



PBL Netherlands Environmental  
Assessment Agency

# Assessing Intended Nationally Determined Contributions to the Paris climate agreement – what are the projected global and national emission levels for 2025–2030?

16 november 2015

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## Presentation

1. Aggregated impact of INDCs on projected **global** emission levels for 2025–2030. UNEP Gap 2015 report

2. Impact of INDC on projected **national** emission levels for 2025–2030? PBL report.

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## UNEP's Emissions Gap 2015: INDC assessment

### Core INDC assessment team:

**Michel den Elzen (the Netherlands), Taryn Fransen (US), Amit Garg (India), Niklas Höhne (Germany), Roberto Schaeffer (Brazil), Fu Sha (China), Harald Winkler (South Africa)**





## Challenges for INDC assessment

### **Wide variety of targets used :**

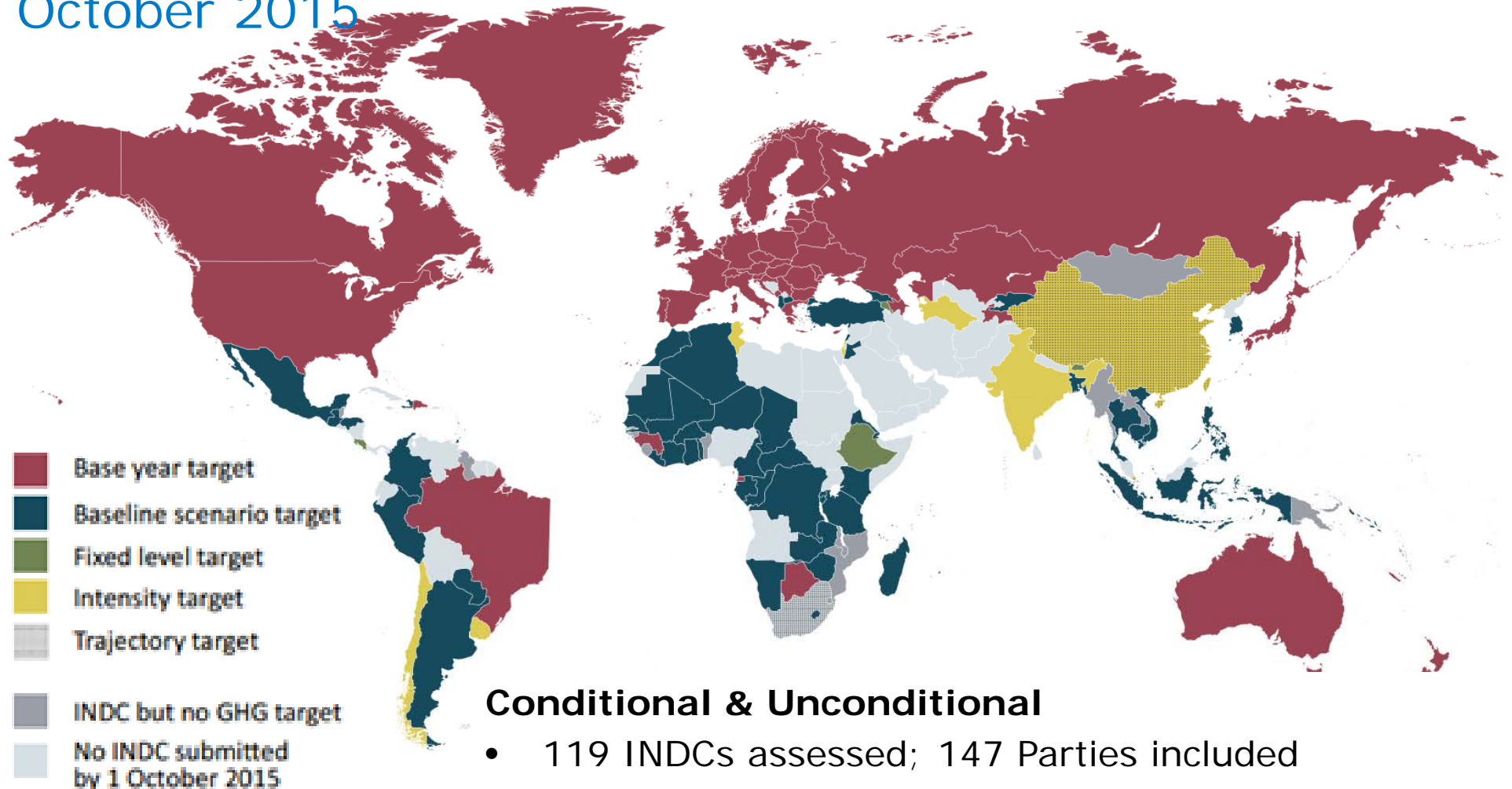
- Economy-wide absolute reduction from historical base year emissions
- Emissions reduction relative to a baseline emission projection
- Trajectory target for specific sectors or gases
- Specifying a peaking year
- Emissions intensity of GDP
- A fixed level target

### **Conditional & Unconditional**

- 119 INDCs assessed
- 147 Parties included
- Representing 85 to 88% of global emissions in 2012
- 91 Countries have indicated need for financial support



## INDC submissions by type of mitigation target by 1<sup>st</sup> October 2015



### Conditional & Unconditional

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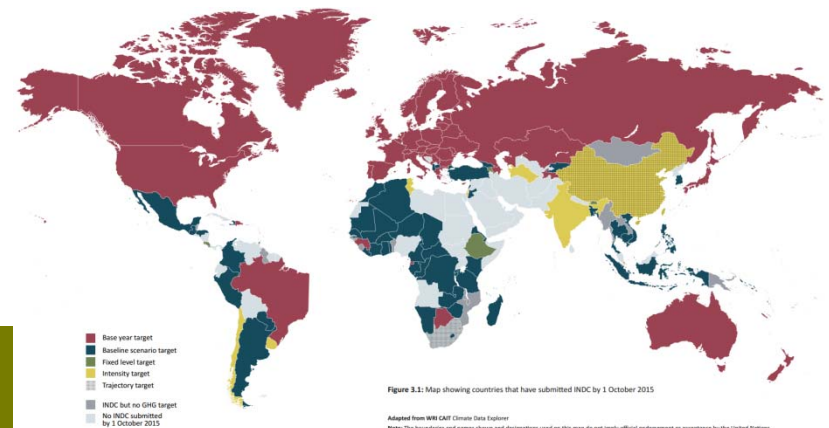
## The 147 Parties represent about 90% of the global greenhouse gas emissions in 2012

Country	% of GHG 2012 (EDGAR, incl. LULUCF)	Unconditional INDC (conditional*)		base year
		2025	2030	
China	22%	Peak by 2030 NF 20% by 2030	-60% to -65% intensity level	2005
USA	12%	-26% to -28%		2005
EU 28	9%		(domestic) -40%	1990
Brazil	5.7%	-37%	-43%	2005
India	5.4%	NF target	-33% to -35% Intensity level	2005
Russia	5.3%		-25% to -30%	1990
Japan	2.8%		-26%	2013
Canada	1.9%		-30%	2005
Indonesia	1.5%		-29% (-41%)	BAU 2030
Australia	1.5%		-26% to -28%	2005
Mexico	1.3%		-22% (-36%*)	BAU 2030



## Assessment of literature on INDCs from global & national studies

1. Official estimates (documents submitted by countries to the UNFCCC)
  2. Estimates from many country-specific studies (WRI, ERI, NCSC, etc. )
- Eight global studies:
    3. Climate Action Tracker (CAT) ([www.climateactiontracker.org](http://www.climateactiontracker.org))
    4. PBL Netherlands Environmental Assessment Agency ([www.pbl.nl/indc](http://www.pbl.nl/indc))
    5. IEA WEO (adjusted) (CO<sub>2</sub> from energy, augmented with USEPA, NatComs, IIASA)
    6. London School of Economics and Political Science (LSE), UK
    7. University of Melbourne
    8. NIES, Japan
    9. Climate Interactive, US
    10. Danish Energy Agency





## Methodological challenges

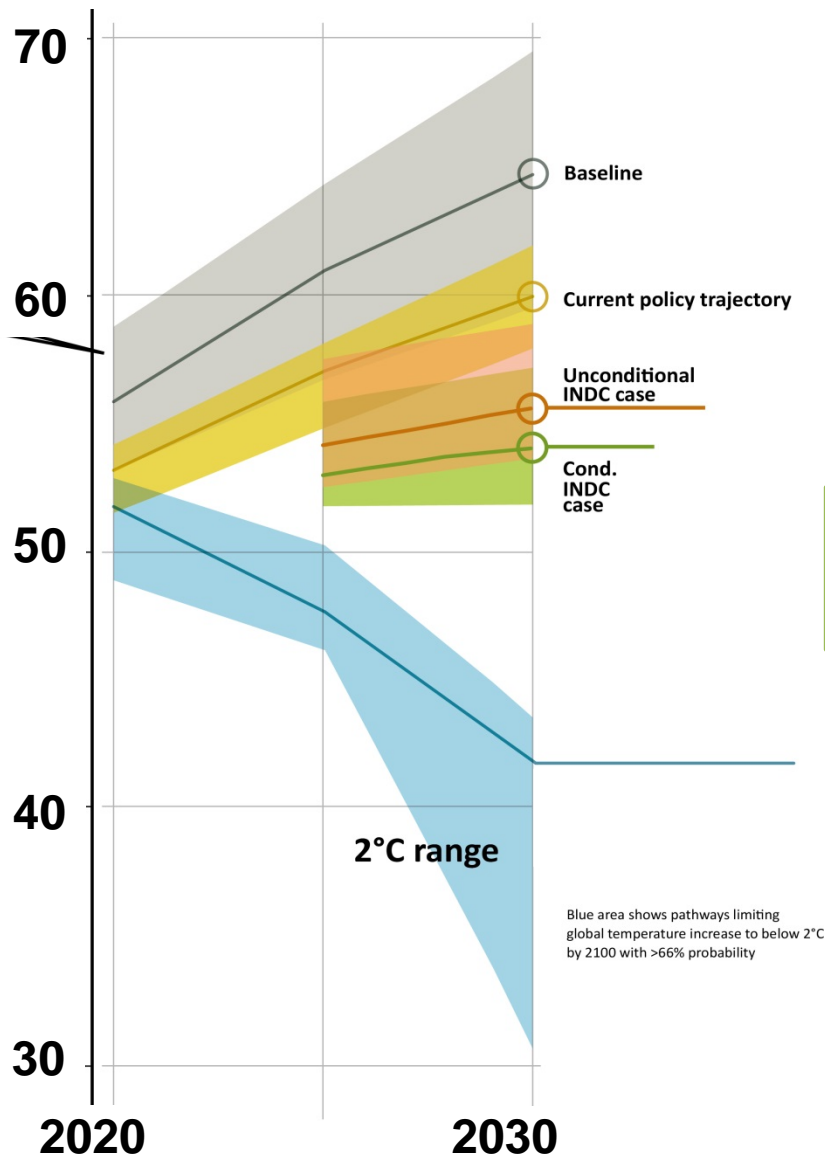
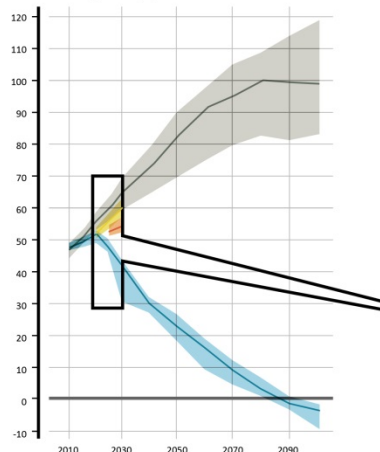
- **Differences in reporting:** Reported historical data differs slightly between inventory and projections
- **Forestry:** estimates for LULUCF and exact accounting rules are not always known
- **Missing estimates:** Inter- and extrapolation is necessary where 2025 and 2030 were not provided, timing but not level of peak provided
- **GWPs:** Emissions are reported in GWP from SAR and AR4, historical emissions and projections may not match
- **Missing information on countries/sectors:** for global aggregation, information on all countries and sectors and greenhouse gases is necessary





### Annual Global Total Greenhouse gas emissions (GtCO<sub>2</sub>e)

Annual Global Total Greenhouse Gas Emissions (GtCO<sub>2</sub>e)

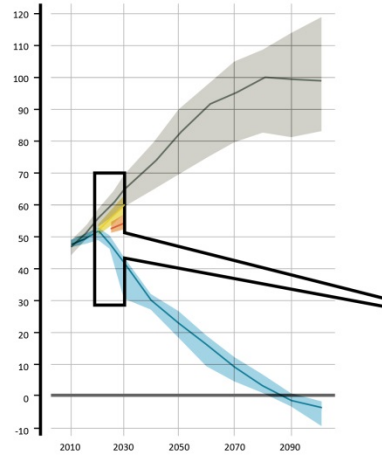


<b>Baseline</b> Global total emissions: <b>65 GtCO<sub>2</sub>e</b> (range: 60-70)
<b>Current policy trajectory</b> Global total emissions: <b>60 GtCO<sub>2</sub>e</b> (range: 58-62)
<b>Unconditional INDC case</b> Global total emissions: <b>56 GtCO<sub>2</sub>e</b> (range: 54-59)
<b>Conditional INDC case</b> Global total emissions: <b>54 GtCO<sub>2</sub>e</b> (range: 52-57)
<b>2°C pathways</b> Global total emissions: <b>42 GtCO<sub>2</sub>e</b> (range: 31-44)

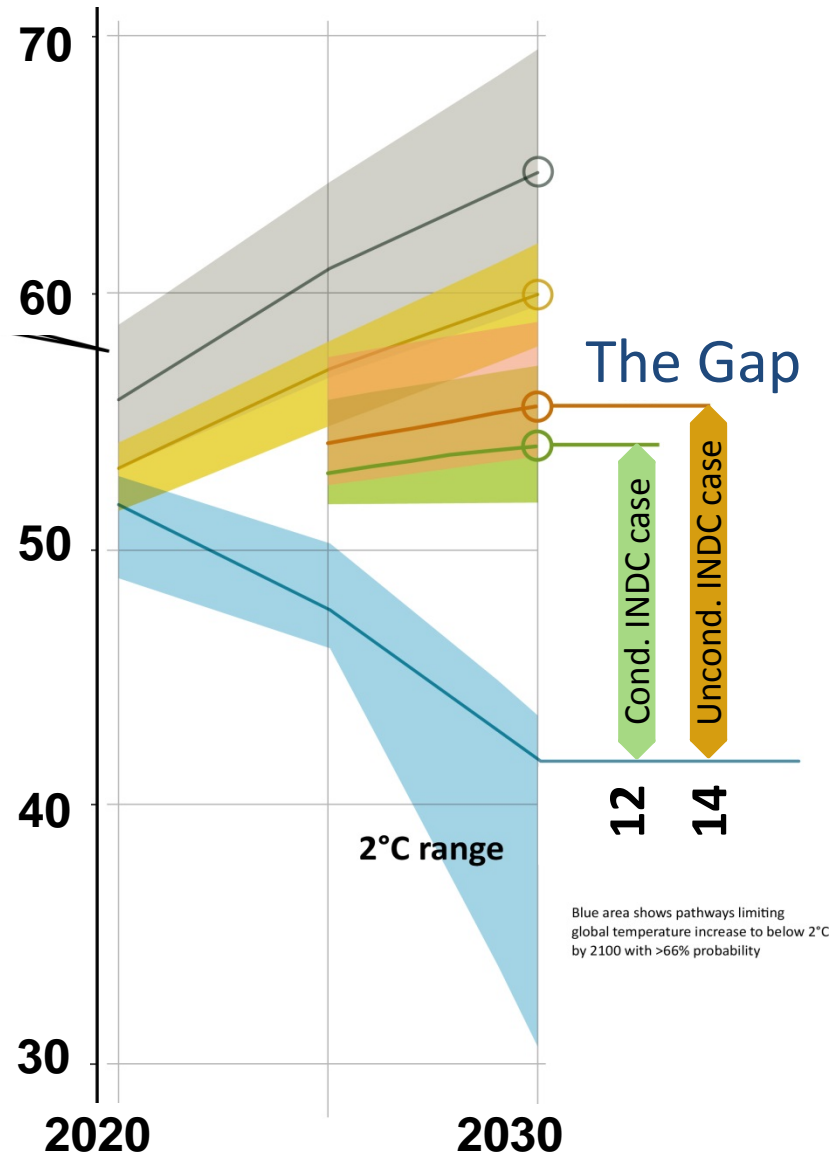
# INDC contributions and the emissions gap



Annual Global Total Greenhouse Gas Emissions (GtCO<sub>2</sub>e)



Annual Global Total Greenhouse gas emissions (GtCO<sub>2</sub>e)



**Unconditional INDC case**

Gap= 14 GtCO<sub>2</sub>e

**Conditional INDC case**

Gap= 12 GtCO<sub>2</sub>e

**INDC contributions and the emissions gap**

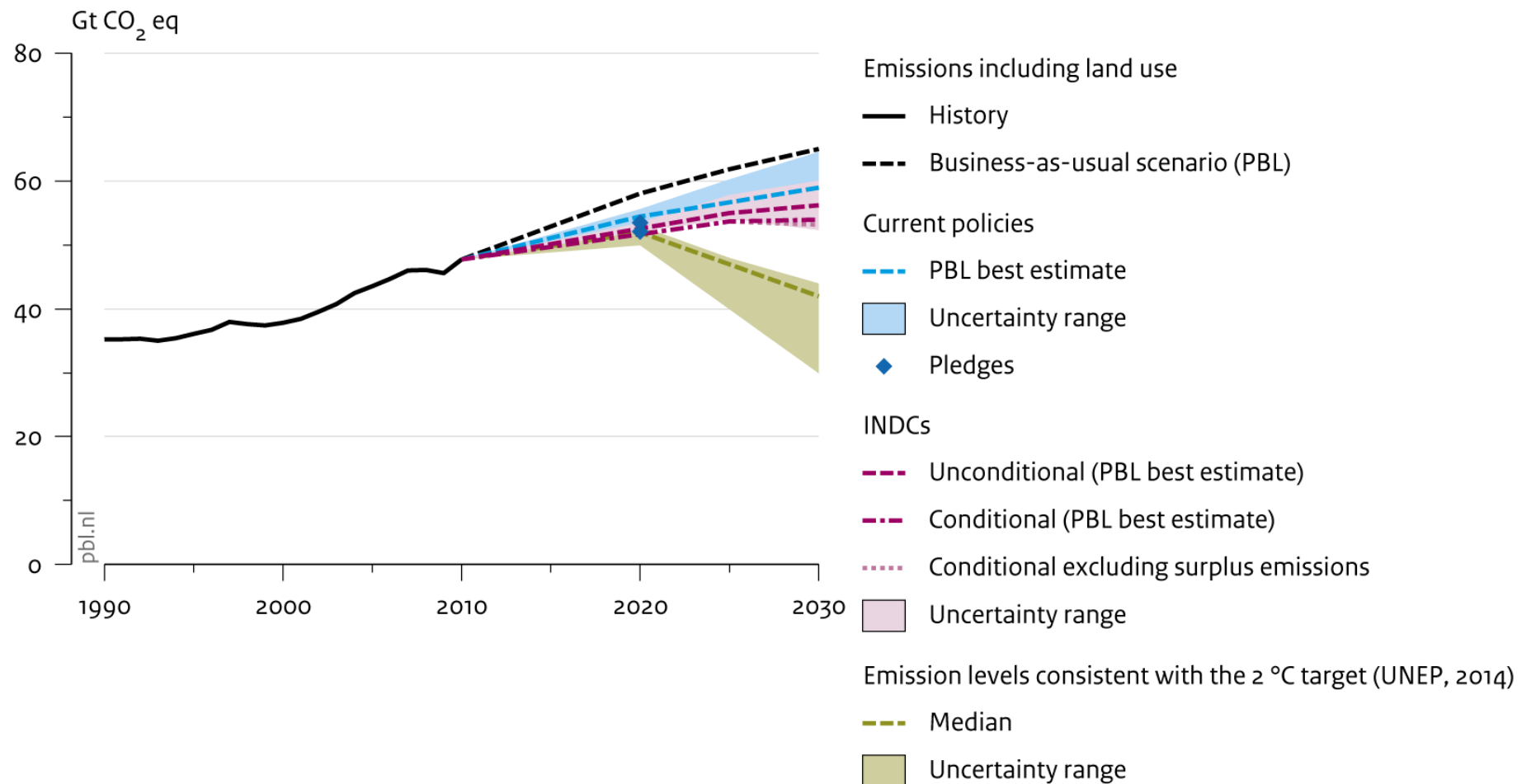
The INDCs present a real increase in the ambition level compared to a projection of current policies.

The emissions gap in both 2025 and 2030 will be very significant and ambitions will need to be enhanced urgently.



# PBL INDC analysis also shows 12-14 GtCO<sub>2</sub>e 2°C gap

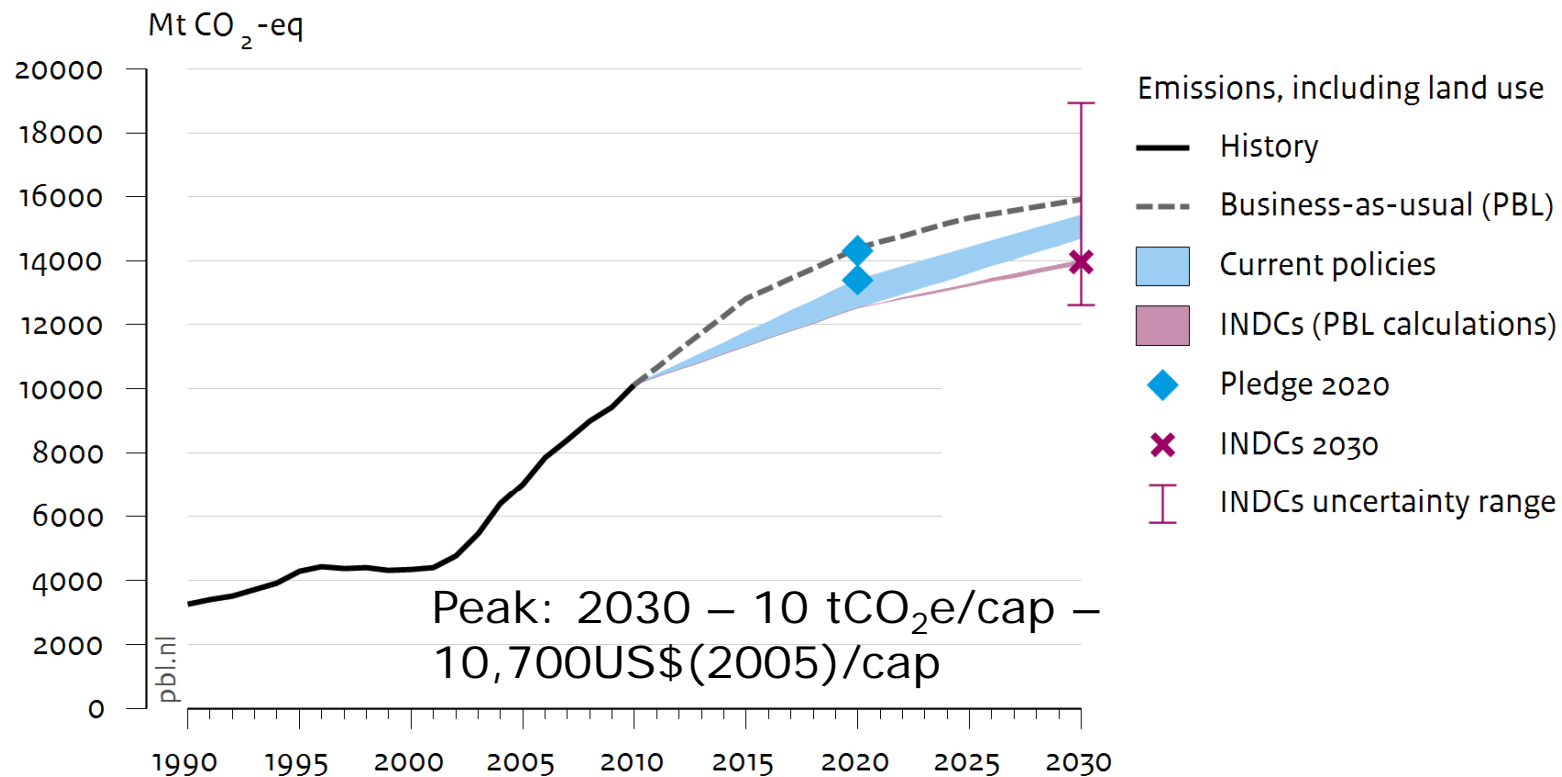
## Impact of INDCs and climate policies on global greenhouse gas emissions



Source: PBL FAIR/TIMER model; IIASA GLOBIOM/G4M model; UNEP 2014

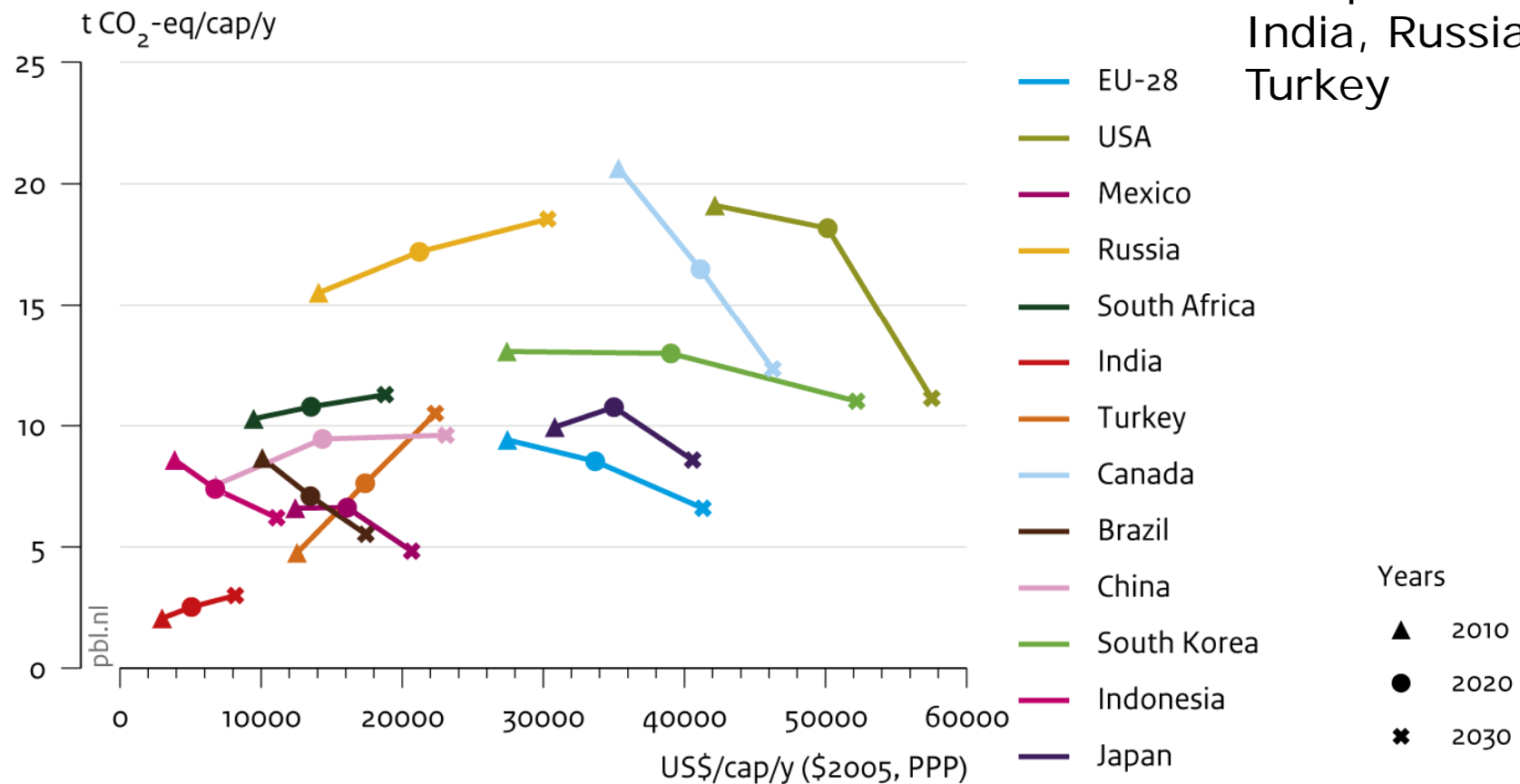
## China: INDC 60-65% reduction of CO<sub>2</sub> intensity, 20% non-fossil share in energy consumption, peak by 2030

### Impact of INDCs and climate policies on greenhouse gas emissions, China



# Full implementation of INDCs could enable a transition to lower per capita emissions and lower emission intensities

## Greenhouse gas emissions per capita versus GDP per capita

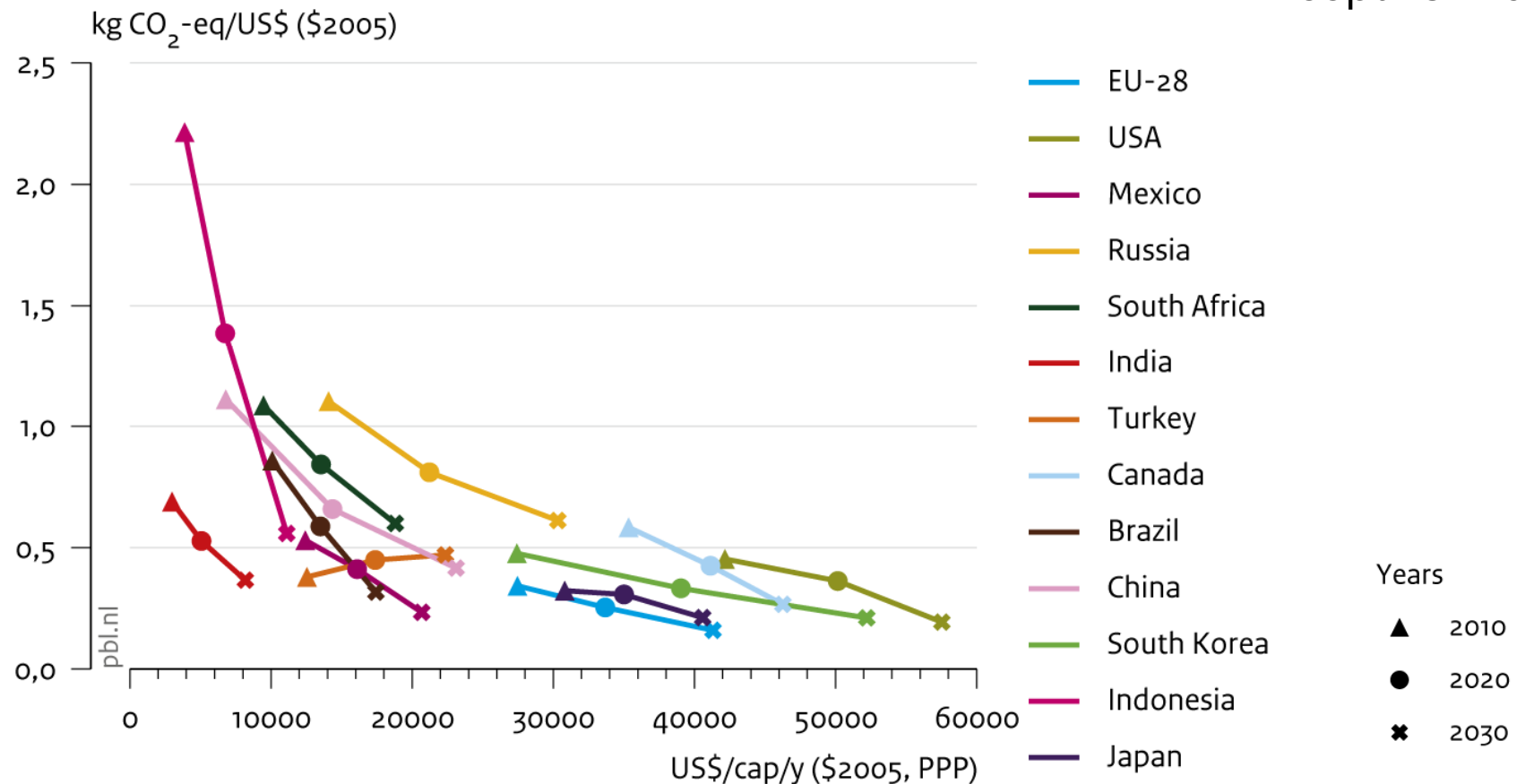




# Full implementation of INDCs could enable a transition to lower per capita emissions and lower emission intensities

## Greenhouse gas emissions per GDP versus GDP per capita

Except for Turkey

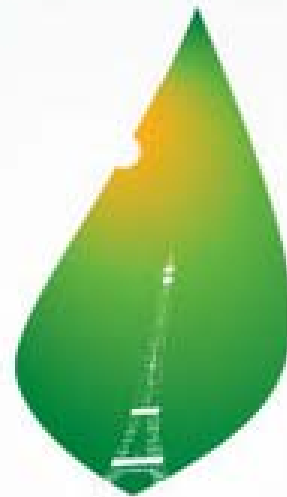




Forthcoming PBL rapport ([www.pbl.nl/en](http://www.pbl.nl/en)): Admiraal, A., den Elzen, M.G.J., Forsell, N., Turkovska, O., Roelfsema, M. & van Soest, H. 2015. Assessing intended nationally determined contributions to the Paris climate agreement – what are the estimated global and national emission levels by 2025-2030? PBL

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