

Assessing and modelling

Circular Economy strategies with Input-Output data

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Summary of the Training Session:

In this training session you will be introduced to methods of Circular Economy scenarios assessment and you will gain practical experience in how to approach modelling in Python. The session will combine theoretical approaches together with practical modelling experience in using the exiobase database in monetary and hybrid format.

Outline:

First Session *Circular Economy strategies and methods of scenario construction*

Second Session *Modelling Circular Economy interventions using Monetary Input-Output Tables*

Third Session *Assessing the circularity of regions using Hybrid Input-Output tables*

Fourth Session *Case study using Hybrid Input-Output tables*

Prerequisites: Knowledge of python, numpy, pandas and jupyter notebooks.
Participants will bring with them their laptops with anaconda¹ (or similar) installed.

Suggested References:

Aguilar-Hernandez, G. A., Rodrigues, J. F. D., & Tukker, A. (2021). Macroeconomic, social and environmental impacts of a circular economy up to 2050: A meta-analysis of prospective studies. *Journal of Cleaner Production*, 278, 123421.

Towa, E., Zeller, V., & Achten, W. M. (2021). Circular economy scenario modelling using a multiregional hybrid input-output model: The case of Belgium and its regions. *Sustainable Production and Consumption*, 27, 889-904.

Donati, F., Aguilar-Hernandez, G. A., Sigüenza-Sánchez, C. P., de Koning, A., Rodrigues, J. F., & Tukker, A. (2020). Modeling the circular economy in environmentally extended input-output tables: Methods, software and case study. *Resources, Conservation and Recycling*, 152, 104508.

Wiebe, K. S., Harsdorff, M., Montt, G., Simas, M. S., & Wood, R. (2019). Global circular economy scenario in a multiregional input-output framework. *Environmental science & technology*, 53(11), 6362-6373.

Aguilar-Hernandez, G. A., Sigüenza-Sánchez, C. P., Donati, F., Merciai, S., Schmidt, J., Rodrigues, J. F., & Tukker, A. (2019). The circularity gap of nations: A multiregional analysis of waste generation, recovery, and stock depletion in 2011. *Resources, Conservation and Recycling*, 151, 104452.

¹ <https://www.anaconda.com/>