



Horizon 2020 Societal challenge 5 Climate action, environment, resource Efficiency and raw materials

D8.5: INTERNAL PROGRESS REPORT AND MINUTES OF THE EAB MEETING M24

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Sustainable Integrated Management FOR the NEXUS of water-land-**PROJECT** food-energy-climate for a resource-efficient Europe (SIM4NEXUS) PROJECT NUMBER 689150 TYPE OF FUNDING RIA **DELIVERABLE** D.8.5 Internal progress report and minutes of the EAB meeting M24 WP NAME/WP NUMBER WP Project management / WP8 **TASK** Task 8.3 (Quality Assurance) **VERSION** 01 **DISSEMINATION LEVEL Public** DATE 29/12/2018 (Date of this version) – 31/05/2018 (Due date) LEAD BENEFICIARY **WUR-LEI RESPONSIBLE AUTHOR** Floor Brouwer **ESTIMATED WORK** 1.8 person-months **EFFORT** Floor Brouwer (WUR-LEI), Alexandre Bredimas (SI), Xavier Domingo (Eurecat), Maïté Fournier (ACTeon), Chrysi Laspidou (UTH), Guido AUTHOR(S) Schmidt (FT), Lydia Vamvakeridou-Lyroudia (UNEXE), Maria Witmer (PBL) **ESTIMATED WORK EFFORT FOR EACH** 0.2 person-months **CONTRIBUTOR INTERNAL REVIEWER PCT**

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Table of Contents

Executive sumr	mary	4
	onyms	
Glossal y / ACIO)	J
1 Introduction	on	6
2 External A	dvisory Board (EAB)	7
2.1 EAB.		7
2.2 Gene	eral conclusions	7
2.3 Feed	back on modelling	7
2.4 Politi	ics	8
2.5 Enga	gement, publications and communication	8
2.6 Sugg	estion for a conference	9
3 Conclusion	ns and recommendations1	.0
Appendix A: Ini	itial feedback EAB and presentations WP1-WP7	1



Executive summary

Changes with respect to the DoA

No changes with respect to the DoA

Dissemination and uptake

The report is public and for release through the website (www.sim4nexus.eu).

Short Summary of results (<250 words)

This report is a progress report from SIM4NEXUS and minutes of the second meeting of the External Advisory Board, held in Exeter on November 14 & 15. The External Advisory Board welcomed the opportunity to participate in this meeting for the full two days (and the chairman of the EAB participated part of the working meeting on the third day as well). It was the second time that the EAB met, and participated in a SIM4NEXUS meeting. The first meeting was in Prague in May 2017. The feedback included three parts:

- The general conclusion of the EAB is very positive. The EAB is impressed with how much has been achieved. There has been a good cooperation between the members of the international team of experts. They note that the diversity of the project team has been an asset, and does recognize the excellent overall organisation of the work. The division of labour is clear for all participants.
- In May 2017 the EAB was pleased to note a positive start, but this time the EAB had a much better chance to see preliminary results. The EAB is pleased with the excellent progress; most work packages are on track and there are no significant delays in the work. The policy analysis (D2.2) appears to be particularly thoroughly undertaken with useful high-level findings.
- The 12 case studies are underway but the next 6 months are considered crucial by the EAB for their satisfactory completion to inform other project research, such as the completion of the serious game model. It is therefore considered essential that all participants keep strictly to the set deadlines.

Evidence of accomplishment

Report.



Glossary / Acronyms

As the document is being written, terms and glossary will be added here as needed. Before the last version is submitted this list will be re-arranged alphabetically by the lead author.

TERM	EXPLANATION / MEANING
EAB	EXTERNAL ADVISORY BOARD
SDG	SUSTAINABLE DEVELOPMENT GOAL
SDM	SYSTEM DYNAMICS MODELLING
WP	WORK PACKAGE



1 Introduction

In this subsection we will write a paragraph describing the structure of the document as follows:

This report presents the agenda and outcomes of the second meeting of the External Advisory Board (EAB), held in Exeter on November 14 and 15, 2018. Five members of the EAB participated and discussed the achievements during the past 18 months with the consortium. The program had three parts.

- i. First, the activities during the first year are presented by the work package leads.
- ii. Three plenary sessions in a row, to update the consortium on specific achievements. They will follow-up in parallel: (a) progress on policies in SIM4NEXUS; (b) the global and European cases, to discuss how to benefit from this in the other case studies; and (c) framework for the assessment of the Nexus.
- iii. Update on the case studies, with Latvia and Andalusia to focus on the workshops and stakeholder engagement process; Greece and the Netherlands present their work about policy integration in modelling; Southwest of the UK and Sardinia cases to share their experience in the use of System Dynamics Modelling and Serious Game as part of the stakeholder process; Sweden and Azerbaijan to speak about the design of policy scenarios through stakeholder interaction; and France/Germany case on the Rhine and the Germany, Czech Republic and Slovakia case to speak about policy coherence and transboundary dimensions.
- iv. Learning about SIM4NEXUS Serious Game, for the consortium to learn how the final product could look like, and share opinions.
- v. UK case study is presented, showing the Nexus dimensions, the policy challenges addressed in the case study, the thematic models included, the conceptual model, the SDM and the Serious Game.
- vi. Upcoming deliverables.
- vii. Communication and dissemination, aiming to agree 1) on the top 5 priority communications actions for the next period, and 2) on the focus of our activities under Task 7.3 "Communication with the scientific community".
- viii. Data Management Tool, enabling to compare outcomes (baseline scenario and a 2 degree scenario) of the 7 thematic models for use in the 12 case studies.
- ix. The flow of work in WP2 WP3 WP4 WP5, and planning until M36.

Feedback was presented by the Chair of the EAB (Associate Professor Jamie Pittock) in Day 2. SIM4NEXUS will follow-up on this feedback during the first half of 2019.



2 External Advisory Board (EAB)

2.1 EAB

SIM4NEXUS External Advisory Board feedback on progress achieved at the 15-16 November 2018 meeting in Exeter. The EAB members that attended the meeting and that contributed to this feedback:

Jamie Pittock (chair) Jacques Ganoulis Mario Giampietro Alexander Verbeek Albert Vermue

2.2 General conclusions

After 2,5 years in this four years project, it is an important moment to take stock of the progress achieved. There has been enough activity to form an opinion of the overall progress, while there is still enough time to adapt course if that would be needed.

The External Advisory Board therefore welcomed the opportunity to participate in this meeting for the full two days (and the chairman of the EAB participated part of the working meeting on the third day as well). It was the second time that the EAB met, and participated in a SIM4NEXUS meeting. The first meeting was in Prague in May 2017.

The general conclusion of the EAB is very positive. We are impressed with how much has been achieved. There has been a good cooperation between the members of the international team of experts. We note that the diversity of the project team has been an asset, and we recognize the excellent overall organisation of the work. The division of labour is clear for all participants.

In May 2017 the EAB was pleased to note a positive start, but this time we had a much better chance to see preliminary results. We are pleased with the excellent progress; most work packages are on track and there are no significant delays in the work. The policy analysis (D2.2) appears to be particularly thoroughly undertaken with useful high-level findings.

The 12 case studies are underway but the next 6 months are crucial for their satisfactory completion to inform other project research, such as the completion of the serious game model. It is therefore essential, now that we are nearing the end-phase of the project, that all participants keep strictly to the set deadlines.

2.3 Feedback on modelling

The EAB welcomes the progress made on the modelling. In the next phase we hope that research communications could more usefully explain the limitations and assumptions in the models, for example:

- The models do not deal with extreme scarcity;
- They don't directly address conflict resolution as opposed to providing options;
- Outputs could change greatly with changes in prices, demand, etc. and
- Modelling the openness of the systems with trade is critical.

The EAB also advises that explicit thought should be given to assessing and communicating the value of the models for social learning by stakeholders, as well as quantifying policy options.



The EAB welcomes the scope of the complex modelling task that is undertaken. It is an impressive academic feat in its complexity, but considering the resources needed to run the model, we may risk that models of such a scale may be less attractive to use for policy makers. We therefore would like to know if this model could be complemented with simple interactive dashboards. This simplified version could be used by decision makers, for instance to understand how their policy decisions would impact trade-offs among bioenergy production, land and water use.

The research appears focused on using the modelling to assist jurisdictions to decide on programs to implement EU and international policies effectively. We also ask if they can be used as a tool for jurisdictions to report on their implementation of EU and international policies (e.g. SDGs)?

2.4 Politics

The project should avoid giving the impression that technical modelling of interactions among the 5 sectors is always win-win. It should clearly state that it is not an alternative to the democratic political decision-making and there will be political choices to be made among different options. There will be losers in many cases, as the model and the game are going to show the interlinkages between the different sectors and developments, and consideration should be given to compensating for losses. For the validity of the project, it is important to demonstrate in specific cases the overall benefit of getting nexus-integrated decisions against the traditional sectorial political decision-making. Ideally the tools that will come out of the project will help to facilitate the debate and (political) decision-making in the field of water-energy-food and land-use. For being really helpful for that the tools should be easy to use and simple to communicate.

It would be of value if consideration should be given to compensating for groups that will most probably see losses in there revenue of asset value due to policy measures.

Specifically in the field of climate change many policy measures are underway. Many of them look for stimulating the production of renewable energy. Those policies will affect the sectors in the nexus. Attention for the effects not only at the international level but also on a local level and hence to guidance for policy measures taken at the local level would be useful. The case studies will in this respect be of great value. It would be good at the end of the project to draw the key lessons from those studies and present them in an easy accessible way.

2.5 Engagement, publications and communication

The EAB welcomes the excellent academic publications and the simple briefs, but believe that more publicly accessible policy communication material will be required in the remaining 18 months. This requires a communication strategy that reaches targeted audiences: on a broad scale from scientists on the one hand to a much less specialised but interested general audience on the other hand.

Policy makers with an interest in the nexus should be reached with information on what has been achieved and what they can do with these results. The EAB believes there is a gap in the communications products to date between jargon laden academic publications and the very simple policy briefs. Plain language technical summaries and simpler graphical interfaces are required.

It may be a good idea to invest now in a network of potential users of the product. The serious game is a useful tool in reaching this audience, including many that may never 'play' the game but that will get the message once it is described as a serious game or when they hear about it from colleagues that have played the game. The policy lessons could usefully draw on an environmental justice framework to explain how the serious game is a tool for positively engaging stakeholders.



For social media visibility, it would help to connect to recent real nexus challenges that the audience recognizes from the news. It will grow the audience and show the relevance of the work.

2.6 Suggestion for a conference

The EAB advises to organise a SIM4NEXUS conference at the end of the project, where all interested parties are invited. The serious game can be presented and used by different groups. Potential 'buyers' of the product can test it. A competition element in the presentation of the game could aid publicity.

Such an initiative should preferably be a separate event from the nexus conference that will be organised in Dresden in May 2020. A SIM4NEXUS conference could be organised around June 2020 in Brussels for an audience of experts as well as policy makers (and others with an interest in the work).

It would first of all give a chance to have a final conference among the participants, but its biggest added value could be to showcase what has been achieved. In doing so, the policy makers that are based in Brussels but also policy makers from capitals could be reached, especially if the event can be organised back to back to another meeting, like one of the Green Diplomacy Network. Potential follow up could also be discussed. It should also be a network event, aimed at promoting the products and at making sure that SIM4NEXUS reaches as many stakeholders as possible. All other related research programmes could also be presented to achieve maximum synergy. The EAB is willing to use its network in Brussels and elsewhere to help searching for a venue and for funding.



3 Conclusions and recommendations

SIM4NEXUS will follow-up to the advice of the EAB during the first half of 2019.



Appendix A: Initial feedback EAB and presentations WP1-WP7





EAB – November 2018

External Advisory Board initial feedback

Assoc. Prof. Jamie Pittock

SIM4NEXUS EAB

16/11/2018



External Advisory Board feedback

- Second feedback following presentations on progress by SIM4NEXUS researchers on 15-16 November 2018.
- Five EAB members contributing to this feedback: Alexander Verbeek, lakovos Ganoulis, Jamie Pittock, Mario Giampietro, and Albert Vermue.





Excellent progress is evident

- 2 ½ years into a four year project.
- Impressive how much has been achieved.
- The project team are diverse, well-organised and obviously collaborate well as a team.
- There is substantial progress evident since we met in May 2017 – most work packages are on track.
- The policy analysis (D2.2) appears to be particularly thoroughly undertaken with useful high level findings.





Excellent progress (2)

- The 12 case studies are underway but the next 6 months are crucial for their satisfactory completion to inform other project research, such as the completion of the serious game model.
- There are some excellent academic publications and some simple briefs, but a lot more publicly accessible policy communication material will be required in the remaining 18 months.





Feedback (1) On modelling

- 1. Research communications could more usefully explain the limitations and assumptions in the models, for example:
 - The models do not deal with extreme scarcity;
 - They don't address conflict resolution;
 - Outputs could change greatly with changes in prices, demand, etc. and
 - Openness of the systems with trade is critical.
- 2. More explicit thought should be given to the value of the models for social learning by stakeholders versus quantifying policy options.





Feedback (2) On modelling

- 1. The modelling is very complex and requires a lot of resources to run. Could be complemented with simple interactive dashboards for use by decision makers, e.g. trade offs among bioenergy production, land and water use.
- 2. The research appears focused on using the modelling to assist jurisdictions to decide on programs to implement EU and international policies effectively. Can they also be used as a tool for jurisdictions to report on their implementation of EU and international policies (e.g. SDGs)?





Feedback (3) On engagement

- The policy lessons could usefully draw on an environmental justice framework (respect, process & distributive) to explain how the serious game is a tool for positively engaging stakeholders.
- 2. There is a gap in the communications products to date between jargon laden academic publications and the very simple policy briefs. Plain language technical summaries and simpler graphical interfaces are required.
- 3. It may be a good idea to invest now in a network of potential users of the product.





Feedback (4) Politics

The project should avoid giving the impression that technical modelling of interactions among the 5 sectors is always win-win. It should clearly state that it is not an alternative to the democratic political decision-making and there will be political choices to be made among options. There will be losers in many cases and consideration should be given to compensating for losses.





Suggestion

- Organise a big SIM4NEXUS conference at the end of the project, where all interested parties are invited. The serious game can be presented and used by different groups. Potential 'buyers' of the product can test it. A competition element in the presentation of the game could aid publicity.
- During such a conference the work can be presented and potential follow up can be discussed. It should also be a network event, aimed a promoting the products and at making sure that SIM4NEXUS reaches as many stakeholders as possible.









Update of SIM4NEXUS – achievements and what's next?

Project meeting, November 14 – November 15, 2018

Floor Brouwer

WUR-LEI

14/11/2018



SIM4NEXUS is a Research and Innovation Action

- Activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. Activities may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment. Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.
- Quote: The people who succeed the most are the people who have failed the most, because they are people who have tried the most (Anonymous)





ALWAYS BELIEVE THAT SOMETHING

WONDERFUL

IS ABOUT

TO HAPPEN

The Serious Game concept

GeoPlatform, gathering all metadata Case studies

The virtual world is designed according to realistic metadata

The game involves players, acting according to chosen roles

Each player manages own **objectives** and **indicators**, and can only take **specific actions (applying policies)** according to the role assigned

Try out scenarios

3 at regional level, 5 at national level, 2 transboundary, for local stakeholders

1 at European level for policy makers and educational purposes

1 at Global level for educational purposes



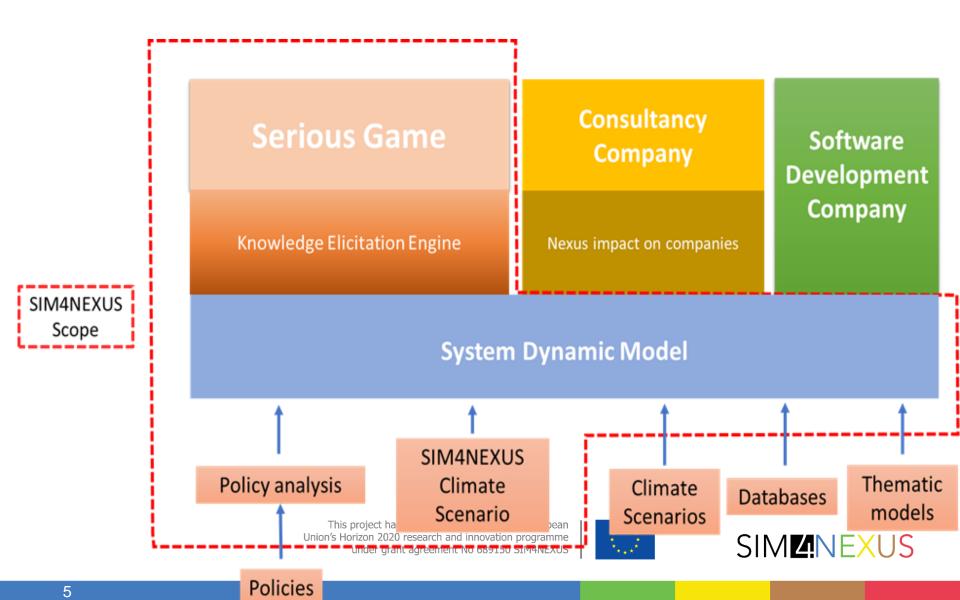








SIM4NEXUS impact and outcomes: From research to products and services for the industry and society



The Nexus Project Cluster

A group of independent water/energy/food cross-sector research initiatives team up for increased and more impacting communication and dissemination of the Nexus



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





The Nexus Project Cluster

- SIM4NEXUS, DAFNE and UNU-FLORES launched this initiative during the SIM4NEXUS meeting in Athens (16 March 2018).
- More than 10 projects have joined.
- DAFNE, MAGIC and SIM4NEXUS organize a Resource Nexus Policy & Cluster Workshop, which is going to be held in Brussels, 27 November 2018. Purpose is stimulate peer-topeer and science-to-policy discussions on how to get the most out of nexus research for the benefit of society and policy-making. Topics include the Nexus and resource efficiency, the Nexus and SDGs, and Nexus dialogues.
- If you have not registered yet, please do so at the following link: https://bit.ly/2wal39% funding from the European

Commentary on the value-added of the Nexus

Key features of the nexus concept.

- Focus on bio-physical, socio-economic and policy interactions.
- Search for a balance between different needs with the end goal of sustainable and integrated management of natural resources.
- A systematic effort to achieve policy coherence across sectors.





SIM4NEXUS at COP24

- Side-event in DG CLIMA on December 13, entitled: Climate action, land and the Nexus (with 2 other projects)
- Side-event in UNFCCC Pavilion on December 14, entitled: The Paris Agreement and the Nexus of water, energy and food; policy coherence and serious games (with the Council on Energy, Environment and Water – CEEW; India).





Program of the meeting (Wednesday)

- Achievements in WPs and updates by the case studies
- Implementation of policies in the case studies
- Framework for the assessment of the Nexus
- Learning about the SIM4NEXUS Serious Game





Program of the meeting (Thursday)

- UK Case Study
- Upcoming deliverables
- Communication and dissemination actions
- Data management tool
- The flow of work from WP2-WP3-WP4-WP5
- Observations, feedback and advice from the EAB





Thanks for your attention!

For further information please consult www.sim4nexus.eu, follow us at @SIM4NEXUS Floor.brouwer@wur.nl







SIM4NEXUS Project Meeting

Progress WP1

Chrysi Laspidou (UTH)

Exeter

14th of November, 2018



WP1 – Understanding and Assessing the Nexus in Various Contexts

Objectives (old news):

- create a scientific inventory of the Nexus
- develop Serious Game Use Cases
- identify key "Nexus" gaps in thematic models
- perform a multi-faceted uncertainty analysis
- develop the Nexus assessment framework
- develop the Nexus Performance Indicators





Task 1.1—A Scientific Inventory on the Nexus

Objective: State of the art review on the Nexus (M1 to M9)—task lead by UTH with the involvement of all academic partners and PBL (14 partners total). Completed at M9

Main outcome: Deliverable D1.1 completed at M9





Task 1.2-Use Cases for SIM4NEXUS

Objective: To define Use Cases for S4N Serious Game (M7 to M18)—task lead by UTH with the involvement of WUR, KTH, EURECAT, ACT

Main outcome: Deliverable D1.2, M18 (draft document),

- a "living" document updated at M30 and at M46
- Different actors/players have different goals when playing the Game. We collaborate with Task 4.1 (Learning Goals) and define "actorgoal" pairs for each Case Study.
- Each Use Case defines how the player interacts with the Serious Game, depending on the selected role, the concrete assigned goals and therefore, defining the different user interfaces.
- Visualization techniques will be used to successfully convey the right message to the actor.





Task 1.2-Use Cases for SIM4NEXUS examples

Water: new irrigation systems | water reuse / technologies for cleaning water (industrial waste) | optimize water pumping scheduling | pricing agricultural groundwater

Energy: RET (solar, wind, geothermal, biomass...) | fuel prices | upgrade existing electricity generation technologies

Food: efficient use of nutrients, energy, water and land | optimizing farm income | minimizing environmental impacts

Land: land management policy | land prices | land taxes | forestry policy (share dedicated to biomass, forbidden practices, promotion of PECT label, etc.)

Climate: efficient thermal generation technologies \mid renewable energy technologies \mid CO₂,eq emission reduction targets \mid changing electricity demand varying population, GDP or directly manipulate electricity growth rate





Task 1.3–Key Gaps in capacity of Thematic Models to address the Nexus

- Objective: To review SIM4NEXUS Thematic Models in their capacity to address the Nexus (M1 to M12)—task lead by CE with the involvement of UTH, UNEXE, IHE, UPM, RU, KTH. Completed at M12.
- Main outcome: Deliverable D1.3 completed at M12





Task 1.4—Multi-faceted Uncertainty Analysis

Objective: Conduct analysis of uncertainty at all levels (M13 to M24)—task lead by RU with the involvement of UTH, UNEXE, UPM, CE, SI

Main outcome: Milestone MS10 (delivered) and D1.4 at M24.

- Start with literature search on different kinds of uncertainties how they are relevant for modelling, how to deal with them and how they should be communicated.
- Working on a methodology for uncertainty mapping in models
- Methodology needs to be straightforward and flexible for different models
- Apply methodology to E3ME, CAPRI and the Greek SDM(!)





Task 1.5—Framework for Nexus Assessment

Objective: To develop a Framework for the Assessment of Nexus (M4 to M18)—task lead by KTH with the involvement of WUR, UTH and ACT by M18

Main outcome: Milestone MS11 (draft report) due at M18 and combined Deliverable D1.5 due at M48.





Task 1.5—Framework for Nexus Assessment

- The SIM4NEXUS assessment framework
- Systems' mapping
- Investigating the application of the DPSIR framework in the assessment of the nexus
- Literature review on integrated assessments
- Assessment of the nexus in the SIM4NEXUS case studies.





Task 1.6—Innovations to Improve the Nexus

Objectives: To define Innovations to Improve of Nexus (M7 to M18)—task lead by KTH with the involvement of WUR, UTH, UNEXE, ACT, UPM and EURECAT.

Also

- extend the SSP2 narrative to the case studies, in other words, formulate the narratives/storylines that describe the baseline in each case study
- produce a list of innovations and low-carbon options that can assist case studies in the mitigation of challenges identified in the baseline scenario runs

Main outcome: Milestone MS12 (draft report) due at M18 and combined Deliverable D1.5 due at M48





Task 1.6—Innovations to Improve the Nexus

- key nexus interactions, nexus challenges, drivers, critical trade-offs
- 6 key narrative elements:
 - o policies, institutions and social conditions
 - human development
 - economy and lifestyles
 - population and urbanization
 - environment and resources
 - o technology
- implementation of SSP2 in the thematics under the 6 narratives elements
- policy, technology, societal and / or other assumptions in the thematic models considered in the baseline and 2°C scenarios in the case studies
- identify the interventions that could be interpreted as innovative





Task 1.7–Nexus Performance Indicators

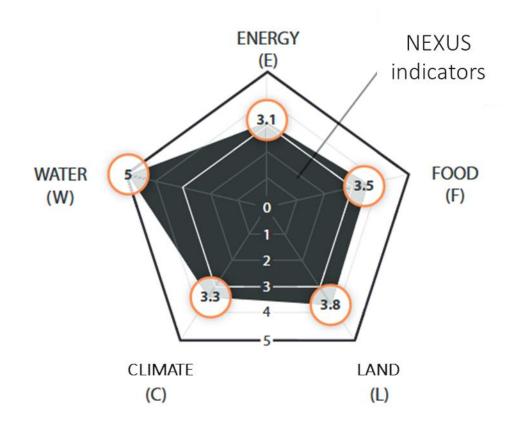
- Objective: Develop Nexus Performance Indicators to assess performance of innovations and other interventions (M13 to M48)—task lead by UTH with the involvement of WUR, UNEXE and KTH.
- Main outcome: Milestone MS13 with Interim NPIs (draft report) and MS14 with Benchmark values (draft report) due at M18 and M36 respectively; combined Deliverable D1.5 due at M48.
- Develop various Nexus indices (Vulnerability of a resource, when it depends on another Nexus dimension—example VEW)





Task 1.7–Nexus Performance Indicators

- Indicators for policies
- SDG indicators
- NEXUS indicators (FAO)







Thanks for your attention!

For further information please consult www.sim4nexus.eu, follow us at @SIM4NEXUS laspidou@uth.gr









Policy analysis in the national, regional and transboundary cases

Stefania Munaretto Katarzyna Negacz Maria Witmer

PBL Netherlands Environmental Assessment Agency

November 14th, 2018, 10:00 am

SIM4NEXUS workshop Exeter



D2.2: Nexus-relevant policies in the transboundary, national and regional case studies, July 2018

Grant Agreement:

- Overview of nexus-relevant policies in the 10 cases.
- Translation of global and European policies to lower governance levels and implementation.
- Bottom-up information about synergies, conflicts and trade-offs between policies during implementation.
- Solutions found to address trade-offs and exploit synergies.
- Input/feed to WP5.





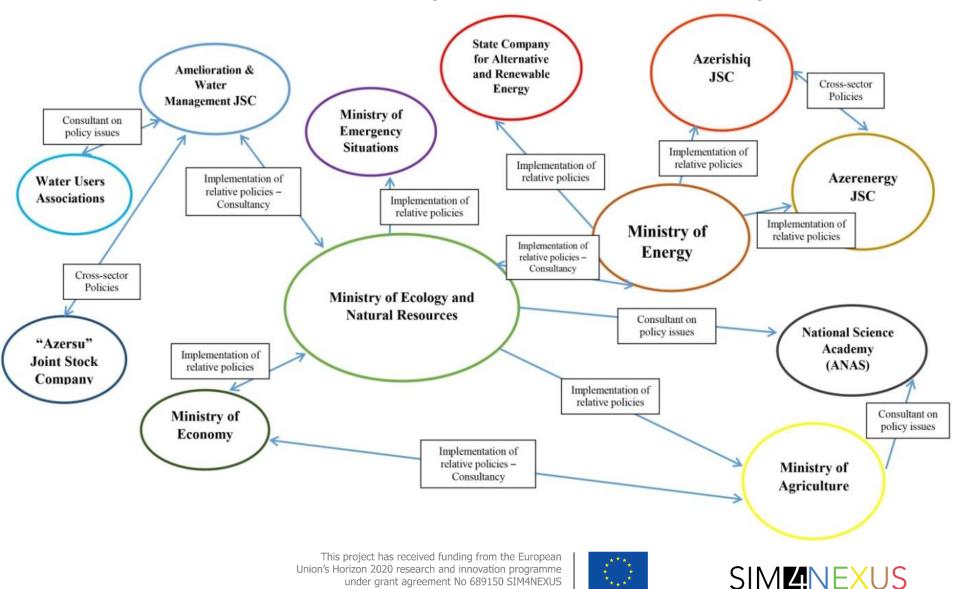
Results: Detailed background information per case and overviews per issue

- Nexus areas and aspects, issues, direction of influence
- Stakeholder maps with roles and relations.
- Policies, goals, objectives, instruments, policy documents.
- Vertical policy coherence Global & EU > national and national > regional, hindering factors.
- Horizontal policy coherence scores of selected national and regional objectives. Stakeholder information about coherence in practice.
- Cross-sectoral and transboundary formal and informal institutional arrangements, hindering and success factors for cooperation.





Stakeholder map of case Azerbaijan



under grant agreement No 689150 SIM4NEXUS

Land policy objectives in case studies

Objective	AZ	GR	LV	NL	SE	AND	SAR	SWE	CZ	DE	SK	DE- FR *
Forest protection	Χ				Χ		Χ			X		X
Sustainable forest	Χ		X		Χ		Χ			X		X
management												
Sustainable use of	X				X		X			Χ		
forest resources												
Integrated spatial		X		Χ		X			Χ			X
planning												
Sustainable		X				X			Χ	X		X
development												
Urban planning		X				X			Χ			Χ
Development of the		X				X						
aquaculture sector												
and of coastal areas												
Sustainable spatial		X	X	X		X						X
planning for												
industry												
Sustainable land				X		X	X	X	Χ	X		
use												
Prevention of soil				Χ				X	Χ		X	X
erosion												
Sustainable farming		Χ					Χ	X	Χ	X		X
in the landscape												
Land risk mitigation		Χ		Χ			Χ	X	Χ		X	
Landscape				X							Χ	
protection												
Other		Χ		Χ			Χ		Χ			

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





Number of +/-/0 direct interactions per policy objective with policies for other WLEFC sectors in Slovakia

	INFLUENCING								INFLUENCED							
1	What happens in the nexus if we make progress on objective X?							What happens to objective X if we make progress on other objectives in the nexus?								
	Interac- tions	%	Synergies		Conflicts		Syn & Conf	Interac-		Synergies		Conflicts		Syn & Conf		
Obj. X			+	0/+	-	0/-	+/-	tions	%	+	0/+	-	0/-	+/-		
W1	20	63%	18	0	2	0	0	20	63%	18	0	2	0	0		
W2	24	75%	21	0	3	0	0	20	63%	18	0	2	0	0		
W3	24	75%	21	0	3	0	0	21	66%	21	0	0	0	0		
W4	27	84%	26	0	1	0	0	20	63%	20	0	0	0	0		
W5	24	75%	23	0	1	0	0	14	44%	14	0	0	0	0		
W6	6	19%	6	0	0	0	0	8	25%	8	0	0	0	0		
W7	24	75%	21	0	3	0	0	13	41%	11	0	2	0	0		
W8	13	41%	10	0	3	0	0	20	63%	18	0	2	0	0		
W9	5	16%	4	0	1	0	0	12	38%	12	0	0	0	0		
W10	6	19%	6	0	0	0	0	14	44%	14	0	0	0	0		
W11	9	28%	8	0	1	0	0	17	53%	16	0	1	0	0		
W12	30	94%	27	0	3	0	0	27	84%	27	0	0	0	0		
E1	18	56%	7	0	11	0	0	21	66%	3	0	18	0	0		
L1	23	72%	18	0	5	0	0	17	53%	15	0	2	0	0		
L2	21	66%	14	0	7	0	0	12	38%	10	0	2	0	0		
L3	25	78%	21	0	4	0	0	10	31%	9	0	1	0	0		
L4	13	41%	11	0	2	0	0	12	38%	10	0	2	0	0		

under grant agreement No 689150 SIM4NEXUS





Thanks for your attention!

For further information please consult www.sim4nexus.eu, follow us at @SIM4NEXUS maria.witmer@pbl.nl







WP3- System Dynamics Modelling

Lydia S. Vamvakeridou-Lyroudia

UNFXF

14 November 2018

SIM4NEXUS workshop Exeter



Deliverables & Milestones

- ➤D3.1: First run of the thematic models (M12) ✓
- ➤D3.2: Data Architecture and Data Flow (M18) ✓
- ➤D3.3: Final report on downscaling (M24)
 - Submitted but needs update
- ➤ D3.4: Complexity science and integration methodologies (M36)
- ➤D3.5: Final report Application of the thematic models (M45)
- ➤D3.6: Complexity science models implemented (M48)
- ➤D3.7: Overall assessment (M48)
- ►D3.8: Final report on data flow and organization (M48)
- ➤ MS17: Thematic models applied for all the Case Studies (M24)
 - Almost there...
- ➤ MS18: Conceptual complexity science models (M24) ✓
- ➤ MS26: Complexity science models 1st implementation (M36)





In essence for WP3 in the coming year

- Three types of action/activities needed:
- 1. Finalise all the thematic models for ALL the Case Studies and all the scenarios needed
- 2. Finalise building the SDMs for ALL the Case Studies

3. Populate ALL the SDMs with numerical data (which may be "updated" later to their final form) AND make sure they run



Where are we now...

- The thematic models have (more or less) completed the baseline
- ➤ BUT the thematic models need to complete all the other runs needed (policy, other climate change scenarios)
- The building of the SDMs is progressing:
 - Sardinia, Greece, UK and Spain → SDMs on their own
 - All the others: with help from IHE-Delft (Janez and Sara)
 - Some are more advanced than others:
 - Greece: Almost ready (now at the stage of polishing...)
 - Sardinia: Fast track ready-transition to the final progressing
 - The others are progressing too, but not at the same speed. → Janez, Sara, Lydia talking to each partner separately





(Additional) challenges

- > "Translation from SDM to Serious Game for each model needs effort, processing optimization and synergies between WP3/WP4
 - Barry (UNEXE), Lluis/Xavi (EURECAT) and Argyros (EPSILON) working on this.

Inclusion of (some) policies needs additional runs by the thematic models

- > We are still working on the uncertainties and how to include them in the SDM
- We want to link SDM and Cellular Automata for one CS (UK). This is for the 4^{th} year







SIM4NEXUS Meeting

WP4 Achievements Pitch

Xavier Domingo

Exeter

14 November 2018



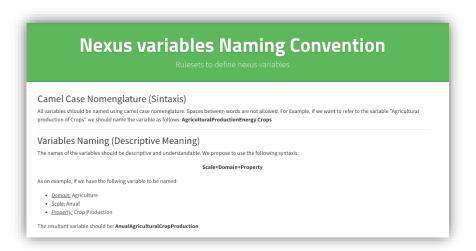
WP4 – KEE achievements

- The Greek SDM has been successfully integrated in the KEE
 - The Stella code has been translated into python
 - Semi-automatic translation (about 90% of all effort is automatic)
 - Script to make variables names compatible into python
 - Script to generate python code from Stella model
 - Some final modifications to add Interventions logic and other minor changes
 - SDM code has included the dynamic input parameters for Greek Case Study
 - First version of parallelised SDM will be integrated in coming weeks
- Policy scenarios are being added: budget, social acceptance, and the corresponding new policies logic
- KEE is able to provide case studies' GIS data
- First version of authentication system is already developed (will be integrated coming weeks)



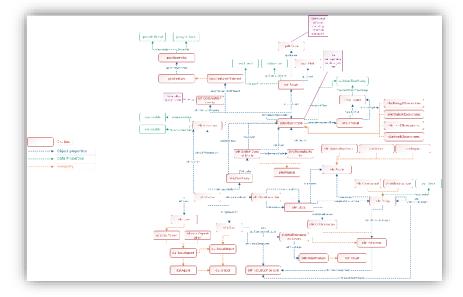


WP4 – SR achievements



- A new version of the ontology unifying criteria from the modellers, comparison tool, SDMs, is available
- The KEE is able to exchange information with the new version of the SR

 First version of Naming Convention tool is available online



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





WP4 – Data navigation tool

- Built upon harmonised dimensional data model representing the output of the thematic models.
- Easy navigation through the complex data sets
- Power BI + Datawarehouse providing data history and data quality check functionalities



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WP4 - Serious Game UI achievements



The Serious Game UI is integrating the Greek Case Study:

- HTML/JS version is being used to fast prototype functionalities: i.e. policy cards
- Interventions Selection at regional level is implemented in the prototype UI
- Regional Selection shows regional overview and details
- D4.8 Learning Goals revised is being prepared for submission





WP4 – S4N Space and DMP

SIM4NEXUS-SPACE

- Replace SIM4NEXUS input datasets with data from publicly available databases
- Take advantage of state-of-the-art GIS technologies, standards, libraries and techniques
- Automation of the process, and cross-validation of findings with current results in SIM4NEXUS.
- D4.10 Data Management Report revised is being prepared for submission





Thanks for your attention!

For further information please consult www.sim4nexus.eu, follow us at @SIM4NEXUS xavier.domingo@eurecat.org







Maïté Fournier

WP5

Acteon

14 November 2018

SIM4NEXUS workshop Exeter



12 Cases Studies

How the governance of energy, water and agriculture effects sustainable food production, the provision of water and wastewater services and the move to a smart and flexible system for resource management?

How can agricultural and environmental policies be integrated to address pressures on land and water whilst promoting their sustainable use and economic development?

Does the goal of becoming a fossil-free nation interferes with some of the national environmental objectives such as sustainable development of water and forest resources?

Is it possible to enlarge energy selfsupply, by widening the use of renewable energy sources in Latvia?

Does the landscape structure dominated by monoculture-like crop areas in some of the lower parts and its alterations by energy production affect the water cycle in an unfavorable way?

How national policies in water management, renewable power production and land, affect each other and result in changes in food production, tourism, GHG emissions, quantity & quality of water resources?

by the 12 SIM4Nexus case studies

Main question addressed



What are the Nexus issues at the global scale?



What are the impacts of a transition to a low-carbon economy in Europe on the five elements of the Nexus?



What are the implications of Azerbaijan's transition to a low-carbon economy on the different Nexus domains?

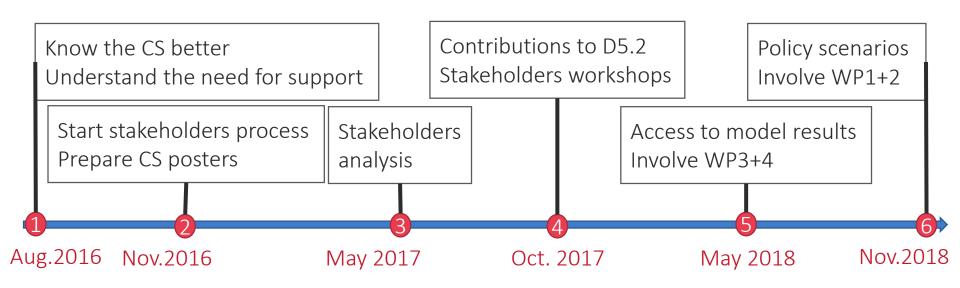
What can be the role of biomass in the Dutch transition to a low-carbon economy by 2050?

How to achieve both the transition to low-carbon economy and the sustainable management of water resources in the Rhine region?

How to reach a resilient system able to satisfy all demands under climate change?

Cases studies interviews

- Carried-out by Floor / Maïté
- Monitor CS progresses / challenges
- Address specific tasks, involve other WPs
- Minutes available to all Partners through Sharepoint



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Stakeholders engagement Real-life examples of the Nexus

- Requires efforts and time
- Good implementation at regional / national levels
- More difficult at transboundary / continental / global levels
- Positive feedbacks on stakeholders' contributions
- There are prelim. results to be presented now ©



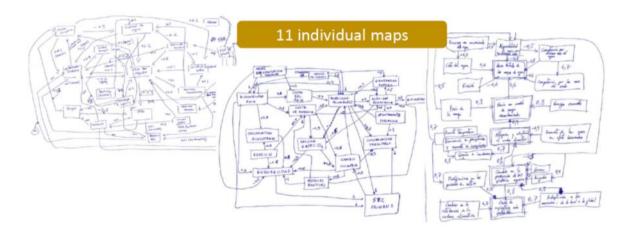


Some examples!

Building the conceptual model with stakeholders (Andalucia)







 Playing SIM4Nexus cards to design policies (Netherlands)

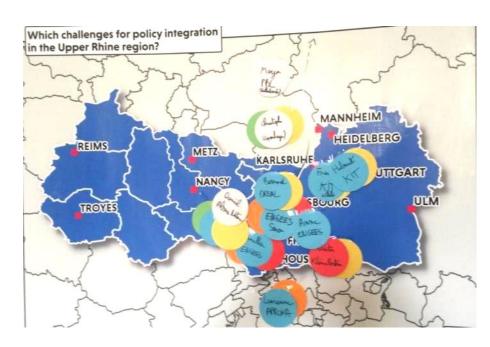






Some examples!

 Getting rid of administrative borders (France-Germany)



 And addressing transboundary challenges (Germany – Czech Republic – Slovakia)



water retention measures

om the European ration programme 9150 SIM4NEXUS





Some examples!

Stakeholders working intensively (Sweden)





Case study workshop within official conferences (Azerbaijan)





Some examples!

Case studies results already published

(Greece)

(Sardinia)





Proceedings

Water-Food-Energy Nexus under Climate Change in Sardinia †

Antonio Trabucco 12,4°, Janez Sušnik 3, Lydia Vamvakeridou-Lyroudia 4, Barry Evans 4,
Sara Masia 3, Maria Blanco 5, Roberto Roson 47, Martina Sartori 7, Eva Alexandri 8,
Floor Brouwer 9, Donatella Spano 12,10, Alfonso Damiano 11, Andrea Virdis 12, Giovanni Sistu 12,13,
Daniele Pulino 14, Vania Statzu 13, Fabio Madau 2, Elisabetta Strazzera 13 and Simone Mereu 12





Article

Virtual Crop Water Export Analysis: The Case of Greece at River Basin District Level

Nikolaos Mellios 1, Jason F. L. Koopman 2 and Chrysi Laspidou 1,* 0

- Department of Civil Engineering, University of Thessaly, 38334 Volos, Greece; nikosmellios@gmail.com
- Wageningen Economic Research, 2502 LS The Hague, The Netherlands; jason.levin-koopman@wur.nl
- Correspondence: laspidou@uth.gr; Tel.: +30-242-107-4147

Received: 18 March 2018; Accepted: 27 April 2018; Published: 3 May 2018



Abstract: An analysis of virtual crop water export through international trade is conducted for Greece, downscaled to the River Basin District (RBD) level, in order to identify critical "hotspots" of localized water shortage in the country. A computable general equilibrium model (MAGNET) was used to obtain the export shares of crops and associated irrigation water was calculated for all major crops in Greece. A distinction between virtual crop water locally consumed and traded internationally was made for all Greek RBDs. Cotton was identified as a large water consumer and virtual water exporter, while GR08 and GR10 were identified as the RBDs mostly impacted. The value of virtual water exported was calculated for all crop types and fruits and vegetables were identified as the crop most beneficial, since they consume the least water for the obtained value.

Keywords: virtual water; MAGNET model; River Basin District analysis; crop trade





Thanks for your attention!

For further information please consult www.sim4nexus.eu, follow us at @SIM4NEXUS

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Progress WP6 Business plan for market exploitation

SIM4NEXUS Review Meeting

Nathalie VALLEE

Exeter

14 November 2018



WP6 – Business plan for market exploitation

- Objective of the WP: Generate a long-term project impact by
 - Creating startups exploiting the SIM4NEXUS outputs
- Leadership
 - Lead: STRANE (Alexandre BREDIMAS)
 - Co-lead: DHI
 - Other contributors: EURECAT, EPSILON, ACTEON
- Close coordination with all other WPs and all the partners





WP6 overview – Tasks, Milestones and Deliverables

- Task 6.1 Market assessment (SI)
 - MS6 Intermediate market reports M12
 - ❖ D6.2: Final market and competition study M47
- Task 6.2 Ecosystem set-up and animation (SI)
 - MS7 Intermediate report on the needs related to the outputs of SIM4NEXUS M12
 - ❖ D6.5: Ecosystem Support Group activity report M47
- Task 6.3 Commercial products & services and exploitation strategies (SI)
 - MS16 Intermediate assessment of competition M18
 - MS23 SIM4NEXUS Product / service definition and exploitation strategy M28
 - D6.1 Draft exploitation strategy M30
 - D6.3: Final exploitation strategy M47
- Task 6.4 Creation of the project spinoffs (SI)
 - ❖ MS27 Go/No Go decision for the spinoffs M36
 - ❖ D6.4: Business plan for SIM4NEXUS spinoffs M47
- Task 6.5 SIM4NEXUS Legacy (ACTEON)
 - ❖ D6.6 SIM4NEXUS Legacy report M47





Task 6.1 – Market study

- Objective: Study the market (On track, no delay)
 - MS6 Intermediate market reports M12
 - D6.2: Final market and competition study M47

- Phase 1 Exploration (Year 1-4)
 - Draft D6.2 Market study (150p) delivered M12
 - Analysis of SIM4NEXUS outputs
 - Consulting + serious game markets and competition
 - Survey results
 - Spinoff concept ideas and 10 use cases





Task 6.1 – Market study

- Phase 2 Detail interviews on specific business ideas (Year 2-4)
 - Get specific demands from the study market
 - Link with the real outputs of S4N SDM and SG
 - Understand the limit of the concept
- Phase 3 Detail the IPR
 - Define the input of each partner
 - Determine the IPR of each data used and produced
- Phase 4 Determine the gap between project and market
 - Define impact of the Nexus on organization and companies
 - Define the model exploitation concepts





Task 6.2 – Ecosystem Support Group

- Objective: Set a Support Group for marketing SIM4NEXUS (Started March 2017, no delay foreseen)
 - D6.5: Ecosystem Support Group activity report M48
- New name: Nexus Business Group (NBG) could be the prototype organisation for the NGO to be created as a Nongovernmental organisation.
- The actions could be oriented in this direction by the end of the project (workshops in 2019 to be organised).





Task 6.3 – Commercial product / service & exploitation

- Objective: Define product / service from SIM4NEXUS + Exploitation (Started June 2017, no delay foreseen)
 - MS16 Intermediate assessment of competition M18
 - MS23 Product / service definition and exploitation strategy M28
 - D6.1 Draft exploitation strategy M30
 - D6.3: Final exploitation strategy M47
 - Mapping of the components of the project
 - Qualitative assessment of SIM4NEXUS outputs
 - IPR Management in SIM4NEXUS
 - Potential products and services
 - Exploitation options
 - Detailed exploitation strategy
 - Exploitation risks





Other tasks

- T6.4 Creation of project spinoffs (To start in November 2018)
 - Business plans, pre-sales, team setup, legal creation, fundraising...
 - ❖ MS27 Go/No Go decision for the spinoffs M36
 - D6.4: Business plan for SIM4NEXUS spinoffs M47

- T6.5 SIM4NEXUS Legacy (To start in March 2020)
 - Put at the public disposal all outputs of general interest, in relation to project spinoffs and in coordination with WP7
 - D6.6 SIM4NEXUS Legacy report M47





Thanks for your attention!

For further information please consult www.sim4nexus.eu, follow us at @SIM4NEXUS nathalie.vallee@strane-innovation.com







WP7 – 5' pitch

Tobias Conradt

Christine Matauschek

Michaela Matauschek

Maria Miratchsi

Guido Schmidt

14 November 2018 Exeter



Key achievements

- Tools are running
- More activities
- Strategy updated ("better online communication")
- Support to Nexus
 Project Cluster
 launch

	Performance		Impact	
	Planned	Achieved	Planned	Achieved
Website		25		7000?
Scientific conferences/ events	10	65	3000	4500
Scientific publications	10	11	5000	8 cit
Workshops for science community		6		250
Case study videos	20	0	20 000	0
Case study result briefs		0	N/A	0
Twitter	240	336	24 000	3755
Slideshare	20	17	10 000	739
Newsletters	10X8	6	160 000	7329
External websites	10	26	20 000	16467
Online communities/forums	40	21	20 000	660
Flyers and handouts		12		2405
Public consultations		3		
Policy briefs		1		112
Policy events	10	18	4000	890
Media activities	20	2	200 000	61 000

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





Key challenges

- If we continue as previous, the project will not match its communication impact targets
- We need more "understandable/targeted" communication to policy makers at all levels, if we want to raise the Nexus issues to a higher decision-making level. This much involved the WP7 team, but can only be done with your inputs
- Our communication could be more "meaningful", on content instead on activities (Example: SEI report)
- We need more information and involvement from partners (in advance to activities)
- Please check and follow the rules for scientific publications





Our plan for Exeter

- Talk to you!
 - How mature are **knowledge**, **case studies and products** for more communication (incl. videos)?
- THU, 12-13:00 (2 parallel sessions: WP7 and data management!). The WP7 session includes 2 blocks:
 - **Prioritisation** of communication highlights in the next period (30 mins)
 - Focus of Task 7.3 (30 mins) all scientific project partners shall attend here!





Prioritisation of communication highlights

WP	DATE	ACTIVITY, EVENT, DELIVERABLE	ACTIVITY WP7	
2	SEP 17	Nexus policy review (D2.1)	2 policy briefs and one opinion	
3/4	OCT 17	Will finalise first fast-track pilot of the complexity science, models and serious game in the Sardinia case	???	
5	TBD	Workshop of France-Germany case	555	
1	NOV 17	Deliverable 1.2	Development of policy brief with deliverable 1.1	
3/4	OCT-DEC	Will strongly advance in testing the tools in		
	17	Greece national case and will quite likely finalise		
	NOV?	Lessons learned from modelling (M. Blanco)	Opinion piece	
	27 NOV	Nexus policy event (EASME, brussels)	TBD	
	4-6 DEC	ICT4Water booth at ICT2018 exhibition Vienna	TBD	
6	M36+	Exploitation	???	
	2019	EIP Water conference	???	
	MAY 2019	DE-CZ-SK Transboundary case study 2nd workshop		

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Focus of Task 7.3

Communication with the scientific community: Going for a Special Issue? Call for Ideas

Tobias Conradt and Frank Wechsung (Potsdam Institute for Climate Impact Research, PIK) have developed this update on Task 7.3. The SIM4NEXUS approach shall be offered to the research community as a new target for model-oriented work relevant for the Nexus. But how? The Grant Agreement description of Task 7.3 "Communications with the research community" is about review papers, conference presentations, special workshops, web-lectures and other means of electronic communication. We at PIK, leading this task, favour the compilation of a special issue of a renowned journal as classical means for scientific communication providing citability, which can also be used also as a basis for stimulating other activities such as web-lectures. Please indicate ideas for and your possible contributions suitable for a special issue by 31 May 2018. Regarding the communication of scientific content, we do not want to direct anybody what and how to publish as we follow The European Code of Conduct for Research Integrity

https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf.

In the meantime, we may support some of your communication activities – including the provision of a suitable platform. To organize this support we need to know about your upcoming publication intents in the framework of SIM4NEXUS (already in preparation or just on your minds), including electronic media formats (e.g. webinars). Please email short descriptions or already available abstracts to conradt (at) pik-potsdam.de, including specific support requests you might have. You might also indicate whether you deem your contributions suitable for a special issue. The decision whether there will be such a compendium of SIM4NEXUS in the end will however be made on our Exeter meeting in November. PIK will then lead a discussion about how we can optimally aid you in Task 7.3.



