

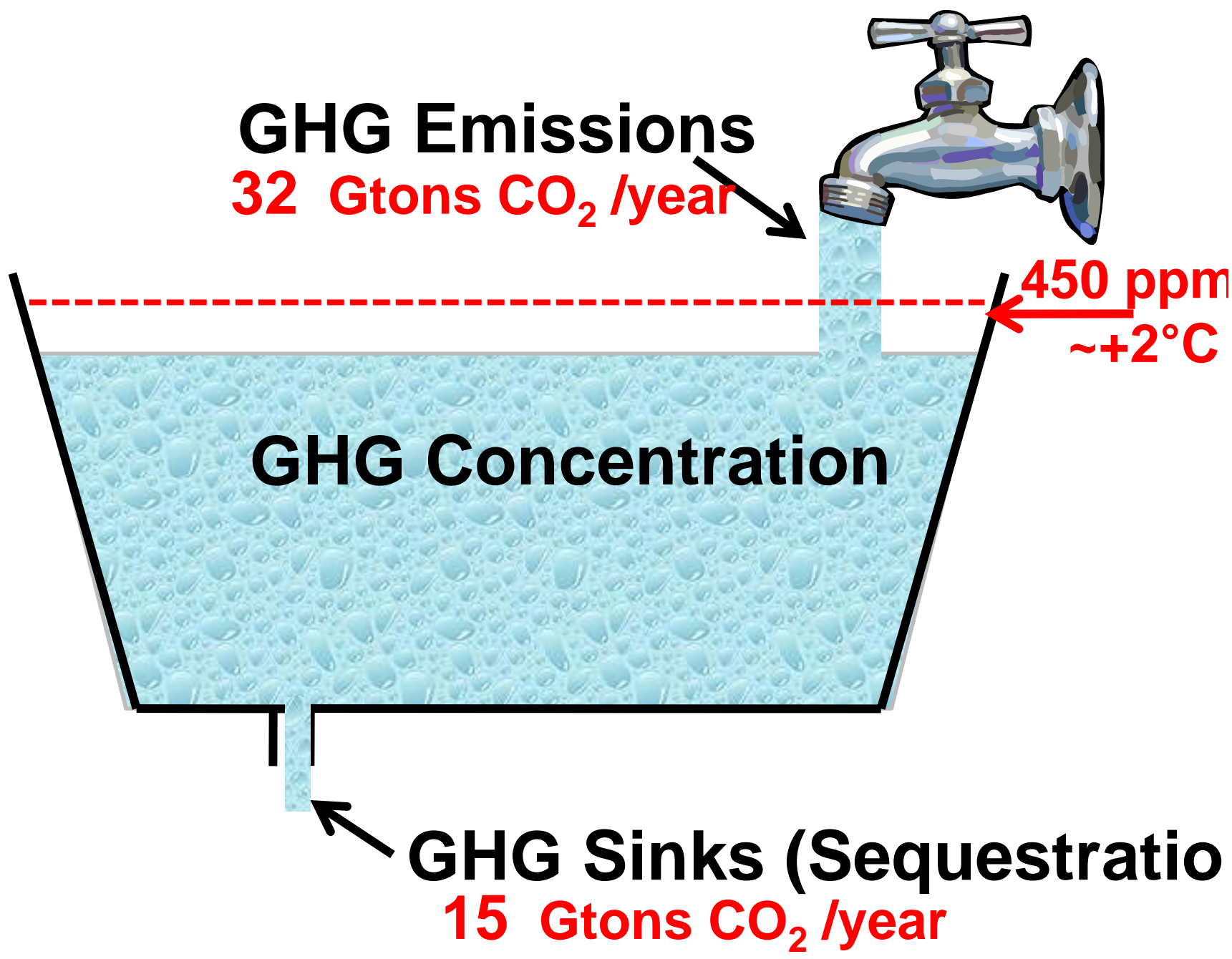


# Bringing Energy Efficiency to the Developing World

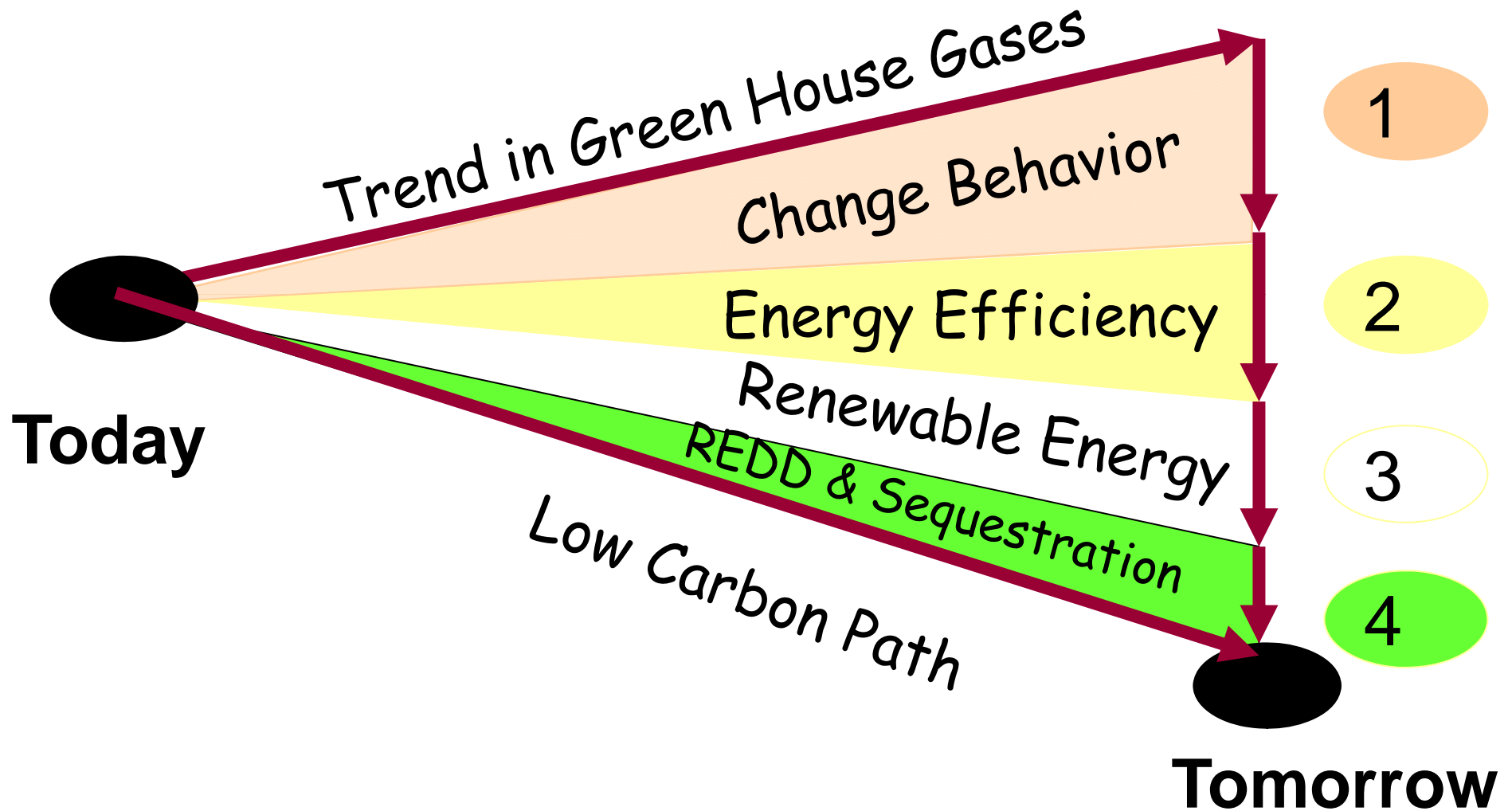
**Benoit Lebot**

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***2<sup>nd</sup> Summer Study of the A2SE  
Sydney, 28 February 2013***



# Four wedges for a low carbon development path



Prof. Kaya  
(World Summit 1992)

$$\text{GHG} = \frac{\text{GHG}}{\text{TOE}} \times \frac{\text{TOE}}{\text{GDP}} \times \frac{\text{GDP}}{\text{POP}} \times \text{POP}$$

$$\text{Greenhouse Gas Emission} = \text{Carbon Contain Energy} \times \frac{\text{Energy Intensity}}{\text{Productivity}} \times \text{Wealth} \times \text{Population}$$

Prof. Kaya  
(World Summit 1992)

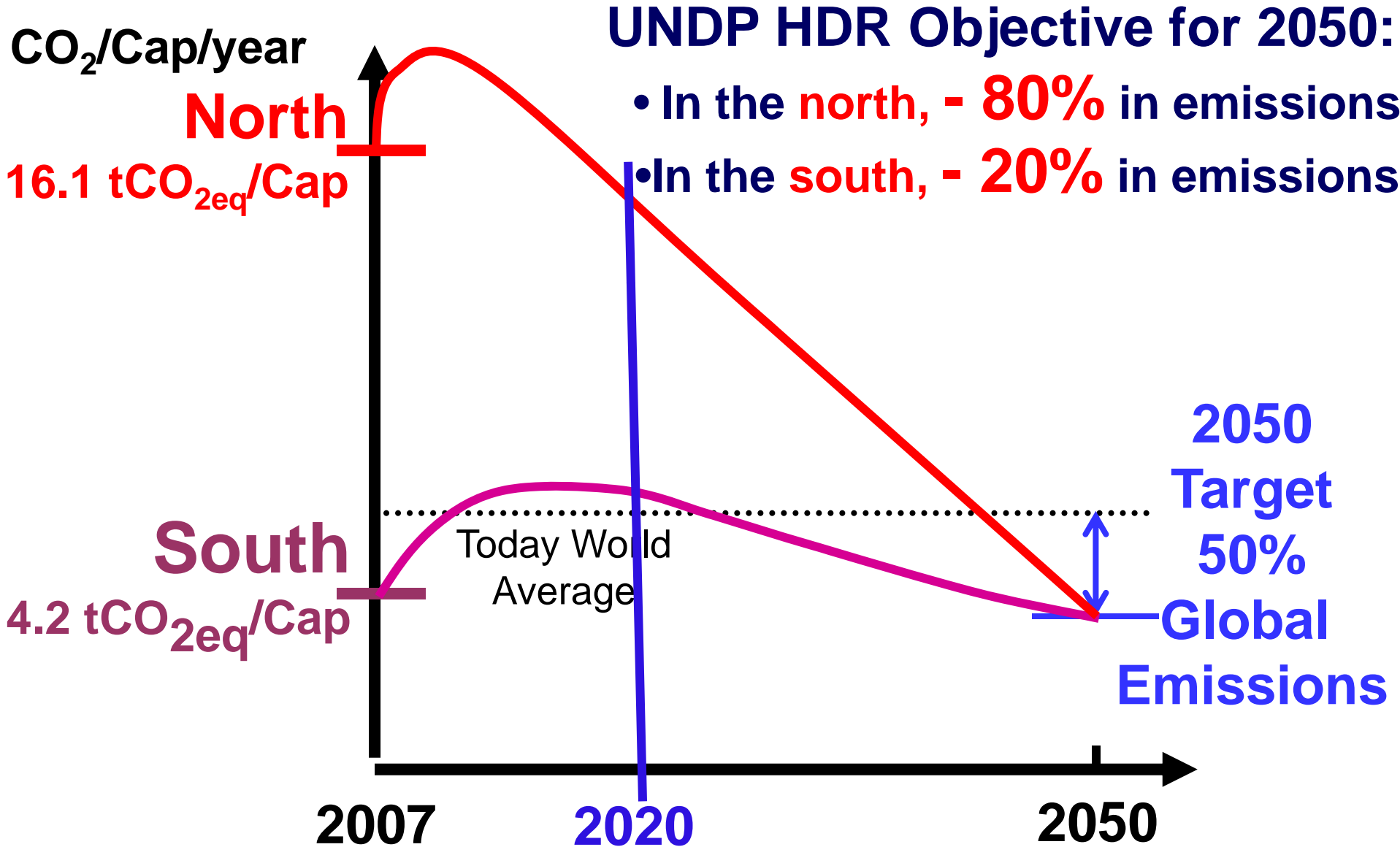
$$\text{GHG} = \frac{\text{GHG}}{\text{TOE}} \times \frac{\text{TOE}}{\text{GDP}} \times \frac{\text{GDP}}{\text{POP}} \times \text{POP}$$

by 2050

$$\mathbf{1/2} = \mathbf{1/3} \times \mathbf{1/2} \times \mathbf{2} \times \mathbf{3/2}$$

**3%/year**      **2%/year**

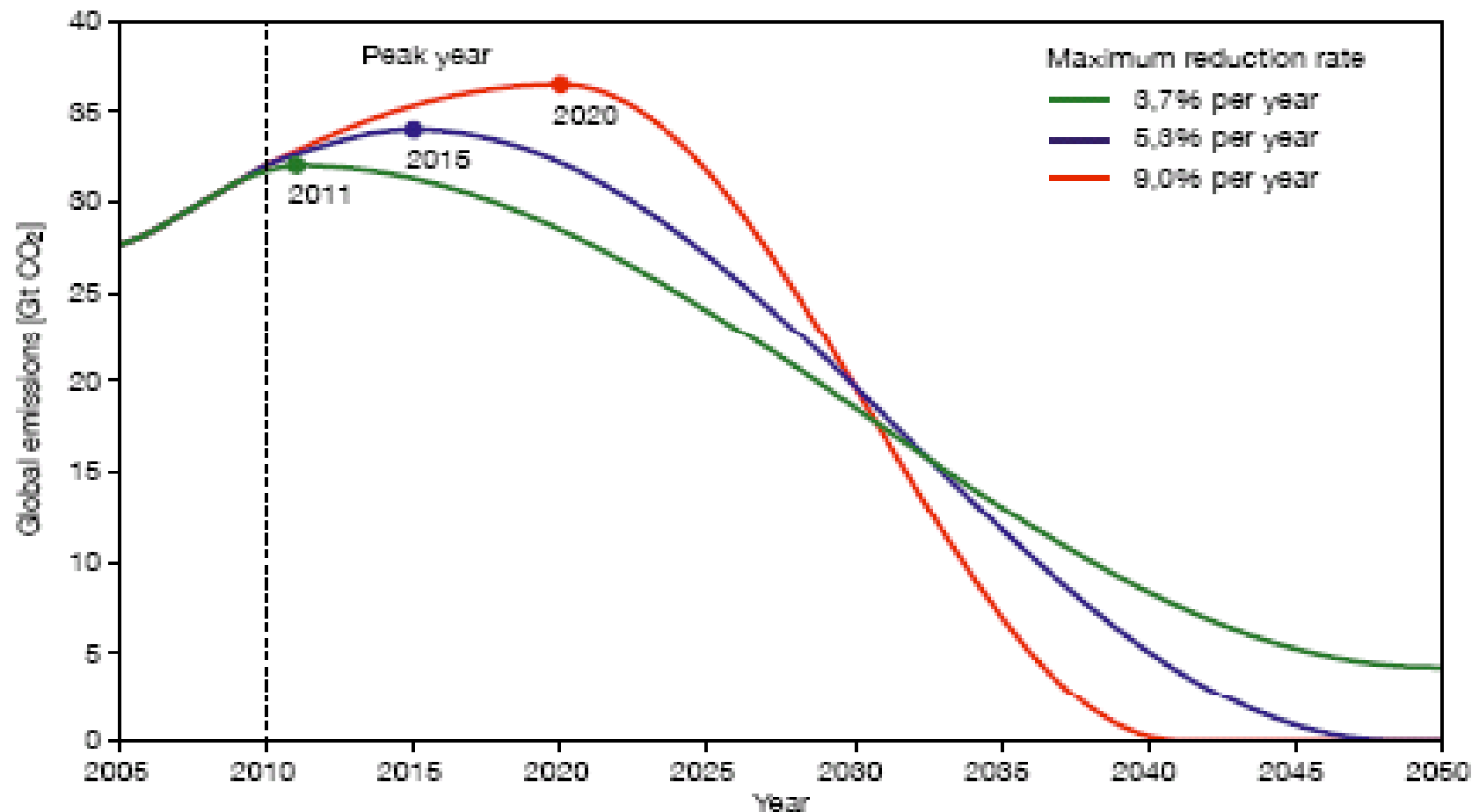
# Pathway towards a 2°C Global Warming



**UNDP HDR Objective for 2050:**

- In the **north**, - **80%** in emissions
- In the **south**, - **20%** in emissions

# A pressing need for global GHG mitigation



**Figure 3.2-1**

Examples of global emission pathways for the period 2010–2050 with global CO<sub>2</sub> emissions capped at 750 Gt during this period. At this level, there is a 67 % probability of achieving compliance with the 2°C guard rail (Chapter 5). The figure shows variants of a global emissions trend with different peak years: 2011 (green), 2015 (blue) and 2020 (red). In order to achieve compliance with these curves, annual reduction rates of 3.7 % (green), 5.3 % (blue) or 9.0 % (red) would be required in the early 2030s (relative to 2008).

Source: WBGU

**NAMA**

**Nationally  
Appropriate  
Mitigation  
Actions**



A stylized green leaf graphic with three curved segments, positioned to the left of the text.

2012 INTERNATIONAL YEAR OF  
**SUSTAINABLE ENERGY**  
**FOR ALL**

[www.sustainableenergyforall.org](http://www.sustainableenergyforall.org)

# Sustainable Energy for All

Energy transforms our life, our economies, our planet.



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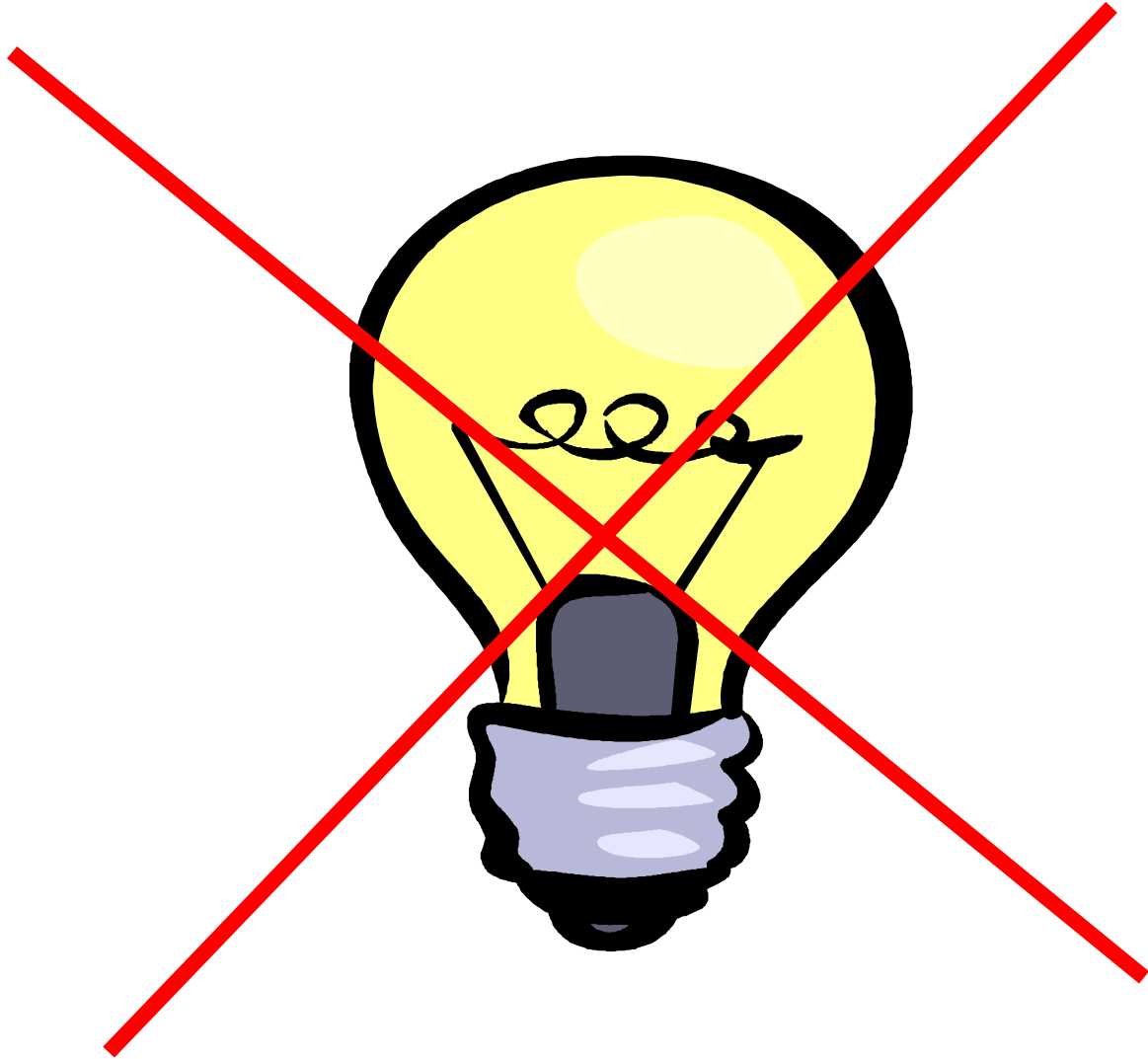
2012 INTERNATIONAL YEAR OF  
SUSTAINABLE ENERGY  
FOR ALL

**SE4ALL initiative will mobilize global action to support **three** interlinked objectives to be reached by **2030**:**

- **Ensuring **universal** access to modern energy services**
- ****Doubling** the global rate of improvement in **energy efficiency****
- ****Doubling** the share of renewable energy**

# **Special Issues related to Developing Countries**

- **Remove \$ subsidies on conventional energy**
- **Urban Population to double by 2030 in numerous developing countries**
  - ⇒ **Embed EE in new Infrastructures: transport, buildings, network**
  - ⇒ **Design Energy network to decentralized Renewable Energy**
  - ⇒ **EE building codes**
  - ⇒ **Synergism between Adaptation & Mitigation**



# Special Issues related to Developing Countries

- **Power outage is an extra complication to EE**
- **Decentralized Energy Systems: Opportunity for advanced energy efficiency**
- **Example: Combining PV with the most advanced EE design in refrigeration systems**

## **In conclusion**

- **EE needs to be brought to the international Climate Change debate & communities**
- **2014-2024 the UN Decade of Sustainable Energy for All**
- **2015, COP20 in Paris: our chance for bringing EE on top of the CC & development agenda**