D5.4: WORKSHOP FOR SHARING/CONFRONTING RESULTS FROM ALL CASE STUDIES AND IDENTIFYING COMMON LESSONS/RECOMMENDATIONS

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1	VERSION 1	19-12-2019	SECTION 2 IS DRAFTED
2	VERSION 2	30-12-2019	FIRST DRAFT FOR REVIEW BY AUTHORS
3	FINAL	4-1-2020	UPDATED AND FINALISED

Table of Contents

SIM4NEXUS

Executive summary

Changes with respect to the DoA

No changes compared to the DoA.

Dissemination and uptake

The deliverable will be used in the consortium to support the 12 case studies to develop policy recommendations. It will also be released through the project website, for further use by research projects to develop policy recommendations on the nexus of water, energy, food, land and climate. Policy recommendations could include (i) policy measures (e.g. to change food diets, reduce deforestation, or increase energy efficiency in industry), (ii) policy instruments, including standards or targets regarding emissions and economic or (iii) accompanying measures (including financing, communication, governance), to ensure that policy coherence and Nexus compliance becomes a reality. The following steps are drawn from literature towards an 'actionable policy brief' and will be introduced in our activities: (i) be focused, (ii) be analytic, (iii) be aware of how policies are made, (iv) be a changer, (v) be active, (vi) be short, (vii) be scientific, and (viii) be realistic.

Short Summary of results

The report does support the case studies in SIM4NEXUS to identify policy recommendations.

Evidence of accomplishment

Report

Glossary / Acronyms

CAP	COMMON AGRICULTURAL POLICY
SDM	SYSTEM DYNAMICS MODELLING
TM	THEMATIC MODELS

1 Introduction

1.1 Structure of the deliverable

The main objective of the current deliverable is to support the case studies in SIM4NEXUS to identify policy recommendations. A workshop is held during the project meeting in Riga (4 July 2019) (14-16.30 pm) and all 12 case studies are present. The workshop is prepared by WP2, WP3, WP4 and WP5, and is aimed to support the case studies to develop policy recommendations. The workshop supports sub-task 5.2.3 (Modelling for addressing the nexus challenges), and the agenda includes an introduction in plenary regarding the ins and outs of policy recommendations, followed by two interactive rounds of working on policy recommendations, with a wrap-up and follow-up.

The workshop is presented in Section 2 of this report, and is aimed to agree upon a common approach to develop policy recommendations from the 12 case studies in SIM4NEXUS. In addition, some early examples of policy recommendations from the case study in Sweden are shared in the consortium.

Section 3 of the deliverable offers a summary of actions to support the case studies to develop policy recommendations for their work. Finally, the different steps are presented to support the case studies in drafting their policy recommendations, either drawing from an analysis of multiple runs of the SDM and complemented with available policy reviews, or alternatively from playing the Serious Game with stakeholders in the case studies (Section 4 of the deliverable).

1.2 Ambitions of SIM4NEXUS regarding policy support

SIM4NEXUS has a range of ambitions to support Nexus-compliant practices in Europe:

1. Focus on resource efficiency in Europe and a low-carbon economy in Europe. Innovative approaches for a low-carbon economy are searched for. There are challenges in the transition towards these ambitions and SIM4NEXUS could facilitate the understanding of such challenges. Pathways that lead to sensible adaptation and mitigation options for sustainable and resilient ecosystems and societies under climate change are developed.
2. Focus at better designed and integrated strategies, support nexus-related policies and nexus-compliant decision-making, and adopt systems-thinking in policy making. We take into account interactions between different scales (regional, national, transboundary, continental and global scales), and at different time horizons (short, medium, long-term). This is largely achieved through the workshops and interaction with practitioners from policy, business, civil society, knowledge brokers. Policy recommendations are structured in a way to identify the best scales at which they can be addressed, ranging from a specific case study to the European or global scales. Also, preconditions are indicated for ensuring their effectiveness, if implemented.
3. Barriers for the successful implementation of such policies are made explicit, and options are identified for their removal (e.g. removal of silos across the Nexus dimensions).
4. Identify the best scales at which policy recommendations can be addressed for ensuring their effectiveness (regional, national to continental or global).
5. Added value of the concepts and tools from SIM4NEXUS (e.g. scientific framework, complexity science framework to support decision-making and identify policy recommendations that are nexus-compliant) are brought to the attention of stakeholders.

SIM4NEXUS

2 The Workshop of July 4th, 2019

2.1 Goals and agenda of the workshop

The goals of the workshop are:
- Gain insight in the state-of-the art development of policy recommendations in case studies;
- Establish a common understanding and approach for policy recommendations;
- Address how to bridge the gap between scientific work (e.g. research findings, model outcomes) and policy recommendations, using the 'outside-inside approach';
- Share experiences and discuss content, as well as the process to achieve this.

The workshop is an important step towards the planning of three subsequent deliverables in WP5 and WP2:
- D5.4 – Workshop for sharing/confronting results from all case studies and identifying common lessons/recommendations (due for September 2019, but submitted in December 2019)
- D5.5 – Twelve reports (one report per case study), but combined in a single document, presenting the outcome of Task 5.2) (due for November 2019, but due for submission in March 2020)
- D5.6 – Report summarising the policy recommendations from all case studies (due for November 2019, but due for submission in March 2020).
- D2.5 – Strategies towards a low-carbon and resource efficient Europe (due for May 2020).

The following ambitions are important to develop policy recommendations in SIM4NEXUS:
- Focus on achieving a low-carbon economy and resource efficiency in Europe. New and innovative approaches for achieving a low-carbon economy are identified.
- Adaptation and mitigation options for sustainable and resilient ecosystems and societies under climate change are explored. Nexus compliant practices are tested, including integrated policies and strategies, and systems-thinking are used.
- Interactions between different scales and different nexus components are taken into account. Focus is on the EU, EU-wide and different spatial scales of the case studies, with a view to propose adequate scales at which policy recommendations can be addressed.
- Pre-conditions for ensuring effectiveness are identified, and how they can be implemented in practice, also removing barriers for its implementation, including the changes in legislation that might be needed, while addressing factors hampering achieving policy ambitions or concluding ambitions might be unrealistic in the short-terms.

The above ambitions will support the added value of the methodologies and tools developed and tested in SIM4NEXUS. Such ambitious objectives are tested in the following ways:
- Case studies take into consideration a full spectrum of achieving a low-carbon economy, regarding spatial scales, socio-economic and institutional contexts.
- Sources of information include modelling (e.g. Thematic Models, System Dynamics Modelling – SDM), literature survey from policy documents and other means or frameworks.
- Governance processes and policy instruments are investigated, and the socio-economic implications of upcoming policies are analysed.
- Participatory approaches with stakeholders and decision makers are adopted, using interactive workshops, interviews, playing Serious Games, in order to shape policy recommendations together with stakeholders.
- Cost-effective policy strategies are examined, policy coherence is addressed and combinations of policy domains are tested.

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In order to meet the above goals, the WP leaders have drafted the following workshop agenda.

14.00 Workshop (WP2, WP3, WP4, WP5) (Maria Witmer, Lydia Vamvakeridou-Lyroudia, Xavier Domingo, Maïté Fournier) (Lead: Maria Witmer)

The workshop will support Deliverable D5.4 (sharing/confronting results from all case studies and identifying common lessons/recommendations) (due for September 2019). A note is drafted in advance regarding policy recommendations. Following an introduction, the case studies will each present their initial version of policy recommendations.

The list of policy recommendations will be updated by each case study after the project meeting.

❖ 14.00 – 14.30: Plenary introduction regarding the ins and outs of policy recommendations. This will support Deliverable D2.5 (Strategies towards a low-carbon and resource efficient Europe) (due for Month 48, May 2020) (and specific deliverables in WP5).

❖ 14.30 – 15.30: First round of working on policy recommendations

❖ 15.30 – 16.30: Second round of working on policy recommendations

❖ 16.30 – 16.45: Wrap-up and follow-up (in plenary)

In the first round, the case studies at global and national scales present their policy recommendations and the method to develop these recommendations. Greece and Sweden are front-runners and showcase their approach to the other case studies. A discussion is moderated with all participants in the first round.

In the second round, the case studies at European, transboundary and regional scales present their policy recommendations and the methods to develop them. South-West-England and Sardinia are the front-runners. The European case study also has experience to share, on how to use modelling results to draft policy recommendations. This experience was shared earlier in plenary (other session of the Project Meeting agenda).

2.2 Outcome of the workshop: approach adopted for policy recommendations

The case studies in SIM4NEXUS have several sources of information to define policy recommendations:

- Outcomes from modelling (e.g. thematic models and SDM) and data mining, enabling to make trade-offs explicit and to explore synergies. Similarly, these tools enable to understand cost effectiveness and distance to targets with different measures under alternative policy scenarios.
- Policy analysis using documents, literature, interviews and workshops, to focus on policy coherence. The knowledge of processes and organizations of policies result from workshops, interviews or playing the Serious Game. The focus is put on factors for the success or failure of policies (e.g. to enhance policy coherence).

Tailor-made approaches might be used in the case studies, with a view to share experiences and establish commonly-shared recommendations that could be grouped towards more generic policy recommendations.

Processes and methods to develop SIM4NEXUS policy recommendations in the case studies build upon the following 'rules' :

- involve stakeholders, as early as possible in the process
- focus on trade-offs and synergies, forget about the rest (no added-value from SIM4Nexus)
- find the right moment/place in the policy processes, know the policy processes well
- use results from the global and EU case studies to frame your policy recommendations in a wider context of changes

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- all policy recommendations to be evidence-based (use results from TM and SDM)
- be provocative, bring new ideas
- carry-out a sensitivity analysis on the TM or SDM results to see which policy options are more impactful and to see which ones are more context-dependent
- write your policy recommendations from the policy makers point of view (they want to know who are friends or foes)
- challenge the policy-makers "a priori". Are all the "green" policy options so green?
- give information about footprints (impacts on other regions/countries)
- try to connect long-term projections to short-term policy processes
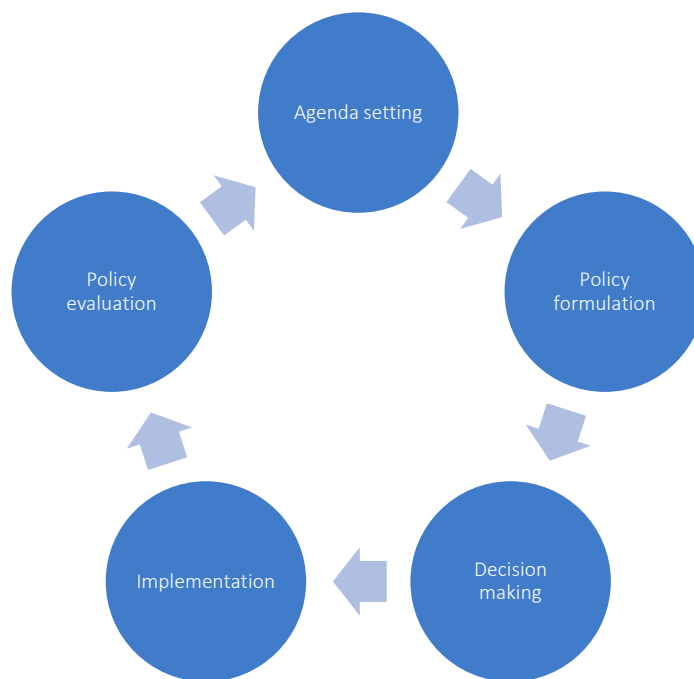

Figure 1 – The policy cycle

Policy recommendations could include:
- Policy measures (e.g. to change food diets, reduce deforestation, or increase energy efficiency in industry). Among others, this will require the consortium bridging the gap between research outcomes and topicality in policy making.
- Policy instruments, including standards or targets regarding emissions, economic instruments to tax the consumption of meat, or introduce water permits with rights that are traded among the users. This sort of recommendations require researchers to use their authority and connections with the stakeholders involved (e.g. policy, business, civil society).
- Policy frameworks or policy coherence, questioning policy objectives or policy design (e.g. European Water Framework Directive, Climate Agreement in the Netherlands). Policy recommendations therefore need to match with the on-going policy debate, taking into account the framing of challenges and outcomes, as well as the wording used.
- Accompanying measures (including financing, communication, governance), to ensure that policy coherence and Nexus compliance becomes a reality.

3 Guiding the design of policy recommendations

3.1 Common approach for developing policy recommendations

SIM4NEXUS aims to adopt a common approach to develop policy recommendations. Such recommendations could be tailor-made for specific case studies (e.g. change land management practices to control micro-climates in Central Europe) or could be valid at EU or global level (e.g. stimulate environmentally sustainable practices in agriculture through farm support like the Common Agricultural Policy – CAP).

Policy recommendations are targeted at decision makers in policy and stakeholders involved in the political debates. An outside-inside approach is proposed In order to make such policy recommendations heard and understood, including: (i) bridge the gap between research outcomes and topicality in policy making, (ii) use the authority and connections to be heard and (iii) match with the on-going policy debates (e.g. reach target groups in time, using the language and framing that is understood). Modelling outcomes and research findings from SIM4NEXUS need to be translated into messages and storylines that are understood by policy makers.

The proposed outside-inside method takes into consideration:
1. What are the current policy issues, policy processes and framing in your region/country/EU/global at the moment and near future (5 years), concerning low-carbon and resource efficiency? What is on the policy agenda?
2. What are entrances for SIM4NEXUS to play a role in this policy process? What is the position of the institutions involved in SIM4NEXUS to play a role in it, and what role? What entrances (personal) can be used? National, regional and transboundary cases can use the stakeholder mapping they did for D2.2.
3. What does this mean for the policy recommendations? What type of recommendations, content (biophysical, socio-economic, policy and governance/organization/process recommendations) and 'framing' (what narratives)?
4. What does this mean for the further development of the modelling, policy scenarios, policy goals and means, serious game, roles to be played in the game, learning targets?
5. What does it mean for the programming of the rest of the SIM4NEXUS work in each case study?

The research component of SIM4NEXUS does not allow the research and innovation project to provide policy recommendations to anybody that has the authority to decide on them. The research project is aimed to facilitate discussions across the Nexus sectors (water, land, food, energy and climate) offering knowledge that might motivate policy actors to introduce a change (Witmer et al., 2019).

3.2 Steps towards policy recommendations

Nyasha Musandu (2013) presented a policy brief including the following steps towards an 'actionable policy brief':
- Be focused : ensure that you have identified your target audience beforehand. Understanding who your audience is and what their job entails is crucial. What is their sphere of influence and what change can they implement?
- Be very clear about what the current policy you want to change is.
- Be analytic: Identify the shortfalls of the current policy. Where is this policy failing, why and how can your recommendations improve the status quo?

- Be aware of how policies are made: remember that government policy actors are interested in making decisions that are practical, cost-effective and socially acceptable.
- Be a changer: What specifically needs to be changed? How will this change come about? What resources will be needed? Where will these resources come from? What is the overall benefit to both the policy maker and society in general? If your recommendations include these components they are much more likely to garner the required change.
- Be active. Try using language that is active rather than passive. Words such as use, engage, incorporate etc.
- Be short. Identify 3 recommendations and elaborate on these. Pick the three that are most practical and relevant for your target audience then focus on presenting these in the most actionable way.
- Be scientific. Make sure your research supports your recommendations. This may sound very obvious but policy makers will want to know that the evidence supports your assertions. Where you are providing an opinion, not supported by research, make this very clear.
- Be realistic. Ask yourself, is my recommendation viable? Does the recommendation seem feasible?

Moreover, Witmer (2019) also offer some additional steps forward to develop policy recommendations, including:
- Be practical, and adapt to the way the policies are developed and evaluated, in particular : ex-ante policy assessments (e.g. how to adapt the EU impact assessment guidelines so they favour policies that are nexus-compliant?), ex-post policy evaluation, impact assessment (SIA or EIA), strategic territorial planning (regional scale) to break down the sectoral silos, financing conditionalities (EU and national scales) to allow for more cross-sectoral projects, and mechanisms that support the prioritisation of projects for public funding including a nexus approach.Be progressive, to tempt policy makers to become more 'nexus' oriented, starting from their own responsibilities and tasks, making them aware of the influences others have on their own policy domain as well as the influences they have on others, supporting them to develop more win-win solutions.
- Be timely, to seize the windows of opportunity that could be ahead of SIM4NEXUS.
- Be co-builder and participate in the on-going policy process.
- Be oriented towards 'sharing' of successful experiences and their preconditions for success.

4 Implementation in SIM4NEXUS

4.1 Template for case studies to present their policy recommendations

All case studies will present short-term and long-term policy recommendations, using the following template. This framework is included in the outline of Deliverable 5.5.

Summary of the Nexus issues in the case study [1 page]
This is a summary of your contributions in D5.2, D2.1, D2.2 and D2.3 as well as new insights you have since these deliverables (e.g. during later workshops, by developing the SDM and SG, and by playing the SG with stakeholders during the final workshop).

- What are the Nexus challenges you want to recommend about? How are these nexus issues related to the climate goals in 2050 and resource efficiency goals (i.e. the two main SIM4NEXUS goals).
- How are the different nexus sectors connected ? Please be specific about the sectors, e.g. not 'water', but surface water quantity, groundwater quality, water efficiency,… Where do their interests come together and conflict or enforce each other ? Connections may be biophysical, geographical, socioeconomic, social, in policies e.g. shared subsidies,…

Description of the policies targeted for recommendations [2 pages]
In Annex, copy-paste (and update if needed) the stakeholders' mapping from D2.2.
Who are the actors you want to target for your policy recommendations ? Which other actors are influenced, involved, should change their behavior?

Which are the policies that are relevant for your recommendations ? Please refer to the policies listed and described in D2.2 (update if necessary). What are currently the policy issues, policy processes in your territory, concerning the transitions to a low-carbon and resource-efficient society? What is currently on the policy agenda? What are the key questions and key issues that these processes face and what recommendations can SIM4NEXUS give about them? What are entrances for SIM4NEXUS to play a role in this policy process and discussion? What does it mean for the content, formulation and framing of the recommendations?

Policy recommendations
The subtitles are indicative of the diversity of recommendations we are looking for. Please adapt with the relevant headline of your recommendations. For each policy recommendation, fill-in the "in-short" table. You can list as many recommendations as you want (not limited to 5).

- *Changes in policy outputs [1/2 page]*

Examples of policy outputs : topics addressed, targets, goals, especially changes in climate goals (mitigation AND adaptation) and resource efficiency goals.
Description of the recommendation
Specify cross-scale and cross-sector connections.
Specify the pre-conditions for ensuring their efficiency when implemented and which implementation barriers should be removed.
Detail cost-effectivity and social implications of the policy recommendation.

In short	Recommendation name

Target group	(who should act ?)
Target policy goal	
Target policy instrument	
Target policy process phase	
Administrative level	community, region, country, EU
Time scale	short term till 2030, middle-term till 2050, long-term till 2100
Cost-effectivity	
Social implications	

- *Changes in policy contents [1/2 page]*

Examples of policy contents: instruments (economic, legal, education,….), way of implementation, filling in gaps, eliminate inconsistencies and ambiguities, barriers, ……

About legal regulations, specify if possible:

- *Command & control based regulation:* also called ' means-regulation'; detailed instructions from binding national laws/through EU-regulation
- *Performance-based regulation:* no dictate on which materials or processes the regulated entity must use to achieve societal goals, but rather standards to be met. Allows more flexibility to decide the most efficient way to meet that standard.
- *Management-based (self)regulation:* often used when there are many and highly heterogeneous actors where goals are diffuse and hard to measure. Standards and evaluations might be required to include certificates with a third-party, non-governmental, control.

Description of the recommendation

Specify cross-scale and cross-sector connections.

Specify the pre-conditions for ensuring their efficiency when implemented and which implementation barriers should be removed.

Detail cost-effectivity and social implications of the policy recommendation.

In short	Recommendation name
Target group	(who should act ?)
Target policy goal	
Target policy instrument	
Target policy process phase	
Administrative level	community, region, country, EU
Time scale	short term till 2030, middle-term till 2050, long-term till 2100
Cost-effectivity	
Social implications	

- *Innovations [1/2 page]*

Examples of innovation : technical, social, economic, governance.

Description of the recommendation

Specify cross-scale and cross-sector connections.

Specify the pre-conditions for ensuring their efficiency when implemented and which implementation barriers should be removed.

Detail cost-effectivity and social implications of the policy recommendation.

In short	Recommendation name
Target group	(who should act ?)
Target policy goal	
Target policy instrument	
Target policy process phase	

SIM4NEXUS

Administrative level	community, region, country, EU
Time scale	short term till 2030, middle-term till 2050, long-term till 2100
Cost-effectivity	
Social implications	

- *Changes in the policy process [1/2 page]*

Examples of policy process : advices, success factors and failing risks, do's and don'ts, formal and informal arrangements.
- Do you have updated contributions or ideas compared to D2.2 and D2.3?
- Check Tables 5 and 8 with success factors in D2.3. Do you have recommendations how the success factors can be implemented and work?

Make the recommendations specific in terms of where in the policy cycle they are meant to have effect:
- Policy formation (problem definition, agenda setting, organization and process who how when involved: plans, goals, targets, target groups, tasks, actions/measures, instruments, financing).
- Policy implementation (translation to practical level, actions in practice: elaborate targets at regional/local scale, who does what, how, when, measures, instruments and enforcement, finances, other resources).
- Translation from higher level (EU, national) to lower level (regional, local) policy and feedback the other way round.
- Monitoring and policy evaluation.

In short	Recommendation name
Target group	(who should act ?)
Target policy goal	
Target policy instrument	
Target policy process phase	
Administrative level	community, region, country, EU
Time scale	short term till 2030, middle-term till 2050, long-term till 2100
Cost-effectivity	
Social implications	

- *Changes in the science-policy interface [1/2 page]*

Describe missing knowledge or (new) relevant knowledge and knowledge sharing.
Describe recommendations for new research and for Horizon Europe.
Specify cross-scale and cross-sector connections.
Specify the pre-conditions for ensuring their efficiency when implemented and which implementation barriers should be removed.
Detail cost-effectivity and social implications of the policy recommendation.

In short	Recommendation name
Target group	(who should act ?)
Target policy goal	
Target policy instrument	
Target policy process phase	
Administrative level	community, region, country, EU
Time scale	short term till 2030, middle-term till 2050, long-term till 2100
Cost-effectivity	
Social implications	

SIM4NEXUS

- *Conclusion on coherent, Nexus-compliant policies [1/2 page]*

Do you have recommendations for changes in policies to make them more coherent? Reflect on how policy conflicts could be solved and synergies exploited through a Nexus approach. What do you consider added value of a nexus approach in your case ? Is Nexus-compliance achievable ?

4.2 Topics covered by the case studies

Each case study is developing policy scenarios which will be tested through the SDM and the Serious Game. The results from the testing work will be the basis to formulate policy recommendations that are evidence-based. The case studies are regularly questioned about the policy scenarios : an overview was presented in Riga during the workshop (July 2019), and an update has been produced following a round of interviews with the case studies leaders in October and November 2019. The below table gives an overview of the policy scenarios for all case studies. This list of scenarios might not be fully covered through the SDM and related data bases, and might be subject to change during the coming months.

Case study	Policy scenarios
Global	Scenario 1 : limit global warming to a maximum of 2°C (SDG13), to increase the share of renewable and energy efficiency (SDG7) Scenario 2 : aims to limit the expansion of agricultural land use and to ensure the conservation of terrestrial biodiversity (SDG15) Scenario 3 : food: aims to ensure sufficient, nutritious and affordable food for all (SDG2) Scenario 4 : water: aims to reduce water scarcity, to improve water quality and to ensure adequate sanitation for all (SDG6) Scenario 5 : total: aims to combine all of the above targets highlighting synergies and trade-offs between the different targets
Europe	Scenario 1: 2 degrees emission pathway (RCP 2.6) Scenario 2: Bio-energy Scenario 3: Accelerated green technological adoption Scenario 4 : Healthy diets
The Netherlands	Scenario 1: The 2 Degree scenario combines SSP2 with a climate mitigation in accordance with the Paris agreement; Scenario 2: The 'high level greenhouse gas tax in Europe' Scenario 3: 'Only renewables and non-renewables with ccs in Europe' Scenario 4: 'Additional possibilities for non-biomass renewables' Scenario 5: land-use related policy scenario, with consequences of a fixed share of land used for energy from biomass in the EU
Sweden	Scenario 1: reduce GHG emissions by increasing renewable energy through subsidies for solar panels / electric trucks Scenario 2: reduce GHG emissions by increasing the use of biomass from forests and energy crops through start-up grants Scenario 3: reduce greenhouse gas emissions by re-wetting wetlands Scenario 4: increase water quality through a fertilizer tax Scenario 5: decrease water use through household water fees, industry tax and agriculture tax for water use Scenario 6: increase food production and security through subsidies on fertiliser and subsidies for increasing agricultural area Scenario 7: foster biodiversity through increase in rotation age and compensation for forest protection

SIM4NEXUS

Greece	Scenario 1: Water savings - sustainable management of water resources under climate change conditions Scenario 2: Increase of renewables in the national energy mix Scenario 3: Reduce greenhouse gas emissions (mitigation strategies) Scenario 4: Regulation of land uses (i.e. protection of forest land) Scenario 5: Production of high quality agri-food products Scenario 6: Sustainable use of natural resources by touristic sector – green tourism Scenario 7: Sustainable use of natural resources by the agricultural sector
Latvia	Scenario 1: low-carbon economy (in line with national greenhouse gas mitigation goals) Scenario 2: resource efficiency scenario resulting from the integration of policy goals in different nexus domains Scenario 3: organic farming
Azerbaijan	Scenario 1 : Climate change impacts - no adaptation Scenario 2 : Climate change adaptation: similar effects to the above but certain adaptation measures will be considered
	19 policies tested: - 7 on the water sector : water collection systems, water management, recycling desalination, flood protection, … - 6 on food : fertilisation, pesticides use, irrigation, seeds selection, soils management, crop rotation - 3 on energy : efficiency, subsidy to renewables, investments - 2 on forests : reforestation and voluntary measures - 1 on climate : reduction of the C footprint
Andalusia	Scenario 1: Reduce greenhouse gas emissions through mitigation technologies in agriculture Scenario 2: Improve water use efficiency through water pricing in the agricultural sector Scenario 3: By 2020, final energy consumption from renewable sources has reached 25%, through incentives in agriculture Scenario 4: Sustainable agricultural production by reducing direct payments, enhancing market-oriented agricultural production Scenario 5: Reduce soil erosion, by strengthening agri-environmental measures
Sardinia	About 40 policy objectives are being developed : methanization development, energy efficiency of buildings, improved water use efficiency with effects on the energy demand, etc.
Southwest UK	Scenarios Water: Enhance the sustainability of water services, protect + enhance the natural capital of aquatic environments, protect + enhance human health, enhance the resilience of water service delivery, address affordability of water services Scenarios Energy/climate: reduce reliance on external energy supply, decarbonisation of energy supply, increase energy security, increase the use of renewable resources, address affordability. Scenarios Food: maintain and improve the agri-environment, build farm business development, protect standards of food production, reduce food supply chain emissions and waste. Scenarios Land: develop catchment sensitive farming, mitigation of flood risk and flooding, improve environmental land management, improve soil structure and composition. In total, there are 24 policy objectives.
France-Germany	Scenario 1 : reduction in GHG emissions : reach the commitments made under the Paris Agreement : decrease energy consumption, support the development of renewables, reduce primary consumption of fossil fuels, increase carbon storage, decrease emissions

SIM4NEXUS

	from food consumption, increase the share of renewable electricity, decrease electricity consumption Scenario 2 : Balanced use of water resources : surface and groundwater Scenario 3 : Resilience : to flood risks, to nuclear risks, on food security, on energy security Scenario 4 : Functional ecosystems : minimum ecological flows of surface waterways, quality of water bodies, protection of natural areas, sustainable forestry
Germany-Czech Republic-Slovakia	Scenario 1: Increase water retention in landscapes Scenario 2: Increase the share of renewable energy and increase energy security Scenario 3: Increase food production with limited environmental footprint Scenario 4: Improve soil quality, landscape heterogeneity and protection against flooding and drought Scenario 5: Improve local climate by land cover change

This table proves that resource efficiency and low-carbon economies are central topics investigated by the case studies. SIM4Nexus will thus be able to formulate policy recommendations in relation to these challenges. The case studies have also developed policy scenarios to provide answers on Nexus issues relevant to their local stakeholders.

5 References

Musandu, N. (2013). How to write actionable policy recommendations. Research to Action (the Global Guide to Research Impact. See: https://bit.ly/2MBFhBB

Witmer, Maria (2019). Guidance for policy recommendations. Internal report prepared by Maria Witmer, based on discussions with Maïté Fournier, Georgios Avgerinopoulos, Eunice Ramos, Heleen de Coninck and Floris Swennenhuis, the SIM4NEXUS workshop in Riga 3 July 2019, with input from Pierre Strosser, George Beers, Sweden, Andalucía, Greek, NL, Sardinia, global, European cases. This is a living document, to be found on Sharepoint SIM4NEXUS WP2 'Policy recommendations'.