

Progress in Integrated Assessment Modelling

47th TFIAM meeting in Brescia, 8-9 May 2018

- **Taking stock of progress in supporting national air quality plans:**
 - Implementation of emission standards is in many countries sufficient to meet national reduction obligations; exception = ammonia
 - Episodes due to transboundary (secondary) PM
 - National optimization gives different results from European wide optimization
 - Wood burning remains a burning issue in air-climate policy
- **Questions to WGSR arising from the TFIAM work plan discussion**

Rob Maas, co-chair TFIAM
(Geneva – 22-25 May 2018)

Guidance on additional work plan items 2018-2019

1. Review/update cost-data (*with TFTEI*)
2. Report on “cost of inaction” (*with TFTEI*)
3. Assessment report on Ammonia
4. Local air quality assessment (expert panel)
5. Global sectoral strategies (*with HTAP*)

Request to support an update the mandate of TFIAM in order to include work on multi-scale multi-objective integrated assessment modelling

aimed at cost-effective policy strategies that combine international, national and local actions and include links between air quality policy and other policy processes, such as the implementation of the UN Sustainable Development Goals

1. Cost data

- Priority on updating control costs for sources not yet controlled in existing legislation
- Focus on regions that have yet to implement advanced control, i.e. countries in the eastern region of the Air Convention
- Update of GAINS cost data depends on ongoing research by national experts that is communicated to CIAM

2. Options for “cost of inaction” report

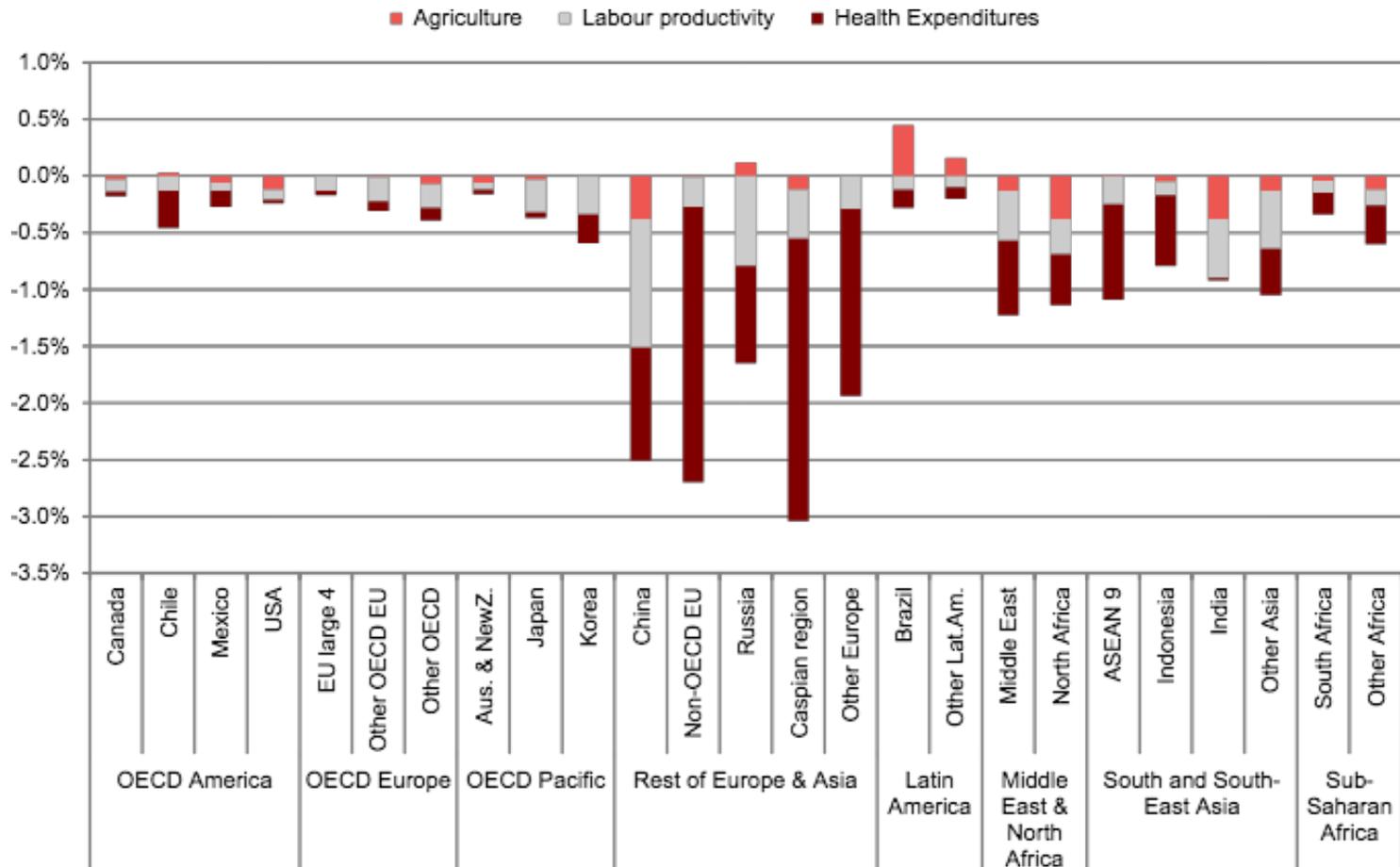
- Cost of inaction = Benefits of policy action
- “Inaction” defined as no additional action than current policy?
- Focus on eastern region of the Air Convention?
- Focus on ammonia?

Alternative approach:

- Handbook on damage costs per emission unit
- Damage costs associated with transport, agriculture, etc, per country

Air quality results from Cost of Inaction study OECD

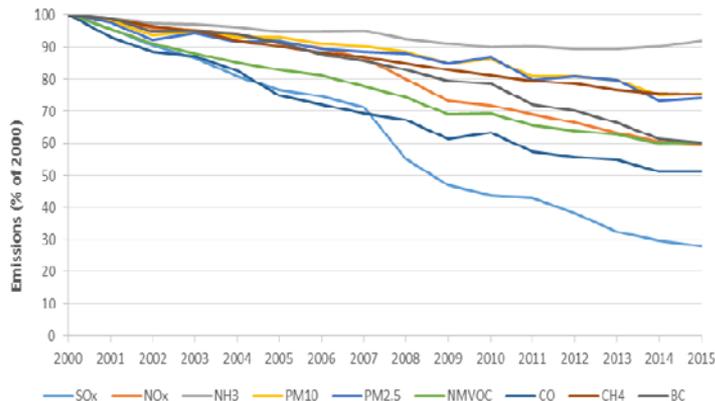
Change in regional GDP from market impacts, central projection: *Percentage change w.r.t. no-feedback projection, 2060*



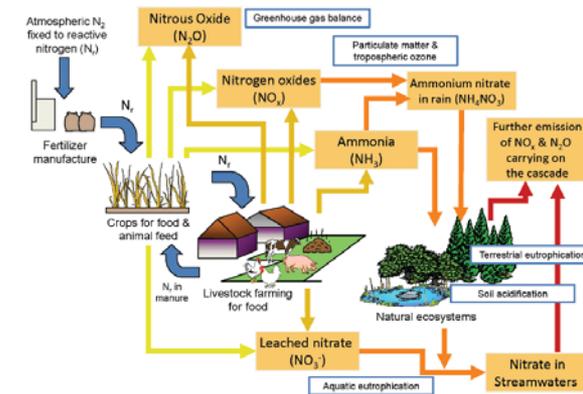
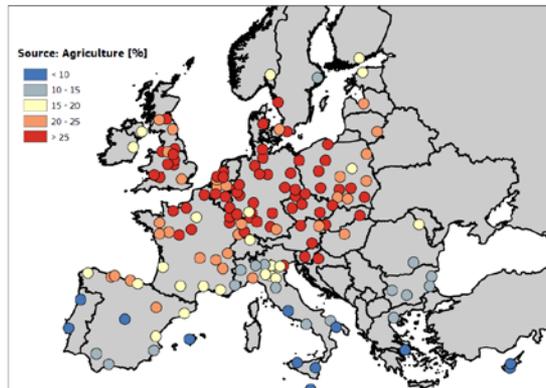
3. Assessment report on Ammonia

- Several parties and centres showed interest to contribute to a thematic report on ammonia.
- What can be the value added compared to existing TFRN/ENA reports?
- Explicitly address the cost of inaction to ammonia policy? Link with agricultural subsidies?

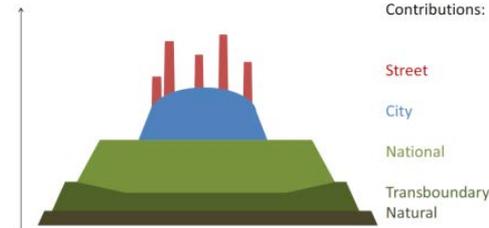
Figure 1: Development in EU-28 emissions, 2000-2015 (as % of 2000 levels) [Source EEA]



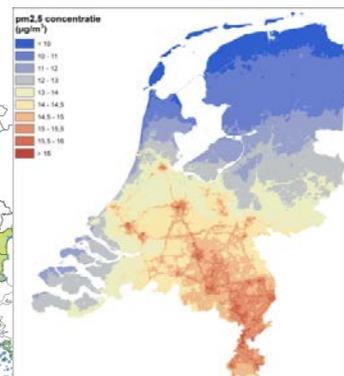
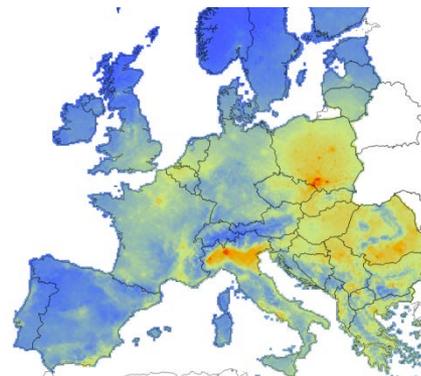
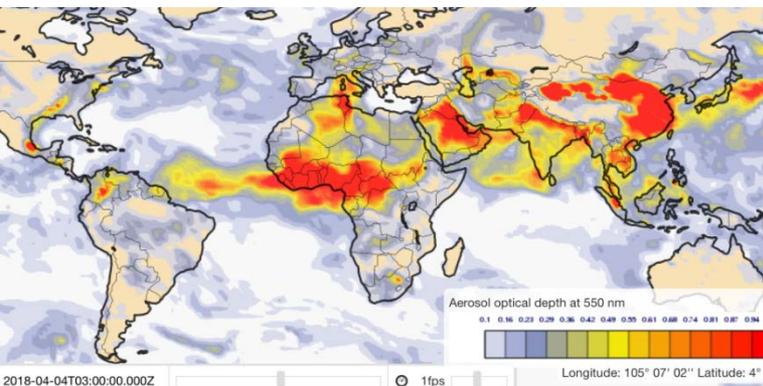
Share of ammonia in PM2.5 formation (JRC)



4. Local air quality assessment (expert panel)



- Need for information sharing with local experts and focus on cost-effective strategies aimed at reduced health risks
- FAIRMODE/TFIAM workshop on local air quality assessment (Tallinn, 28-29 June 2018)
- Additional TFIAM workshop in autumn 2018 with a well prepared and in-depth discussion on the purpose and value added of an expert panel on clean air in cities as suggested during the Saltsjöbaden-6 meeting
- How to invite or nominate participants? Link with national experts? Funding?

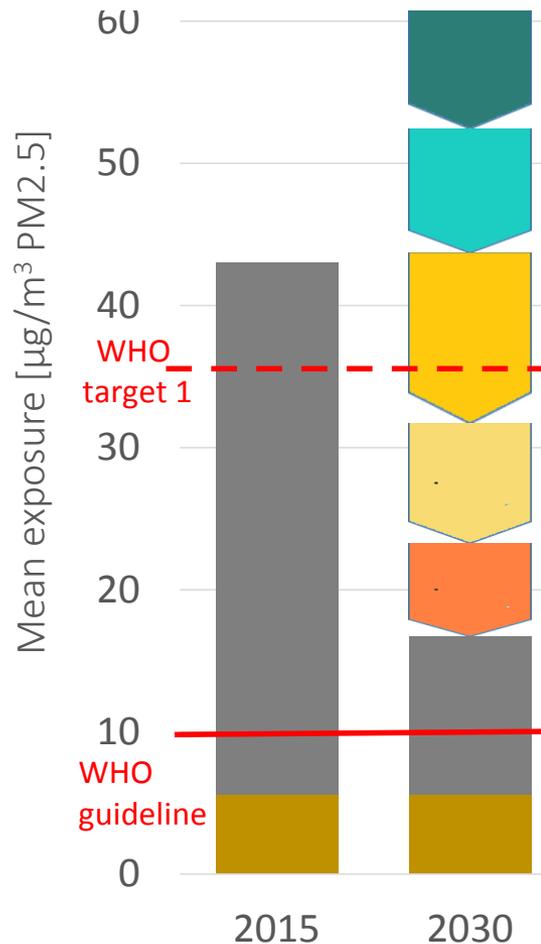


5. Global sectoral strategies

- CIAM is involved in designing global sectoral strategies
- A wider perspective on air pollution control (considering more than end-of-pipe measures) would be needed to reach WHO air quality targets
- This strengthens the need for an integrated approach to air pollution, taking into account other sustainable development goals.
- Currently only a very limited number of TFIAM experts have the means to contribute to hemispheric/global issues

FURTHER AIR QUALITY IMPROVEMENTS IN ASIA REQUIRE A RE-ORIENTATION OF CURRENT POLICIES

Mean population exposure
to PM2.5



Measures already in place in 2015

- Vehicle emission standards
- TSP(+SO₂+NO_x) controls at large plants

Post-2015 legislation

- SO₂+NO_x controls at stationary sources

Conventional PM controls

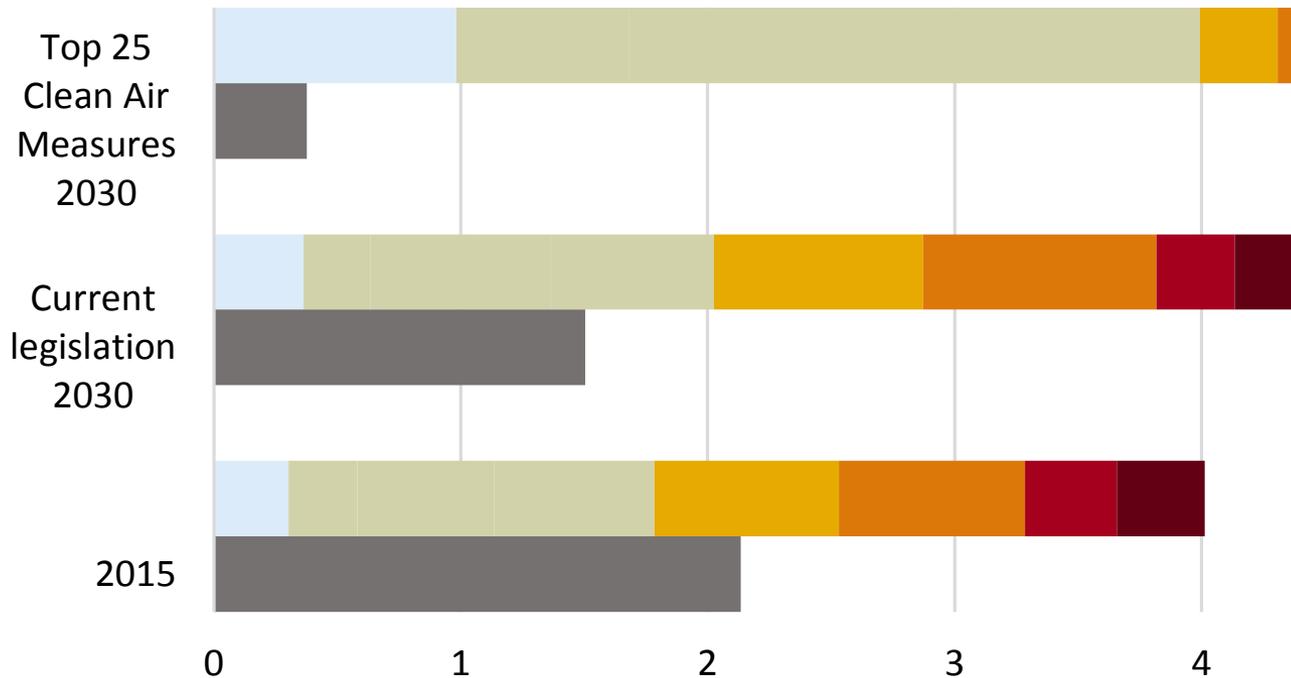
'Next stage' air quality measures

- Fertilizer use, manure management
- Open burning of waste and biomass
- Forest fires, I&M of vehicles

Development measures

- Clean cooking fuels, renewable energy
- Energy efficiency, waste management
- Public transport and electric vehicles

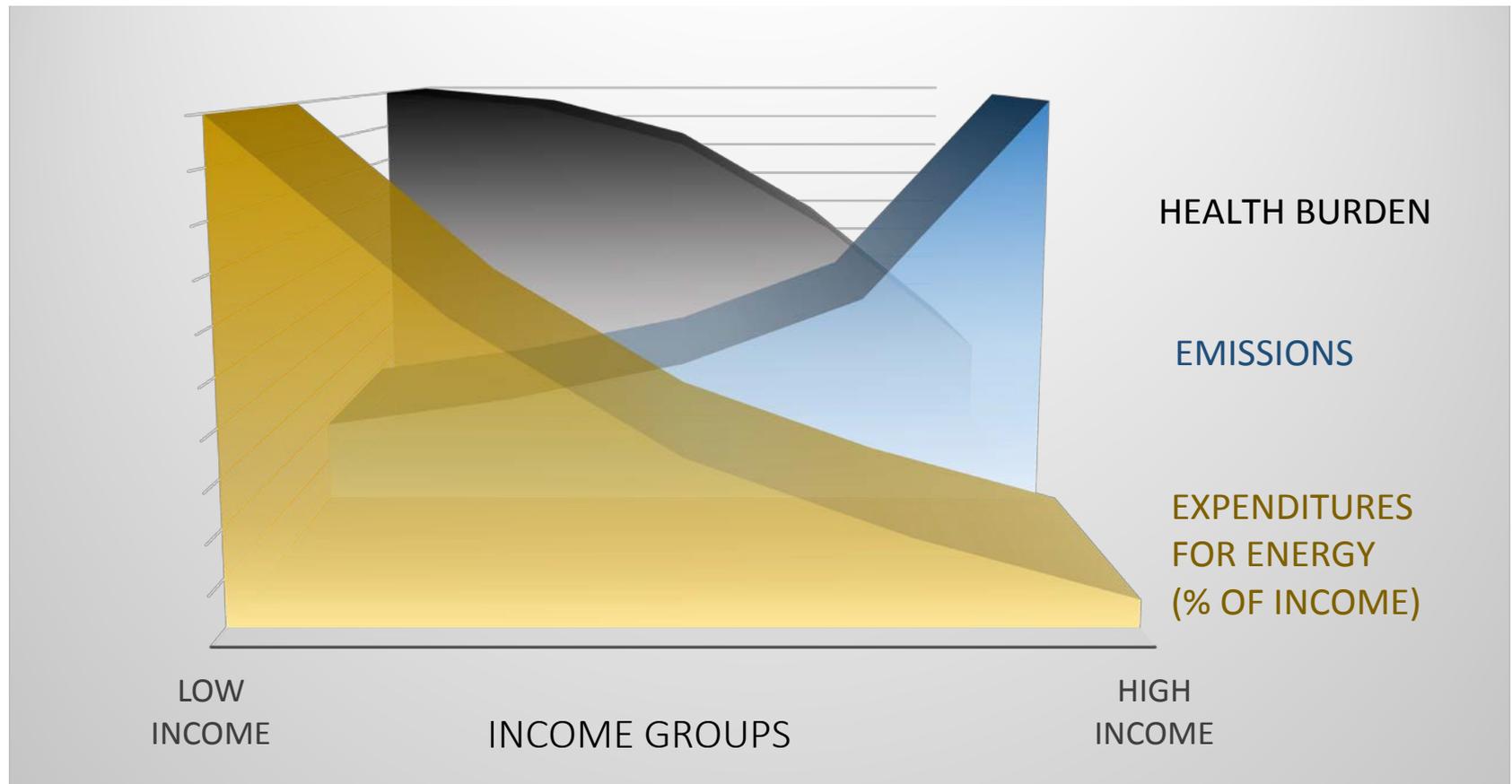
THESE MEASURES CAN PROVIDE CLEAN AIR TO ONE BILLION PEOPLE



Billion people exposed to PM_{2.5} concentrations

- < WHO Guideline (10µg/m³)
- < WHO Target 1 (35µg/m³)
- 35-50 µg/m³
- 50-65 µg/m³
- 65-80 µg/m³
- >80 µg/m³
- People exposed to household pollution

INEQUALITIES OF POLLUTION INDIA - 2010

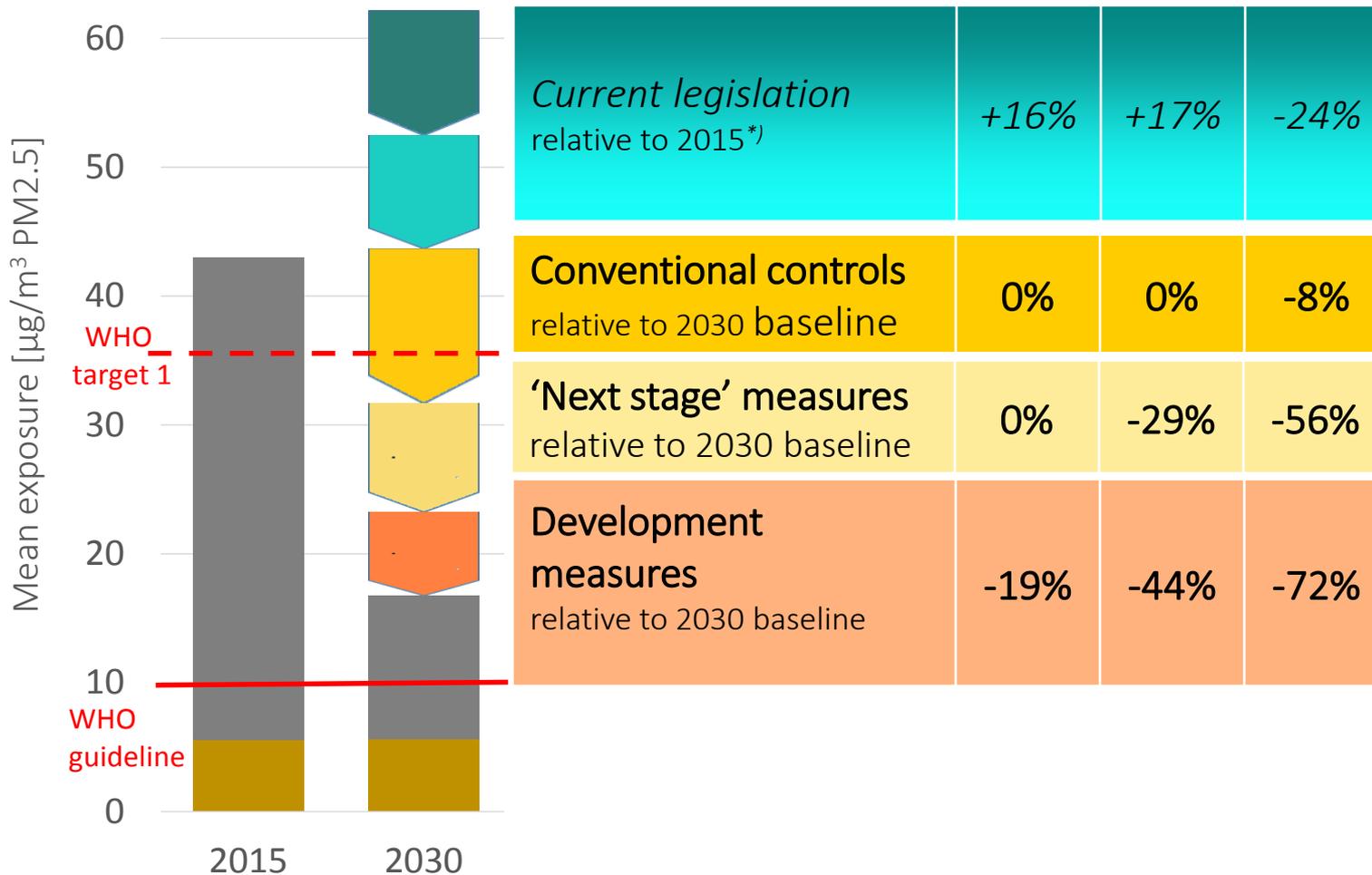


THE TOP 25 CLEAN AIR MEASURES ALSO AFFECT CLIMATE FORCERS

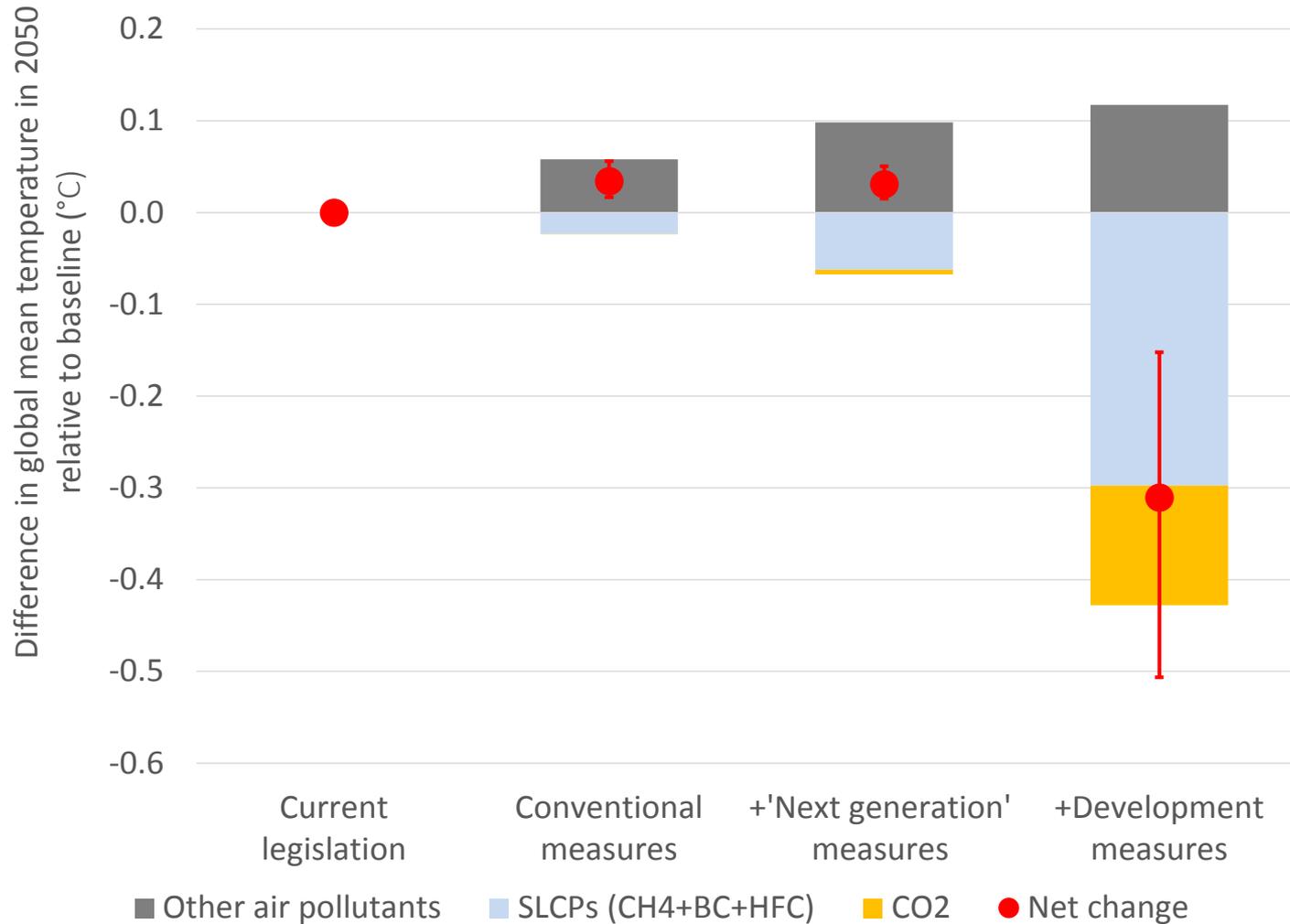


Mean population exposure to PM2.5

Climate forcers



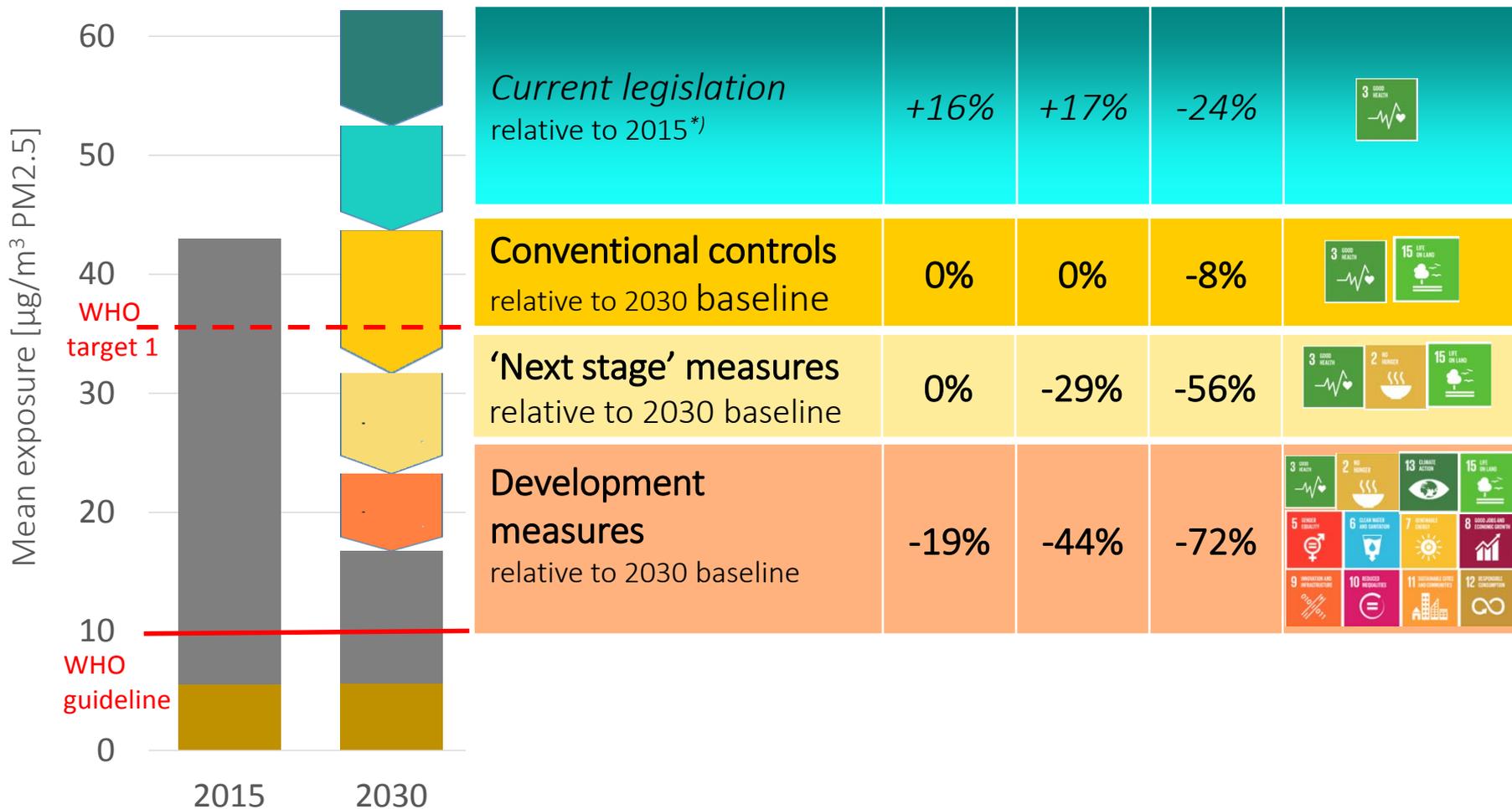
THE DEVELOPMENT MEASURES COULD REDUCE GLOBAL TEMPERATURE INCREASE BY ONE THIRD DEGREE



THE NEW POLICY MEASURES WOULD HAVE IMPORTANT CO-BENEFITS ON SDGs



Mean population exposure to PM2.5



Summary

0. Will WGSR support an update the mandate of TFIAM in order to include work on multi-scale multi-objective integrated assessment modelling?
1. Will WGSR actively support national experts to communicate new cost data to CIAM?
2. Should a 'cost-of-inaction' report focus on the eastern region?
3. Should a thematic 'ammonia' report focus on the cost-of-inaction?
4. How to extend our IAM expert network to the local scale?
5. Will WGSR actively support (your) IAM experts to participate in hemispheric assessments?