

## **Regional Environmental Impact of Tourism – Linking the regional tourism satellite accounts and the regional environmental accounts within the Danish regional model framework**

Topic: Input-output studies of tourism issues II

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The main purpose of this paper is to assess tourists' contribution to greenhouse gas emission. To achieve this goal, it is needed to construct the regional environmental satellite accounts for Denmark. The national environmental air emission data from Denmark statistics should be broken down into regional level in order to carry out analysis at the regional level. It requires also a linkage between the regional tourism satellite accounts and the regional environmental accounts within the Danish regional economic modelling framework.

The paper presents the data from both regional tourism accounts and the national environmental accounts. The main discussion focuses on the methodologies needed for constructing the regional environmental accounts and the linkage between the two accounts. The linkage between the two accounts involves two connections with greenhouse gas emission. One connection shows that tourism demand through the tourism related sectors is connected (i.e. backward linkage) to intermediate consumption; the other connection is tourism demand directly linked with private consumption. The greenhouse gas (GHG) emission is accounted through both intermediate consumption and the private consumption.

The Danish interregional macroeconomic model provides a modelling framework for both regional tourism accounts and the regional environmental accounts. The modeling results provide both direct impact and total impact of the tourism demand on GHG emission. Tourism demand in Denmark accounts for approximately 2% of output and 10% of private consumption. The analysis shows that tourism direct impact on GHG emission through production accounts for 1.5% of national emission; while the total tourism impact on GHG emission rises to 5% of the national total. The tourism contribution to GHG emission through private consumption is around 14% of national total emission. The direct and the total impact from tourism on GHG emission through private consumption is not so much different.

The tourism impact on environment concerns both different types of tourism and different tourism destination. Some case studies present some interesting results from different types of tourism and also give a regional overview of tourism impact on environment.