Hochschule Zittau/Görlitz
UNIVERSITY OF APPLIED SCIENCES

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Department of Electrical Engineering and Computer Science

Regional Carbon Footprint

Greenhouse Gas Accounting Tool to Support Regional and Municipal Climate Change Management

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Introduction

- complex models on anthropogenic climate change based on scientific expertise available
- consensual and consistant methodological standards on accounting of greenhouse gases are needed
- no common methodology in practice
- existing tools fail to balance scientific adequacy and pragmatic usability

⇒ **Regional Carbon Footprint** as basic instrument for local/regional climate and energy concepts

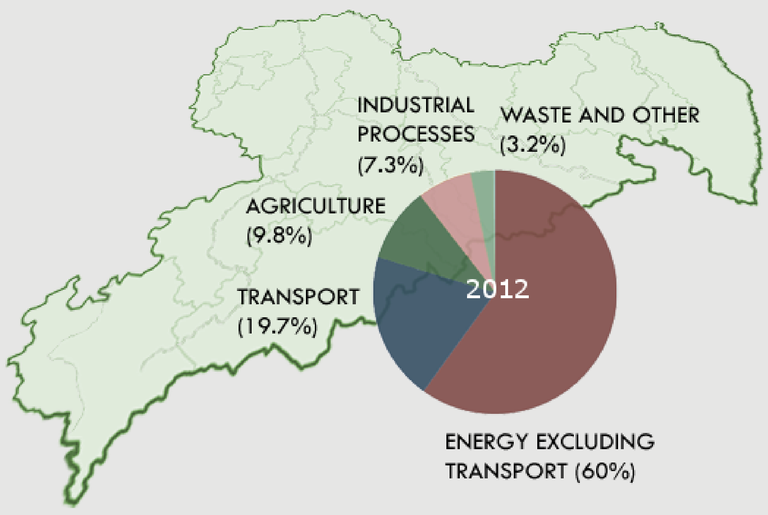
Goals

- development of a sound methodology for greenhouse gas accounting to support regional and local decision making
- software tool for:
  - calculation of regional greenhouse gas inventories
  - data management
  - reporting
- scenario analysis, climate action planning und remote monitoring

Regional Carbon Footprint

Sectors Considered

- energy (electricity, renewable energies, district heat, combined heat and power)
- transport (passenger, cargo, forestry and agriculture)
- industry (by branch)
- agriculture (fermentation, fertilizer, land usage)
- aggregated sources (liming, mineral fertilizing)
- waste (biologic, septic pit, municipal sewage)
- atmospheric deposition (reduce greenhouse gas potential)



Report

- regional surveys
- analysis of the current state
- descriptive statistics
- action alternatives
- structured by sector
- trend exposure with historical values
- monitoring of mitigation measures

Early Prototype

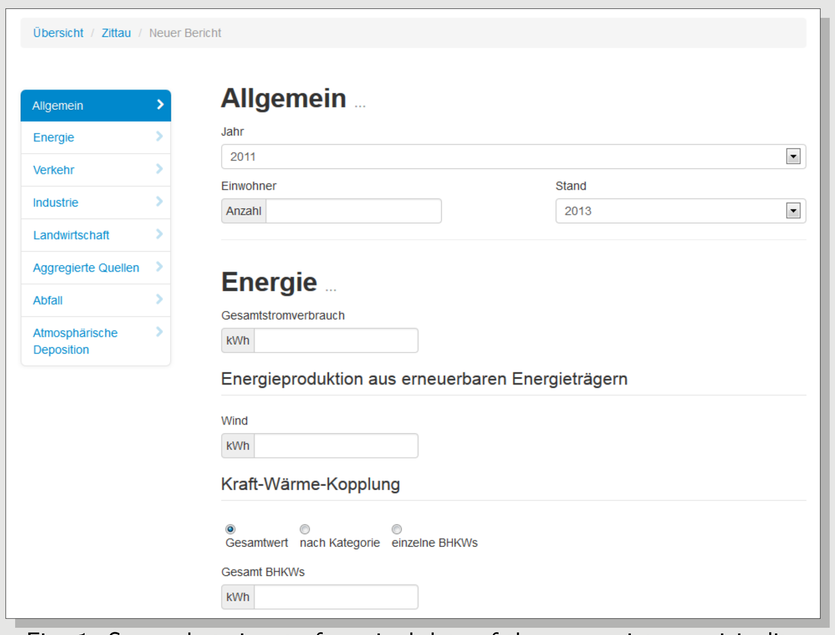


Fig. 1. Screenshot: input of required data of the appropriate municipality

- prototype web application
- currently developed by Enterprise Application Development Group, faculty of Electrical Engineering and Computer Sciences
- generates Online-/PDF-report

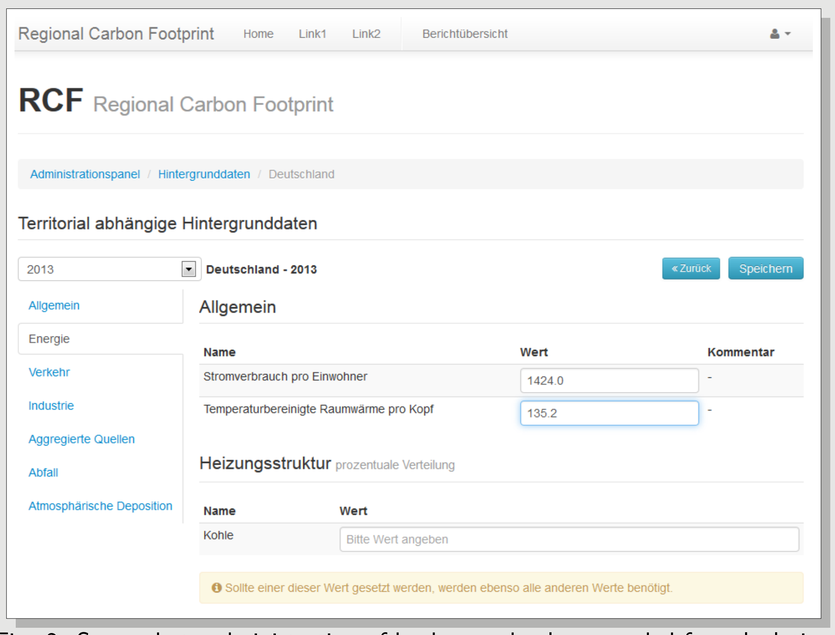


Fig. 2. Screenshot: administration of background values, needed for calculation

Climate Action Planning

Master Thesis: "Design of a Modeling and Assistance Tool for Scenario Analysis and Climate Action Planning"

- developement of an interactive assistance system to support climate action planning workshops
- influencing factor definition
- dynamic scenario design for climate change mitigation
- course of action derivation & impact estimation
- visualization & realtime action effect representation
- dynamic report generation

Smart Home Monitoring

Master Thesis: "Sustainable Sensing – Design of a Remote Monitoring Solution for Smart Homes"

- developement of a cloud based solution for smart home monitoring of energy relevant data
- interactive mapping to real buildings & components
- integration of realtime sensoring
- rule-based action system
- realtime comparison of current state with expected values
- dynamic report generation