



NEXUS: German Case Studies



GENERAL OBJECTIVES OF THE PRESENTATION

1. Present the main legislative and institutional instruments for nexus coordination in Germany
 - Also describes incentives
2. Based on the case studies:
 - Fertiliser Ordinance Amendment
 - Groundwater Management in the Hessian Ried
 - Pumped-storage plants in Thuringia

provide praxis oriented examples on how the existing legislative and institutional instruments can be implemented.

PART ONE

The Nexus Framework in Germany

HOW DOES GOVERNANCE AFFECT THE EFFECTIVENESS OF NEXUS APPROACHES?

- The **comprehensive, intersectoral character** of the WEF-nexus approach requires intensive **communication and cooperation** between decision makers across the three sectors.
- **This means:**
 - Effective governance instruments and mechanisms are required to effectively recognise the interdependencies between the WEF sectors in decision making processes and to identify integrated policy solutions that minimise trade-offs and maximise synergies.



11.12.2017

Nexus in Germany

4

Objective of the slide: An introductory look at why we need adequate institutional instruments to facilitate communication between different sectors

The concept of the water–energy–food (WEF) nexus explains the interdependencies among the three systems. Through an understanding of the interactions between the WEF sectors, a nexus approach helps strengthen coordination across these sectors, and allows for sustainable management to meet growing resources demands. Integrated planning across the WEF sectors is necessary to identify trade-offs between sectors and to ensure the efficient use of resources.

However, the implementation of a comprehensive, integrated approach to the management of water, energy and food resources is a **very complex challenge**. The handling of conflicts of interests and the identification of potential synergies within the WEF nexus requires effective coordination and communication between political actors, relevant stakeholders and general public from different sectors. With respect to these, the WEF nexus approach requires **policies, mechanisms and institutions for cross-sectoral coordination and decision-making**. Research results and literature on WEF-Nexus show that both the **horizontal coordination** across the WEF sectors and the **vertical coordination** across levels of governments are essential for a nexus approach and integrated policy solutions that minimise trade-offs and maximise synergies in the decision making process.

Although the consideration of the interdependencies between different sectors is crucial, cross sectoral links in policy-making and policy implementation are often performed in a weak manner. The political structure to handle the topics of safe provision of water, energy and food is often coordinated along subject-specific sectors, **contrary to the nexus approach**. Governance of the nexus implies policy and decision making that comprehensive accounts for

the links between sectors and seeks to make decisions considering potential impacts on all aspects of the nexus system. This requires a paradigm shift in decision making processes, from a unidimensional approach to a cross-sectoral approach.

Bazilian, M., Rogner, H., Howells, M., Hermann, S., Arent, D. and Gielen, D. (2011). Considering the energy, water and food nexus: Towards an integrated modelling approach, *Energy Policy* 39: 7896–7906.

Scott, A., (2017). Making governance work for water–energy–food nexus approaches, working paper.

https://cdkn.org/wp-content/uploads/2017/06/Working-paper_CDKN_Making-governance-work-for-water-energy-food-nexus-approaches.pdf

MECHANISM AND INSTRUMENTS FOR NEXUS COORDINATION IN GERMANY

- Joint Rules of Procedure of the Federal Ministries (JRP)
- Federal Government as primary arbitration, mediation and coordinating body
- Inter-ministerial committees and working groups as coordination institutions between discipline-specific ministries
- Involvement of subject matter experts, relevant stakeholders and the general public in national policy processes

11.12.2017

Nexus in Germany

5

Objective of the slide: Present an overview of the main existing mechanisms and instruments used in Germany for coordination within the nexus prism.

In order to provide an example of possible cooperation and regulation instruments governing the nexus sectors, subsequent chapters of this handbook present mechanisms and instruments used in Germany for coordination within the nexus prism in political processes.

The guiding principles and institutions which guarantee intersectional coordination at the national level are:

- **Joint Rules of Procedure of the Federal Ministries (JRP):** Basic formal procedures and instruments for the coordination within and between different ministries at the federal level are specified in the JRP.
- **Inter-ministerial committees and working groups as coordinating institutions between discipline-specific ministries**

In the first step, a discipline-specific ministry is responsible for the decision-making process. The lead ministry initiates the required process (law change, formulation of new laws, development plans), involves other related ministries, federal states and communal associations.

The inter-ministerial working groups and committees serve as the intermediary institutions that operate between ministries.

Federal Government as primary arbitration, mediation and coordinating body

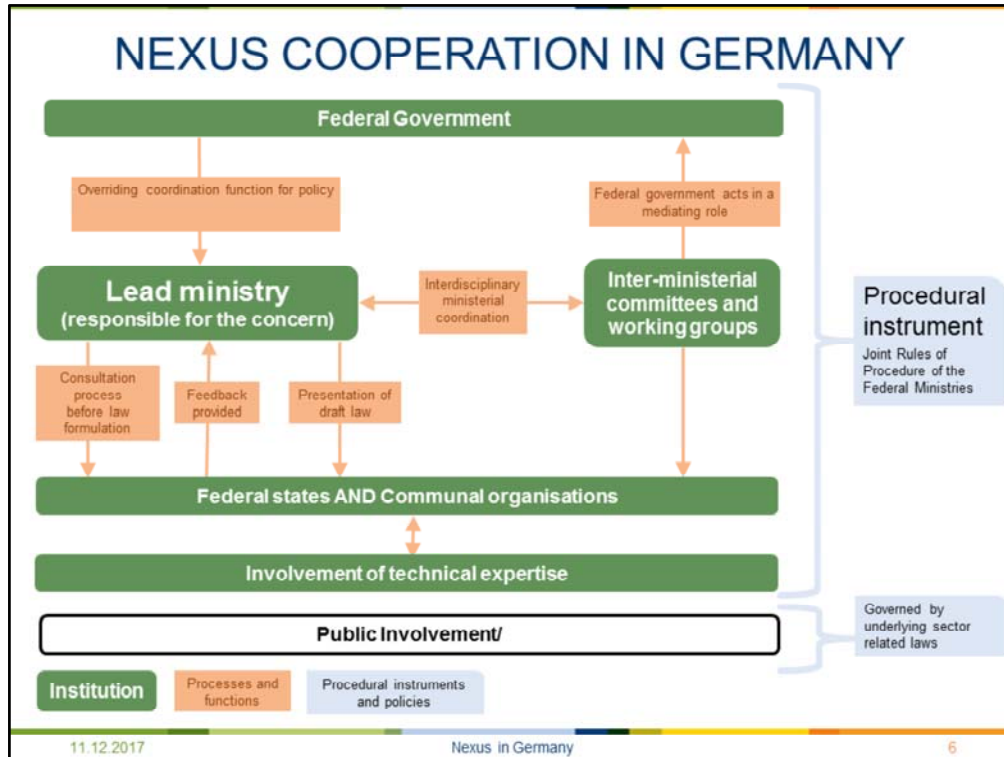
Conflicts regarding varying political themes are first negotiated by the departments and ministries concerned.

Where no agreement can be reached, the federal government intervenes in a moderating role and, as the party in charge, assumes the responsibility of the important political affairs. According to constitutional law, the federal government is the conciliation body that rules on “disputes between federal ministries”.

Involvement of subject matter experts, relevant stakeholders and the general public in national policy processes: The involvement of these groups is stipulated in the legislative process. These actors are

comprehensively involved in political processes, so that the impacts of legislative initiatives on different sectors can be assessed.

The process of intersectional coordination including a description of the cooperation steps and instruments are presented on the following slide.



Objective of the slide: Explain the coordination of the cross-sectoral decision making process in Germany in detail (the diagram can be used as a slide-show. The order of the slide-show is already included and can be seen by activating the “animation” function).

The diagram presents existing policies, mechanisms and instruments to coordinate the horizontal cooperation across the WEF sectors at the national level in Germany.

The process takes place in the following order:

Inter-ministerial coordination: The **lead ministry** responsible for a matter must initiate early contact with other affected ministries, inform them about their activities and plans and is principally responsible for the management of the cooperative work. For example, in the course of the amendment of the Renewable Energy Act, the Federal Ministry for Economic Affairs and Energy had to involve the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety in the process and reach an agreement on content matter, among other things.

A range of formal and informal institutions exist which help achieve this alignment and coordination between different ministries and disciplines. The main formal institutions for horizontal coordination between the ministries are: **Inter-ministerial committees and working groups.**

Function of Federal Government: When disputes arise, the responsible ministry is not permitted to take any binding decisions. The issue must be negotiated until an agreement is reached. Conflicts regarding varying political themes are generally first negotiated by the departments and ministries concerned. Only when all points of conflict are resolved, the federal government will reach a definitive decision. **The federal government** intervenes in a moderating role and, as the party in charge, assumes the responsibility of the important political affairs. According to constitutional law, the federal government is the conciliation body that rules on “disputes between federal ministries” (GG, Art. 65).

Involvement of the federal states and communal organisations: Aside from involvement of other affected ministries, the **lead ministry** must involve **federal states AND communal organisations** in the legislative process. In the first step, before the formulation of a draft version of a law, **the views of federal states and communal organisations must be obtained** (GGO, Art. 41, 44). The federal states and communal organisations **provide their feedback** and position statements. As soon as a draft law is formed, the ministry is bound **to present the draft** to the states and to the communal organisations.

Involvement of Technical Expertise: The involvement of **experts from scientific and practical backgrounds** is stipulated at each level of the legislative process.

Legal framework: The above described instruments and institutions for the coordination within and between different ministries at the federal level are regulated in the **“Joint Rules of Procedure of the Federal Ministries (JRP)”**.

Public involvement and the example of the Fertiliser Ordinance Amendment: The fertiliser law in Germany requires the lead ministry (Federal Ministry of Food and Agriculture) to involve the public and all affected actors in the form of position statements. Thus, the lead ministry, formulating the new draft legislation for the fertiliser ordinance was obliged to provide the public with the opportunity to submit statements. Furthermore, the ministry considered and evaluated the statements they received.

Public Participation: While the involvement of state representatives, external experts and communal organizations are stipulated as mandatory and are regulated in the JRP, consultations with other stakeholders or civic organisations are not foreseen in the JRP. A significantly stronger consideration of public input is found at the administrative and planning processes level. The extent to which the wider public must be included in these processes is governed by underlying sector related laws, for example by the **“Law for the improvement of public involvement and standardisation of planning approval procedures”**, which attempts to achieve a certain standardisation between the subject-specific laws. There are numerous instruments that can be used to implement the public participation process. The instruments best suited to the project depend on the specific conditions and project requirements.

The following tools can be used to involve public participation:

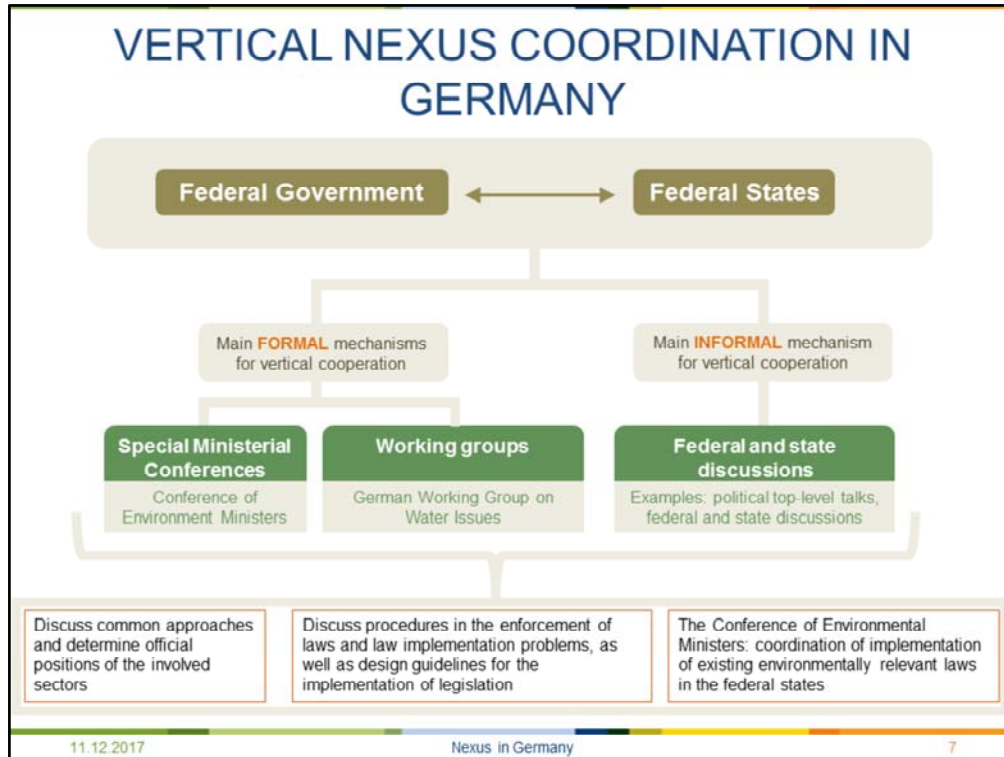
- Organise public meetings and hearings to provide members of the public with the information they need to understand the project and decision process
- Provide the opportunity for the public to submit position statements
- Create a virtual public space where people can interact, discuss issues and share ideas (eg. internet platforms)
- Organise Round Tables and working groups
- Conduct interviews with relevant stakeholders

An example of public involvement can be found on the slide “Horizontal and Vertical Cooperation: The Example of the Fertiliser Ordinance Amendment”.

Insights into cooperation between government, stakeholders and political parties in Germany:

- Germany is a federal state with a federal parliament (Bundestag) and sixteen state parliaments (Länder);
- The work in all parliaments takes place in specialised committees and subcommittees (Ausschuss), which mirror the political representation of the parliament after election (e.g. 40% conservatives, 30% social democrats, 20% greens, 10% others). These committees try as much as possible to achieve a consensus across parties.
- The government represent the winning political coalition in the last election and work closely with the committees. All federal and state governments are based on coalitions among the now 7 major political parties. For example, the if conservatives and greens win election in the state of Hessen, they form the government. Here, the state minister for environment (e.g. from the conservatives) works closely with the state parliament committee on environmental issues. In this committee, members of all political parties are represented.
- Environmental issues such as groundwater are considered “technical” and, in many cases, not controversial. The proposed solutions of the committees dealing with these issues often enjoy wide consensus among members. The committees thus invite stakeholders to participate in the decision-making process (e.g. through round tables) under state leadership or under leadership from affiliated actors to the state with acknowledged expertise.
- Stakeholders choose to participate because, otherwise, outcomes will be decided without their influence.
- The suggestions made by round tables and participatory processes are discussed in the parliamentary committees and are later debated politically and included in legislations. The state government follows up on the process.
- The state government must coordinate with federal actors if the process starts at the state level. If the process starts at the federal levels, the federal government must coordinate with state actors. The states in Germany are represented at the “Bundestag” or Senate (the second tier of Parliament). They can thus object to federal laws prepared without their participation.

Blumstein, S., Kramer, A., Carius, A., adelphi (12.März 2017). Koordination sektoraler Interessen im Nexus zwischen Wasser, Energie und Landwirtschaft. Mechanismen und Instrumente in Deutschland, Im Auftrag von: Gesellschaft für Internationale Zusammenarbeit.



Objective of the slide: Explain the coordination of the cross-sectoral decision making process in Germany in detail (the diagram can be used as a slide-show. The order of the slide show is included and can be seen by activating the “animation” function).

Due to the federal structure of the German system, as well as coordination mechanisms across horizontal levels, institutions that facilitate **coordination at the vertical level** between the **federal government and the states** are also necessary. This is needed because approval from the federal states is required for a number of legislative proposals, and also because most legal requirements are implemented by the states. There are numerous **formal** and **informal** institutes who promote vertical coordination between the federal government and states.

The main formal institutes are:

- **Special ministerial conferences (eg. the Conference of Environmental Ministers)**

Ministerial conferences are held several times per year. Common agreements between federal states about subject-specific issues stand at the heart of negotiations. In the case of the Conference of Environmental Ministers, the federal states discuss common approaches, determine their official position when dealing with the federal government and seek mutual solutions. In addition, an aim of the Conference of Environmental Ministers is to coordinate so that existing and environmentally relevant

laws are uniformly implemented in the federal states.

- **Federal government and federal states working groups (eg. German Working Group on Water Issues)**

In the working groups procedures in the enforcement of laws are discussed and agreed upon, implementation problems are discussed, and guidelines for the implementation of legislation are established. These groups serve for both, to enable coordination between states and to represent the interests of the states to be discussed with the federal government.

In the German Working Group on Water Issues, the technical administrators responsible for water management and water law meet regularly. The group is a working body of the superordinate Conference of Environmental Ministers. At the level of the departmental head, state and federal representatives meet at least twice per year, prior to the Conference of Environmental Ministers. They discuss cross-border water legislation and economic issues, work toward common solutions and come up with recommendations for implementation.

Examples of informal institutions and communication forms:

- **Political top-level talks**, in the form of **federal and state discussions**, often take place in legislative processes. Such talks are often held from an invitation of a federal minister to the state level specialist ministers or other members of state authorities. The talks serve to discuss political projects (such as legislative drafts) and if necessary to work towards enacting amendments.
- **Informal meetings, hearings and discussions** between representatives of the federal government and the federal states as well as between representatives of the federal states

Blumstein, S., Kramer, A., Carius, A., adelphi (12.März 2017). Koordination sektoraler Interessen im Nexus zwischen Wasser, Energie und Landwirtschaft. Mechanismen und Instrumente in Deutschland, Im Auftrag von: Gesellschaft für Internationale Zusammenarbeit.

Intersectoral Coordination and the Example of the Fertiliser Ordinance Amendment

- Violation of The European Community (EC)-Nitrates Directive
- This initiated the amendment of the fertiliser ordinance in Germany
 - a complex process with the involvement of different sectors and actors, which required both horizontal and vertical cooperation mechanisms

11.12.2017

Nexus in Germany

8

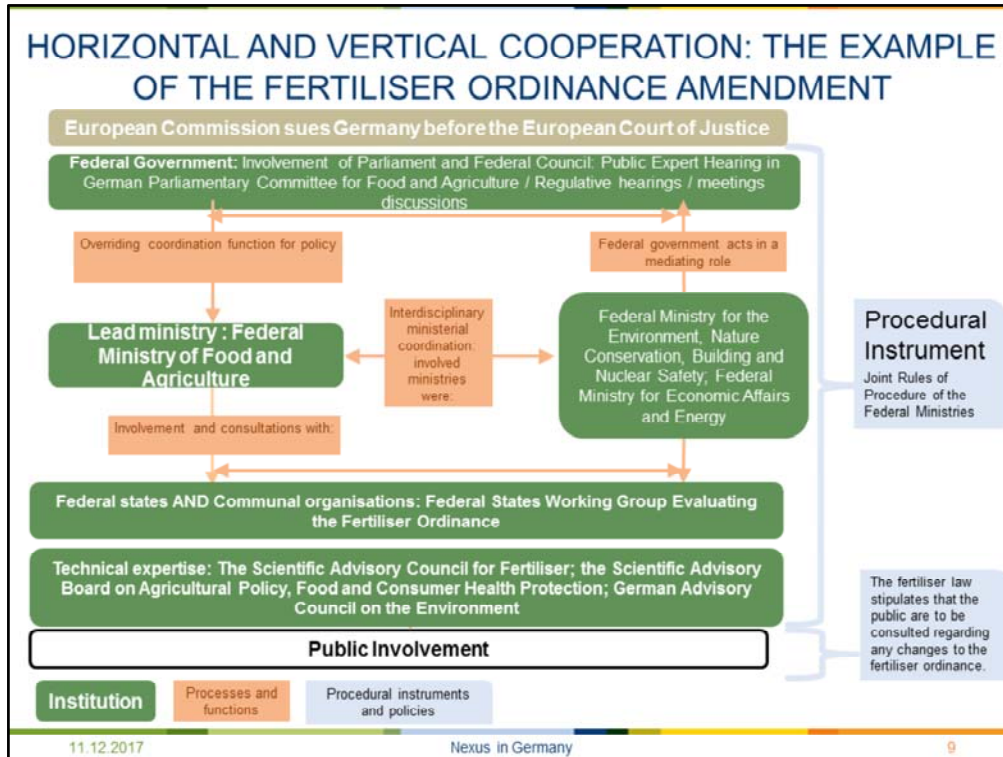
Objective of the slide: Explain the background of the Fertiliser Ordinance Amendment case study

Within Germany, the federal state assumes the responsibility for environmental protection and for utilisation and protection of water resources. However, the management of water resources and protection of water bodies in Germany is strongly dictated by EU legal guidelines. The **European Water Framework Directive (EWFD)** from 2000 contains strict guidelines on the protection of European waters. The **European Community (EC)-Nitrates Directive** is a key instrument in improving the groundwater quality. **According to the European Commission, Germany had repeatedly violated the EC-Nitrates Directive** in recent years.

Through the violation of European environmental guidelines, in particular that of the Nitrate Directive, the **amendment of the fertiliser ordinance** was initiated, which necessitated the coordination of numerous and sometimes competing interests between different sectors and actors. This process represents a practical example of the involvement of the institutions used for the review process and the instruments for intersectoral (between ministries and sectors) and cross-level (Federal Government and the Federal States) coordination.

Incentives for stakeholder cooperation in the amendment process:

- Under EU law, Germany is obliged to comply to EU directives. In the event of non-compliance, the European Commission can refer the matter to the European Court of Justice. Germany thus risk breaking European law and paying heavy fines. It is also politically inadvisable to ignore EU law, especially given Germany's prominence in the union.
- If stakeholders participate in the amendment process, they can influence the regulations and negotiate better outcomes. If some stakeholders ignore the process while others participate, the stakeholders participating can influence outcomes to align with their interests.
- The German ordinance is federal law and will be imposed on all stakeholders regardless of their cooperation. Stakeholder involvement in the process is necessary only to achieve a more participatory process.
- Generally speaking, when different stakeholders see an advantage in working together beyond their own professional and sectoral field of responsibility, voluntary cooperation can successfully emerge.



Objective of the slide: Based on the diagram which explains the existing mechanisms in Germany, this diagram shows how these mechanisms were used in this specific case study (the diagram can be used as a slide-show. The order of the slide-show is already included and can be seen by activating the “animation” function).

The diagram represents a practical example of intersectoral coordination in Germany based on the case study regarding agricultural fertilisation and the associated nitrogen inputs on the environment, in the context of the water-energy-agriculture nexus.

This process took place as follows:

Inter-Ministerial Cooperation: The **lead ministry** responsible for the matter was Federal Ministry of Food and Agriculture. The fertiliser law requires the Federal Ministry of Food and Agriculture to cooperate with the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and the Federal Ministry for Economic Affairs and Energy. Hence, the Federal Ministry of Food and Agriculture initiated early contact with other affected ministries, informed them about their activities and plans and was principally responsible for the management of the cooperative work.

Communication and cooperation instruments between the involved ministries: aside from the numerous discussions at the ministerial level, a **permanent work group was established to revise estimates of nutrient quantities in soils**. Next to the representatives of the ministries, state representatives and science representatives were also included in the working group.

Federal Government:

Parliamentary committees from both the German Parliament and the Federal Council were involved in the process. The amendment of the fertiliser ordinance was repeatedly the topic for discussion for the German Parliamentary Committee for Food and Agriculture and the Committee for the Environment, Nature Conservation, Building and Nuclear Safety.

In March 2016, a public expert hearing with participation was called in the German Parliamentary Committee for Food and Agriculture.

Involvement of federal states and communal organisations:

In order to evaluate the fertiliser ordinance, the Federal Ministry of Food and Agriculture employed a **Federal-State Working Group** as a first step in 2011, and this group operated from May 2011 to March 2012. This working group served to enable both **vertical and horizontal coordination**, so that actors from various national sectors at both the **federal and state levels** were integrated and their interests were accommodated.

As further steps, regular discussions and informal meetings took place between the lead ministry and the representatives of the federal states and communal organisations.

Technical Expertise:

Regular meetings and consultations with experts from scientific and practical backgrounds took place at all levels of the process, considering both the horizontal and vertical coordination as well as the time schedule.

The scientific councils principally involved in the process of the amendment of the fertiliser ordinance were: The Scientific Advisory Council for Fertiliser and the Scientific Advisory Board on Agricultural Policy, Food and Consumer Health Protection (both appointed by the Federal Ministry of Food and Agriculture) as well as the German Advisory Council on the Environment (appointed by the Federal Government).

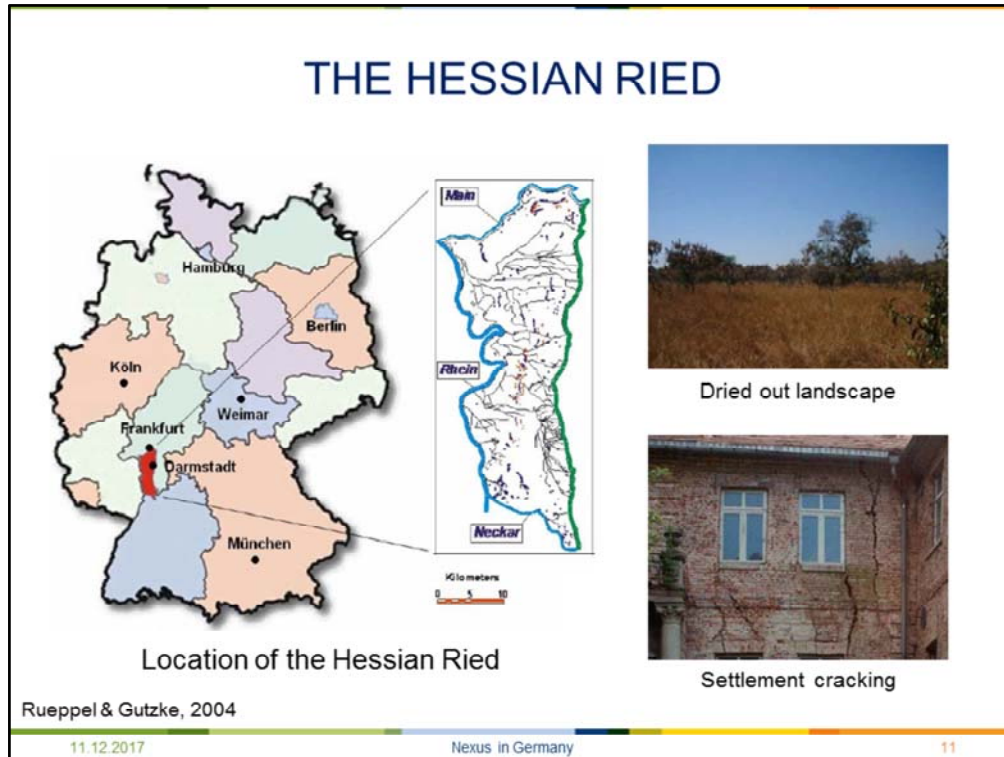
Representatives of the councils were summoned to various hearings in the ministries. In addition, all three scientific councils have released a joint statement regarding the proposals from the Federal-State Working Group Evaluating the Fertiliser Ordinance. It is to be emphasised that a close cooperation between different councils is seldom encountered in ongoing political processes.

Public Participation:

In the event that a revision of the fertiliser ordinance takes place, a strategic environmental assessment is required. The requirement of the involvement from the public and from actors affected by the project in the form of position statements is stipulated by the fertiliser law. The processes which allowed commenting on the fertiliser ordinance and the strategic environmental assessment were run in parallel in October and November 2016. The public was thus provided with the opportunity to submit statements on both documents. The Federal Ministry of Food and Agriculture considered and evaluated the statements they received.

PART TWO

Case Study: Groundwater Management in the Hessian Ried



Objective: Explain the background of the case study

- The Hessian Ried, located south of Frankfurt, extends over an area of approximately 1,250 km²
- The landscape is a part of the Upper Rhine Plain, and prior to human intervention was a swamp area and part of the natural inundation zone of the Rhine River.
- Through widespread drainage and agricultural utilisation, the landscape was starkly changed.

The following user interests are dominant in the area:

- Agriculture
- Industry / infrastructure
- Drinking water use
- Nature conservation

Rueppel, U. & Gutzke, T. (2004) 'Groundwater-Monitoring based on dynamic co-operative eGovernment-Processes', University of Technology Darmstadt

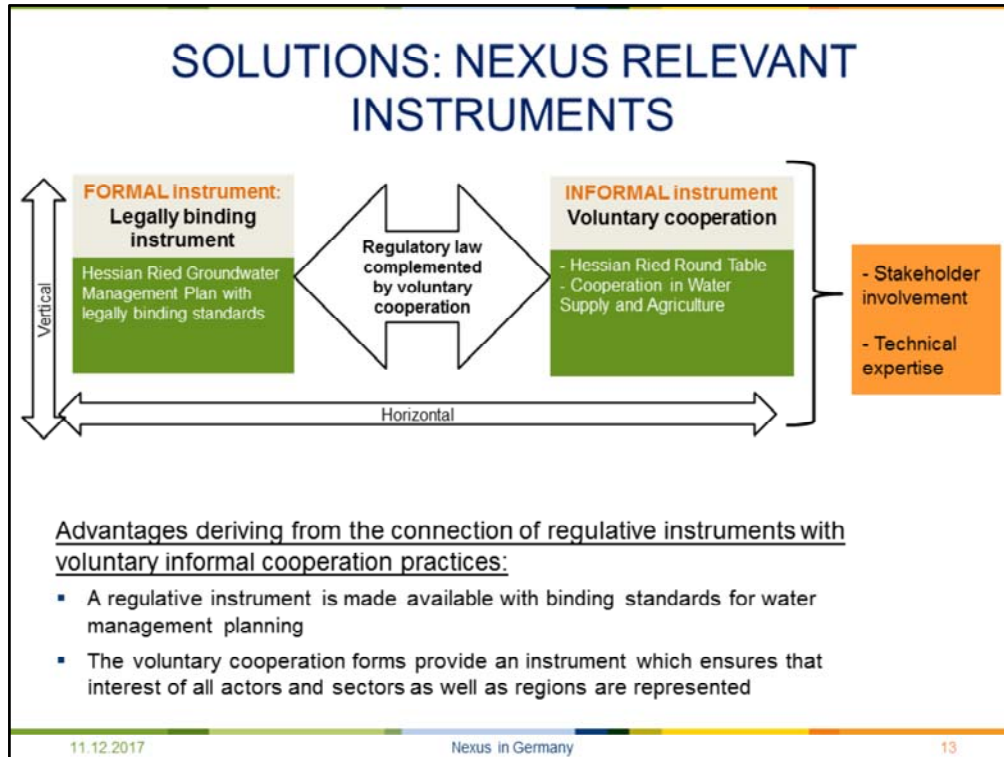
USER CONFLICTS

- Have derived from:
 - Alteration of natural landscapes to cultivated landscapes
 - Pollution inputs from agriculture
 - Intensive exploitation of groundwater resources
- Conflicts occur in both dry and wet years, and have led to the following:
 - Dry years - forest dieback, road damages, failures in agricultural irrigation, settlement cracking in buildings
 - Wet years - flooding, inability to properly cleanse the sewer system

Objective: Explain the background of the case study

The intensive exploitation refers to the fact that due to the spatial locations of population centres and other geographically-centred points of extraction, the groundwater extraction rates do not match recharge rates over the spatial plain.

In dry years, considerable damages to infrastructure have been caused by low groundwater levels.



Objective: Introduction to Nexus relevant forms of cooperation in the case study.

The following instruments are applied to address WEF-Nexus challenges in Hessian Ried:

The Hessian Ried Groundwater Management Plan as legally binding regulatory instrument

The Hessian Ried Groundwater Management Plan was adopted 1999 by the Hessian Government with the aim to avoid damages caused by low groundwater levels. The Hessian Ried is the only region in the European Union that uses a legally binding groundwater management plan in which the amount of withdrawal water over a spatial area is regulated (through measuring and adhering to a minimum and maximum groundwater levels).

Voluntary cooperation forms:

Through the Hessian Groundwater Management Plan, the Hessian Government has provided a **legal regulative instrument with binding standards**. As a regulatory law instrument, the Groundwater Management Plan is complemented by voluntary regional cooperation forms:

- Hessian Ried Round Table (further information can be found on slides 20 - 24)
- Cooperation between water supply and agriculture in the protection of groundwater quality (further information can be found on slide 25)

Voluntary and informal cooperation cannot replace regulatory law (water protection area

regulations, water rights), but it can complement it.

Generally, the various actors are willing to cooperate if they see a usefulness in working together. The factors which motivate the different actors to cooperate and work together in the case study “Hessian Ried” can be found on slides with the titles: “Solutions: Round Table” and “Solutions Water Supply and Agriculture”

These voluntary informal cooperation practices establish transparency through comprehensive exchange of information, different stakeholders can voice their opinions equally and in detail, and a consensus can be found.

Kluge, 2017 ‘Grundwasser als Quelle der Welternährung in Gefahr’, Available at:
<http://www.isoe.de/uploads/media/isoe-kluge-grundwasser-2017.pdf>

SOLUTIONS: GROUNDWATER MANAGEMENT

- Groundwater extraction from Hessian Ried provides a significant contribution to the water supply of the Frankfurt Rhine-Main metropolitan region.
- Use of water infiltration to ensure sufficient irrigation for agriculture and the raising of the groundwater level in dry years.
- The Hessian Ried Groundwater Management Plan
 - Targeted groundwater levels are defined and an action plan is developed.

11.12.2017

Nexus in Germany

14

This process of water infiltration involves extracting water from the Rhine River, purifying it to drinking water quality over a multistage procedure and then percolating it through infiltration systems as well as using it for agricultural irrigation.

Through the Hessian Ried Groundwater Management Plan, the Hessian government has made an instrument available that contains binding standards for water management planning and for all approval processes. Groundwater extractions and infiltration are managed by the water associations, using benchmarks for mean ground water levels and lower water levels. This adherence is controlled by the responsible water authorities. Objectives of the plan are:

- The long-term guarantee of local and regional water supply for the population and for economic activities.
- Avoiding building damages from groundwater-related settlement of buildings in inhabited areas.
- Protection of vegetation areas dependent on groundwater levels and rehabilitation of forest and swamp areas already damaged through the sinking of the water table.

The groundwater levels are kept within prescribed limits.

The Groundwater Management Plan is a sectoral instrument which attempts to integrate other interests and concerns. In this case study, water management within the management plan is the dominant component, even though other important concerns were also successfully integrated.

SOLUTIONS: MONITORING AND ENFORCING GROUNDWATER RULES

- Groundwater protection zones
- A process exists to apply for a groundwater extraction permit
 - Examined whether natural resources will be impaired
 - Binding standards exist for water management planning
- Groundwater extractions and infiltration are managed by the water associations. This adherence is controlled by the responsible water authorities

11.12.2017

Nexus in Germany

15

In general, **groundwater monitoring and regulation in Germany** are carried out as follows:

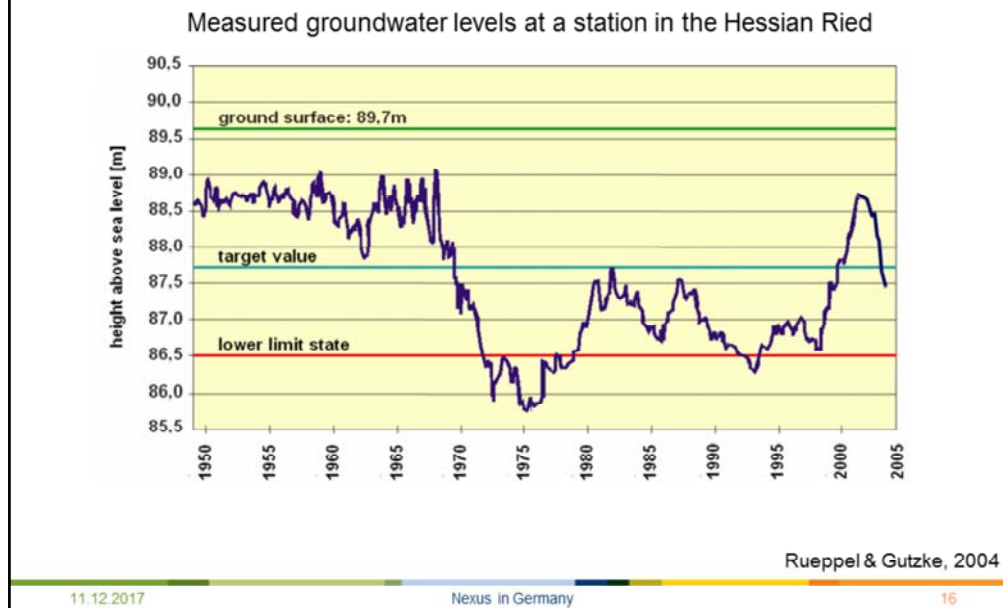
- Monitoring of groundwater through an network of monitoring stations. This network is ordered by European law and sends data to the European Environmental Agency in Copenhagen, Denmark. Criteria are stated by the EU.
- Germany has a federal water law and several state water laws. Under the federal water law, extraction from and discharge of pollution into any water body require a permit. The state laws can add abstraction charges to the permit.
- Permits are used to regulate groundwater level and are thus discussed and regulated in state governments and discussed in state parliaments.
- Any failure to obtain the permit or misuse of the permit lead to legal actions and very high penalties under the criminal law, up to 50.000 Euro for infringements against the licensing conditions.

Sources: David Elshorst, and Amrei Fuder, Clifford Chance, Environmental law and practice in Germany: overview, [https://uk.practicallaw.thomsonreuters.com/4-503-0486?transitionType=Default&contextData=\(sc.Default\)](https://uk.practicallaw.thomsonreuters.com/4-503-0486?transitionType=Default&contextData=(sc.Default))

Regierungspräsidium Darmstadt, (nd), 'Grundwasserentnahmen', Available from: <https://rp-darmstadt.hessen.de/umwelt/gew%C3%A4sser-und->

bodenschutz/grundwasserwassershyversorgung/grundwasserentnahmen

SOLUTIONS: GROUNDWATER MANAGEMENT



These measurements show the effectiveness of the corrective measures employed to stop excessive groundwater extractions in the hessian Ried. It highlights the importance of setting a lower limit state and to introduce rules based on the recorded groundwater levels.

Rueppel, U. & Gutzke, T. (2004) 'Groundwater-Monitoring based on dynamic co-operative eGovernment-Processes', University of Technology Darmstadt

SOLUTIONS: ROUND TABLE

- A round table works on improving the groundwater situation
 - The primary objective of the round table discussion was to achieve a sustainable improvement of forest conditions in Hessian Ried.
- The round table operates under a neutral moderation process
- A carefully arranged round table under recognised and neutral management creates trust and enables viable compromises.



Round Table Workshop: Picture Source:
https://umwelt.hessen.de/sites/default/files/media/hmu-elv/abschlussbericht_vom_april_2015.pdf

11.12.2017

Nexus in Germany

17

Increasing forest damages were a catalyst for this decision. The lowering water table was suspected to have caused these damages, though this point was heavily disputed between the forestry and water sectors. The primary objective of the round table discussion was to achieve a sustainable improvement of forest conditions in Hessian Ried.

Composition of the round table. Includes:

- Regional government authorities
- Representatives of different interests (forestry, water suppliers, environmental associations, nature conservation associations, farmer associations, action groups against waterlogging in houses)
- Districts, cities and municipalities

The round table submitted its final report which contains comprehensive measures and actions for matters in which a consensus could be reached between all involved parties. The restricted implementation possibilities due to limited cooperation. On one hand, a time limit has positive implications for some groups who engage themselves primarily in the conceptual phase, as they are not assigned a continuous task which could be blocked due to capacity reasons. In their time-constrained work, the round table could not conclusively answer the question of financing the implementation of the measures.

Photo source: Kummer, B. Ewen, C., Meyer, L., Alt, S. & Gerdes, H. (2015), 'Abschlussbericht April 2015: Runder Tisch, Verbesserung der Grundwassersituation im Hessischen Ried', Available from: https://umwelt.hessen.de/sites/default/files/media/hmuelv/abschlussbericht_vom_april_2015.pdf

PARTICIPATION IN THE ROUND TABLE

**Round Table Hessian Ried:
Participating stakeholders,
Moderation: Dr. Bernd Kummer,**

Leitung | Dr. Bernd Kummer, ehemaliger Regierungspräsident und Staatssekretär

Regional public administration	
Ministry of environment	4
Ministry for economy	1
Interest groups <small>ödnlichen Interessen</small>	
Forestry <small>aft</small>	1
Water suppliers	3
Environmental groups <small>de</small>	2
Agricultural associations	2
Action groups against structural damages	2
Municipalities	
Regional councils	3
Cities and communities	6

(Kummer 2015)



Heiland, P., Weiner, S. & Nemüller, J. (2017), 'Practical planning approaches in the WEF-Nexus-context: Identification of Nexus-relevant processes with practical examples', *Powerpoint Presentation*, Bonn, 30 March 2017.

CASE STUDY CHALLENGES

- Costly process in terms of time and money for deliberations and negotiations
 - The traditional approach of hiring consultants would be less costly
- Sustainability of round tables and other problem-based (not management function based) participation configurations
- Lack of political will to implement the recommendations elaborated by the Round Table
- The interdisciplinary and cross-sectoral complexity of the subject (the need to consider different aspects in identification of the solutions: environmental, technical, legal and financial aspects)

11.12.2017

Nexus in Germany

19

The major challenges of the case study which were identified by the participants of the Hessian Ried Round Table:

1. The interdisciplinary and cross-sectoral complexity of the subject, caused by the following factors:
 - The diversity of the involved sectors
 - Different interests of the involved stakeholders
 - The need to ensure that recommendations have to meet the requirements of the different disciplines. For example, each recommendation has to be developed following the existing law requirements, hence each recommendation elaborated by the technical experts was verified by legal professionals

2. A major obstacle was the lack of political will to implement the recommendations elaborated by the Round Table.

Source: Christoph Ewen, Interview conducted on 28.11.2017

CASE STUDY CHALLENGES: CONFLICTS AND SOLUTIONS

- Different interests of the forestry sector, communities and agriculture (the need to increase the groundwater level for the forest and the risk of waterlogging for agriculture and settlement areas)
- Different interests of the forestry and nature conservation associations (economic aspects and stable forest against biodiversity protection)



11.12.2017

Nexus in Germany

20

Examples of conflicts of interests and mechanisms to reach compromises and overcome challenges:

I. **Conflict: Differing interest of the forestry sector, communities and agriculture:**

The forestry sector is interested in raising of the groundwater level and voted for the implementation of the water infiltration system to increase the ground water level in the forest areas. However, the raising of the groundwater level causes the risk of waterlogging for the agricultural and settlement areas.

Hence, the recommendations for this problem have to include measures which provide sufficient water for forestry as well avoiding the negative effects for communities and the agricultural sector.

Solution:

For the forestry sector: The water infiltration system should be implemented in order to avoid the damages caused by low groundwater levels.

Measures to avoid negative effects on settlements: construction of water wells and extractions when the water table is too high, thus preventing excessively high groundwater levels.

Measures to avoid negative effects on agriculture: redesign the existing system of streams and ditches in order to limit the increasing of the ground level to the forest area

I. **Conflict: Differing interests of the forestry and nature conservation associations**

Interests of the forestry sector: stable forest and economic interests (sale of timber)

Interests of the nature conservation associations: protection of biodiversity

Solution:

The rehabilitation and restoration of the degraded forest should start. However, all the measures and actions should be in accordance with the legal aspects of the nature conservation (especially in bird protection areas and in the protection areas of natural habitats and of wild fauna and flora). Hence, each action should be verified by legal professionals in order to ensure the accordance with the requirements of the environmental law.

Instrument to overcome conflicts: If consensus couldn't be achieved, external, independent technical experts were asked to elaborate and submit additional technical reports. The reports were presented to the stakeholders and taken into consideration.

PARTICIPATION IN THE ROUND TABLE: Why stakeholders want to cooperate

- Strong complexity and interconnections between agriculture, forestry, groundwater and human settlements. Any decision in one sector directly affects the others
- Based on previous experience, the actors know that they have to cooperate, otherwise decisions and changes can create negative impacts on their sector.



11.12.2017

Nexus in Germany

21

The motivating factors for cooperation are defined based on the information provided by professionals who were responsible for communication throughout the entire process:

- All sectors: land, water, human settlements, forest and biodiversity are strongly interconnected in the Hessian Ried. Each action and decision in one sector affects the others. Hence, the stakeholders in the region have must cooperate with the other sectors, otherwise they can't participate in the consensus building and any decision will cause negative effects for their sector.
- Because of the complexity of the natural conditions in the region, each change causes uncertainty in the affected sectors. Based on previous experience, the involved actors are aware that each change has the potential to cause problems. To avoid disadvantages for their sectors, the stakeholders prefer to cooperate.
- Some solutions are only possible through dialogue. For example, the water sector can only address the challenge of increasing nitrate pollution in cooperation and dialogue with the agricultural sector.

SOLUTIONS: COOPERATION IN WATER SUPPLY AND AGRICULTURE

- Voluntary cooperation used to confront the increasing nitrate pollution
 - This includes cooperation with relevant specialists
 - Consultation of farmers is also guaranteed
 - Declining nitrate levels in the water demonstrated its success
- The EU Water Framework Directive established a fundamental paradigm shift.
 - Threshold values are no longer exclusively formulated with regards to the drinking water quality
 - Values are based off a comprehensive approach in protecting groundwater assets and interests

11.12.2017

Nexus in Germany

22

In Germany, the best practices of agricultural fertilisation are thoroughly regulated in the Fertiliser Ordinance. In water protection areas, the Water Law enables the possibility to make additional rulings that go beyond the existing regulations. However, in numerous instances the protected area regulations were outdated or lacking in specificity, hence the need for voluntary cooperation.

One of the examples of voluntary cooperation is the strong cooperation between water suppliers and the agricultural sector (agricultural cooperation) that aims at reducing nutrient pollution.

Motivation factors for the cooperation:

Generally, the various actors are willing to cooperate if they see a usefulness in working together. In the case study of Hessian Ried, the following motivation factors could be identified:

Water sector: Water supply actors have a deep interest in a safe groundwater supply. Therefore, water supply actors see common interests in cooperation with the agricultural sector in water protection areas.

Agricultural sector: Consultation services offered for the farmers could be identified as motivation factor for cooperation.

The State of Hesse provided financial support to offer consultation services for the farmers. Technical experts help the farmers to develop a targeted, nutritional fertiliser plan that is based on information gathered from their fields and considering the nutritional needs of the cultivated crops and the specific soil conditions of each cultivation area. This should

optimise the use of fertilisers and thus reduce the risk of nitrogen leaching.

Benefit for the farmers: Through the recommendations of the technical experts, the farmers can implement new farming technology, reduce the use of chemical fertiliser and improve the quality of the crops offering ecological products.

Consultation of the farmers is guaranteed with start-up funding in the framework (3 years up to 60% funding, and a further 3 years up to 20-30% funding). Afterwards, the water supplier must bear all costs alone.

Positive results coming from this cooperation: Success of the agricultural cooperation was seen in the form of a declining nitrate concentration in the water. This became apparent after several years due to long residence times of the nitrogen in the soil.

Since the EU Water Framework Directive (2012), the State of Hesse has implemented and financed guidance measures that are based on defined areas of action. The balance of management restrictions was no longer undertaken at the level of individual farmers, but rather regulated by a state-wide agricultural environmental programme. The guidance measures should be integrated in the official agricultural services, which is viewed as critical from the side of the water suppliers.

References:

Wasserverband Hessisches Ried, Pressemitteilung, 04.04.2014, 'Landwirte im Hessischen Ried sind sehr interessiert an Gewässerschutzberatung' Available at: <http://presseservice.pressrelations.de/pressemitteilung/landwirte-im-hessischen-ried-sind-sehr-interessiert-an-gewaesserschutzberatung-561488.html>

Wasserverband Hessisches Ried, Pressemitteilung, 30.03.2012 'Beginn der Gewässerschutzberatung in den Kooperationsräumen "Südliches Ried" und "Riedsande"', Available at: <http://www.wasserverband-hessisches-ried.de/html/berichte.html>

NEXUS EVALUATION

- A trustworthy cooperation between the different user groups is required.
- Binding groundwater management plans accomplish planning security for all parties.
- The monitoring of groundwater levels and groundwater quality is a vital step.
- Voluntary cooperations position the actors to work together.
- Configurations that are:
 - Based on specialist knowledge
 - Neutral to special interests
 - Geared to the long-term
- The implementation of policies requires dependable political decisions.

11.12.2017

Nexus in Germany

23

From the nexus perspective, groundwater should be recognised as protected property, independent from its use. Actors involved in water supply generally have a deep interest in a safe groundwater supply. It is therefore clear that in water protection areas, a proactive approach for cooperation with the agricultural sector originates from these water supply actors.

Binding groundwater management plans represent an important regulatory instrument that guarantees the minimum requirements for all concerns and interests. They also allow continual optimisation processes.

The monitoring of groundwater levels:

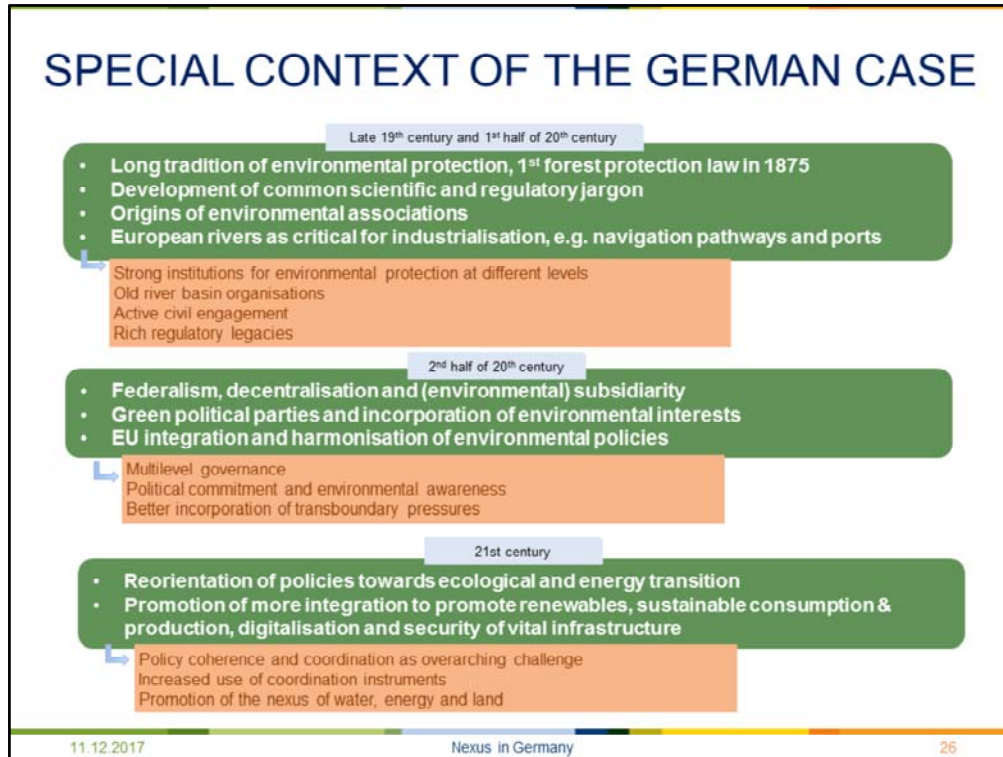
- Enables preservation of evidence and transparency
- Allows the active control of groundwater abstractions and infiltration
- Is the basis for further impact assessments and risk assessments
- Provides actual results which form the basis for negotiations and cooperation as well as improving transparency towards the public

Voluntary cooperations are successful when the various actors see a usefulness in working together beyond their own area of responsibility. The cooperation should be equitably designed.

Dependable political decisions are particularly important for the financing and building of sustainable structures.

PART THREE

Case Study: Pumped-storage plants in Thuringia



Objective of the slide: Understand the special context of the environmental policies in Germany using a historical perspective

Germany has a long history in environmental protection that shapes the current institutional structures. Such path dependency is important to understand the current governance regimes and priority issues. To simplify the historical context, one can look at three phases: late 18th century until the end of the second world war; after the second world war; and the recent phase during the 21st century.

Already **by the end of the 19th century**, Germany’s awareness of the importance of “Naturschutz” (environmental protection) started to grow in academia and literature. It was influenced by environmental movements in USA and Europe and can also be seen as a reaction to industrialisation impacts. This was translated into the first forest protection law in 1875 and establishments of associations of hikers and “friends of the environment”.

Generally, German forests, rivers and mountain ranges play an important role in Germany’s literature, cultural identity and also economic industrialisation.

This is similar in EU countries, where riparian countries of the Rhein and Danube rivers were made to organise themselves in river basin organisations, mainly for navigation purposes. For example, the Rhein Commission dates back to 1815 while the Danube Commission was established later in 1948.

Furthermore, early debates about environmental protection in Germany led to a rich academic and regulatory history with a common regulatory language. Concepts such as “Umweltschutz or Naturschutz” (environmental protection), “Landschaftspflege” (Landscape conservation); “Naturkunde” (study of nature) have special meaning and traditions in German regulations.

As a consequence of this early history, German institutions for environmental protection are old and well-established while water and environmental management are closely coupled. For example, the current Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety is quite strong and integrates issues such as water conservation, solid waste management, environmental protection, climate protection and related energy issues. Similarly, communal environmental protection agencies are rather strong in Germany.

After the second world war, Germany implemented a three-tier federal system (federal level, state level, communal level) leading to multiple horizontal and vertical accountability mechanisms. A fundamental underlying principle is that of subsidiarity, i.e. delegating the decision making powers to the lowest level which can solve the problem. If the problem needs can be solved at the communal level, the municipality is responsible for it. This principle is also the guiding principle of the EU and is incorporated in the EU contract of 1992. The EU has since tried to harmonise policies which need EU-level coordination, e.g. by issuing the EU Water Directive of 2000.

An important boost for environmental policies in the post-war time is represented by the emergence of green parties. Germany’s green party has become an integral part of the political system since the 1980s, after evolving from a protest movement in the 1960s and 70s.

As a consequence, a multi-level environmental governance in Germany has evolved and is still being expanded through EU integration. The environmental interests have been incorporated in the political programmes of each large

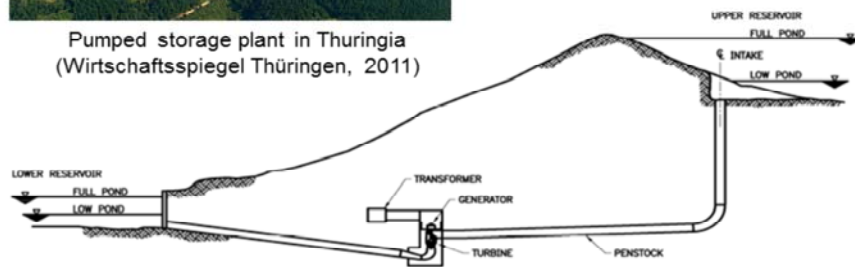
political party to different extents, with the Green party leading the way and having a strong representation. As a consequence of these developments, there were an ever increasing environmental awareness and enhanced capacity to tackle cross-cutting and cross-boundary environmental issues.

In the recent phase in the 21st century, Germany is facing grand challenges which require a higher level of policy integration. These challenges include the desire to achieve carbon neutral growth and the need to revamp infrastructure to meet future requirements in terms of digitalisation and security. As a consequence, Germany is increasingly using coordination instruments such as conferences, joint rules and regulations while it has promoted the nexus idea through the 2011 Bonn conference as a major way forward for environmental policies.

PUMPED-STORAGE PLANTS IN THURINGIA



Pumped storage plant in Thuringia
(Wirtschaftsspiegel Thüringen, 2011)



Typical pumped-storage plant (Miller & Winters, 2009)

11.12.2017

Nexus in Germany

27

Pumped-storage plants (PSPs) are a special form of storage power stations, and serve to store electrical energy by the upward pumping of water. Turbines and generators generate electrical currents with the release of this water. The electrical energy is hence generated through the conversion of potential energy of the water, and after the conversion, this electric power is fed into the grid. PSPs serve primarily to save a surplus of electrical power in the grid for low-demand times, such as during the nights or on weekends.

The first PSPs were built in Thuringia on the Saale River in the 1920s and 1930s. Their construction intrudes into nature and the countryside, hence making them controversial. Concreted or asphalted areas prevent natural vegetation from developing, and the technical operations alter the flow system. There are five PSPs in Thuringia, with a total installed power of 1,525 MW.

Images: <https://www.wirtschaftsspiegel-thueringen.com/nachrichten/news-details/article/weitere-pumpspeicherkraftwerke-geplant.html>
http://www.hydroreform.org/sites/default/files/Miller_Opportunities_in_Pumped_Storage.pdf

PUMPED-STORAGE PLANTS IN THURINGIA

- Goldisthal pumped-storage plant (PSP):
 - Began operating in 2003.
 - Environmental organisations filed legal action based on landscape and ecological interference.
 - An out-of-court settlement was reached.
- In 2011, a potential analysis of PSPs in Thuringia was commissioned:
 - Identified locations suitable for new PSPs.
 - Determined dams and reservoirs that could be converted to PSPs.
 - For two PSPs, regional planning procedures were applied for and carried out

11.12.2017

Nexus in Germany

28

A plan approval procedure for the Goldisthal PSP was carried out in the 1990s. The out-of-court settlement was worth 3.6 million euros, and the NATURstiftung David Institution, an environmental foundation which operates in the nature conservation sector, was also established.

The Goldisthal PSP interconnections between the upper and lower reservoirs as well as the machine room are situated completely underground, to reduce any adverse effects on the landscape and the ecology from the outset.

For these potential PSPs, an adverse factor for the nexus approach is reflected in the negative influence that various market conditions have on each other: while agriculture and water supply are subjected to relatively slowly fluctuating boundary conditions (market, society), the energy sector is exposed to very rapid market fluctuations. Hence, the principal interests and the importance of different aspects within the nexus framework shift quickly.

INSTRUMENTS: REGIONAL PLANNING PROCEDURES

- Regional planning procedures (RPPs) are carried out to examine the land use impact of regionally significant developments and activities.
- RPPs deal with energy and agricultural systems alongside water management issues.
 - Conversely, forestry and agricultural management are not covered in detail.
- Affected neighbouring states participate in the RPP.
- The public can be involved and engaged in the implementation of a RPP.
 - Common methods are public display of plans, information sessions and position statements.

11.12.2017

Nexus in Germany

29

The RPPs are to be carried out, as stipulated by federal government's Spatial Planning Law. This is done at a scale beyond the development site. RPPs have proven to be versatile instruments.

The regional planning requirements comprise regional planning objectives, regional planning principles and other regional planning needs.

The typical RPP implementation cases can be classified into the following project groups:

- Traffic
- Energy Supply
- Water Management
- Waste Disposal
- Human Settlements
- Industry

REGIONAL PLANNING PROCEDURES FOR POTENTIAL PLANTS

- Environmental impact assessments (EIAs) and public involvement were integrated in both RPPs.
- Statements received on the plans by public interest institutions, action groups and citizens.
- For one PSP, a round tables was established, which made recommendations to the highest-tier regional planning authority.
- The RPPs for both potential PSPs found that the plans could comply with the regional and state planning requirements.

11.12.2017

Nexus in Germany

30

Environmental Impact Assessments

- As part of the federal government's Spatial Planning Law, EIAs must be performed to examine the land use impact of regionally significant developments and activities, at a scale beyond the site of the development.
- In Germany, according to the Environmental Impact Assessment Act from 2001:
 - "the competent authority shall hear the public's views on the project's environmental impacts on the basis of the documents exhibited ..."
 - "the results of the environmental impact assessment are taken into account ... in all cases in which authorities decide upon the admissibility of projects."
 - "The competent authority, ... shall publicly announce the decision on the approval or rejection of the project"
 - "The competent authority shall prepare a summary description of the environmental impacts of the project and of the measures which will be taken to avoid, reduce or compensate for any significant adverse environmental impacts, and the substitute measures in the case of priority encroachments on nature and landscape for which no compensation is possible ..."

Who has the decision-making powers when Environmental Impact Assessments are involved?

- In Germany, according to the Environmental Impact Assessment Act from 2001:
 - "The competent authority shall assess the environmental impacts of the project on the basis of the summary description ... and shall take this assessment into

account when deciding on the admissibility of the project with regard to effective preventive environmental protection ... in accordance with the applicable laws”

- “Provisional decisions and first partial licences or corresponding first partial approvals may only be granted after an environmental impact assessment has been performed.”
- “If a project has to be approved by several Land authorities, the Länder shall designate a lead authority”

For the **PSP Schmalwasser RPP**: The round table was set up parallel to the RPP by the project sponsor Trianel Ltd., in connection with on-site regional authorities and action groups.

(Source: <http://extwprlegs1.fao.org/docs/pdf/ger36861E.pdf>)

NEXUS EVALUATION: PUMPED-STORAGE PLANTS

- Through appropriate legislation and planning procedures, the public authorities ensure that other sectors are adequately incorporated.
- Regional plans and regional planning procedures can effectively address issues in the water-energy-food nexus.
 - Provide greater planning security.
 - Bring spatially compatible and fair solutions.
 - However, required time and costs are high.
- Environmental assessments at all planning levels ensure a comprehensive consideration of various environmental issues

11.12.2017

Nexus in Germany

31

Shows that private investors from the energy sector are the driving forces behind these aforementioned projects.

Lesson learnt: There was a drastic lowering of RPP standards (and approval procedures) in the early 1990s. in line with Planning Procedures Acceleration Act, which was orientated towards the further development of East Germany. This law had the key disadvantage of allowing obviously inadequate and not fully integrated planning procedures. The intention of the law was to reduce the timespan from the start of planning to initial operation to a third of the usual time, though this was not fulfilled. Numerous separate and necessary standalone clarifications, contradictions to details which led to late plan modifications and the late legal steps for objections (which could only be reported to one court, though nevertheless were often successful in court proceedings), led to many equally time-intensive and expensive processes being rescheduled and bad investments. All things considered, planning security and early identification of optimisations and compromises is often more effective.

CASE STUDY CHALLENGES

- Balancing technological innovations (pumped-storage) with strong protection interests (status-quo oriented)
- Cost of participation is sometimes high and not all interests are represented due to cost and time constraints
- Regional planning procedures allow public participation, but not collective decision making
- Some projects are delayed or the costs increase after approval, leading to political problems

Public participation in planning procedures means offer the public the opportunities to petition and suggest changes in regional plans. However, the plans follow a public vision which represent a policy programme put forward by the government. The direction of the plans is based on political visions of winning coalitions. These coalitions represent majority interests after a deliberative political process (elections).

Collective decision-making (e.g. river basin committees) means that the stakeholders themselves draft and agree on the joint actions and implement them.

SUMMARY: COMPARISON OF INSTRUMENTS

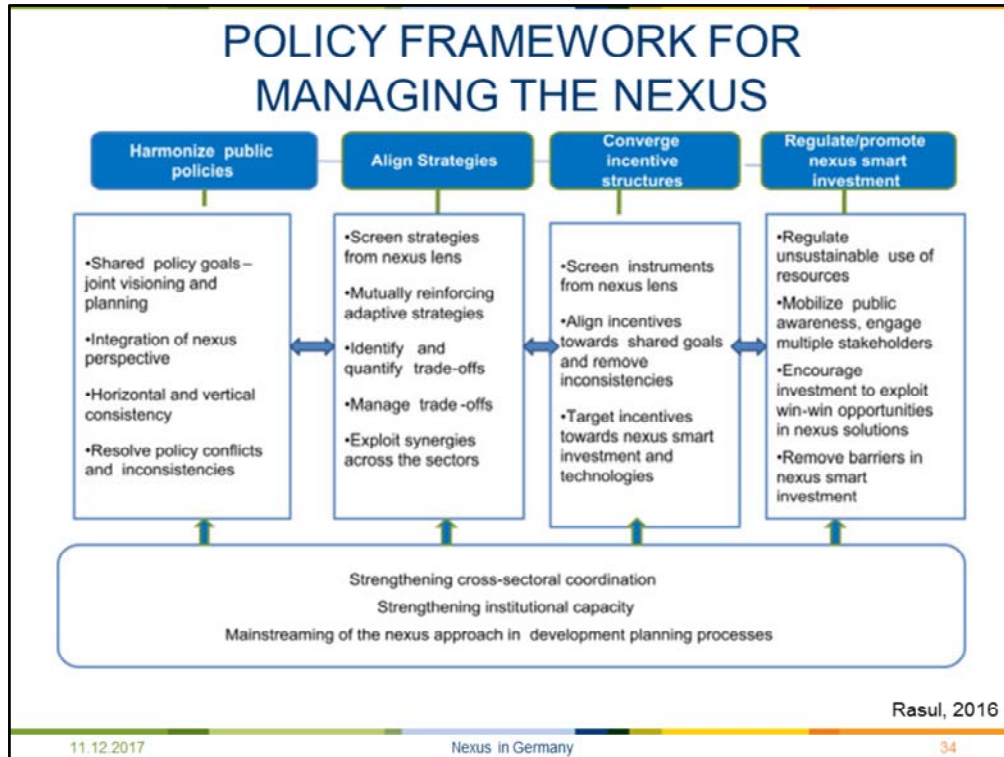
	Water management in Hessian Ried	Pumped-storage plants in Thuringia
Nexus perspective	Water (supply)-food and agriculture	Water-energy-nature conservation
Nexus-relevant instruments and organisational forms	<ul style="list-style-type: none"> • Cooperation: round table (water management, agriculture, forestry, etc.) • Regional planning, approval procedures • Specialist planning (water management, agriculture, forestry, etc.) • Environmental assessment • Economic instruments (extraction fees, funding) 	<ul style="list-style-type: none"> • Regional planning procedure • Environmental assessments • Various specialist plans
Examples of the integration of sectoral interests	<ul style="list-style-type: none"> • Cooperation, economic instruments, regulatory instruments 	<ul style="list-style-type: none"> • Regulatory instruments, discursive instruments
Legal, social and policy frameworks	<ul style="list-style-type: none"> • Metropolitan areas • Drinking water supply shortages • Regional agricultural lobby • Protection of forests as an environmental good 	<ul style="list-style-type: none"> • Energy transition • Nature conservation and environmental awareness • Public interest in the use of lakes (Agricultural and food issues)

11.12.2017

Nexus in Germany

33

Infrastruktur & Umwelt: professor Böhm und Partner, 2017, 'Practical Planning Management of WEF-Nexus Issues in Germany', Darmstadt, Potsdam



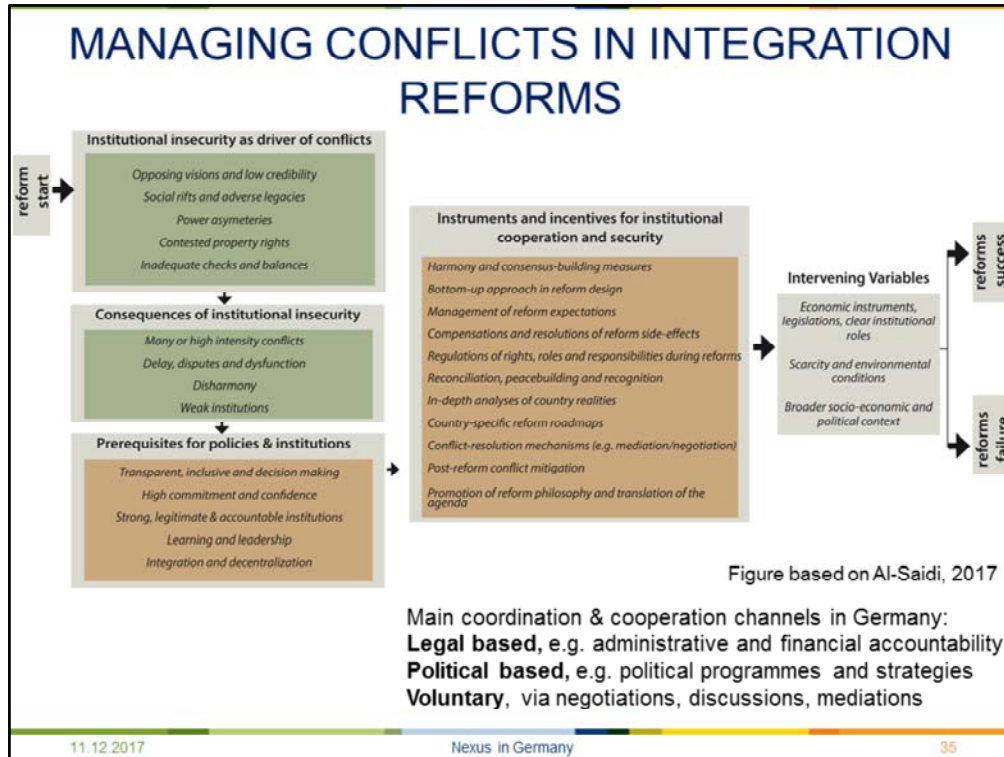
The figure presents a generic framework for integrating policies and strategies in the three sectors and supporting the move from a sectoral to a holistic approach. The key elements of the generic framework are:

- strengthening horizontal coordination (cross-sectoral) and vertical coordination (between levels of government).
- harmonising public cross-sectoral policies: policies should be harmonised among the three sectors taking into account the interdependencies of resources in order to minimise cross-sectoral conflicts, maximise synergies, and achieve policy objectives using a systems approach.
- strengthening regulation, and facilitation of nexus-smart investment and technologies.
- strengthening institutional capacity for understanding the dynamics and interlinkages.

Incentives that can be used for promoting the nexus include:

- Financial promotion of water and energy saving technology (e.g. subsidisation, encouragement of entrepreneurship, funding R&D and start-ups.)
- Public investments in enhancing energy and water efficiency (e.g. reassessment of resource footprints of public institutions)
- Elimination of subsidies for groundwater irrigation or energy and water prices,
- Eliminate barriers to use of water harvesting, water efficient technologies or renewables (e.g. promotion of markets, technology transfer, implementation of regulations)

Rasul (2016). Managing the food, water, and energy nexus for achieving the Sustainable Development Goals in South Asia. Environmental Development 18: 14-25



Objective of the slide: Identify instruments to help push through reforms despite expected conflicts, especially in developing countries; understand the German approach to achieve cooperation

In case of a new integration (e.g. IWRM or nexus) reform in a developing country, they often fail as a result of the lack of institutional security. This implies the existence of various conflicts which can weaken institutions and lead to reform failures. The drivers of such problems are many, such as historical aspects, different interests, lack of clear roles and rights, etc. Although this is a common problem, it is not directly addressed despite the availability of instruments which can help.

As a prerequisite to achieve strong outcomes, one should promote good governance principles in establishing policies and institutions.

In recent years, literature includes an array of instruments to achieve better cooperation among institutions. For example, specific agendas to address conflicts can be included in the project design with concrete measures to build consensus.

Literature:

Al-Saidi, Mohammad (2017). Conflicts and Security in Integrated Water Resources

Management. Environmental Science and Policy 73, 38-44.

In Germany, coordination and cooperation is facilitated through different means:

Legal based approach: Ministries must coordinate according to the Joint Rule of Procedure. Cabinet decisions are binding. Budgets are allocated following negotiations among ministries, and federal agencies provide financial reports of public entities. Project funding often comes with clear guidelines on stakeholder engagement and public participation. All decisions are subject to juridical review by administrative courts, while institutional conflicts can be decided by the Federal Institutional Court.

Political based approach: Political accountability is highly important for resolving conflicts. Political parties are supposed to implement their stipulated political programmes. The government cabinet in Germany is always based on coalitions of parties signing a coalition contract with clear policy objectives. The government issues policy strategies and is judged upon this.

For example, the **German Sustainability Strategy of 2016** drafts long-term and cross-field policy sustainability goals and is therefore authoritative for all sectors. The sustainability strategy contains general and sector-specific management rules and objectives as well as 63 indicators which all operate as control instruments. These also comprise of objectives and indicators specific to the water, energy and agricultural Nexus sectors. For example, nitrogen surplus limits from agriculture are specified. Through its influence, the national sustainability strategy has notably contributed in entrenching a stronger culture of sustainable thinking practices in policy and in the public.

To drive the cross-sectoral implementation of the sustainability strategy, the institutionalisation of the sustainability strategy has been continually promoted since its inception. The State Secretary Committee for Sustainable Development and the Parliamentary Advisory Council on Sustainable Development both operate to achieve this aim.

Voluntary based approach: Deliberative structures in Germany means that many debates are decided based on public discussions and debates (e.g. round tables, use of mass media, regular platforms organised by the government which adopt a joint declaration or programme). Here, a mixture of professional, moral and political accountability is driving consensus.

REFERENCES

- Al-Saidi, Mohammad (2017). Conflicts and Security in Integrated Water Resources Management. *Environmental Science and Policy* 73, 38-44.
- Bazilian, M., Rogner, H., Howells, M., Hermann, S., Arent, D. and Gielen, D. (2011). Considering the energy, water and food nexus: Towards an integrated modelling approach, *Energy Policy* 39: 7896–7906.
- Blumstein, S., Kramer, A. & Carius, A., 2017, 'Coordination of Sectoral Interests in the Nexus Between Water, Energy and Agriculture: Mechanisms and Interests in Germany', Adelphi
- Kluge, 2017 'Grundwasser als Quelle der Welternährung in Gefahr', Available at: <http://www.isoe.de/uploads/media/isoe-kluge-grundwasser-2017.pdf>
- Infrastruktur & Umwelt: professor Böhm und Partner, 2017, 'Practical Planning Management of WEF-Nexus Issues in Germany', Darmstadt, Potsdam
- Rasul (2016). Managing the food, water, and energy nexus for achieving the Sustainable Development Goals in South Asia. *Environmental Development* 18: 14-25
- Rueppel, U. & Gutzke, T. (2004), 'Groundwater-monitoring Based on Dynamic Co-operative E-government-processes', Available at: https://e-pub.uni-weimar.de/opus4/frontdoor/deliver/index/docId/161/file/icccbe-x_142.pdf
- Scott, A., (2017). Making governance work for water–energy–food nexus approaches, working paper. https://cdkn.org/wp-content/uploads/2017/06/Working-paper_CDKN_Making-governance-work-for-water-energy-food-nexus-approaches.pdf

11.12.2017

Nexus in Germany

36

Note that the Blumstein, Kramier & Carius (2017) and Infrastruktur & Umwelt: professor Böhm und Partner (2017) refer to the translated documents. The original German titles of the two documents are:

- Koordination sektoraler Interessen im Nexus zwischen Wasser, Energie und Landwirtschaft: Mechanismen und Instrumente in Deutschland
- Planungspraktischer Umgang mit WEF-Nexus-Sachverhalten in Deutschland

APPROACHES TO POLICY COORDINATION

- Policy areas can be organised according to ministerial sectors or an approach can coordinate structures at strategic levels
- Policy coordination can be defined as 'positive' or 'negative', based on whether the approach is focussed on alignment or on separate departmental interests
- Environmental policy plays a lead role in the pursuit of stronger policy coordination
- Eg: German sustainable strategy

11.12.2017

Nexus in Germany

37

This slide is considered optional, hence its position at the end of this presentation. If it is to be included in the presentation, we suggest that it is placed at the start of Part 1.

Many governments adopt the approach of organising the policy areas according to ministerial sectors, which is increasingly performed in decentralised agencies.

Positive coordination aims to generate the maximum possible benefits for the involved parties. This form of coordination generally takes place with numerous units, often coordinated at a superior political level.

negative coordination is primarily focussed on separate departmental interests. In this case, a department would examine whether a specific decision affects its own entity, and also whether possible interests of other departments are also affected. The coordination effort is typically higher for positive coordination.

The German sustainability strategy drafts long-term and cross-field policy sustainability goals and is therefore authoritative for all sectors. The sustainability strategy contains general and sector-specific management rules and objectives as well as 63 indicators which all operate as control instruments. These also comprise of objectives and indicators specific to the water, energy and agricultural Nexus sectors. For example, nitrogen surplus limits from agriculture are specified. Through its influence, the national sustainability strategy has notably contributed in entrenching a stronger culture of sustainable thinking practices in policy and in the

public.

To drive the cross-sectoral implementation of the sustainability strategy, the institutionalisation of the sustainability strategy has been continually promoted since its inception. The State Secretary Committee for Sustainable Development and the Parliamentary Advisory Council on Sustainable Development both operate to achieve this aim.