

Workshop Minutes

Towards balanced public policies for the efficient use of resources in the Upper Rhine regions - Issues and options

Preliminary version

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Summary and Key Messages

This workshop, co-organised by the Association de Prospective Rhénane and ACTeon, in the framework of the European research project SIM4Nexus and its Upper Rhine case study, brought together 27 participants - researchers, decision-makers, representatives of NGOs and civil society. Organised over one day, the workshop was structured around four sessions:

- Session I - Setting the scene: what are current challenges with regards to synergies and coherence between policies?
- Session II - What are the social, economic and environmental implications of non-coherent policies?
- Session III - Which solutions for enhancing policy coherence and delivering a resource efficient Upper-Rhine?
- Session IV - Making solutions a reality; pre-conditions for success

This report is organized in two parts: the first part recalls the general objectives of the workshop and delivers the key messages from each session. The second part, structured by session, recalls the objectives of each session and gives a detailed account of the discussions. A list of workshop participants is also provided at the end of this document. Finally, the speakers' presentations are available in PDF format under the [following link](#).

Objectives of the workshop:

- To identify the "areas of friction" in the implementation of water, energy, food, land use and climate change policies in the Upper Rhine region.
- To illustrate, quantify and discuss the trade-offs/synergies emerging in the implementation of these policies
- To identify opportunities and "solutions" (public policy measures, behavioral changes, etc.) to build on or strengthen the synergies between these policies in order to promote an efficient use of resources in the Upper Rhine region.
- Define the necessary conditions for the successful implementation of these "solutions".

Key Messages:

Session I - Setting the scene: what are current challenges with regards to synergies and coherence between policies?

- "Increasing coherence" implies defining shared objectives and knowledge; it therefore also requires tools to understand and measure coherence challenges.
- Coherence between policies - in particular between policy objectives - is only partially achieved in the Upper Rhine today and a major reflection still needs to be carried out. In particular, the feasibility of achieving coherence (i.e. real compatibility of objectives) must be examined, as well as the perception by the stakeholders of the advantages/disadvantages of such a coherence for them.
- Increasing coherence requires decompartmentalizing policy-making and implementation – shift from a sectoral to a transversal logic - at different levels of legislation and at all levels of policy making (from research to implementation). This decompartmentalization represents both an organizational and sociological challenge.
- Increasing coherence is necessary in two ways in the Upper Rhine region : increase cross-border coherence and cross-sectoral coherence

Session II - What are the social, economic and environmental implications of non-coherent policies?

- The results of modelling work highlight the existence of clear trade-offs between different energy objectives at the French level.
 - o In particular, it seems impossible to decarbonize the energy mix (and thus reduce greenhouse gas emissions) while abandoning nuclear power.
 - o Nevertheless, one can question the environmental and social impacts of maintaining nuclear power, some of which are not considered by modelling tools (notably the impacts related to waste storage and "imported" social impacts).
- In a context of uncertainty regarding the impacts of climate change on water resources, there are adaptation strategies based on "no-regrets" measures. These strategies are worth implementing and will have a positive effect on the resource regardless of the climate scenario that will occur.

Session III - Which solutions for enhancing policy coherence and delivering a resource efficient Upper-Rhine? (Parallel Session 1 - Circular economy):

Focus on the conditions necessary for the successful implementation of these coherence strategies.

- There is a need for closer dialogue between decision-makers/stakeholders and researchers to improve the dissemination and use of research results in policy making. There is a need to involve stakeholders in the development of scenarios and assumptions underlying the models.
- The successful implementation of a coherence strategy requires knowledge of its technical, environmental, economic and social dimensions. Considering all these dimensions makes it possible to determine the strengths and weaknesses of a strategy and to anticipate possible problems linked to its implementation.
- "Absolute coherence does not exist": strategies aiming at increasing coherence will always have negative impacts (direct or indirect). It will therefore always be necessary to make trade-offs.

Session III, Which solutions for enhancing policy coherence and delivering a resource efficient Upper-Rhine? (parallel session 2 - multifunctional measures):

- Each scale has its own multifunctionality issues with different solutions
- Multifunctional solutions exist, but the integration of multifunctionality requires the implementation of many changes: in particular in the way of thinking and values, but also in the way of operating (financing, research, training in multifunctional measures in a "monofunctional world").

Session III, Which solutions for enhancing policy coherence and delivering a resource efficient Upper-Rhine? (Increasing coherence – The impacts of behavioural changes)

- Measures based on behavioral changes make it possible to achieve performances identical to those of "classic" regulation or taxation policies while inducing more favorable economic results for the targeted region.
- The levers to be activated to induce a change in behavior are different depending on the target population (individuals versus companies, especially if the targeted company is a large-scale one).

Report of discussions

Session I - Setting the scene: what are current challenges with regards to synergies and coherence between policies?

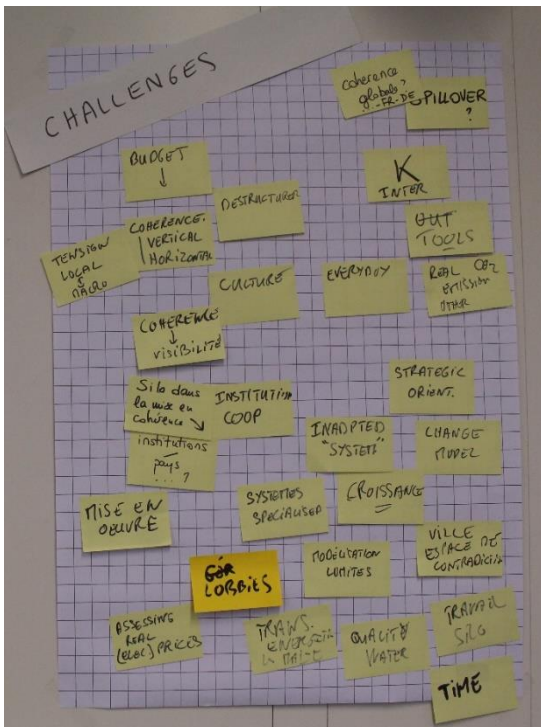
Objectives of the session:

- Recall the theoretical framework for policy coherence analysis
- Collectively define a state of play of policy coherence in the Upper Rhine – and more broadly in the Grand Est and Baden-Württemberg regions – as well as the main challenges to be taken up in order to move towards greater coherence.

Presentations:

- Welcome address - Emmanuel Muller, Hochschule Kehl & University of Strasbourg and Jean-Alain Héraud, APR and University of Strasbourg
- Introduction (SIM4Nexus, public policies and coherence and interactive quizz) - Pierre Strosser, ACTeon
- Taking stock of the assessment of current policies in the Upper Rhine - Emeline Hily, ACTeon

“Increasing coherence” implies defining shared objectives and knowledge; it therefore also requires tools to understand and measure coherence challenges.



- One may question the relevance of investigating the coherence of public policy instruments and their implementation as long as coherence has not been "achieved" at the level of the policy documents between the different sector-specific policies and shared objectives have not been defined. To date, this has only been achieved to a very limited extent in the Upper Rhine region.

- Moreover, before defining shared objectives, it is necessary to ask the **question of the real possibility of achieving coherence**: for example, one can wonder about the compatibility between the economic growth and sustainability requirements, about the compatibility between limiting urban sprawl and benefiting from a "green" city.

- **Achieving coherence** at the different levels of a policy (objectives, instruments, implementation) **implies** being able to determine and quantify trade-offs/synergies

and therefore **to have tools** (models, transversal expertise, etc.).

- Thinking about coherence also means reintroducing complexity and not sticking to reductionist approaches that lead to false information/results. The production of knowledge according to a quality interdisciplinary scientific approach therefore seems essential.

Increasing coherence requires decompartmentalizing policy-making and implementation – shift from a sectoral to a transversal logic - at different levels of legislation and at all levels of policy making (from research to implementation). This decompartmentalization represents both an organizational and sociological challenge.

- Participants stressed that effective **policy coherence** between the different policy areas - water-climate-food-energy-use-soil - ultimately **requires a fundamental change of how each of these areas operates at different scales of legislation/action and at different levels of policy-making**:
 - o **Interconnection of EU/national/local levels** :
 - Coherence is often initiated at different levels of legislation/action without being disseminated within the other levels.
 - There are local initiatives facing resistance or lack of framework for coherence at national/European level (e.g. energy generation from bio-waste);
 - There are bodies to ensure policy coherence at the European level, instruments (payments for environmental services, agri-environmental schemes) whose implementation does not lead to cross-cutting local practices, etc.
 - o **Coherence must concern all the components of a policy in the broad sense, from what informs it** (research projects and results) **to its implementation** (conditionality of funding, project evaluation, etc.). It is necessary to promote cross-cutting approaches - tools and supports for coherence - in all these components in order to change their status from that of "option/disadvantage" to that of "standard/advantage".
- **Such decompartmentalization constitutes an organizational challenge** because the policy-making and implementation display a strongly and historical sectorization (sectorization of budgets, management, higher education, etc.).
- This decompartmentalization also constitutes **a sociological challenge**: working in a transversal mode is uncomfortable for the stakeholders in place, who are reluctant to deal with subjects outside their own expertise.
- It was also pointed out that the actors could perceive an increase in coherence as a potential loss of visibility and therefore be reluctant to work in this direction. It is therefore necessary to consider how to achieve coherence in order to maintain/cultivate visibility.
- **A lever to be activated for policy coherence is that of setting up cross-cutting missions** within organizations; **this has already begun in the Grand Est region** on two subjects: **Water** and its links with transport, energy, environment and agriculture, **and forest management** and its links with industry, energy and its role in the fight against climate change.
- In this effort to decompartmentalise, care must be taken **not to end up with a "sectoral" coherence** seeking to identify and take into account possible interactions with the other "sectors" without really entering into dialogue/collaboration with the latter.

Increasing coherence is necessary in two ways in the Upper Rhine region : increase cross-border coherence and cross-sectoral coherence

- On both sides of the Rhine, there are many institutions and organizations working in the field of water and related topics. However, these institutions are often not aware of each other and do not cooperate (survey performed in 2007). **One can wonder about** the evolution of this situation and about **the degree of transboundary cooperation today**, not only in the field of water but also for the other sectoral policies.
- This mutual knowledge and cross-border cooperation are essential in order to achieve a double coherence of policies: **increase coherence from a national perspective only does not lead to real coherence** if the policies on one side of the Rhine conflict with the policies developed on the other side.

Session II - What are the social, economic and environmental implications of non-coherent policies?

Objectives of the session:

- Highlight the trade-offs, synergies and implications (social, economic and environmental) associated with different public policy scenarios (energy, water management) and discuss their "level of coherence".

Presentations:

- Climate change mitigation in the NEXUS realm and policy coherence - Pim Vercoulen, Cambridge Econometrics
- Climate change: adaptation and mitigation plan for water resources in the Rhine Meuse basin - Marina Pitrel, Agence de l'eau Rhin-Meuse

Climate change mitigation in the NEXUS realm and policy coherence

- **Energy policy choices have not only environmental impacts but also economic implications** (in terms of GDP, growth, employment, electricity prices) that can be translated into social welfare.
- According to the results of the E3ME model simulations, **there are clear trade-offs between objectives for the evolution of the energy mix:**
 - o It does **not** seem **possible to pursue both an objective of decarbonization of the energy mix and a nuclear phase-out:** reducing the share of nuclear power implies increasing the share of natural gas both in France and Germany.
 - o Moreover, a **"nuclear phase-out" scenario for France** (without associating it with other policies) is likely to have **neutral or even negative environmental impacts** (regarding the fight against climate change, pollutants, water use) and **neutral economic impacts compared to current policies**; the impact of such a scenario appears neutral overall for Germany.
- **Such results raise questions about the limit to be defined in the analysis of the energy transition using modelling tools:**
 - o What elements must be considered in the definition of the **real cost and therefore the real price of electricity?**
 - o For example, the construction of infrastructures dedicated to nuclear power (power plants and waste storage infrastructures in particular) induces greenhouse gas emissions that should be added to the emissions linked to the energy production itself (i.e., cement industry with high emissions); uranium mining also has significant social impacts.
 - o However, it is important to remember that the analysis of a phenomenon **using modelling tools requires a certain degree of simplification**
- Furthermore, it was pointed out that the **analysis of the energy transition via modelling tools often seems to focus on its technological dimension** (composition of the energy mix, approaches to improving energy efficiency, etc.) and seems to neglect the behavioral dimensions. However, the **energy transition should also consider** the strategies to be implemented in order to initiate a **reduction in energy consumption** as well as the possible **"rebound effects"** that sometimes cancel out the gains made possible by the improvement in energy efficiency.

Climate change: adaptation and mitigation plan for water resources in the Rhine Meuse basin

- **The integration of climate change issues into water policy** (carried out by the Water Agencies in France) **is recent and started with the development of the 11th Program of the Water Agencies** (for the period 2019-2024).

- Today, each basin has its own program which specifies the National Plan for Adaptation to Climate Change (PNACC).
- The Climate Change Adaptation Plan of the Rhine-Meuse Water Agency was passed in 2018; it considers the adaptation and mitigation dimensions for the whole water resource of the Rhine-Meuse basin.
- Climate change is aggravating water issues being already significant in the Rhine Meuse basin and, although **there are no clear trends that would allow us to anticipate the quantitative issues for water resources, we can nevertheless expect an exacerbation of extreme weather-related events** (more important and more frequent low surface-water levels, exacerbated drought problems, low groundwater recharge, etc.).
- **We are today at a crossroads in terms of adaptation choices:**
 - **We should avoid maladaptive adaptation choices:** the use of water during heat waves to cool cities is an example of maladaptive adaptation that ultimately threatens water quality (particularly in terms of temperature)
 - It is important to **focus on no-regrets measures** that will yield positive results regardless of the climate scenario that will occur. We should **reduce our societies' dependence on water, implementing water saving measures, fighting against urbanization/artificialization, preserving biodiversity**, etc.
 - **Energy policy choices** also have **strong implications for water resources** (in particular the development of biomass and methanation on water quality). **Moreover, the management of water resources and their use can also strongly influence the possibility of using water in energy production:** the use of water to cool cities during heat waves can compromise its use for cooling reactors.
- The Water Agency is taking an interest in soil as a cross-cutting object that will enable it to reflect on the coherence of the "Water-Climate-Food" policy domains.

Session III - Which solutions for enhancing policy coherence and delivering a resource efficient Upper-Rhine?

Objectives of the session:

- This session aimed to explore different instruments, modes of action, changes – referred to as "solution" – to be implemented in order to achieve greater policy coherence and resource efficiency
- Three main types of "solutions" were discussed and illustrated based on research projects or public territorial approaches:
 - The implementation of a circular economy,
 - The implementation of multifunctional measures
 - The implementation of behavioral changes
- For each type of solution and illustration, the aim was to discuss and explain:
 - The synergies being exploited
 - The necessary conditions for their successful implementation

Presentations:

- Producing biogas from domestic waste in France - The resistance of residues, François-Joseph Daniel, ENGEES Strasbourg
- Trade-offs of bioeconomy developments in agricultural production in Baden-Württemberg, Eckart Petig, University of Hohenheim
- Coupling LCA and economic models to analyze the eco-efficiency of climate policies, Sylvain Caurla, INRA Nancy

Producing biogas from domestic waste in France - The resistance of residues

- **The deployment of biogas production from household waste has failed in France** (closure of plants a few years after their commissioning) for many reasons:
 - o **Technical difficulties:** many treatments are necessary to ensure the exploitability of household waste (very heterogeneous); despite the implementation of these preliminary treatments/sorting, many technical difficulties persisted, resulting in high maintenance costs and low efficiency/profitability for a low quality final product (compost).
 - o **Low social acceptability:** linked to the arduousness of the work for the operators, but also to the pollution (olfactory pollution in particular) and to the concerns of the wider the population (concerns about water quality, soil pollution, etc.).
- **Although very promising on paper** - this circular economy approach makes it possible to exploit an energy-food-climate synergy - **the production of biogas from household waste currently lacks a suitable technology and/or a legislative framework guaranteeing feasibility at constant technology.** Indeed, the sorting of biowaste at source - which is difficult to impose at local level outside a legislative framework - eliminates many of these technical problems.
- **Recent developments in French and European legislation provide part of this solution:** the law requires local authorities to organize the sorting of bio-waste at source for all waste producers by 1 January 2024¹.
- **The successful implementation of this biowaste recovery requires improving its social acceptability, which remains very low.**

Trade-offs of bioeconomy developments in agricultural production in Baden-Württemberg :

- It is not possible to substitute renewable energies such as wind, solar or hydropower for fossil fuels and **biomass is the only renewable alternative for these fossil fuels.**
- **This alternative is particularly interesting if the biomass used for energy production is a co-product or waste from another production process** (e.g. straw; oil cake, etc.); in this case, an "energy-food-climate-soil" synergy is exploited.
- However, if biomass use does not follow a logic of circular economy, conflicts with food production are likely to emerge.
- **The development of biomass as a substitute for fossil fuels for energy production** (including straw burning and the development of perennial crops) **is highly dependent on:**

¹ The 2025 deadline defined in the energy transition law (promulgated in 2015) at the French level has been brought forward as part of the new "Waste Package" implemented at the European level.

- **The degree of political support**, particularly in the form of subsidies ("EEG" in Germany); these subsidies are currently decreasing in Germany as a result of social pressure.
- **The chosen socio-economic scenario – especially changes in diet and land use choices** (e.g. whether or not to allow biogas production from dedicated energy crops versus biomass use limited to biowaste). Without a change in diets, there are trade-offs between biomass production for energy and food purposes, with priority given to food production.

Coupling LCA and economic models to analyze the eco-efficiency of climate policies

- **Wood energy is a key element in the energy transition that enables to decarbonize the economy.** Its development has been supported in France by the implementation of policies stimulating consumption since the end of the 1990s.
- However, the **broader impact of such supporting policies** should be considered by taking into account their **economic and environmental impacts**, both direct and indirect, **within and outside the geographical area concerned by their implementation**: the coupling of economic models and life cycle assessment (LCA) methods makes it possible to determine the broad impact of a policy in the medium term.
- The examination of a wood energy subsidy policy in the Grand Est region using an economic model-LCA coupling gives the following results:
 - The subsidy policy is virtuous as a whole: the positive impacts offset the negative impacts.
 - However, there are always negative impacts and trade-offs

Group discussion:

- What is the use of research and modelling results by decision-makers today?
 - **In reality, decision-makers make very little use of the results of research and modelling work:** they expect "absolute results", "figures", whereas research most often provides "**relative**" **results which need to be qualified because they are based on scenarios and assumptions.**
 - **Involving decision-makers and stakeholders in the development of scenarios and assumptions underlying the models** would allow for better dissemination and use of research results in policy-making and decision-making processes.
 - There is therefore a need for closer dialogue between stakeholders/decision-makers and researchers.

Parallel Session 2: Implementing multifunctional measures to respond to parallel policy objectives

Presentations:

- SRADDET, a tool allowing to enhance policy coherence at the regional level, Benoît Grandmougin, Région Grand Est
- Multifunctional solutions for sustainable water management in the context of climate change., Nikolaus Geiler, AK Wasser
- Multifunctional measures: The example of natural water retention measures, Verena Mattheiss, ACTeon

SRADDET, a tool allowing to enhance policy coherence at the regional level

- Development of the regional plan of **development, sustainable development and equality of the territory (SRADDET)**

- The **formulation of this plan required** three years of **collaborative development** and was passed in November 2019
- Its development was based on a **very broad stakeholders consultation process** which involved approximately 3,000 participants through workshops.
- It is a **regulatory, support and awareness-raising tool**.
- **The following main issues and objectives were identified for the SRADDET:**
 - The SRADDET aims to meet **two priority objectives**: ensuring **equality between territories** and **addressing climate change, seen as an emergency**.
 - **More specific and quantified targets** have been defined, with an **emphasis on biodiversity, land use and agriculture**:
 - Offer meals made of 50% of locally produced food in canteens in 2030.
 - **Halt the loss of wetland and hedgerow areas** and restore 3% of ecological corridors.
 - **Reduce the consumption of agricultural land** by 50% in 2030 and 75% in 2050 (by using the Avoid-Reduce-Compensate (ERC) regulatory framework with a requirement to compensate 150% of artificialized land).
 - **The limits set to artificialization and construction projects are particularly debated** because they are seen as a limit to development (especially demographic) by elected representatives.
- **Multifunctional measures were granted a key role within the SRADDET framework:**
 - Within the SRADDET framework, an **attempt is made to address each issue with a multifunctional solution** while building on existing territorial projects.
 - It is also important to **anticipate possible "drifts"** of these multifunctional solutions and to **avoid a "system" to go back to a monofunctional logic**. For example, it is not desirable for a methanation activity to become the primary objective of a farm when it was initially set up as a multifunctional solution, complementary to livestock farming.
 - **A preponderant role is granted to:**
 - **Nature-based solutions** to address climate change challenges (the role of natural ecosystems - particularly of aquatic ecosystems - is considered in mitigating heat waves).
 - **No-regret measures**.
 - Special attention is also given to transport systems in order to move towards multimodal logics and cross-border cooperation.
 - A partnership has also been initiated with the Water Agency.

Group discussion:

- **How to get the actors to "assimilate" and put multifunctionality into practice?**
 - The **limitation of regulation/constraint-based approaches** was underlined.
 - Moreover, there is **currently a strong** demand from citizens for ecosystem services (especially for regulating services related to water quality and living environment) whose provision is partly based on a multifunctional approach. This is a source of motivation for actors/providers of these services.
 - **Convincing stakeholders by demonstrating the feasibility of multifunctional approaches**, the existence of tools to implement them is also a lever to be activated.
 - **"Assimilating" multifunctionality also requires the implementation of significant cultural changes within a profession** in order to bring stakeholders to realise the multifunctional nature of their activity (e.g. preservation of water quality, landscape management). Such changes are already taking place to a small extent, but they need to be amplified (part of the agricultural world "wants to move forward" but large farmers are still resistant).

- **There are levers to be activated in order to implement these changes at the European level** (e.g. CAP agri-environmental and Eco-schemes) **but also at the territorial level in France** (e.g. territorial food projects). These tools must be seized in order to support the agricultural world on the technical and financial levels.
- **“Territorial engineering” is also necessary** in order to support this learning process and to ensure a real implementation of multifunctionality.
- The dependence of agriculture on phytosanitary products and associated practices has been identified as a hindrance to this integration of multifunctionality.

Multifunctional solutions for sustainable water management in a context of climate change

- The **impacts of climate change on water resources are numerous**; they give rise to new water-related issues or exacerbate existing ones:
 - The problem of **(quantitative) water scarcity** is emerging and with it **conflicts over water use**.
 - The exacerbation of extreme meteorological events (torrential rains, temperature peaks) as well as the significant soil-sealing brings about **new problems in water-management and the supply of drinking water**:
 - **Flooding problems** and reaching the capacity limit of the pipes,
 - **“Summer frost”** damaging the pipes in times of drought,
 - **Development of germs in pipes requiring additional treatment**, which may divert the population from drinking water for drinking,
 - Impacts of droughts on soil quality.
- **Water management along the Rhine**: An international conference is being organised on February, 13th 2020 during which the countries bordering the Rhine will be able to ratify the **2040 Rhine Programme**.
- **The term multifunctional is new, somewhat fashionable** and is beginning to emerge in the various plans **but in fact this type of measure is already implemented** and some measures in the adaptation plans are already multifunctional.
- An example of a multifunctional measure that is often not mentioned as such is the building of a "sponge city" (Schwamm-Stadt) through green urban areas and vegetation.
- It is interesting to **focus on multifunctional measures** because they **correspond to mitigation strategies rather than adaptation strategies**; they make it possible to **address the problem at the source**. In the case of the Upper Rhine 60% of the alluvial areas of the Rhine have disappeared. Restoring wetlands and implementing ecological soil management would make it possible to solve several water-related problems.

Group discussion:

- **How to finance the implementation of multifunctionality? Who should bear the burden of financing?**
 - Funding is made available by the Länder in Germany, but the political world only acts under citizen pressure, which itself often emerges following a critical situation. As the situation is stable today on the Rhine, the population is not very interested in water-related issues and the financing of multifunctional solutions. On the Danube, a citizen willingness to bear the costs of these measures has emerged after a critical situation has arisen.
 - The implementation of the **polluter-pays principle** in the water sector would be likely to generate funds for the implementation of such measures by **taxing water withdrawals but also the soil-sealing and artificialisation of natural areas**.

- It would seem relevant to **finance multifunctional measures through co-financing between the different institutions/areas concerned.**
- However, the question of the availability of financing is perhaps not so central: the funds exist, it would rather be a question of prioritizing and directing the funds preferentially towards virtuous, multifunctional measures.
- **The “assimilation” of multifunctional measures** seems to require a **long-term approach** that is contradictory to the short-term nature of the policies.

Multifunctional measures: The example of natural water retention measures

- There is still a lack of knowledge about the impact of nature-based water retention measures, so more feedback and hindsight is needed before moving on to their broad operational implementation.
- Operational implementation indeed implies being able to calibrate the implementation and the expected impacts of a measure in order to communicate effectively on this subject to decision-makers and to train officers.
- Operational implementation also implies being able to demonstrate that the different needs of the different "sectors" are met through a single multifunctional solution.
- This shows that there are strong research challenges: it is necessary to develop knowledge and compare the performance of multi- and monofunctional approaches.



Session III – Policy coherence and impacts of behavioural changes

Presentations :

- Taking a wider look: the potential impacts of behavioural changes, Jason Levin-Koopman, Wageningen Economic Research
- How to mobilise private companies in the fight against climate change in the Upper Rhine region? , Jean-Alain Héraud, APR et Université de Strasbourg

Taking a wider look: the potential impacts of behavioural changes

- The MAGNET macro-economic model was used **to identify the impacts of a change in the average diet in Europe** associated with the implementation of the commitments made under the Paris agreement to limit global warming to +2°C.
 - o The effectiveness of reducing meat consumption in reducing GHG emissions was demonstrated.
 - o In this scenario, the meat consumption of all European countries consuming more than 428 kcal of meat per person per day is gradually reduced until this consumption target is reached in 2070. **This reduction in meat consumption is induced by a decrease in preferences for meat in Europe.**
- The **direct impacts** of this scenario identified by the model are:
 - o **A reduction in meat preferences has the same effect** - in terms of actual meat consumption - **as a set-aside policy for agricultural land expansion** (aimed at protecting biodiversity) **or a carbon tax. Contrary to these protection/taxation policies, it induces a decrease in food prices.**
 - o Compared to the +2°C scenario alone, a decrease in preferences for meat also attenuates the increase in food prices; it is important to bear in mind that this evolution is linked to the dynamics on international markets (especially import/export dynamics).
 - o **The decrease in preferences for meat** leads to a decrease in consumption in Europe but also to an **increase in exports**. However, the **drop in consumption is not fully compensated** for and there is a net decrease in meat production. This result raises the question of what support/compensation mechanisms should be implemented for livestock farmers.
 - o This scenario also has an impact on land use: a lower proportion of land is devoted to livestock farming and a higher proportion to crops (especially cereals). This results in a **significant change in land use from grassland to cropland**. This result calls for **vigilance regarding the impacts in terms of irrigation and the use of phytosanitary products** (impacts on water resources in particular).

Group discussion:

- **Questions on model assumptions:**
 - o Meat is considered as a homogeneous product: a distinction is made between the different types of meat (chicken, beef, etc.) but not between the different production methods and breeding practices (organic, conventional, etc.).
 - o The model therefore does not consider the possible change in consumption patterns from organic to conventional products that could be induced by a rise in the price of meat.
 - o Nor does it consider the (expected) decrease in agricultural productivity due to climate change. The latter is in fact difficult to model on this scale because it is linked to the (increasing) frequency of climatic disasters (which are essentially one-off and difficult to predict).

- This presentation shows the **importance of considering global economic dynamics** (imports, exports) in the evaluation of a policy. Indeed, these have a decisive impact on the outcome of a policy, particularly "outside the target zones" (these impacts can be positive or negative).

How to mobilise private companies in the fight against climate change in the Upper Rhine region?

- Convincing companies requires use different arguments and levers from those likely to convince private individuals.
- This is all the truer when dealing with a national/international company as opposed to SMBs likely to display a decision-making/behavior closer to that of an individual.
- **Quality certification, insurance, quotations on the financial markets and competitive advantages are arguments that are understood and valued by companies**, especially with their insurers, financiers, etc.
- We can also convince companies if we are able to **provide them with a long-term vision that allows them to anticipate the market**.

Group discussion:

- **Sustainable development goals (SDGs)** are also increasingly used and implemented by companies. It is therefore a point of convergence between private companies and public policies.
- Pressure and consumer expectations are another element forcing companies to change their behavior.
- However, it is questionable whether the pressure from consumers is enough or insufficient. A **sustainability policy that constrains companies/industry also seems necessary**. The example of planned obsolescence and the energy transition law of 2015 were mentioned.

Session IV - Making solutions a reality; pre-conditions for success

Objectives :

- Get participants to work on sector-specific policy instruments of the Nexus and to define for each instrument:
 - o The nature and level of interaction with other Nexus sectors
 - o The nature and extent of socio-economic impacts
 - o Conditions for successful implementation

List of participants

Name	First name	Institution
Bernard	Clément	HYDREOS
Braun	Emmanuel	DREAL Grand Est
Caurla	Sylvain	INRA
Daniel	François-joseph	Engées (laboratoire GESTE)
Forthoffer	Joël	Association Prospective Rhénane
Fournier	Maïté	Acteon-Environment
Galais	Florence	Communauté de Communes Pays Rhin-Brisach
Grandmougin	Benoît	Région Grand Est
Héraud	Jean-alain	APR et Université de Strasbourg
Hily	Emeline	Acteon-Environment
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Reininger	Daniel	ALSACE NATURE
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