



NEXOGENESIS
STREAMLINING WATER RELATED POLICIES

NEPAT decision support tool of NEXOGENESIS project

7th February 2024 in Riga, Latvia



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NEPAT decision support tool

Agenda

Objectives of the NEPAT (NEXOGENESIS Policy Assessment Tool)

Mock-ups Presentation

NEPAT Demonstration

Interactive Q&A Session



Objectives of the NEPAT

What is the NEPAT? It is a platform designed to offer an interactive space that will...

- Act as an instrument to **evaluate policy impacts** within the WEFE sectors across different **climate and socioeconomic futures**.
- Empower the user with **advanced AI-driven tools** for intelligent and informed **policy decision-making, achieve multiple objectives** within the WEFE sectors.
- **Initiate and facilitate stakeholder dialogue** about WEFE nexus interlinkages and policies.



Mock-ups Presentation



Nexus Policy Assessment Tool- NEPAT

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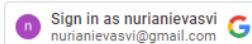
English ▾

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Visual prototype showcasing the anticipated design, user interface, and functionality of the NEPAT

Mock-up:

- Simulates design
- Demonstrates UI
- Preview functionality

Benefits:

- Get feedback
- Align with expectations
- Refine user needs

The data appearing in the mock-ups is not real.



Mock-ups Presentation

First Step: Configure a Nexus simulation

- **Case Study selection:** Select a specific CS for future modeling from the 5 CSs within the project.
- **Reference Scenario selection:** Select a specific reference scenario for the simulation from a combination of various climate change and socioeconomic scenarios.
- **Case Study goals:** Aligned with the specifics of the CS, goals are established according to directives and legislation.
+Advanced users will have the option to customize their goals



Mock-ups Presentation

First Step: Configure a Nexus simulation

Simulation Configuration

1 Case Study selection

Case Study
<input type="radio"/> Case Study 1: Nestos River B...
<input checked="" type="radio"/> Case Study 2: Lielupe River B...
<input type="radio"/> Case Study 3: Jiu River Basin, Danube
<input type="radio"/> Case Study 4: Adige River

Back

Simulation Configuration

1 Case Study selection

Scenario
<input checked="" type="radio"/> RCP2.6, SSP2
<input type="radio"/> RCP2.6, SSP4
<input type="radio"/> RCP8.5, SSP2
<input type="radio"/> RCP8.5, SSP4

Back

Simulation Configuration

1 Case Study selection 2 Reference Scenario selection 3 Case Study Goals

Goal	Description	Indicator	Year	Target
Goal1: Increase renewable energy generation	Increase renewable energy generation by 50% by 2030	Total renewable energy generation	2030	50%
Goal 2: Decrease nitrogen concentration in water	Decrease nitrogen concentration in water a 10% by 2040	Total nitrogen in water	2040	10%

Cancel Simulate



Mock-ups Presentation

Initial P

Simulations Management -> Simulation

Mesta/Nestos River Basin
RCP1, SSP1

Save Export Report Help

Add Policy Package

Footprint 95 (RS 75) RUN

Policy package simulation options

Save, export, or generate reports ...

Import simulations ...

Back Cancel Finish

Energy	94%
Water	26%
Indicator	X

Greece	
Population	1M
Energy	94%
Water	26%
Indicator	X

2050

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STREAMLINING WATER RELATED POLICIES

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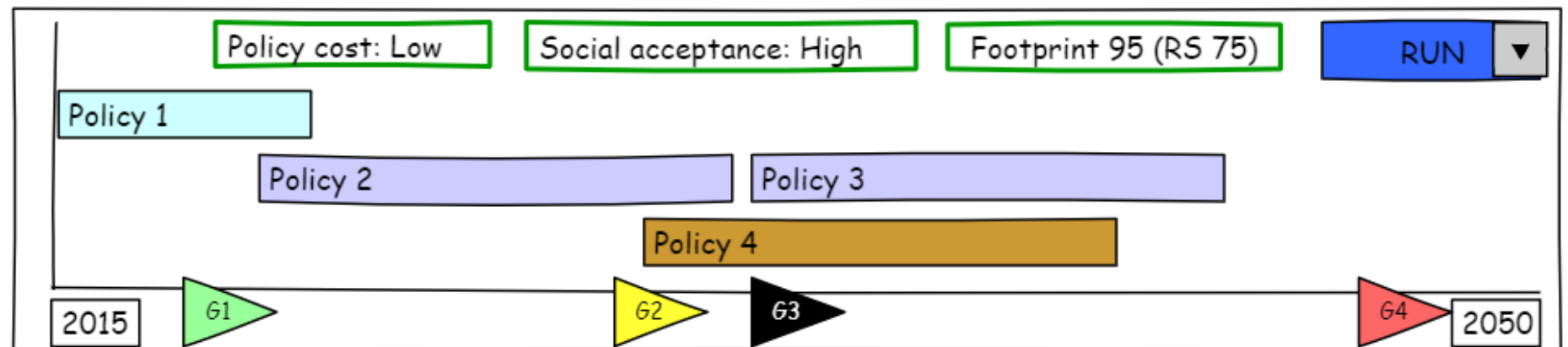
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STREAMLINING WATER RELATED POLICIES

ENESIS
STREAMLINING WATER RELATED POLICIES

Mock-ups Presentation

Second Step: Configure a policy package

- A **policy package** is a combination of policy instruments that the user chooses to explore in the tool.
- Users will have the capability to **configure and apply policies** in the defined simulation to **visualize and understand their implications and relationships** in the nexus sectors.



Mock-ups Presentation

Configure a policy

Each policy is **individual** with its set of parameters

Policies ?

The screenshot displays the 'Simulations Management -> Simulation' interface for 'Mesta/Nestos River Basin' (RCP1, SSP1). The top navigation bar includes 'LluisEche' and buttons for 'Save', 'Export', 'Report', and 'Help'. A secondary bar contains 'Add Policy Package' and 'Policy Package' buttons. The main simulation area shows a timeline from 2015 to 2050 with four policy periods: Policy 1 (cyan), Policy 2 (purple), Policy 3 (purple), and Policy 4 (brown). A 'RUN' button with a red warning icon is visible. Below the timeline is a grid of 12 policy options (Pol 1 to Pol 12), each represented by a 50x50 icon and a selection checkbox. A callout box labeled 'Policies ?' points to the first row of checkboxes. The right side of the interface shows a detailed configuration for 'Water reuse in the industrial sector' (reuse of water in the industrial sector (recycled water)).

Parameter	Value
Building time	3 years
Active time	15 years
Permanent	Yes
Multiple	No
Policy Cost	Medium
Social Acceptance	Low

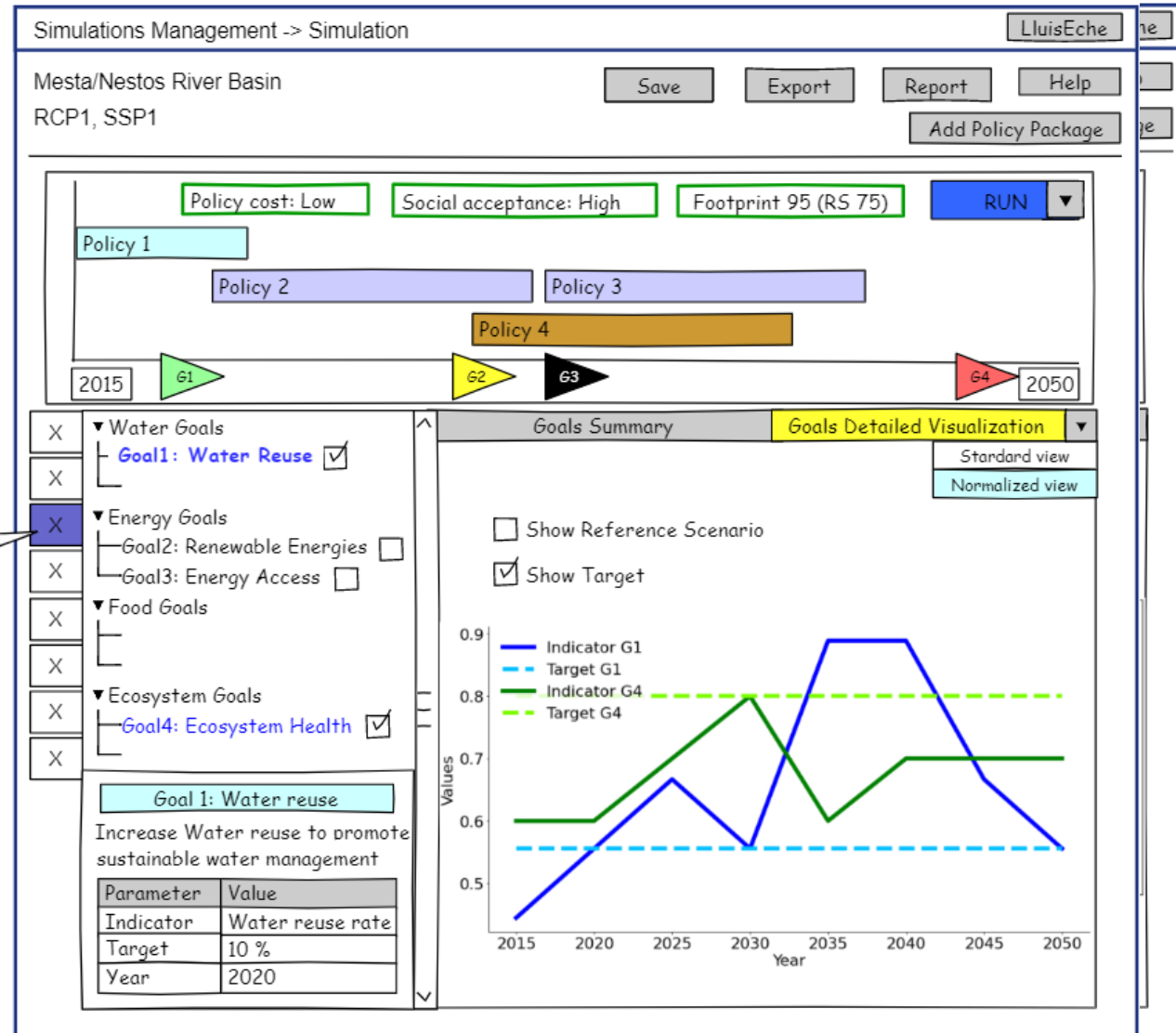
Additional interface elements include a circular sunburst chart and an 'Apply' button.

Mock-ups Presentation

Visualize results

→ Goals Achievement

- What do the **colors** of the flags signify? *How close are we to the objectives compared to the reference scenario?*
- **Green:** objective achieved
- **Yellow:** 50% - 100% objective achieved with respect to the reference scenario
- **Red:** 0% - 50% objective achieved with respect to the reference scenario
- **Black:** Less than 0% objective achieved with respect to the reference scenario



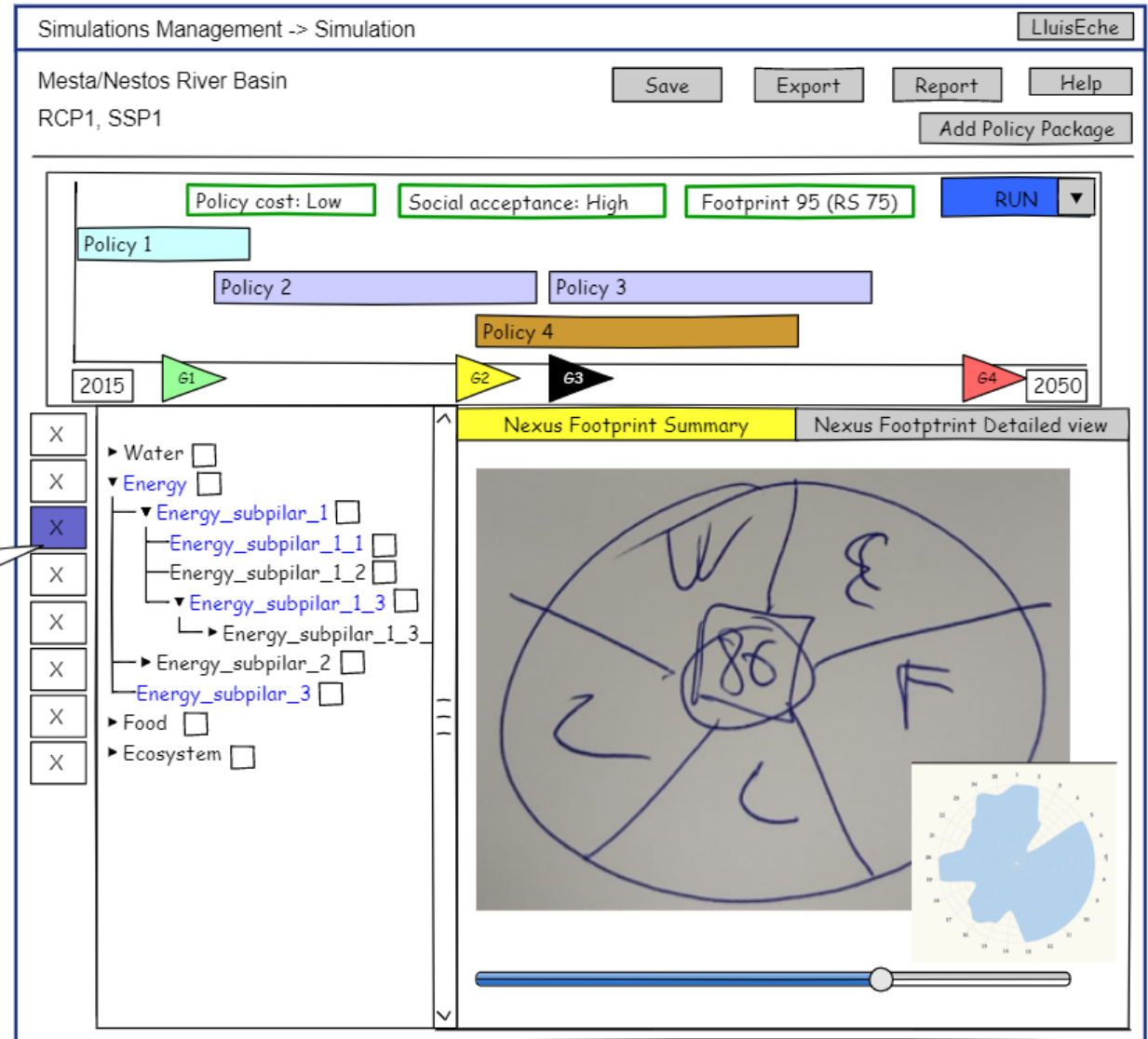
Mock-ups Presentation

Visualize results

→ WEF E Nexus Footprint

Composite indicator integrating water, energy, food, and ecosystem-related indicators to promote sustainable, fair, and efficient use of essential resources and address environmental considerations.

Nexus Footprint ?



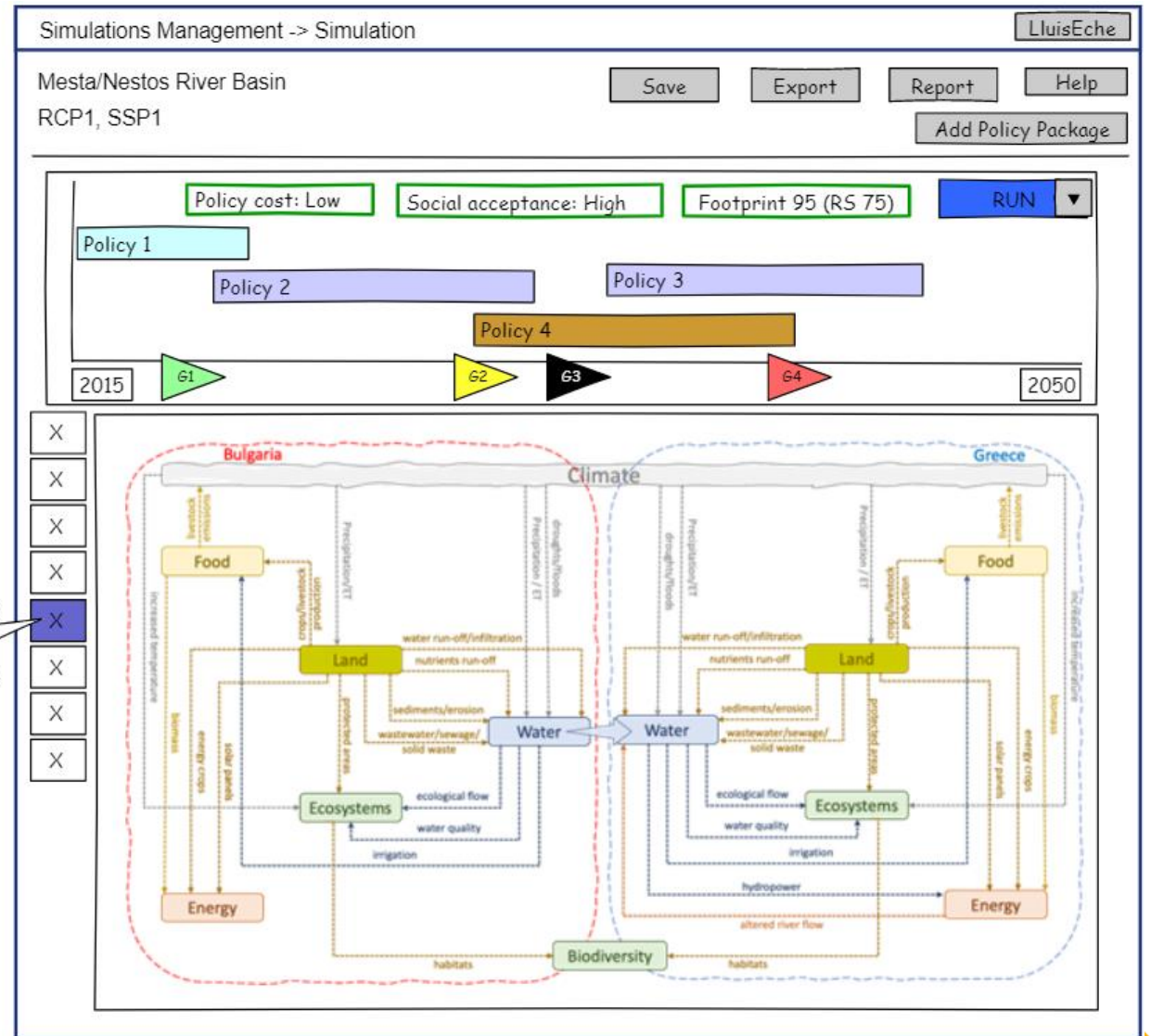
Mock-ups Presentation

Visualize results

→ Conceptual maps

Visual representations to illustrate interrelationships between biophysical and socio-economic variables within the broader context of the WEF nexus.

Conceptual maps ?

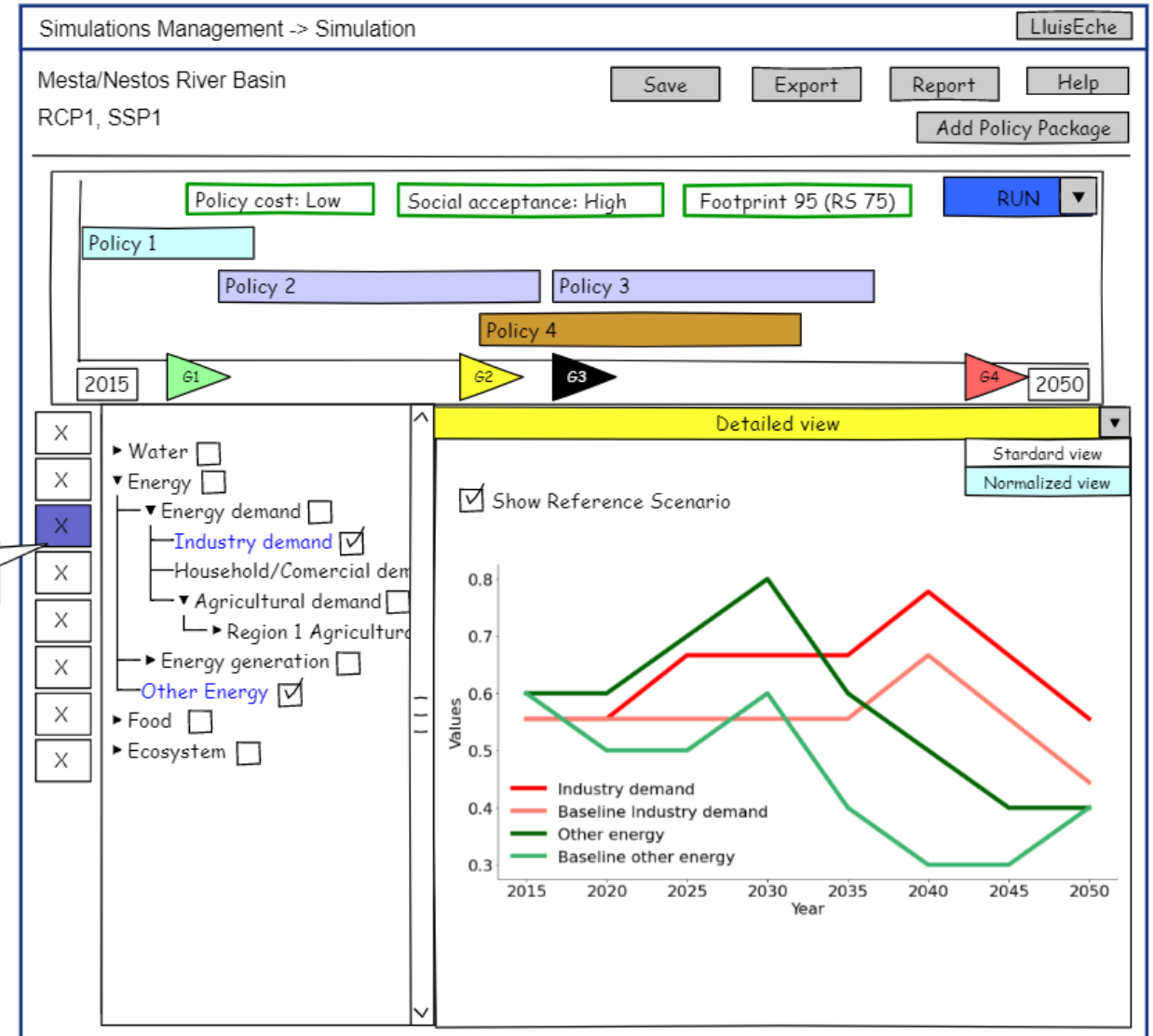


Mock-ups Presentation

Visualize results

→ Detailed view

- Visualize the changes in various variables within the policy package over time.

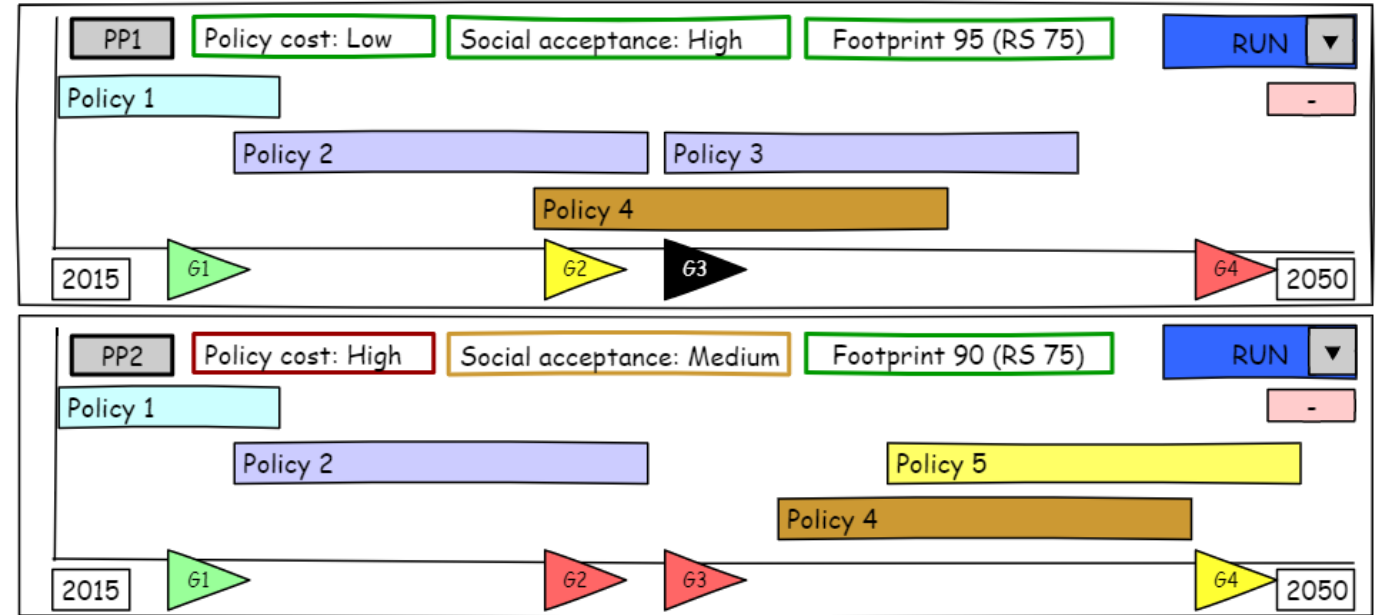


Mock-ups Presentation

Visualize results

→ Comparison view

- **Within a CS:** comparing goal achievement, nexus footprint, and detailed perspectives across different policy packages.
- **Across various CSs:** comparing the nexus footprint between different policy packages.



Various possibilities

- Same CS and reference scenario
- Same CS, but different reference scenario
- Different CS, based on Nexus Footprint Index



Mock-ups Presentation

Visualize results

→ Decision Support System

Policy package advice to the users...

... towards the accomplishment of CS goals and targets

- Which policy should be added to **meet all goals**?
- **Single** or **multiple** policies?
- **Default** or **custom** goals?
- Which policies achieve goals in a **particular sector**?
- Consider only policies from that sector?

Decision Support System ?

The screenshot displays the 'Simulations Management -> Simulation' interface for the 'Mesta/Nestos River Basin' under 'RCP1, SSP1'. The user 'LluísEche' is logged in. The interface includes buttons for 'Save', 'Export', 'Report', and 'Help', along with an 'Add Policy Package' button. The main area shows a timeline from 2015 to 2050 with four goals (G1, G2, G3, G4) represented by colored triangles. A policy package is visualized with four bars: Policy 1 (cyan), Policy 2 (purple), Policy 3 (purple), and Policy 4 (brown). The package parameters are: Policy cost: Low, Social acceptance: High, and Footprint 95 (RS 75). A 'RUN' button is present. Below this, a 'Get recommendation' panel is active, showing a 'Welcome to the decision support system' message and options to request customized policy package recommendations. A dropdown menu is set to 'All sectors', and a list shows 'Water' and 'Energy'. The 'Get a recommended policy for your package (only 1)' option is checked. An 'Apply' button is at the bottom right. A second simulation view is shown below, with parameters: Policy cost: Medium, Social acceptance: High, and Footprint 95 (RS 75). This view shows five policies (Policy 1 to Policy 5) and a timeline with goals G1, G2, G3, and G4.



Mock-ups Presentation

Report

Simulations Management -> Report

Mesta/Nestos River Basin
RCP1, SSP1

Case Study:
Reference S

CS descrip
 Reference
 Goal optio
 Nexus Foo
 Policy pack

Variable X


Case Study:
Reference Scena
Period: From 20

Case Study
Current and fr

Goal 1
Increase Water
water manager

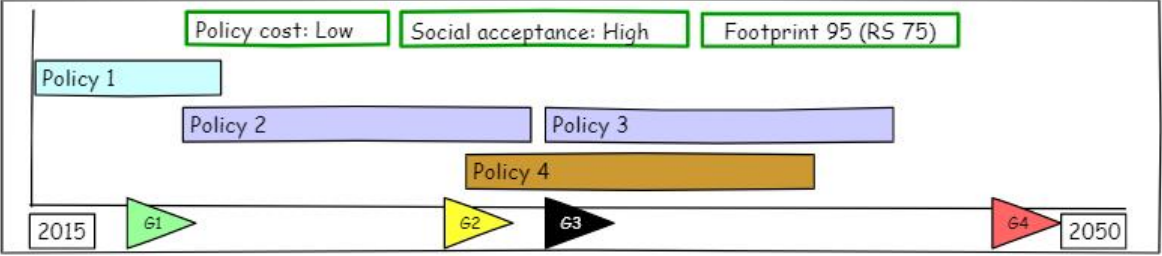
Parameter	Value
Indicator	V
Target	3
Year	2

Nexus Foo

 **NEXOGENESIS**
STREAMLINING WATER RELATED POLICIES

Case Study: Mesta/Nestos River Basin
Reference Scenario: RCP1, SSP1
Period: From 2015 to 2050

Policy cost: Low Social acceptance: High Footprint 95 (RS 75)



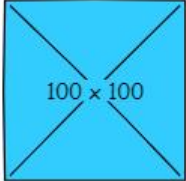

Policy package description

Water reuse in the industrial sector

Parameter	Value
Building time	3 years
Active time	15 years
Permanent	Yes
Multiple	No
Implementation cost	Low
Social acceptance	Medium

Reuse of water in the industrial sector
(recycled water)

Configuration	Value
Year	2030
Region	Bulgaria
Quantity	10.000 ha
Percentage of reuse	27%
New reservoirs	400.000 m3

NEPAT Demonstration

<https://nepat-dev.nexogenesis.eu>

- The tool is currently **under development**, and we provide a preliminary demo showcasing some functionalities.
- Please note that several features are still in the **implementation phase**.
- Only **three policies** produce results (*not real policies*).
- Only **two goals** are configured (*not real goals*).



Interactive Q&A Session

Instructions

Go to

www.menti.com

Enter the code

7354 8596



Or use QR code

