Keezhadi may be the first excavated site with a water-reuse system

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News

DT Next reported on 21 November 2026 that Keezhadi in Sivaganga district may be the first excavated archaeological site with evidence of an ancient system to treat wastewater for reuse. M. Ramesh, an archaeological officer of the Tamil Nadu State Department of Archaeology and a key archaeologist at Keezhadi, said this; he added that the interpretation needs further technical and scientific validation. Wastewater from a dyeing unit found at the site may have been passed through a sand-and-pebble filtration arrangement so that the treated water could be reused. Closed and open channels may have carried water from the Vaigai to the dyeing unit. Researchers of the Department of Genetics, School of Biological Sciences, Madurai Kamaraj University, used GC-MS analysis to identify 20 indigo-derived molecules in seven potsherds, channel bricks and soil samples. Ramesh dated the system to nearly 2,000 years ago. Detailed laboratory studies are to follow to link the dyeing unit, the channels and the suspected filter.

Key facts for the exam

Point	Details
Place	Keezhadi, Sivaganga district (south-east of Madurai)

Point	Details
Claim	May be the first excavated site with a water-treatment-for-reuse system (to be validated)
Said by	M. Ramesh, archaeological officer, TN State Dept of Archaeology
System	Dyeing unit + sand-and-pebble filter + closed/open channels
Dye evidence	20 indigo-derived molecules – GC-MS analysis
Lab study	Dept of Genetics, Madurai Kamaraj University
Age	About 2,000 years ago (as per Ramesh)
Reported	DT Next, 21 November 2026

Background

- The Archaeological Survey of India (ASI) excavated Keezhadi in three seasons from 2014; from 2017–18 (the 4th phase) the Tamil Nadu State Department of Archaeology has led the work. Brick structures, ring wells, potsherds with Tamil-Brahmi writing, beads and punch-marked coins point to an urban culture on the Vaigai in the Sangam age.
- In the 11th phase (begun 18 March 2026), a new industrial area was found in July 2026 south of the main trench; one pit yielded three kinds of water features – a covered drain, a terracotta pipe and a spiral pipe (Maalaimalar). The present dyeing-unit and filter interpretation continues the study of that industrial zone.
- Indigo is one of the world's oldest blue dyes, obtained from the Indigofera (Indigofera tinctoria) plant. Under colonial rule indigo was forced on cultivators – the Bengal Indigo Revolt (1859–60) and Bihar's Champaran Satyagraha (1917) followed.
- Sand-and-pebble filtration is still basic to drinking-water treatment. Modern plants first add alum to gather suspended particles (coagulation), then settle, sand-filter and disinfect with chlorine.

Tamil Nadu link: This is entirely a Tamil Nadu story. Like Keezhadi, Kodumanal in Erode district is a Sangam-age industrial site with evidence of bead-making and iron smelting. The Keeladi site museum was opened on 5 March 2023.

Frequently asked questions

What is this news about?

DT Next reported on 21 November 2026 that Keezhadi in Sivaganga district may be the first excavated archaeological site with evidence of an ancient system to treat wastewater for reuse.

What are the key facts to remember for the exam?

Place: Keezhadi, Sivaganga district (south-east of Madurai); Claim: May be the first excavated site with a water-treatment-for-reuse system (to be validated); Said by: M. Ramesh, archaeological officer, TN State Dept of Archaeology; System: Dyeing unit + sand-and-pebble filter + closed/open channels.

What is the background to this news?

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Practice questions (with answers)

1. The 1917 Champaran Satyagraha led by Gandhi was against which system that forced peasants to grow indigo?

A) Ryotwari

B) Mahalwari

C) Zamindari

D) Tinkathia

Answer: D – Explanation: Tinkathia – indigo on 3 of every 20 kathas of land. Gandhi went at Rajkumar Shukla's call; it was his first satyagraha in India.

2. Natural indigo, the blue dye traced in the Keezhadi samples, is obtained from plants of which genus?

A) Lawsonia

B) Rubia

C) Indigofera

D) Curcuma

Answer: C – Explanation: Indigofera (Indigofera tinctoria). Lawsonia gives henna, Rubia gives madder (red dye) and Curcuma is turmeric.

3. Which body carried out the first three seasons of excavation at Keezhadi, from 2014?

A) ASI

B) TN Archaeology Dept

C) Madurai Kamaraj Univ

D) Deccan College

Answer: A – Explanation: The Archaeological Survey of India (its Bengaluru excavation branch). From 2017–18 (4th phase) the TN State Department of Archaeology took over.

4. Which Sangam-age site in Erode district, called 'Kodumanam' in Pathitrupathu, was famed for bead-making?

A) Adichanallur

B) Kodumanal

C) Porunthal

D) Mangulam

Answer: B – Explanation: Kodumanal – on the Noyyal; evidence of gem beads and iron smelting. Adichanallur is an urn-burial site on the Thamirabarani.

5. In treating drinking water, alum is mainly used for what purpose?

A) Coagulation

B) Disinfection

C) Softening

D) Desalination

Answer: A – Explanation: Coagulation – fine suspended particles clump and settle before sand filtration. Chlorine is used for disinfection.

Sources: DT Next, 21 Nov 2026 and 2 Apr 2026 (11th phase); Maalaimalar, 22 Jul 2026 (industrial zone); Dinamalar; Sivaganga District Administration – sivaganga.nic.in (Keeladi museum). © Shanmugam IAS Academy.