



NEXOGENESIS
STREAMLINING WATER RELATED POLICIES

Lielupe modelling process outline

Janez Sušnik (IHE Delft)

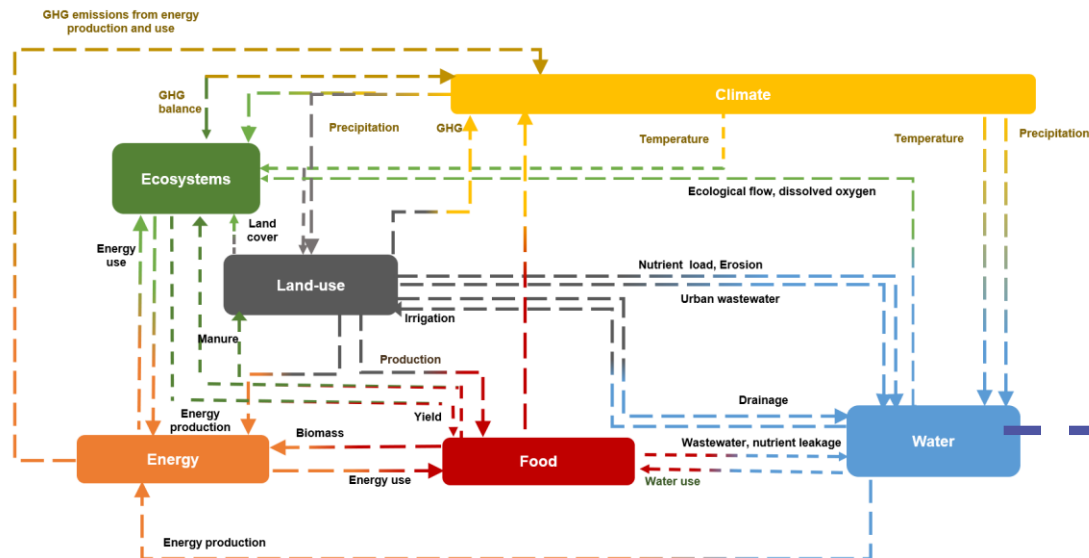


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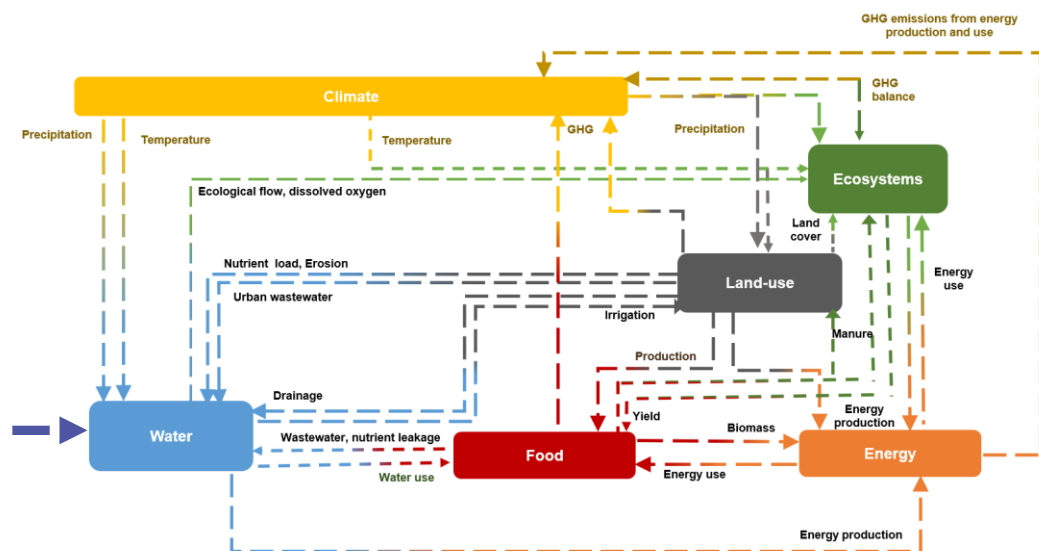
- **Conceptual mapping**
- Aim to develop a **high-level qualitative understanding** of the main system connections – the ‘map’ of the nexus
- Map out **how different system sectors relate** to each other
- Define system **boundaries**
- Define main **areas of interest**
- Define **policy entry points**

Conceptual mapping

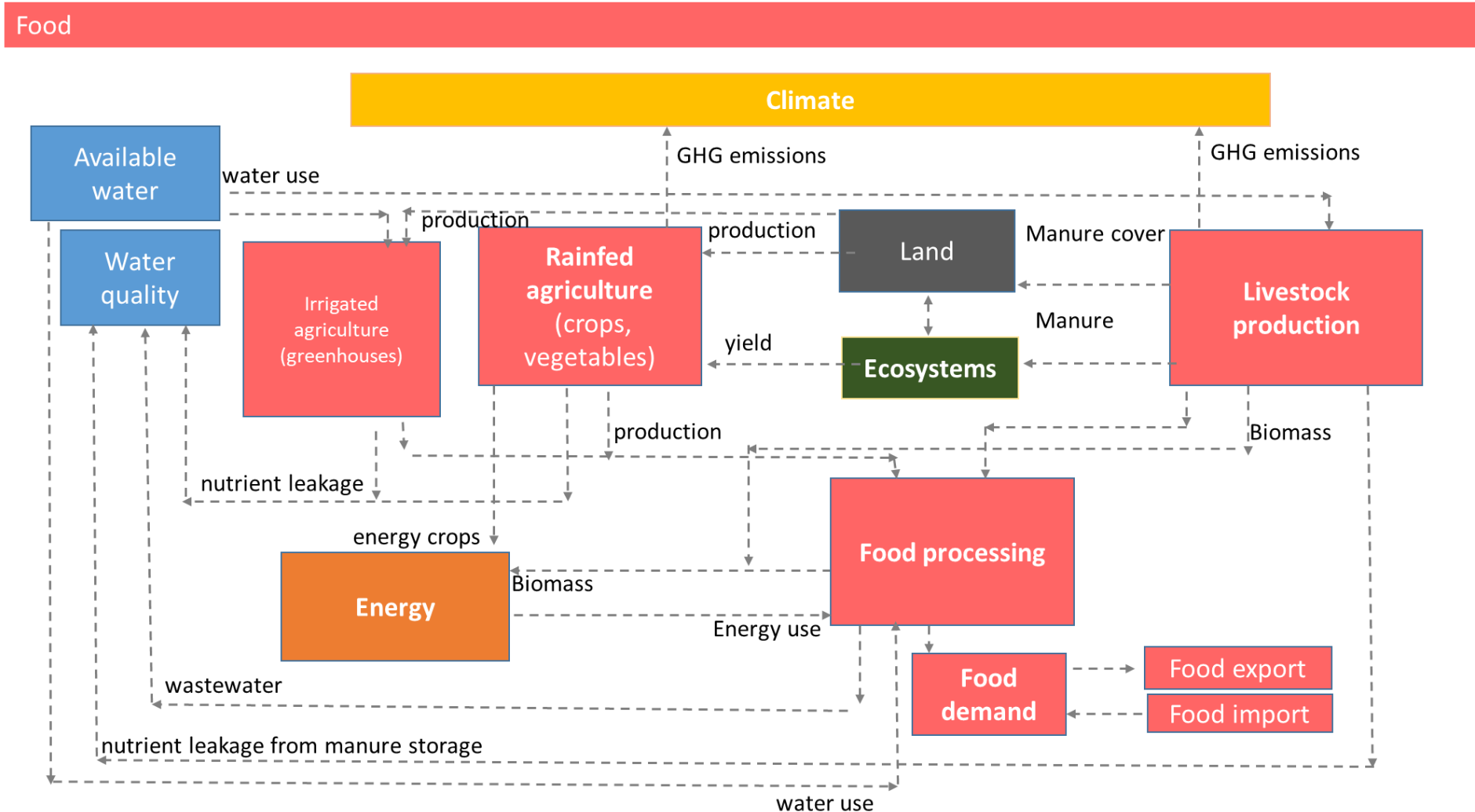
LITHUANIA



LATVIA



Conceptual mapping



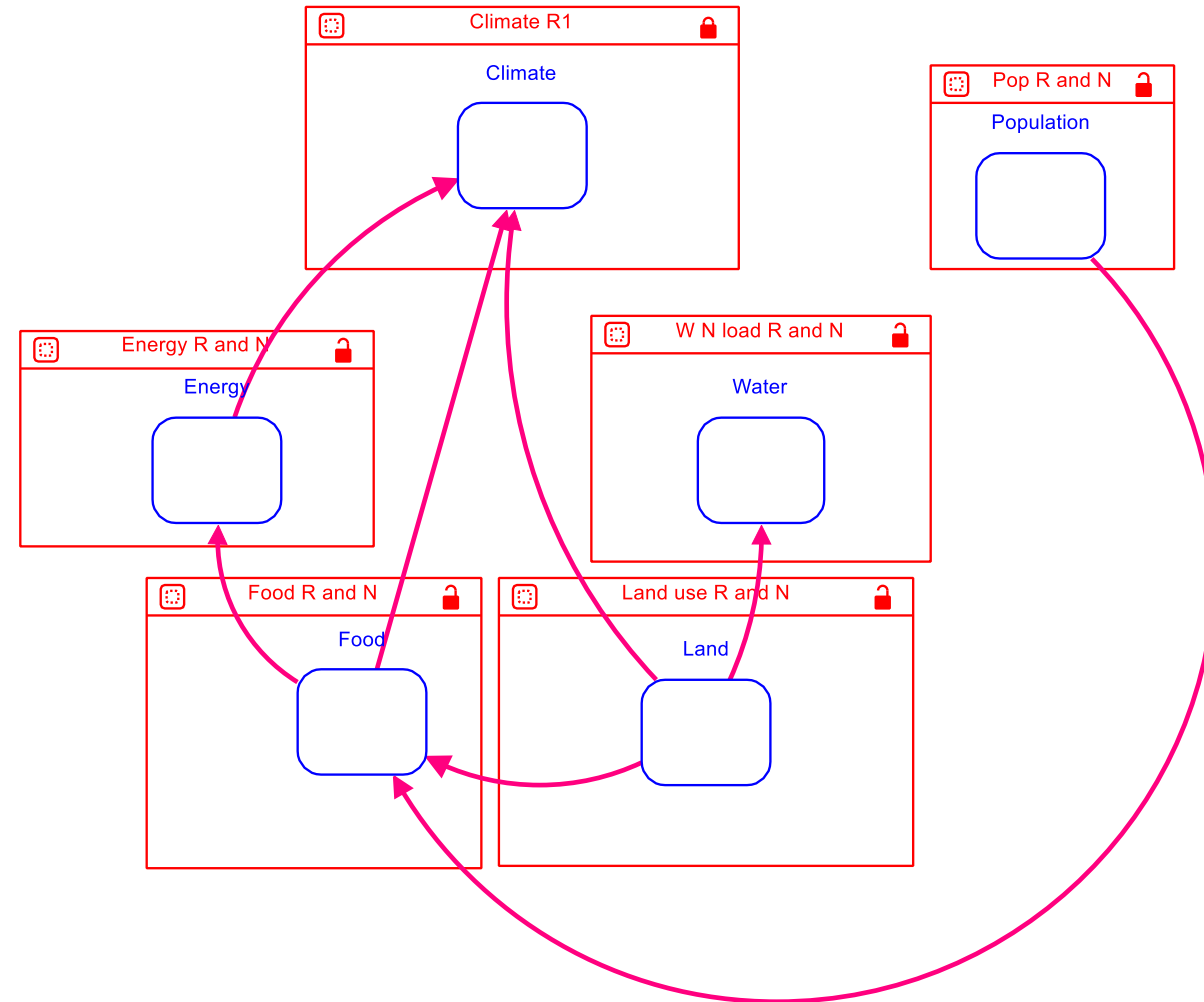
Conceptual maps to models

- Quantitative model development
- ‘Translate’ the conceptual models into a quantitative framework
- Data, relationships within/between sectors worked out with stakeholders and with partners in NEXOGENESIS
- Include a water-energy-food-ecosystems index (in development)
- Use ‘system dynamics modelling’ (SDM)

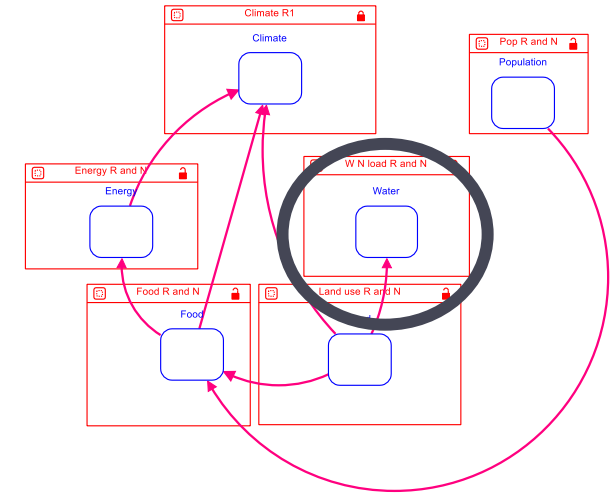
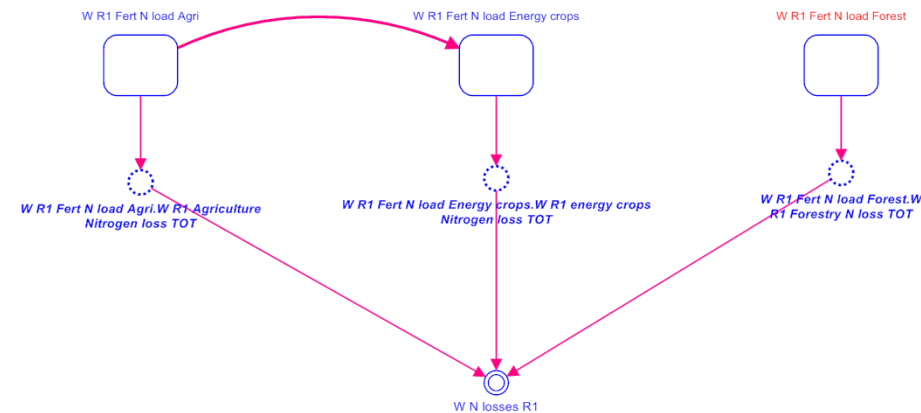
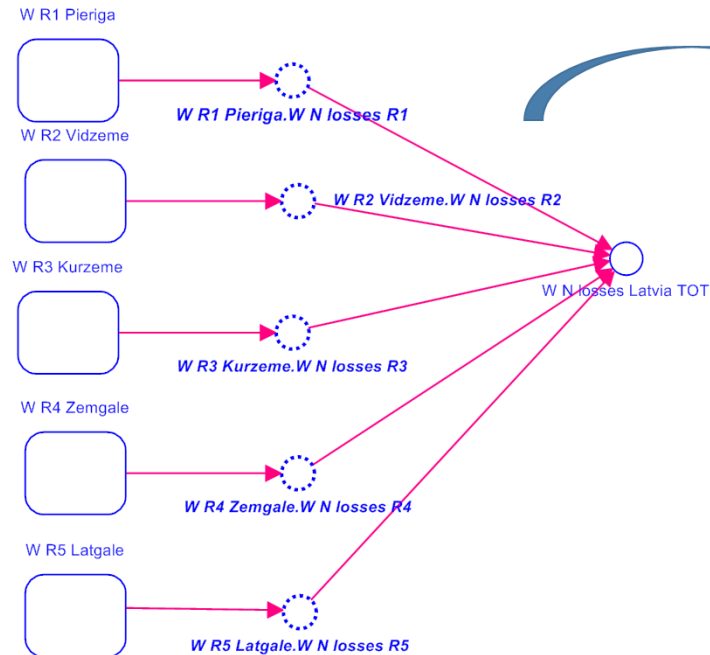
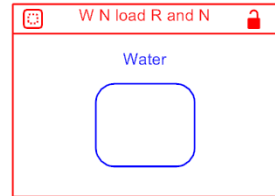


Conceptual maps to models

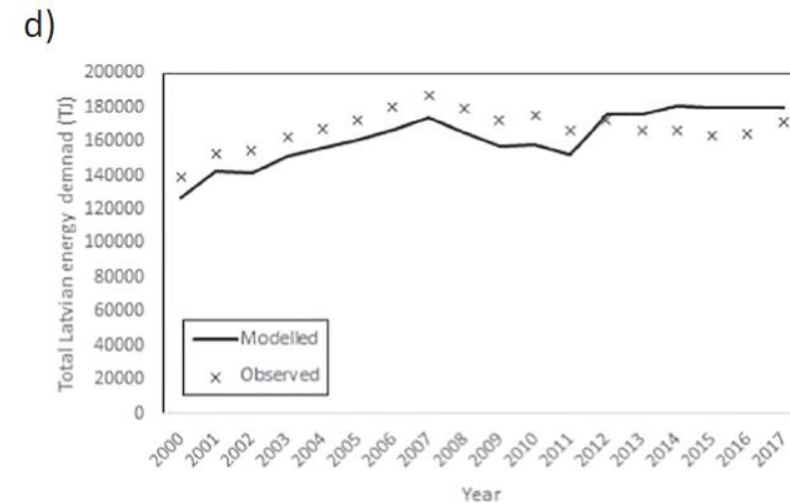
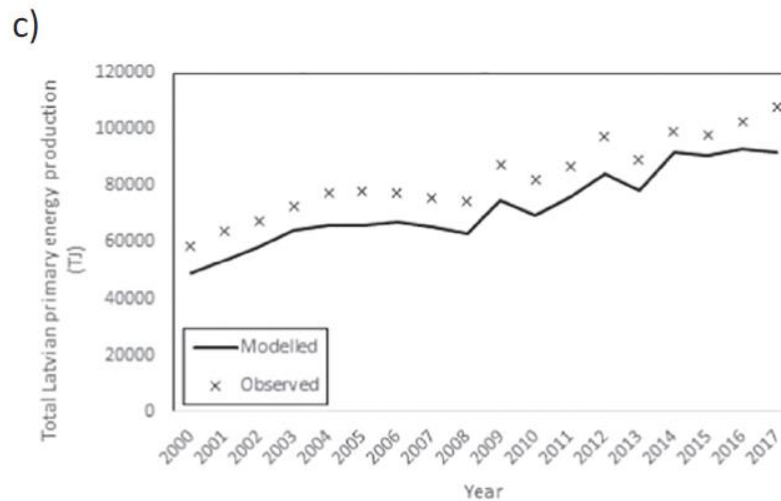
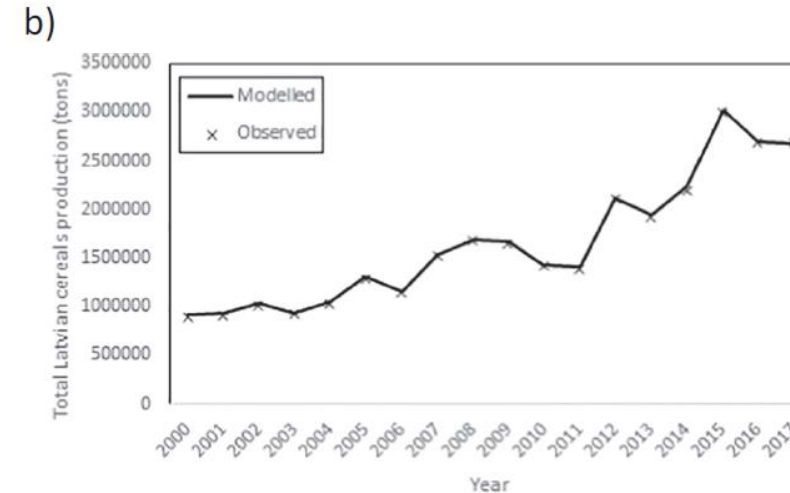
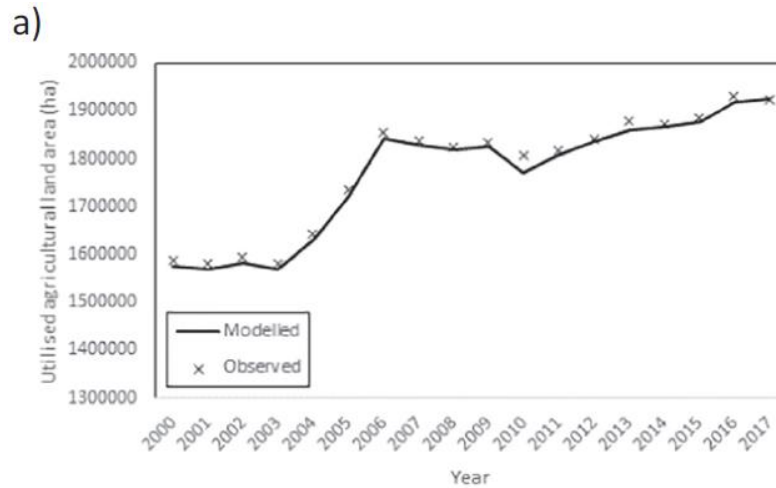
R1 = Pieriga
R2 = Vidzeme
R3 = Kurzeme
R4 = Zemgale
R5 = Latgale



Conceptual maps to models

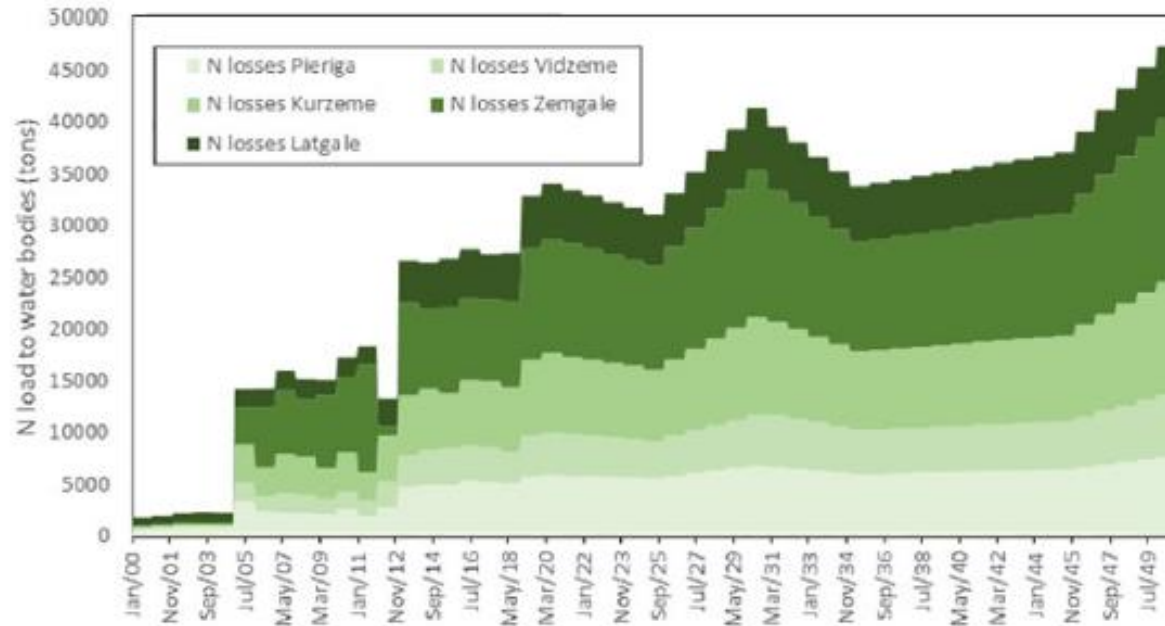


From models to information

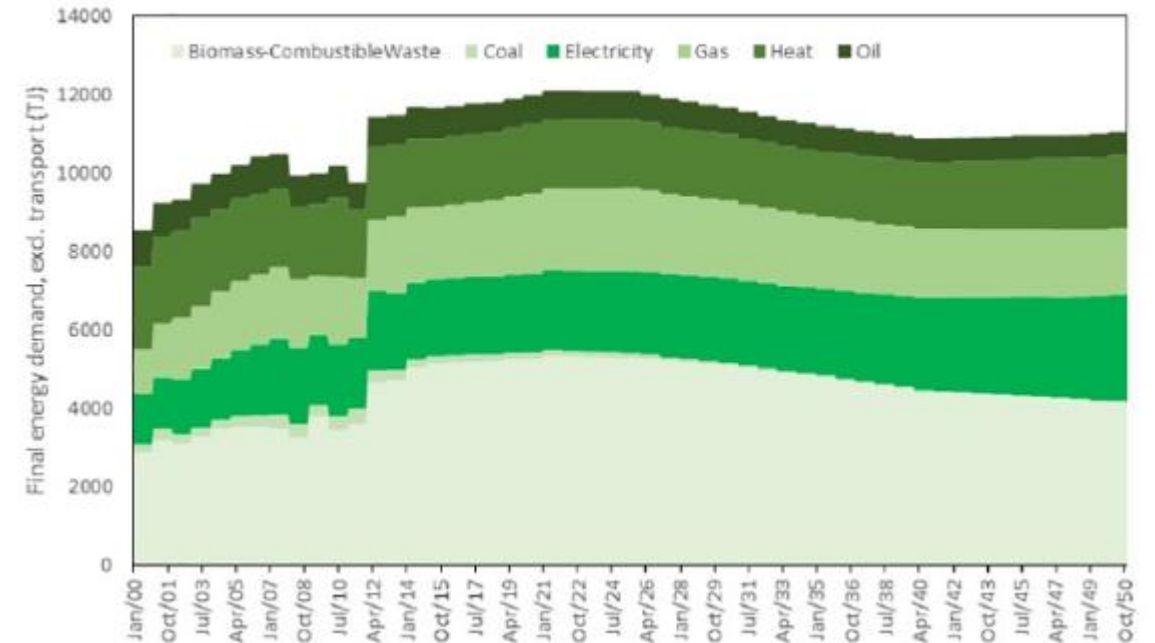


From models to information

(a)



(f)



From models to information

- Assess policy implications
- Machine learning to help choose best solution(s)
- Feedback to stakeholders

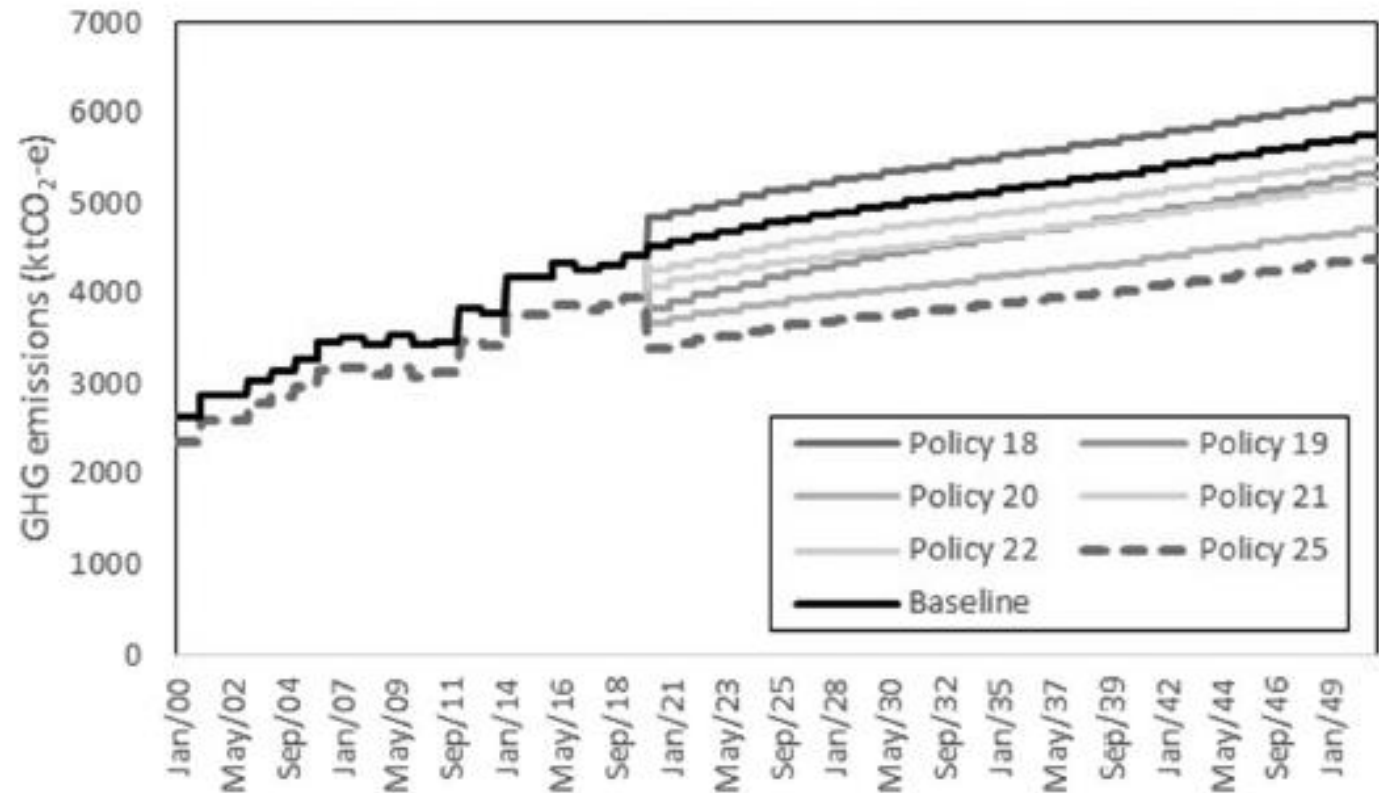


Fig. 12. Impact of policies 18–22 and 25 on total Latvian GHG emissions. See Table 2 for policy definitions.

- Improved land management → **beneficial across sectors** (synergy; win-win)
- Land substitution → depends on what is substituted. Energy crops reduce GHG emissions but take land for food and forests (ecosystems)
- Trade-offs → forests for ecosystem services (GHG seq.) and economy OR land for food/energy crops
- Trade-offs → land for food/energy crops → increased N loads; impact to forestry; food security vs 'green' economy

Conceptual mapping



Conceptual mapping

