

CHAPTER 2: LMD Logistics Operations and Impacts

UNIT 5: Environmental and Social Impacts of LMD Logistics

Capsule 2.5.1

Pollution and Climate Change



To be done prior to this capsule:

This Capsule starts Unit 5 regarding Environmental and Social Impact of LMD. It should then be done after Unit 4, as it introduces Societal Demands and Trends

Capsule linked with:

Link with the topics of capsules 2.4.1, 2.4.2, 2.4.5, 3.4.1

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Objectives of the Capsule

In this capsule, users will gain up-to-date information about climate change, and it links with logistics and transportation. Brief information is also provided about the latest and most relevant international policies impacting Transport & Logistics, such as 2021 COP 26 Summit, aimed at accelerating action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change.

Category	E-learning	EQF		
		4	5	6
		X	X	X

Exercises included	YES
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Effort for the capsule	Content	Exercises	Extra Materials
	20 Minutes	5 Minutes	20 Minutes

Contents

1. What it is generally meant as “Climate Change” at international level
2. International Policies and Conferences on Climate Change
3. COP 26 Goals about 2030 emissions reduction target

1. What is Climate Change?

According to the **UN definition**, **Climate Change** refers to **long-term shifts in temperatures and weather patterns**. Some changes can be natural, but scientists observe that from 1800s **human activities** have been the main **cause** of climate change, especially due to **burning fossil fuels** like coal, oil and gas.



Concentrations of the **greenhouse gases** have increased since the **Industrial Revolution** due to the development of production activities. **Carbon dioxide**, **methane**, and nitrous oxide concentrations are now more abundant in the earth's atmosphere than any time in the last 800k years.

Gas emissions have increased the **greenhouse effect**, forming a sort of **blanket wrapping up the earth**, and caused the **planet surface temperature to rise**. Burning fossil fuels impact climate changes more than any other human activity.

1. What is Climate Change?

Climate Change effects are already visible in our environment: hotter summer, less rain and snow, draughts, melting ice because of **rising temperature** but also floods, tsunamis and landslide caused by **rising sea levels**.

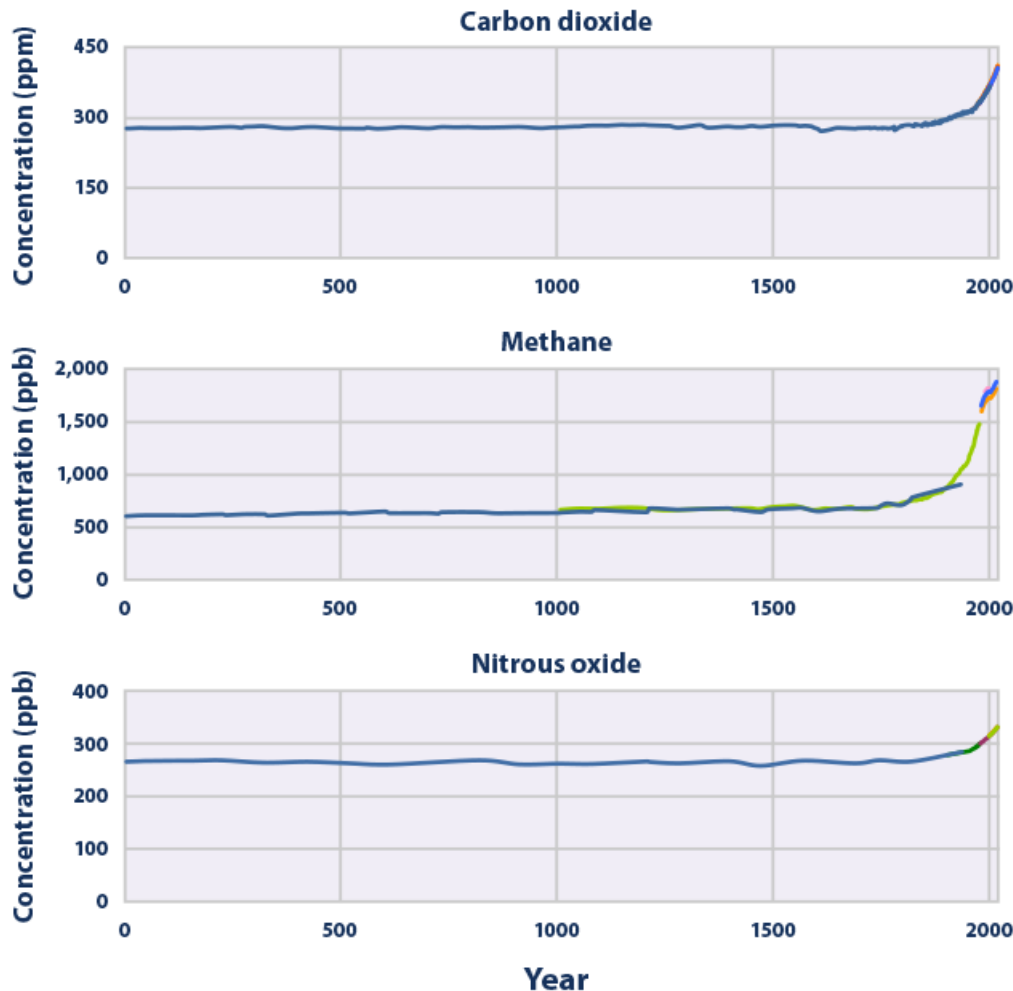
Intensive agriculture itself can cause climate change because of **deforestation**, as large trees provide more shades than crops. Nonetheless, scientists agree that it's mainly **road construction, industrial production, transportation and building heating** to release gas emissions.

A typical factor impacting climate change is represented by **urban heat islands**: densely populated areas are warmer than rural, less populated areas. One reason that these areas are warmer is that buildings, pavement, and roofs tend to reflect less sunlight than natural surfaces.



1. What is Climate Change?

Global Atmospheric Greenhouse Gas Concentrations Over Time



This graph shows the increase in atmospheric concentrations of three of the key greenhouse gases over the last 2,000 years. Increases in concentrations of these gases since 1750 are due to human activities in the industrial era.

Source: U.S. EPA, [Climate Change Indicators in the United States: Atmospheric Concentrations of Greenhouse Gases](#), 2021.



Self-evaluation quiz

What is climate change?

- ☐ A seasonal change in weather conditions
- ☐ A tendency to have rainy summers
- ☐ A tendency to have dry winters
- ☐ A long term shift in temperature and weather patterns



2. International policies and conferences on Climate Change

Since 1992, **international conferences** were held and agreements were signed among most **industrial countries**. Milestones are represented as follows:

Rio de Janeiro 1992: during the UN conference on environment & development, the UN Framework Convention on Climate Change, widely known as [UNFCCC](#), was introduced. It was signed by 50 states and it entered into force in 2014.

Kyoto Protocol 1997: during the Conference of Parties of countries adopting UNFCCC, the first document introducing obligations emission reductions and legally binding limitations was ratified.

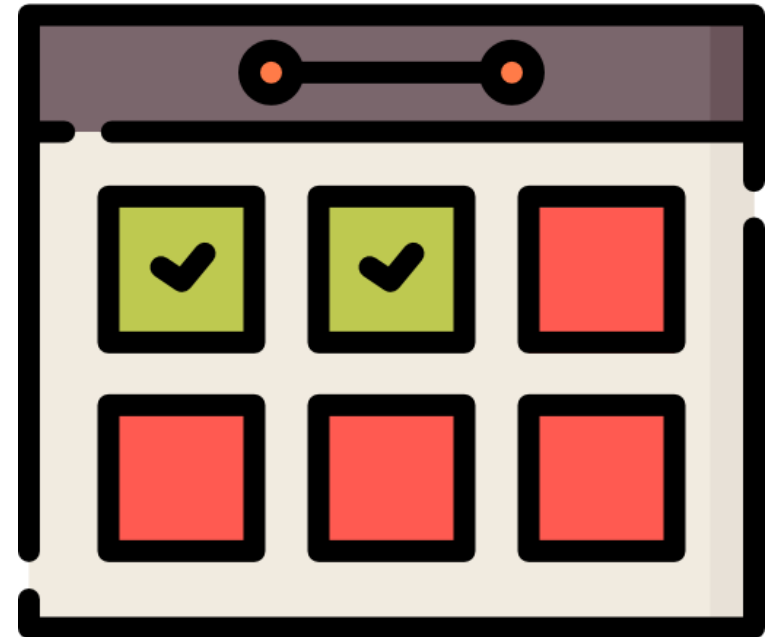
[The Kyoto Protocol](#) established a first commitment period (2008-2012) and a second commitment period (2013-2020).



2. International policies and conferences on Climate Change

Paris Agreement 2015: The [Paris Agreement](#) is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016.

In order to continue the international climate protection process after 2020, a new climate agreement was needed. In 2015, the Paris Agreement was adopted at the COP, which for the first time includes a **concrete target** for limiting **global warming to less than 2 °C** above the **pre-industrial level** of 1750. The ratifying states decide on **their own reduction targets**, but **every five years** the climate protection efforts must be **revised** and strengthened.



2. International policies and conferences on Climate Change

2030 climate & energy framework for alignment within the EU: the [2030 climate and energy framework](#) includes EU-wide targets and policy objectives for the period from 2021 to 2030.

The 2030 framework aims to help the EU address several target issues:

- Agreeing on a **greenhouse gas reduction** target for 2030
- **Reducing greenhouse gas emissions** by 80-95% by 2050
- **Reducing** the EU's dependence on **energy imports**, often from politically unstable regions
- Upgrading **energy infrastructure** with **alternative sources**



3. COP 26 Goals about 2030 emissions reduction target

The latest conference on Climate Change is [COP 26](#), the UN Conference of Parties on Climate Change, held **in Glasgow, UK, in late 2021**. During the conference, the historical achievement of more than 200 countries attending the event was reached, resulting in a share commitment document known as the [Glasgow Climate Pact](#).

While sticking to the commitment of keeping global temperature increase by $+1,5C^{\circ}$, the COP 26 conference introduced both measures of **mitigation** and of **adaptation** to climate change.

Mitigation strategies include especially the gas emission reduction targets, **impacting transport & logistics** sector through the increased adoption of **low-emission vehicles**, such as **electric**, **hybrid**, **hydrogen** or alternative-fueled cars and trucks.



Capsule's validation quiz

The following quiz represents 5 questions you will have to answer to confirm your understanding of the present capsule.

Each correct answer is worth 1 point. No point for errors.



Self-evaluation quiz

Question n°1 :

By which body is the Framework Convention on Climate Change regulated?

1.NATO

2.United Nations

3.USA

4.Japan

Self-evaluation quiz

Question n°2 :

Which from the following factors is not severely impacting Climate Change?

1.Intensive Agriculture

2.Transports & Logistics

3.Media & Entertainment Sector

4.Building Heating System

Self-evaluation quiz

Question n°3 :

Which treaty includes for the first time a limitation target to the global increase of temperature?

1.Tokyo Protocol

2.Rio de Janeiro Conference

3.Paris Agreement

4.COP 26 Glasgow Climate Pact

Self-evaluation quiz

Question n°4 :

Which of the following is not included in the EU 2030 climate & energy framework?

1.Greenhouse emissions reduction

2.Increasing the use of alternative energy sources

3.Increasing energy import from outside the EU

4.Improving energy infrastructure

Self-evaluation quiz

Question n°5 :

According to the COP 26 2021 Conference, which factor has the highest potential impact on making the transportation sector more sustainable?

1.Reducing load weight for trucks

2.Using E-vehicles

3.Limitations of logistics activities

4.Increasing naval transportation



Validate and quit capsule



References

(1) For Climate Change:

<https://www.epa.gov/climatechange-science/causes-climate-change>

<https://www.un.org/en/climatechange/what-is-climate-change>

<https://www.un.org/en/climatechange/reports>

(2) For Paris Agreement:

<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

(3) For EU 2030 climate and energy framework:

https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en

(4) For COP 26 Glasgow Climate Pact:

<https://ukcop26.org/wp-content/uploads/2021/11/COP26-Presidency-Outcomes-The-Climate-Pact.pdf>