

ABSTRACT FAIR

The FAIR model (Framework to Assess International Regimes for differentiation of commitments) is an interactive - scanner-type - computer model to quantitatively explore a range of alternative climate policy options for international differentiation of future commitments and link these to targets for global climate protection. The model includes three different approaches for evaluating international commitment regimes:

1. *Increasing participation*: in this mode the number of parties involved and their level of commitment gradually increase according to participation and differentiation rules, such as per- capita income, per capita emissions, or contribution to global warming.
2. *Convergence*: in this mode all parties participate in the burden-sharing regime, with emission rights converging to equal per capita levels over time.
3. *Triptych*: different burden sharing rules are applied for different sectors (e.g. convergence of per capita emissions in the domestic sector, efficiency and de-carbonisation targets for the industry sector and the power generation sector).

The first two modes are representatives of top-down methodologies, so from global emission ceilings to regional emission budgets, whereas the triptych approach is more bottom-up in character, although it can be combined with specific emission targets (as illustrated in the case of the EU). In order to construct and evaluate global emission profiles, the FAIR model also has the mode:

4. *Scenario construction*. In this mode the impacts in terms of the main climate indicators can be scanned of a constructed or well-defined global emissions profile.

Analysis with FAIR in the increasing participation mode shows that the application of the Brazilian approach to all regions/countries after 2012 would imply that they all would have to start contributing to global emission control immediately, irrespective of their level of economic development. This does not seem to be fair. To account for differences in level of economic development, a threshold for participation can be introduced. A threshold based on an absolute level of country's contribution to temperature increase disadvantages large regions /countries. A per capita approach therefore seems more reasonable. The use of a world average per capita contribution as a participation threshold seems particularly interesting as it results in a global convergence in emission allowances over time, while it rewards both emission reductions by the industrialised regions and efforts by developing countries to control the growth in their emissions.