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**Re:** [ ]

**Abstract:** [This document describes the Kyoto Protocol as a VLC regulatory and the relationship between the Kyoto Protocol and VLC technology.]

**Purpose:** [To provide the understanding of Kyoto Protocol and the relationship between the Kyoto Protocol and VLC technology]

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# ***Green Growth Regulatory related to LED : Kyoto Protocol***

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# Outline

- ❑ ***Global Climate Change***
- ❑ ***International Organizations related to Climate Change (UNEP, WMO, and IPCC)***
- ❑ ***United Nations Framework Convention on Climate Change (UNFCCC)***
- ❑ ***Kyoto Protocol***
- ❑ ***Conclusions***

# Motivation

- ***“Kyoto Protocol” in VLC documents (IEEE 802.15-08-0370-00-vlc, 802.15-09-0182-00-0007)***
- ***What on earth is the Kyoto Protocol exactly ?***
- ***What on earth is the relationship between the Kyoto Protocol and VLC or LEDs ?***

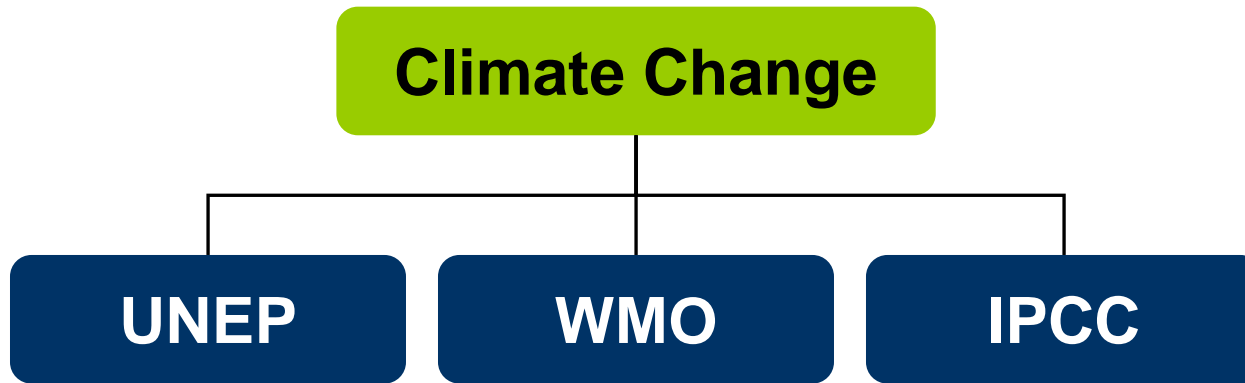
# Current Evidence of Climate Change

*\* The Photos were duplicated from unfccc web site.*



- **Droughts are becoming more severe as world temperatures increase.**
- **Glaciers retreated significantly during the 20th century.**
- **As computer models predict, severe storms are occurring more frequently.**

# Organizations related to Climate Change



- ***UNEP : United Nations Environment Programme***
- ***WMO : World Meteorological Organization***
- ***IPCC : Intergovernmental Panel on Climate Change***

# UNEP and WMO

- **UNEP is the United Nations system's designated entity for addressing environmental issues at the global and regional level.**
- **UNEP was established after the 1972 UN conference on Human environment, held in Stockholm, Sweden, proposed the creation of a global body to act as the environmental conscience of the UN system.**

- **WMO, established in 1950, is a specialized agency of the United Nations in 1951 for meteorology (weather and climate), operational hydrology and related geophysical sciences.**
- **188 Member States and Territories (since 24 January 2007)**

# IPCC

- IPCC, established in 1988, is a scientific intergovernmental body set up by WMO and UNEP.
- To provide the decision-makers and others interested in climate change with an objective source of information about climate change.
- Open to all member countries of WMO and UNEP.
- Its role is to assess on a comprehensive, objective, open and transparent basis the latest scientific, technical and socio-economic literature produced worldwide relevant to the understanding of the risk of human-induced climate change.
- IPCC reports should be neutral with respect to policy, although they need to deal objectively with policy relevant scientific, technical and socio economic factors.



# What is the UNFCCC ?

- ***UNFCCC (United Nations Framework Convention on Climate Change)***
- ***UNFCCC sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change.***
- ***Under the Convention, governments:***
  - . ***Gather and share information on greenhouse gas(GHG) emissions, national policies and best practices.***
  - . ***Launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries.***
  - . ***Cooperate in preparing for adaptation to the impacts of climate change.***
- ***192 countries have ratified the Convention.***

# GreenHouse Gas (GHG)

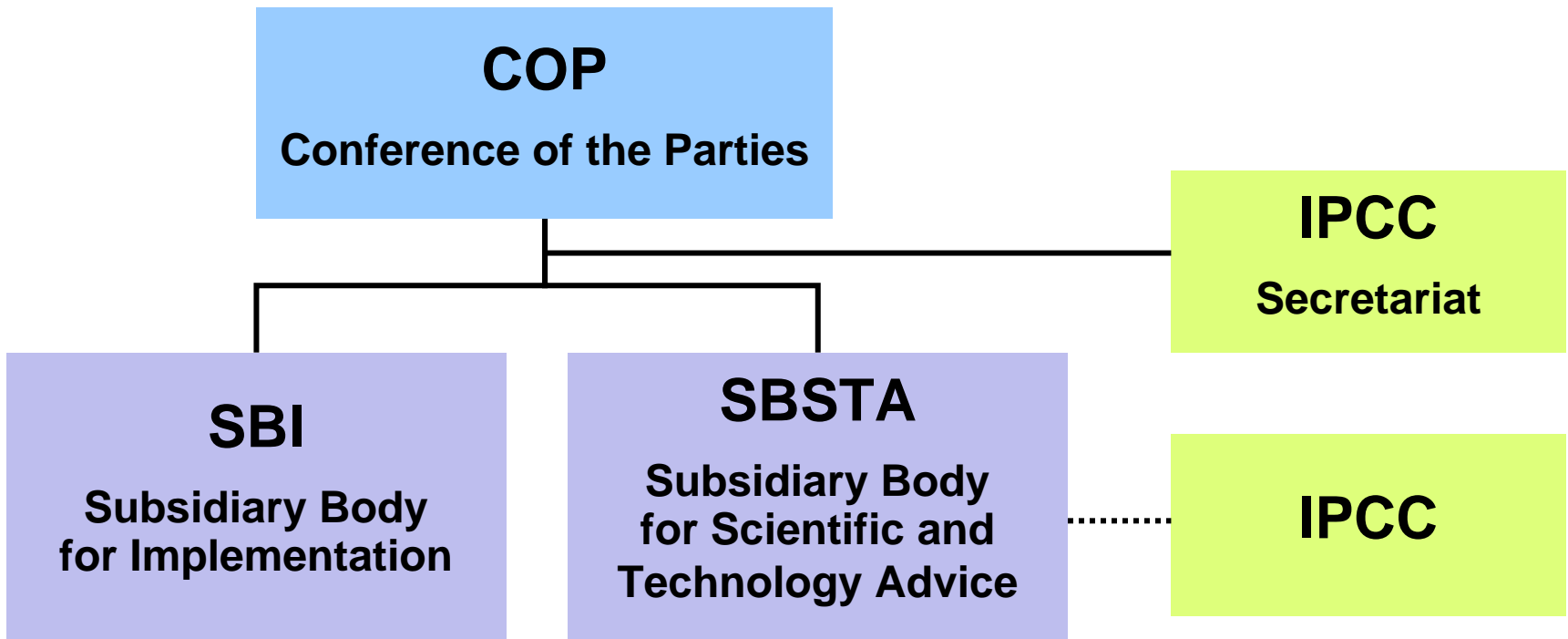
- $\text{CO}_2$  : Carbon dioxide
- $\text{CH}_4$  : Methane
- $\text{N}_2\text{O}$  : Nitrous oxide
- PFCs : Perfluorocarbons
- HFCs : Hydrofluorocarbons
- $\text{SF}_6$  : Sulphur hexafluoride

# Annex I and II Parties

- ***Annex I Parties are the countries which have the aim of returning their GHG emissions to 1990 levels.***
- ***Annex I Parties include the 24 original OECD members, the European Union, and 14 countries under transition to a market economy.***
- ***Annex II Parties are the countries which have a special obligation to provide financial resources and facilitate technology transfer to developing countries.***
- ***Annex II Parties include the 24 original OECD members plus the European Union.***
- ***Non-Annex I Parties are the countries that have ratified or acceded to the UNFCCC that are not included in Annex I of the Convention.***

# UNFCCC Bodies

The Conference of the Parties (COP) is the "supreme body" of the Convention.



# History of the Convention

**1992. 06 : UNFCCC was adopted.**

**(UNEP conference, Rio de Janeiro)**

**1994. 02 : UNFCCC entered into force.**

**1997.12 : Kyoto Protocol was adopted. (COP 3)**

**2001. 11 : Marrakesh Accords was adopted. (COP 7)**

**2005. 02 : Kyoto Protocol entered into force.**

**2007. 11 : Bali Roadmap was adopted. (COP 13)**

# What is the Kyoto Protocol ?

- *The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change.*
- *The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions .*
- *The GHG emissions amount to **an average of five percent against 1990 levels over the five-year period 2008-2012.***
- *The major distinction between the Protocol and the Convention is that while the Convention **encouraged** industrialised countries to stabilize GHG emissions, the Protocol **commits** them to do so.*

# Meaning and Status of Kyoto Protocol

- *The Protocol places a heavier burden on developed nations under the principle of “**common but differentiated responsibilities.**”*
- *The text of the Protocol to the UNFCCC was adopted at the third session of the Conference of the Parties (COP 3) in Kyoto, Japan, on 11 December 1997.*
- *It was open for signature from 16 March 1998 to 15 March 1999 at United Nations Headquarters, New York. By that date the Protocol had received 84 signatures.*
- *It entered into force on 16 February 2005 - **the ninetieth day after at least 55 Parties to the Convention, incorporating Annex I Parties which accounted in total for at least 55 % of the total carbon dioxide emissions for 1990 from that group - deposited their instruments of ratification, acceptance, approval or accession.***

# Kyoto Mechanism

- Joint Implementation (JI)
- Clean Development Mechanism (CDM)
- Emissions Trading (ET)

- *JI and CDM are the two project-based mechanisms which feed the carbon market.*
- *JI enables industrialized countries to carry out joint implementation projects with other developed countries, while the CDM involves investment in sustainable development projects that reduce emissions in developing countries.*



# Conclusions (1)

- *The thing that human being can do to make global warming and climate change stop is to reduce the GHG emissions caused by human activities.*
- *The United Nations made the UNFCCC to tackle globally climate change, and the Kyoto Protocol was born in 2005 as one of the results of the UNFCCC activities.*
- *Energy efficient industry is one of the key solutions to reduce GHG emissions, and at that point, **LED** lighting or illumination will help GHG emissions decrease.*

## Conclusion (2)

- *The Kyoto Protocol is **not only a regulatory to prohibit something** at the industrial viewpoint related to LEDs.*
- *The Kyoto Protocol is **the promotion to make LED lighting or illumination** be spread worldwide.*
- *Therefore VLC **need to utilize the Kyoto Protocol positively.***

# References

- [1] United Nations Treaty Collection
  - <http://untreaty.un.org/English/guide.asp#glossary>
- [2] United Nations Environment Programme (UNEP)
  - <http://unep.org>
- [3] World Meteorological Organization (WMO)
  - [http://www.wmo.int/pages/index\\_en.html](http://www.wmo.int/pages/index_en.html)
- [4] Intergovernmental Panel on Climate Change (IPCC)
  - <http://www.ipcc.ch/index.htm>
- [5] United Nations Framework Convention on Climate Change
  - <http://unfccc.int/2860.php>