Project partner

Ecologic Institute
Pfalzburger Str. 43 / 44
10717 Berlin
http://www.ecologic.eu/

Dr. Martin Hirschnitz-Garbers
Tel. +49-30-86880-272
martin.hirschnitz-garbers@ecologic.eu

GWS mbH
Heinrichstr. 30
49080 Osnabrück
http://www.gws-os.com/de/

Martin Distelkamp
Tel. +49-541-40933-160
distelkamp@gws-os.com

Universität Lund
Department of Chemical Engineering
P.O.Box 124, 22100 Lund, Sweden
http://www2.chemeng.lth.se/

Prof. Harald Sverdrup
Tel. +46 46 2228274
harald.sverdrup@chemeng.lth.se

European School of Governance
Am Festungsgraben 1
10117 Berlin
https://www.parmenides-foundation.org/application/eusg/

Doris Bergmann
Tel. 030 20 61 62 57
doris.bergmann@eusg.de

Funder

The research project
„Models, potential and long-term scenarios for resource efficiency (SimRess)“
is supported under the German Federal Environment Agency's UFOPLAN programme. (FKZ 3712 93 102)

Umwelt Bundesamt

Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit

Duration

01.09.2013 – 30.09.2016

Contact

Ullrich Lorenz
+49 (340) 2103-2045
ullrich.lorenz@uba.de
Section I 1.1
Fundamental Aspects, Sustainability Strategies and Scenarios, Sustainable Resource Use

Michael Golde
+49 (340) 2103-2731
michael.golde@uba.de
Section I 1.4
Economic and Social Environmental Issues, Sustainable Consumption

Wörlitzer Platz 1
06844 Dessau-Roßlau

www.umweltbundesamt.de

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Models, potential and long-term scenarios for resource efficiency – SimRess

Für Mensch & Umwelt

Umwelt Bundesamt

Global natural resource use (renewable and non-renewable raw materials, land, water, air and energy) is nearing its economic and environmental limits. Given population growth and an expected additional 3 billion members of the global middle class by 2050, with corresponding “western” lifestyles, the role of resource policy is becoming ever more essential.

- Increasingly globalized supply chains
- global consumption and production patterns
- existing planetary limits, and
- potential for innovation in various parts of society

all call for strategic policy packages. These policy packages must be specific to the relevant actors, sectors, resources and geographies. A strictly national perspective is not enough.

Given this background, two key questions emerge:

1) Which approaches and instruments are effective in which context and should thus be implemented and/or used in a package of resource policy measures?
2) How can the effectiveness be measured through model simulations?

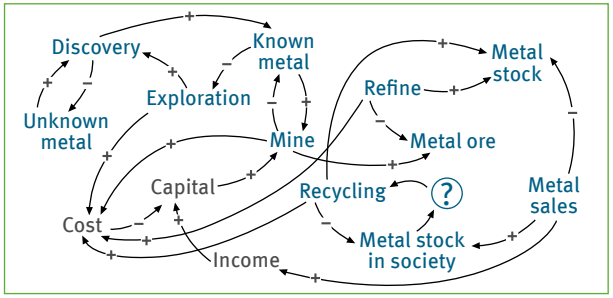
Project objectives

SimRess will produce policy recommendations and scientific work on models, with participation by experts. The two go hand in hand: model quality and robustness influences the quality and public acceptance of science-based policy recommendations.

Hence, the SimRess project objectives are:
First, coupling two models in one integrated modeling framework in order to combine their strengths - the econometric model GINFORS of Germany’s GWS mbH and the global systems model WORLD5 of Lund University in Sweden. Both models and the results of their simulations will be compared and analysed, in order to identify options to improve information flow.

Second, project researchers will select various policies designed to increase resource efficiency and run model simulations to evaluate their effectiveness – both in a 2030 and a 2050 time horizon. Reference scenarios will be based on qualitative scenarios from the PolRess project (www.ressourcenpolitik.de).

The project’s results are intended to contribute to the development of the national resource efficiency program ProgRess and inform further developments at the European level.



Project

1 – Background research

Background research encompasses analysis of trends that could have a bearing on future resource use. Furthermore, it involves selecting promising policy options and combining them in various consistent policy packages. The findings of both these steps will then be used to create relevant modeling parameters for relevant and to derive baseline scenarios. These steps serve to prepare the model development.

2 – Model development

In the next step, project researchers develop a consistent modeling framework. The modeling frameworks will be calibrated and the simulation prepared. In order to run the models, the underlying resource use system needs to be defined. This is done in participatory expert workshops. Finally, the simulation results will be compared.

3 – Synthesis

In the last step, the simulation results are consolidated in a final report. Furthermore, results will be shared in a one-day final conference in Berlin with roughly 100 participants from science, politics, economics and civil society.