

TOP TEN

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Category: Rail

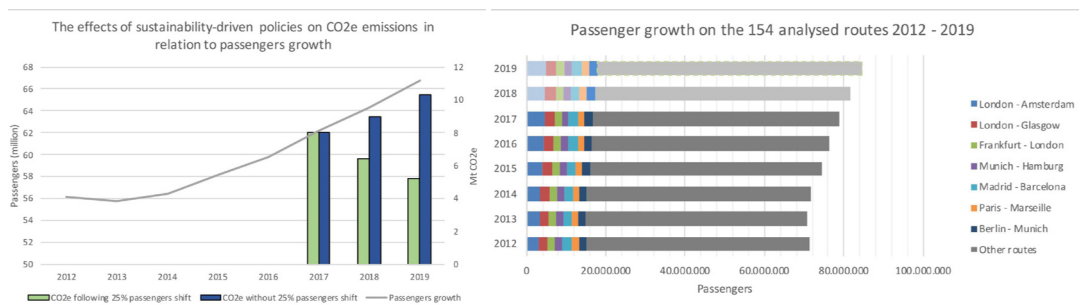
Country: Germany

Research Area 1: Climate Change, Mitigation and Resilience

Idea Number: 122

Can railway reduce greenhouse gas emissions from the transport sector?

This study analyses CO₂ emissions resulting from short-distance air passenger transport within the EU which could be cut in case of transfer to high-speed rail (HSR). Sustained by empirical data and current literature, this study calculated the CO₂ equivalent production resulting from air transport of about 79 million passengers between 49 European cities along 154 routes. The resulting CO₂ production of 7,98 mt accounted for more than 0,17% of the entire European transport sector emissions and 4,89% of the CO₂ equivalent production from all European airports. Subsequently, the possible scenario in terms of CO₂ production following adequate sustainability-driven policies has been estimated. Limited investments in the rail sector on 25 of these 154 routes would allow HSR to be competitive with air transport, thus cutting CO₂ emission. An expected passenger increment of 3,5% and a 25% shift from air to rail transport on these routes will save up to 1,59 mt CO₂. Furthermore, investments in the current rail network would expand the passengers' possibility for shifting transport mode even on routes longer than the ones here analysed. For instance, if only four routes between the five major EU cities were considered within the same scenario, investments could decrease the total transport sector emission by an additional 0,02%. An enhancement of the rail network, a change of mindset in the passengers regarding air transportation and sustainability-driven policies could start a ripple effect with positive outcomes for the entire transport sector.



Key Characteristics
High-speed rail • Rail network