



SIM4NEXUS



# Serious Games for policy support in Latvia

Webinar

«The nexus and policies for a resource-efficient and low-carbon Europe»



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 689150 SIM4NEXUS



# Intro to the Latvia case study

- Area: 64 573 km<sup>2</sup>
- Population: ~1.9 million inhabitants; capital Riga is the largest city (~633 th. inhabitants).
- Type: forest land 47%, agricultural land 36%, urban areas 14%.
- The economic structure of Latvia is based on services, industry, and agriculture.
- Export is important for GDP (wood & wood products, agricultural products, etc.)



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# Key issues at Nexus sectors

- **Water** quality e.g. nitrogen leakage from agricultural land
- **Land** use management patterns e.g. arable land vs meadows
- **Energy** efficiency & use of RES
- **Food** production in a sustainable way e.g. biological farming
- **Climate** change mitigation - reduction of GHG emissions & CO<sub>2</sub> sequestration



Our focus is on low-carbon development & resource efficiency

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# Approach to case study implementation

## Addressing stakeholders:

- Mutual benefit from stakeholder involvement activities - shared experiences and up-to-date information on (policy) developments

## National policy & legislation analysis:

- Build on previous experience on focus issues & related policy sectors

## Defining pathways:

- Focusing on low-carbon development → national policy agenda
- From policy (national level) to practical implementation (regional & local level)

Pathways towards low-carbon development and resource efficiency call for interaction of Nexus.

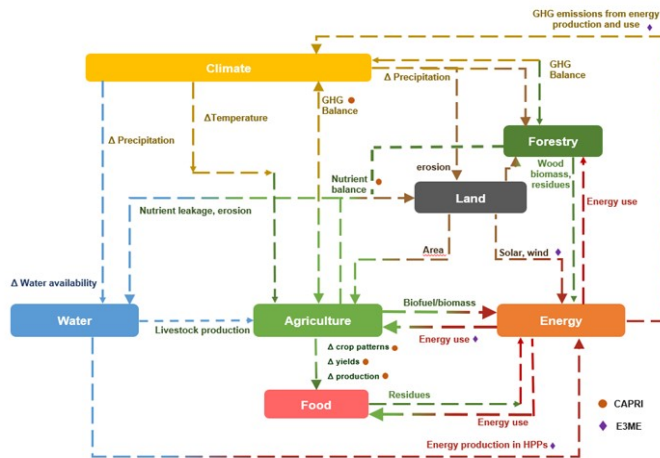


# Conceptual model → SDM → Serious Game

In real life policy effects are seen after the implementation.

The game play environment allows to explore how policies impact different nexus components and contribute to the achievement of goals

Package of policy interventions (instruments, measures) applied in NEXUS sectors



Reflected in System Dynamics Model and Serious Game

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# SIM4NEXUS Serious Game for Latvia

- An interactive tool to explore how policies impact on different Nexus components
- System Dynamics Model presents the baseline scenario in Latvia up to 2050
- On top of this the policy measures and instruments are applied
- The SG interface allows players to apply a set of 27 policy cards for water, energy, land, food and climate sectors.
- Derived changes in Nexus health compared to the baseline scenario are observed.

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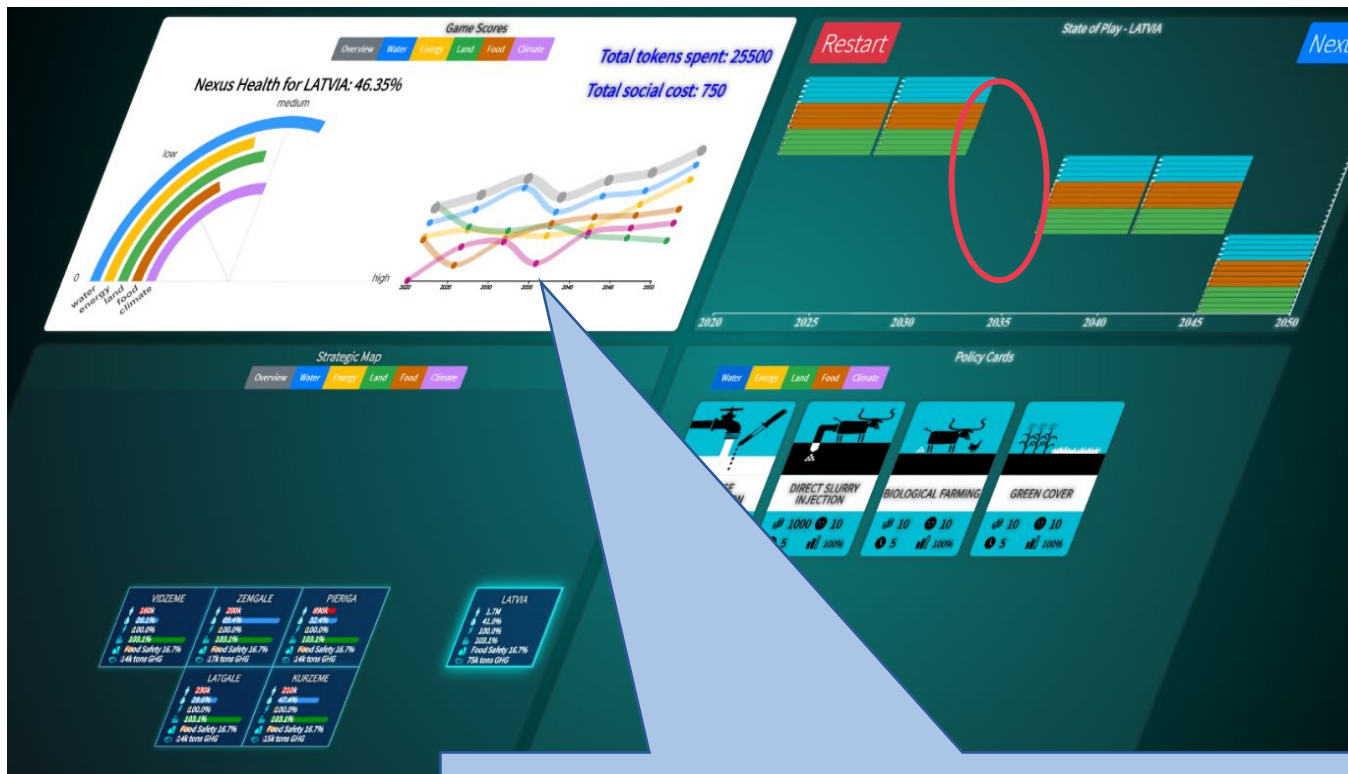


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# Game option: implementation of agricultural practices

Testing policy measures: support to organic cereals, legumes, precise fertilisation



Game environment highlights the need for continuous application of sustainable agricultural policy measures to improve Nexus health

# Game option: biomass for energy

Testing policy measures: increased area for rape seeds, mandatory use of biofuels



Game environment highlights environmental implications from energy crops; policy measures to speed up implementation of 2nd generation biofuels have to be on the policy agenda



# Our perspective ...

- Initial considerations for implementation of the Latvia case study were mainly focused on energy and climate Nexus by linking energy production and self-supply, use of biomass and GHG emissions.
- On a course of implementation, we have realised the importance of cross-sectoral Nexus interlinkages going beyond the energy and climate Nexus. Land use is important and is calling for specific policy measures.
- We, as facilitators of policy dialogue, find the Serious Game as an easy tool to assess alternative options and compare different solutions.



# Thanks for your attention!

For further information please consult  
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