hydrogenation**, which is an industrial process that adds hydrogen to liquid vegetable oils to make them more solid at room temperature.
- The primary dietary source of trans-fats in processed foods is **partially hydrogenated oils**. Trans-fats are easy to use, inexpensive to produce and last a long time. They help give foods a desirable taste and texture.
- Some of the most basic and most consumed foods that we generally eat almost on a daily basis may include- cakes, pies, cookies, biscuits, margarine, cream-filled candies, fried fast foods, doughnuts, etc.
- **REPLACE, which is an acronym for Review, Promote, Legislate, Assess, Create and Enforce, is the first global initiative** to eliminate a risk factor for cardiovascular disease. It is a World Health Organisation (WHO) six step Action Package and guide to global elimination of trans fat.
- Denmark was the first country to ban trans fat in 2003 and in three years, their Cardiovascular Disease (CVD) mortality rates plummeted.
- As part of the U.N.’s Sustainable Development Goals, the global community has committed to **reducing premature death from noncommunicable diseases by one-third by 2030 (Goal 3)**. Global elimination of industrially-produced trans fats will help achieve this goal.
- Given India’s disease burden of non-communicable diseases and also the urban movement towards healthier foods, this movement is vital for the country to prevent diseases, and the compromised quality of life and deaths caused due to trans fats.
- Fortunately, the Food Safety and Standards Authority of India (FSSAI) has indicated it's commitment to eliminating industrially produced trans fat by 2022 in advance of the WHO target date of 2023.
- **In 2017**, India implemented a **mandatory limit of 5% trans fat content in fats/oils only**.

Food Safety and Standards Authority of India (FSSAI)

- The Food Safety and Standards Authority of India (FSSAI) has been established under **Food Safety and Standards Act, 2006** which consolidates various acts & orders that have hitherto handled food related issues in various Ministries and Departments.
- **Ministry of Health & Family Welfare, Government of India** is the Administrative Ministry for the implementation of FSSAI. The Chairperson is in the rank of Secretary to Government of India.
- FSSAI has been created for laying down science-based standards for articles of food and to regulate their manufacture, storage, distribution, sale, and import to ensure availability of safe and wholesome food for human consumption.

India to Step-up Agri-Diplomacy with China

India is looking forward to increase agricultural exports to China as it proceeds to diversify its agricultural imports.

Reasons For India's "Agri-Diplomacy"

- **Trade Deficit**
 - India is looking for ways to **bridge the huge trade deficit of more than \$60 billion with China**. China accounted for about 39% of India's trade deficit in 2017-18.
 - India's total trade with China reached over \$89 billion in 2017-18, of which Chinese exports to India were around \$76 billion.
- **US-China Trade War**
 - Both the US and China are imposing tariffs on each other. Hence, China is now opening up to non-US imports in order to diversify its import basket.
 - Beijing recently imposed new tariffs on many American farm produce, including soybeans, corn, wheat, cotton, rice, sorghum, beef, pork, poultry, fish, dairy products, nuts and vegetables.
 - India is hoping to take advantage of the Sino-US trade war by exporting more soybean produce to China.

Steps taken to Cover Trade Deficit

- During Shanghai Cooperation Organisation (SCO) Summit in Qingdao in 2018. India and China signed an **agreement to include the export of non-Basmati varieties of rice** from India. China is a \$1.5-\$2 billion market for Indian rice
- India has also signed an agreement with China to **increase the export of sugar from India**.

Way Forward

- If India has to cover the huge trade deficit with China, it has to **look beyond agri-diplomacy**. There are many areas in which trade with China can be increased to cover trade deficit like that **pharmaceuticals, information technology services and tourism**, in which India has a significant global footprint, but a minuscule presence in China.
- At domestic front, India has to take significant efforts like **modernization of agriculture** to make it competitive at global level, the high price of India's farming products is a major obstacle.

States Deny Consent to CBI

The Andhra Pradesh and West Bengal governments withdrew "general consent" to the Central Bureau of Investigation (CBI) for investigating cases in their respective states.

- In Past several states have withdrawn consent like Sikkim, Nagaland, Chhattisgarh and Karnataka.

General Consent

- Unlike the National Investigation Agency (NIA), which is governed by its own **NIA Act, 2008** and has jurisdiction across the country, the CBI is governed by the **Delhi Special Police Establishment Act, 1946** (DSPE Act, 1946) that makes consent of a state government mandatory for conducting investigation in that state.
- There are two kinds of **consent: case-specific and general**. Given that the CBI has jurisdiction only over central government departments and employees, it can investigate a case involving state government employees or a violent crime in a given state only after that state government gives its consent. **Section 6 of the DSPE Act, 1946** empowers the state government to give or deny consent to CBI officer to investigate the matter within the state.

- “General consent” is normally given to help the CBI seamlessly conduct its investigation into cases of corruption against central government employees in the concerned state. Almost all states have given such consent.

Impact of Withdrawal of General Consent

- It means the CBI will not be able to register any fresh case involving a central government official or a private person stationed in these two states without getting case-specific consent.
- Withdrawal of consent will only bar the CBI from registering a case within the jurisdiction of Andhra and Bengal. The CBI could still file cases in Delhi and continue to probe people inside the two states.
- Cases registered anywhere else in the country, but involving people stationed in Andhra Pradesh and West Bengal, would allow CBI’s jurisdiction to extend to these states.
- In simple terms withdrawal of consent simply means that CBI officers will lose all powers of a police officer as soon as they enter the state unless the state government has allowed them.
- It will have no impact on investigation of cases already registered with CBI as old cases were registered when general consent existed.

Important Facts for Prelims (19th November 2018)

Qaumi Ekta Week

- With a view to foster and reinforce the spirit of Communal Harmony, National Integration and pride in vibrant, composite culture and nationhood, the “Qaumi Ekta Week” (National Integration Week) will be observed all over the country, from 19th to 25th November, 2018.
- The week long programmes to be observed during Qaumi Ekta Week are as follows:
 - **National Integration Day** (November 19, 2018) to emphasize the themes of secularism, anti-communalism and non-violence.
 - **Welfare of Minorities Day** (November 20, 2018) to emphasize 15 Point Programme launched in 2005 by UPA. It seeks to ensure the welfare of religious minorities through increasing educational and employment opportunities, improving living condition, preventing and controlling communal riots etc.
 - **Linguistic Harmony Day** (November 21, 2018) to enable people of each region to appreciate the linguistic heritage of other parts of India.
 - **Weaker Sections Day** (November 22, 2018) to highlight programmes under various Governments which help SCs/STs and weaker sections with particular emphasis on the distribution of surplus land to landless labourers.
 - **Cultural Unity Day** (November 23, 2018) to present the Indian tradition of unity in diversity and for promoting cultural conservation and integration.
 - **Women’s Day** (November 24, 2018) to emphasize the importance of Women in Indian Society and their role in development of nation-building are highlighted.
 - **Conservation Day** (November 25, 2018) to emphasise the growing need for awareness and action to conserve the environment.
- The observation of the ‘Qaumi Ekta Week’ will help to highlight the inherent strength and resilience of our nation to withstand actual and potential threats to the eclectic and secular fabric of our country.
- The National Foundation for Communal Harmony (NFCH), an autonomous organisation with the Ministry of Home Affairs, organises Communal Harmony Campaign coinciding with the Qaumi Ekta Week and observes the Communal Harmony Flag Day on 25th November.

Parambikulam Tiger Reserve

- A recent survey held in the reserve spotted 221 varieties of butterflies, 11 of which were endemic to the area.
- **Buddha Peacock or Buddha** Mayoori, is the State butterfly of Kerala.
- Parambikulam Tiger Reserve is located in the Palakkad District of Kerala and lies in between the Anamalai hills and Nelliampathy hills of the Southern Western Ghats.

Rare Bird Sighted in Chinnar Sanctuary

- Sri Lankan Frogmouth has been noticed on the eastern side of the Western Ghats for the first time in Kerala's Chinnar Wildlife Sanctuary.
- Sri Lankan Frogmouth is usually found on the western side of the Western Ghats.
- The main feature is that it lays only one egg a year after the mating season in April-May.
- It is also found in Karnataka, Goa, and Maharashtra.
- It was believed that the species had gone extinct in the State. The Chinnar Wildlife Sanctuary is on a project to study its habitat and make a favourable environment for it.
- Chinnar Wildlife Sanctuary is a protected area located in the rain shadow region in the eastern slope of Western Ghats, adjoining Tamil Nadu.
- Chinnar Wildlife Sanctuary was declared as a wildlife sanctuary in August 1984.
- The Park provides ecological connectivity between the Anamalai Tiger Reserve and Eravikulam National Park.

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