Earth’s new epoch: Anthropocene

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Manifest pedagogy:

Human imprint on earth is profound, destructive and much of it is irreversible. Expansion of anthroposphere had disastrous consequences on lithosphere, atmosphere, hydrosphere and biosphere. The above topic of human imprints on earth could be asked in mains and essay

In news

Proposals for Earth’s new epoch Anthropocene

Placing it in the syllabus

Geography: Evolution of earth

Static dimensions

- What is Geological time scale?
- Present geological epoch: Holocene
- International organisations deciding the time scale

Current dimensions

- Proposal for a new epoch: Anthropocene
- Reasons for considering Anthropocene as a new period

Content

What is Geological time scale(GTS)?

It is a system of chronological dating that relates geological strata(stratigraphy) to time. GTS is used by geologists, paleontologists, and other Earth scientists to describe the timing and relationships between events that have occurred

during Earth's history.

Present geological epoch: Holocene

- The present period of geological time is the Holocene Epoch. The Holocene Epoch began around 12,000 years ago at the close of the Paleolithic Ice Age and continues through today.
- In this time period earth entered a warming trend, the glaciers of the late Paleolithic retreated. Tundra gave way to forest. As the climate changed, the very large mammals that had adapted to extreme cold, like mammoth and wooly rhinoceros, became extinct. Humans, once dependent on these **"mega mammals"** for much of their food, switched to smaller game and increased their gathering of plant materials to supplement their diet.

International organisation deciding the time scale:

International Commission on Stratigraphy

It is the **largest and oldest constituent scientific body in the International Union of Geological Sciences** (IUGS). Its primary **objective is** to precisely define global units (systems, series, and stages) of the International Chronostratigraphic Chart that, in turn, are the basis for the units (periods, epochs, and age) of the International Geologic Time Scale; thus setting global standards for the fundamental scale for expressing the history of the Earth.

About International Union of Geological Sciences (IUGS)

The International Union of Geological Sciences (IUGS) is one of the **largest and most active non-governmental scientific organizations in the world.** Founded in 1961, **IUGS is a member of the International Council of Science**. IUGS promotes and encourages the study of geological problems, especially those of world-wide significance, and supports and facilitates international and interdisciplinary cooperation in the earth

sciences.

At present IUGS gives special consideration to:

- International standards;
- Geoscience education;
- Geoscience information; and
- Environmental management and hazards.

IUGS Commissions, Task Groups and Initiatives are concerned with a wide range of geologic research of direct interest to governments, industry, and academic groups within the earth sciences. IUGS believes that it is of mutual benefit to establish close links with other organizations engaged in geoscience activities, and especially those organizations whose work relates to some of the major activities of IUGS.

The Union **aims to**

1. **Promote the development of the Earth sciences through the support of broad-based scientific studies relevant to the entire Earth system**;
2. Apply the results of these and other studies to preserving Earth's natural environment, using all natural resources wisely and improving the prosperity of nations and the quality of human life.
3. To strengthen public awareness of geology and advance geological education in the widest sense.

Proposal for a new epoch: Anthropocene

- **Recently scientists have given thumbs up for Anthropocene epoch, in May a 34-member panel of the Anthropocene Working Group (AWG) voted 29-4 in favour of designating a new geological epoch – the Anthropocene. The vote signals the end of the Holocene Epoch.**
- The Anthropocene working Group plans to submit a formal proposal for the new epoch by 2021 to the International Commission on Stratigraphy, which oversees the official

geologic time chart.

- Nearly 90% voted in favour of naming the new epoch to reflect how the Earth has been shaped by human activity, is not surprising, as an informal vote had already conducted three years ago in Cape Town at the 2016 International Geological Congress.
- In 2000 Nobel Laureate Paul Crutzen and Eugene Stoermer coined the term Anthropocene to denote the present geological time interval in which human activity has profoundly altered many conditions and processes on Earth.

But, Once a formal proposal is made by the AWG, it will be considered by several more groups of the International Commission on Stratigraphy.

The final ratification will be made by the executive committee of the International Union of Geological Sciences which is yet to be done

Reasons for considering Anthropocene as a new period

- **It is proposed to name the new epoch as Anthropocene because human activity has profoundly altered many conditions and processes on Earth.**
- According to the AWG, the phenomena associated with the Anthropocene include;

1. An order-of-magnitude increase in erosion and sediment transport associated with urbanisation and agriculture.
2. Marked and abrupt anthropogenic perturbations of the cycles of elements such as carbon.
3. Environmental changes generated by these perturbations, including global warming, sea-level rise, and ocean acidification, rapid changes in the biosphere and finally proliferation and global dispersion of many new ‘minerals’ and ‘rocks’ including concrete, fly ash and plastics, and the myriad ‘techno fossils’ produced from

these and other materials.