

Course Code: CE 447

Course Title: Climate change and sustainable development

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LECTURE: 01

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Course outline

- Climate Change and Sustainable Development
- Goals of Development
- Environmental Issues and Priorities
- Environmental Management Plan
- Environmental Quality Standards
- Environmental implication of sectoral development
- Public participation

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Lecture plan

- Climate system
- Development
- Objectives of sustainable development
- Main features of SD

Climate

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What is Climate?

Climate means the usual condition of the temperature, humidity, atmospheric pressure, wind, rainfall, and other meteorological elements in an area of the Earth's surface for a long time. In simple terms climate is the average condition for about thirty years.

Differentiate between Climate and weather?

Climate is the over all conditions of these variables in a given region over long periods of time. Weather only describes the short-term conditions of these variables in a given region or day to day conditions in the atmosphere.

Climate system

Define climate system?

The climate system is defined as the five components in the geophysical system, the atmosphere and four others which directly interact with the atmosphere and which jointly determine the climate of the atmosphere.

The five components are listed below:

- (a) Atmosphere;
- (b) Ocean;
- (c) Land surface;
- (d) Ice and snow surfaces (both land and ocean areas); and,
- (e) Biosphere (both terrestrial and marine).

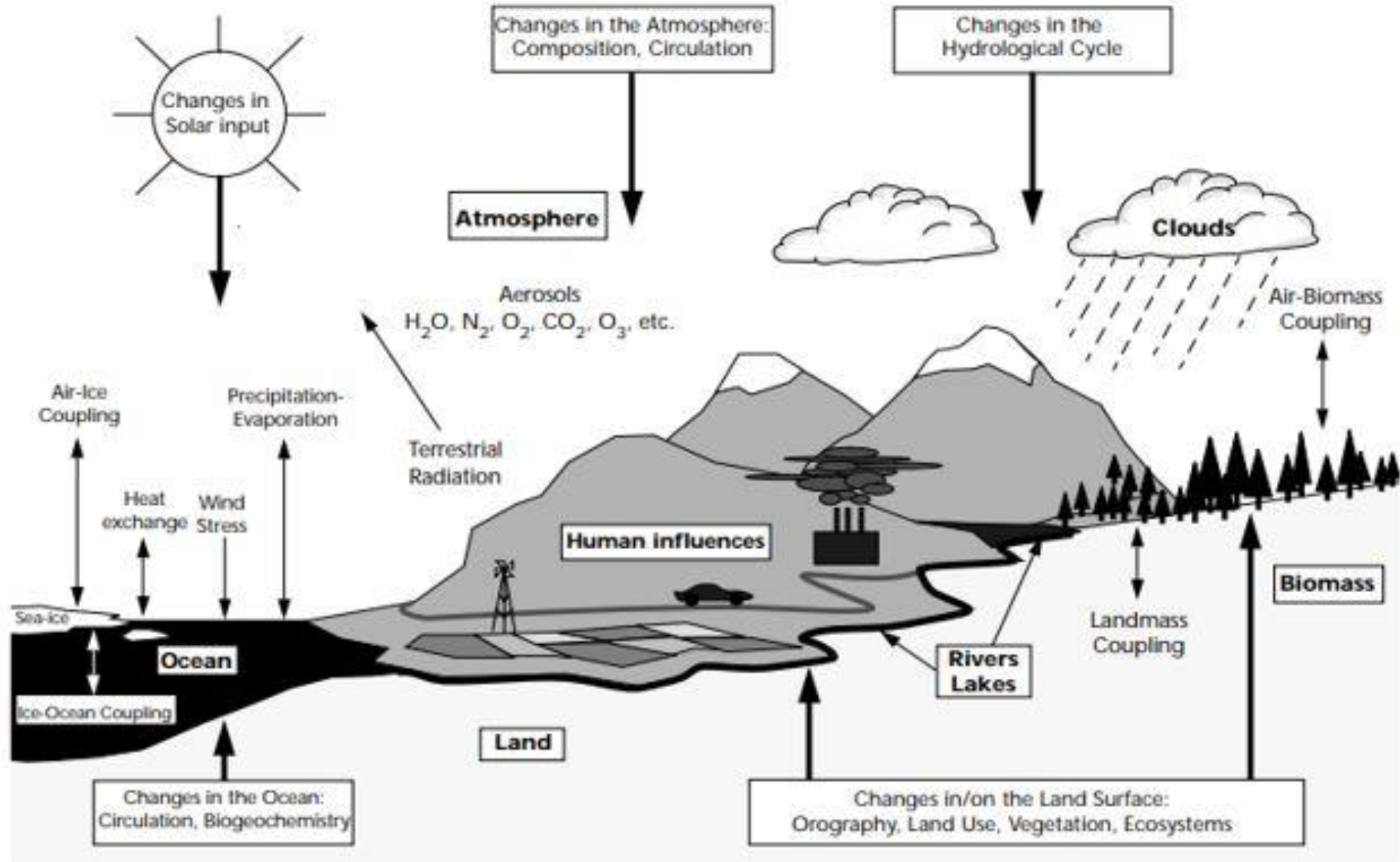


Figure 1.1 — Schematic view of the components of the global climate system (bold), their processes and interactions (thin arrows) and some aspects that may change (bold arrows). [from page 55, Reference no. 3].

Climate change

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What is climate change?

Climate change is any significant long-term change in the expected patterns of average weather of a region (or the whole Earth) over a significant period of time. Climate change is about abnormal variations to the climate, and the effects of these variations on other parts of the Earth.

How does climate change affect us?

As the climate warms, it changes the nature of global rainfall, evaporation, snow, stream flow and other factors that affect water supply and quality. Specific impacts include: Warmer water temperatures affect water quality and accelerate water pollution.

Development

What is Development?

- The act or process of growing, progressing
- Development is what we do in attempting to improve our lot within the abode
- The process of **economic** and **social** transformation that is based on complex cultural and **environmental factors** and their interactions
- Economic growth is the indicator of Development

What is the difference between Development & Sustainable Development?

Is this Sustainable Development?



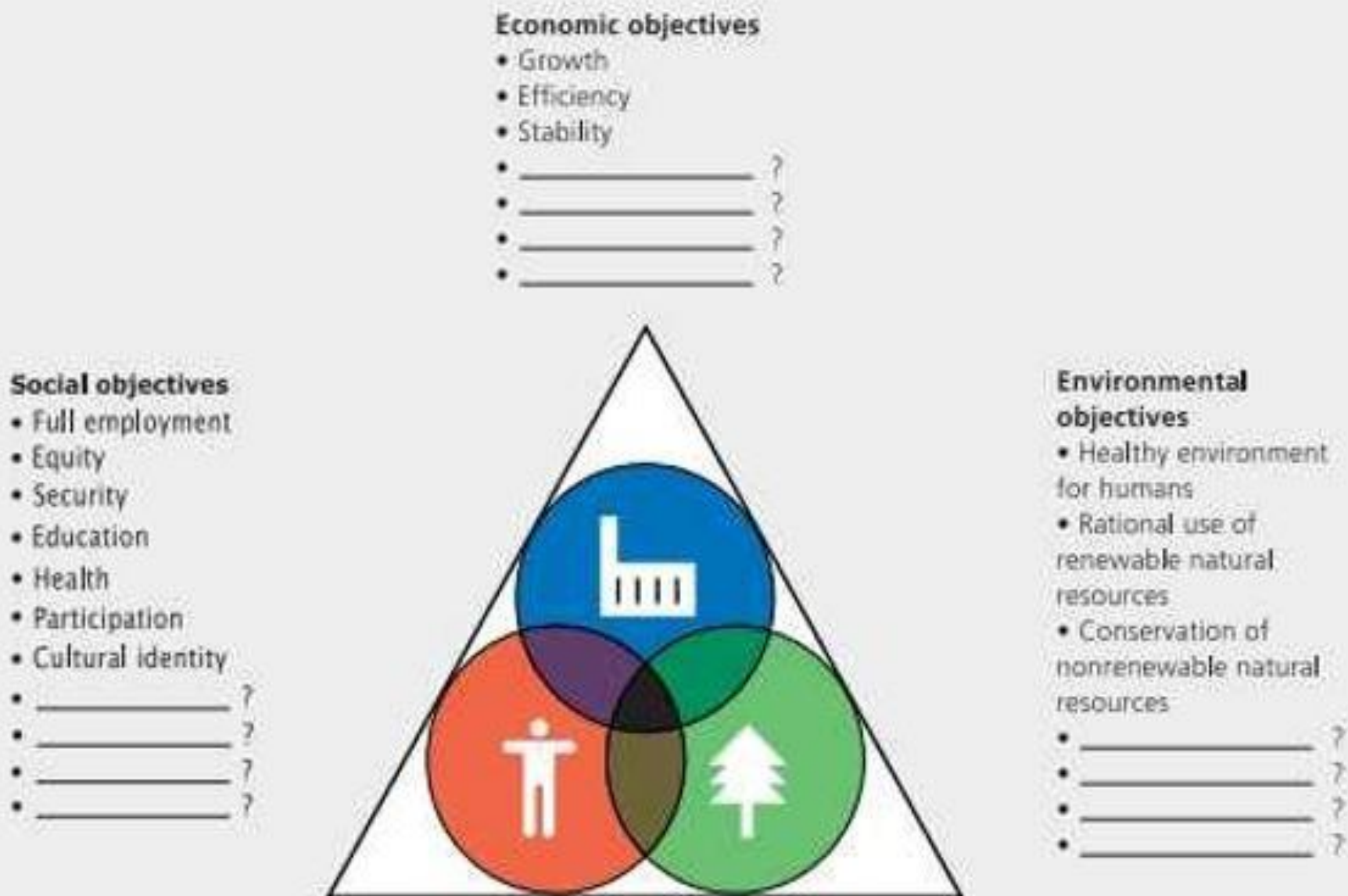
Sustainable Development

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- According to Brundtland Report (Our Common Future, WCED (1987) Sustainable Development is
 - The development which meets the needs of present without compromising the ability of future generations to meet their own needs.

Sustainable Development implies economic growth together with the protection of environmental quality, each reinforcing the other. Sustainable Development, thus, is maintaining a balance between the human need to improve lifestyles and feeling of well-being on one hand, and preserving natural resources and ecosystems, on which we and future generations depend

Objectives of Sustainable Development



Describe the Main Features of SD

- **A desirable human condition** : a society that people want to sustain because it meets their needs.
- **An enduring ecosystem condition:** an ecosystem that maintains its capacity to support human life and others.
- **A balance between present and future generations;** and within the present generation.
- **Economic:** An economically sustainable system must be able to produce goods and services on a continuing basis, to maintain manageable levels of government and external debt, and to avoid extreme sectoral imbalances which damage agricultural or industrial production.

•**Environmental:** An environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource systems or environmental sink functions, and depleting non-renewable resources only to the extent that investment is made in adequate substitutes. This includes maintenance of biodiversity, atmospheric stability, and other ecosystem functions not ordinarily classed as economic resources.

•**Social:** A socially sustainable system must achieve distributional equity, adequate provision of social services including health and education, gender equity, and political accountability and participation.



People catching fishes from a wetland after drying it up by removing water. This causes destruction of the fish habitat, thus affecting further breeding. The photo was taken in Haor area of Companiganj in Sylhet recently.

PHOTO:
SHEIKH NAS

The Daily Star, 17 March 2015

Is it the way we conserve the eco system?