

Estimating emissions from international aviation

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Overview

- Background on estimation of emissions
- Emissions growth, 1990-2004
- Overview of methodological work being undertaken

National emissions reporting

- Reporting by industrialized and developing country Parties
 - backbone of integrity for UNFCCC and Kyoto Protocol
 - used to set national targets and track progress under Kyoto
 - gives the basis for participation in the Kyoto mechanisms
- Complex guidelines and formats to be adhered to (by gas/sector)
- Expert review process to verify the submitted data
- Kyoto's Compliance Committee to resolve disputes and adjust data

Separation of international bunker fuels

- Emissions from international bunkers to be reported separately
 - provides data while emissions allocation to Parties not resolved
 - SBSTA first requested to address allocation in 1995; the issue remains on the agenda without solution
 - in the meantime, work has focused on methodological issues
- Kyoto Protocol, Article 2.2:

“Annex I Parties shall pursue limitation or reduction of emissions of greenhouse gases ... from aviation and marine bunker fuels, working through ICAO and IMO, respectively”
- Result: mitigation of bunker fuel emissions is not controlled by Kyoto

Since Kyoto ...

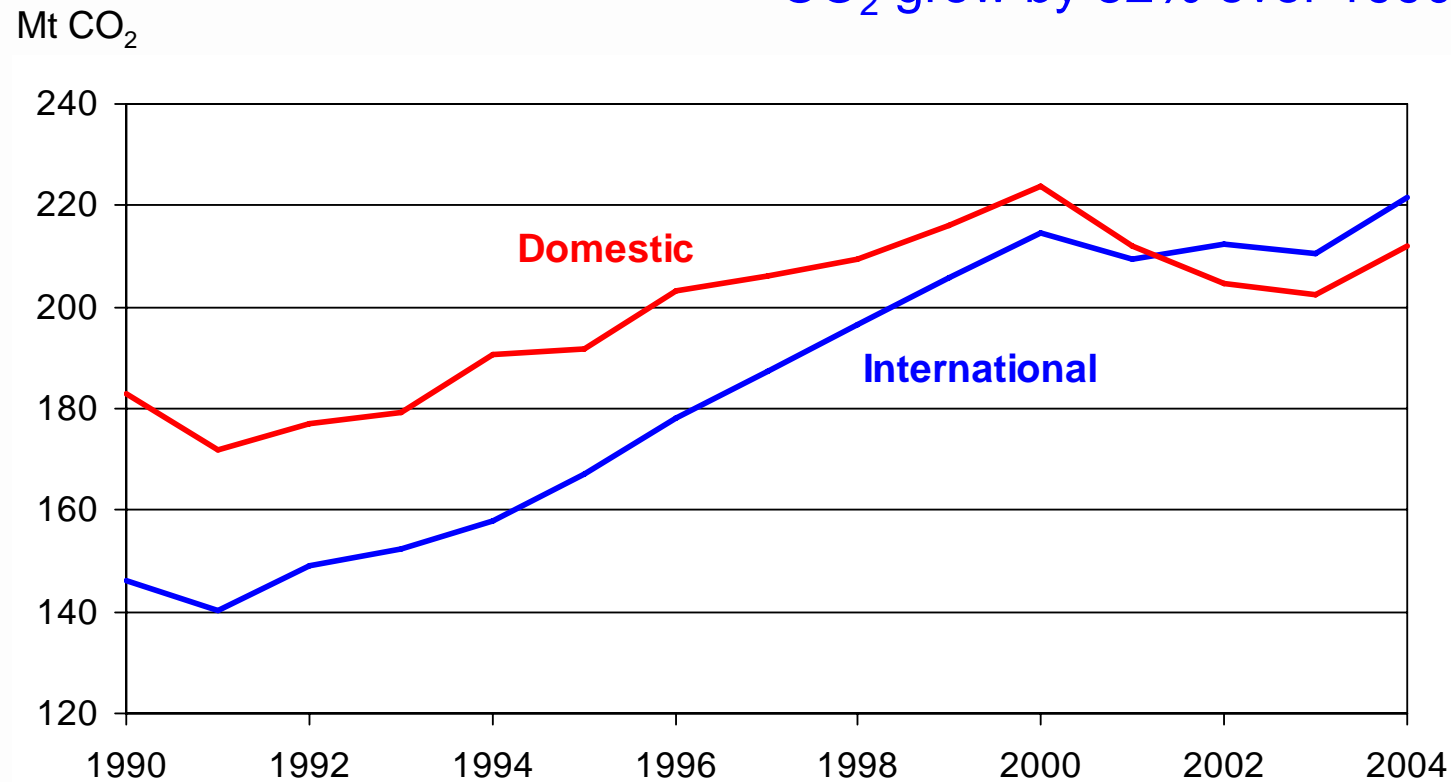
- Kyoto's implementing decisions require Annex I Parties to report steps taken to promote and/or implement ICAO decisions
- ICAO invited to inform the CMP of work plans and progress
- CMP encouraged ICAO to complete its work as soon as possible
- CMP noted importance of governments' internal coordination
- Cooperation between UNFCCC and ICAO, including methodological issues and cross-participation in each other's processes

Methodological work

- Joint work undertaken to improve methodologies for estimating and reporting greenhouse gas emissions from aviation
- Inputs provided to the IPCC work to develop the 2006 Guidelines for National Greenhouse Gas Inventories
- Exchange of data on emissions and fuel consumption
 - UNFCCC has provided data submitted by Annex I Parties
 - ICAO has provided modeled data from SAGE and AERO2K

Aviation CO₂ emissions for Annex I Parties

International aviation emissions of CO₂ grew by 52% over 1990 to 2004



Source: UNFCCC (data excludes the Russian Federation)



UNFCCC aviation data

- Data submitted by Annex I Parties to UNFCCC
 - currently using 1996 IPCC Guidelines
 - based on fuel sales and/or landing and take-off cycles
- Review process uses independent expert teams
 - initial review (verifying systems and initial results)
 - annual review (ensuring quality of time series data)
- Review process verifies
 - completeness (inclusion of all emission sources)
 - consistency (in splitting domestic/international over 1990-2012)
 - accuracy (appropriate emission factors and activity data)
- Domestic emissions are included in national totals and Kyoto targets



Status of reporting on bunker fuels

Annex I Party reporting (35 industrialized countries)

- CO₂ CH₄ N₂O (also CO NO_x NMVOCs SO₂)
- Generally complies with IPCC Guidelines and agreed reporting guidelines under the UNFCCC
- Quality and quantity have improved in recent years
- Review experts commonly find that more information is needed
 - to distinguish domestic and international fuel use
 - on methodological issues (eg selection of emission factors)

Non-Annex I Party reporting (55 developing countries so far)

- Reporting is mostly for CO₂
- Appears to generally comply with UNFCCC reporting guidelines



Reporting issues

- Often not using the more detailed IPCC methodologies available
- Data from authorities, airlines, airports, etc often not used
- Challenges to splitting out international from domestic emissions
 - disaggregated fuel data needed but not always available
 - no uniform approach (eg fuel taxation, country of carrier registration, LTO cycles and “default” fuel consumption factors)
 - historical data problems exist that need identifying and fixing
- 2006 IPCC Guidelines expected to lead to improvements