



# TFIAM-CIAM

Policy brief on potential targets to reduce risks for health  
and ecosystems

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# TFIAM/CIAM Policy brief on potential targets to reduce risks for health and ecosystems

- An informal document updated throughout the GP revision process that documents CIAM modelling work and results, aiming to:
  - Assess the feasibility of an overarching risk-based goal for the Convention covering all air pollutants and impacts on health and biodiversity
  - Provide support to decision makers for negotiating emission reduction commitments
  - Explore the potential of staged/phased strategies
- Latest update is [version 6 \(EB-45, 2025\)](#)
  - 2 updates since TFIAM-54 – all available at the TFIAM web-site
  - New: [summary for policy makers](#) (HoD, Elsinore 2025)
- Version 7 planned for HoD 2026

# Policy brief on potential targets to reduce risks for health and ecosystems (WP item 2.1.4)

Version 6

- Updated scenarios – group v6b
  - Updated demographic data (UN/WPP 2024) and concentration-response functions for mortality
  - Use of 2025 revised CLempN from CCE for biodiversity
- Health PM<sub>2.5</sub> optimisation and source contributions to exposure in cities
- Joint optimization with variable ambition levels for biodiversity
- Modelling for alternative indicative ambition levels between 40% and 60%
- Information on the feasibility of reaching combined PM<sub>2.5</sub> and O<sub>3</sub> health targets
- Fairness issues – how to reduce differences in costs between regions
  - Different approaches tested

<https://unece.org/environment/documents/2025/11/informal-documents/tfiamciam-policy-brief-potential-targets-reduce>

# The burden sharing approach distributes costs more evenly between WB and EECCA but cost differences to EU27/EFTA remain high

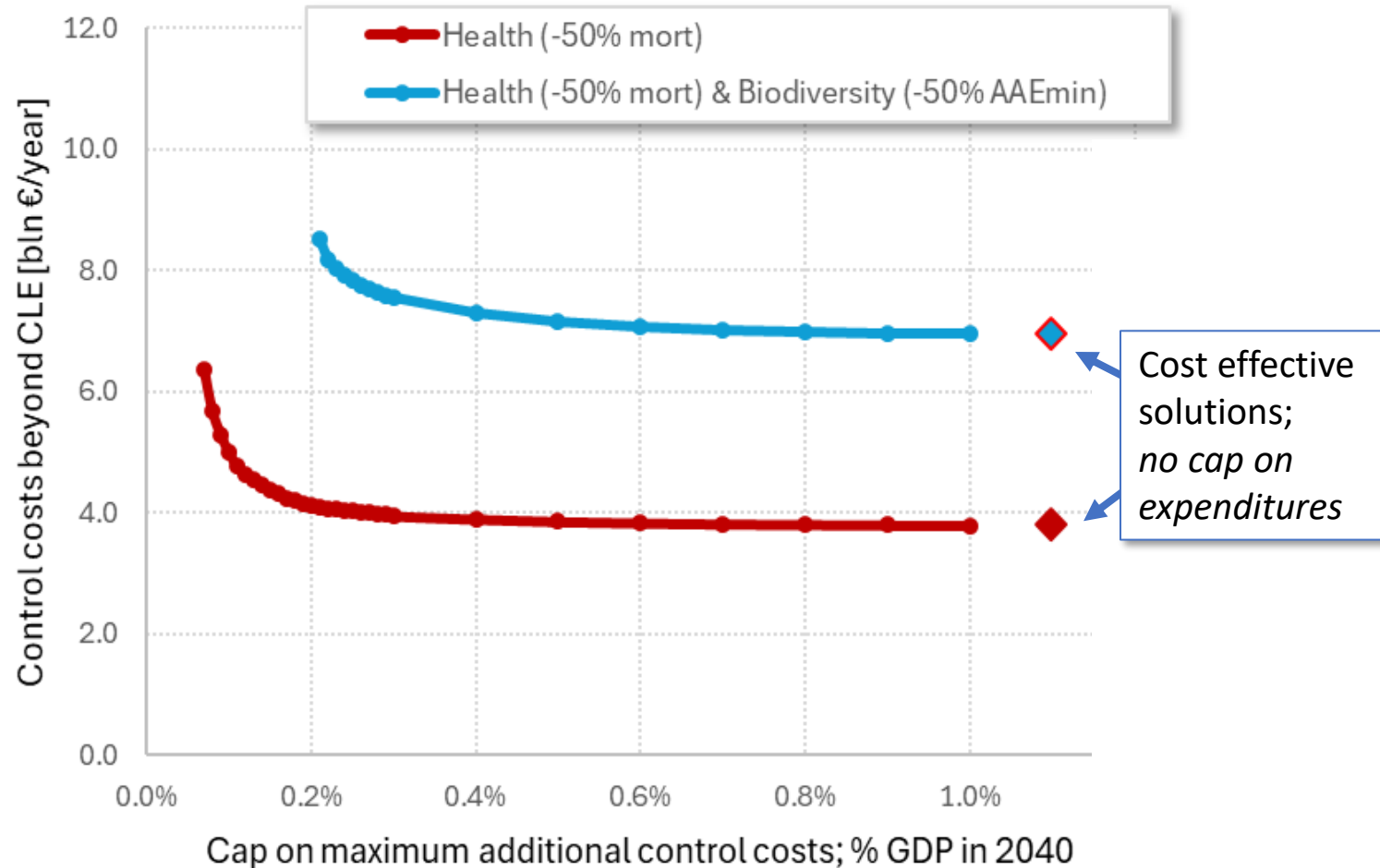


Burden sharing approach = a constraint limiting the total additional costs for a country to the equivalent of a certain maximum percentage of GDP



- Some changes in risk reduction, especially in EECCA
- Total UNECE wide costs would increase by about 3% to 18% for the 0.5% and 0.22% case, compared to the least-cost solution

# The burden sharing approach distributes costs more evenly between WB and EECCA but cost differences to EU27/EFTA remain high



Burden sharing approach = a constraint limiting the total additional costs for a country to the equivalent of a certain maximum percentage of GDP

- **Joint health and biodiversity optimization:**
  - Total costs increases by 3 € bln compared to health only solution
  - constraining additional expenditure up to 0.5 % of GDP does not significantly increase total cost (by about 3% compared to OPT)
  - Solution infeasible for cap < 0.21%
- **Health only:**
  - More moderate increase in costs
  - Solution infeasible for cap < 0.07%

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Version 6

- Fairness issues – how to reduce differences in costs between regions
  - Approaches tested: gap closure, burden sharing, staged/phased, split ambitions

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# The gap closure approach increases health benefits in West Balkan – and costs in most regions

Gap closure approach = an additional constraint requiring each country to realize the same percentage reduction of impact between the one estimated for the baseline projection for 2040 and the maximum feasible reduction case for the same year

The staged/phased approach can yield high benefits but at much larger costs in the preliminary analysis

Stage/phased approach =  
excluding certain measures from the  
optimization or postponing expensive  
measures until after 2040 or 2050

The split ambitions approach could reduce the difference in costs between countries, e.g., 45% health risk reduction in EECCA and 55% reduction in EU27/EFTA

Split ambitions approach =  
setting of different collective goals for  
different regions, higher ambitions for  
high-income countries and lower  
ambitions for low-income countries

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Version 6

- Fairness issues – how to reduce differences in costs between regions
  - Approaches tested: gap closure, burden sharing, staged/phased, split ambitions
  - Differences can be reduced but not eliminated
  - This comes at a higher price compared to the least-cost solution

<https://unece.org/environment/documents/2025/11/informal-documents/tfiamciam-policy-brief-potential-targets-reduce>

# Results and data available online

## Emissions under scenario version v6b

- Scenario group v6b results published in GAINS Explorer and on TFIAM/CIAM web pages
- Note on emission reductions (for HoD, Oct. 2025)
- Annex on emission reductions in policy brief v6

**IIASA** **GAINS Data Explorer**  
Greenhouse Gas - Air Pollution Interactions and Synergies Model Release 4.0.3

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TFIAM web-site: <https://iiasa.ac.at/policy/applications/task-force-on-integrated-assessment-modelling-tfiam-under-lrtap-convention>

CIAM web-site: <https://iiasa.ac.at/policy/applications/centre-for-integrated-assessment-modelling-ciam>

GAINS Data Explorer: <https://gains.iiasa.ac.at/gains/GPV/index.login>

## Process of modelling

1. Development of baseline scenario – countries should check their data
2. Choose a collective ambition level for risk reduction
3. Calculate associated least-cost reduction efforts
4. Define an acceptable distribution of efforts
5. Choose a preferred scenario as basis for negotiating commitments
6. Negotiation phase
7. Evaluate end-result (accept or renegotiate)



*For the Gothenburg Protocol (2012 revision) at least 50 different scenarios were calculated before an acceptable basis for negotiation was chosen*

## EB45 requested TFIAM/CIAM to

- Assess **least-cost solutions** (=optimize) **for 2040 relative to 2015**
- Optimize reaching targets **cost-effectively across the UNECE**
- Optimisation jointly for **health and biodiversity**
  - Based on risk-based indicator “deaths per 100,000 inhabitants” and static population for PM<sub>2.5</sub>
  - Based on Average Accumulated Exceedance (AAE) as indicator for nature protection, with optimisation for minimum N empirical critical loads N CL<sub>emp</sub>
- **Target setting with static population for variable ambition levels, e.g., 40% -60%**
- Modelling with different parametrisation (e.g., dynamic population, gap closure, etc.) if time allows
- Work with TFRN to **revise and update costs for ammonia mitigation in GAINS**

# Roadmap towards Policy Brief v7

- Comments by parties on activity levels and CLE in GAINS
  - For EU-countries combined with CAO-5 process (using new PRIMES/CAPRI projections) → April
  - For Non-EU → April (exceptionally June)
- Update NH<sub>3</sub>-costs (with TFRN) – partial implementation (using v6b) → TFIAM April/WGSR May
  - Full review and implementation requires additional resources
- Draft optimized scenarios for various health ambition levels jointly with biodiversity, static population → TFIAM April/WGSR May
- Freezing scenario set v7 → early July
- Key-policy scenarios, including for 2050 → WGE/EMEP September / HoD October
- Joint optimization with O<sub>3</sub> health → HoD October
- Sensitivity analyses (CL-alternatives ) → HoD October
- Comparison with results of CBA-study → HoD October
- Potential update of previously analyzed scenarios
- Policy Brief 7 → HoD October

# Thank you!

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For presentations & conclusions from TFIAM and EPCAC meetings and documents:

[Task Force on Integrated Assessment Modelling \(TFIAM\) under the LRTAP Convention | IIASA](#)

For data and documents from CIAM:

[Centre for Integrated Assessment Modelling \(CIAM\) | IIASA](#)