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# Multilevel Governance and Regional Climate Policy

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## List of abbreviations

<b>BauGB</b>	German Federal Building Code
<b>CMA</b>	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
<b>COP</b>	Conference of the Parties to the 1992 United Nations Framework Convention on Climate Change
<b>ECSC</b>	European Coal and Steel Community
<b>EnWG</b>	German Energy Industry Act
<b>EU</b>	European Union
<b>FernstrG</b>	German Highways Act
<b>GG</b>	Constitution (Basic Law) for the Federal Republic of Germany
<b>INDC</b>	Intended Nationally Determined Contribution
<b>LEP</b>	Regional Development Plan
<b>LPIG NRW</b>	North Rhine-Westphalia's State Development Plan and Programme
<b>MBWSV</b>	Ministry for Construction, Housing, Urban Development and Transport of the Federal State of North Rhine-Westphalia
<b>MKULNV</b>	Ministry for Environment, Agriculture, Conservation and Consumer Protection of the State of North Rhine-Westphalia
<b>NABEG</b>	Act on Measures to Accelerate the Expansion of the Electricity Grid
<b>NDC</b>	Nationally Determined Contributions
<b>NRW</b>	North Rhine-Westphalia
<b>ROG</b>	German Spatial Planning Act
<b>RVR</b>	Regional Association Ruhr
<b>UfU</b>	Independent Institute for Environmental Issues
<b>UNFCCC</b>	United National Framework Convention on Climate Change
<b>USA</b>	United States of America
<b>VHV</b>	Very High Voltage Lines
<b>WBGU</b>	German Advisory Council on Global Change

# 1 Introduction

This discussion paper intends to explore possibilities of cooperation between actors in the same level and across different levels of government as means to make the implementation of the climate goals politically possible and economically viable. By taking a subnational policy framework in Germany as case, the idea is to promote the discussion on subnational-national relations in the context of the implementation of climate mitigation goals.

It considers the latest developments in international climate policy that stresses the importance of national governments in influencing and supporting subnational governments in their CO<sub>2</sub> emissions reductions ambitions. In general, decentralized structures present great innovative possibilities that should not be ignored. On the other hand, decentralized structures also present challenges given the big number of autonomous actors and the small scale of their scope of action. As a response to the challenges involving decentralization, policy instruments can be put in place to increase the coordination, transparency and governance vertically across levels and horizontally across jurisdictions.

Germany has pioneered domestically many multilevel experiences in climate policy and may serve as a case for other countries that perceive climate protection as an opportunity to modernize and to sustain economic growth, without letting aside subnational regional inequality concerns. The polycentric structure of the Federal Republic of Germany and the innovative capacities of its subnational entities offer a rich environment for exploring possibilities of interactions between actors outside and inside the government. Given the diversity of the subnational policies in Germany, the Federal State of North Rhine-Westphalia (NRW) was chosen as study case in which the description of its interactions with other levels of government concerning climate policies can illustrate the possibilities of subnational arrangements for governance of climate protection actions.

This paper was elaborated as result of a desk-study and the realization of seven semi-structured interviews with policy-makers and professionals working with climate policy in the state of NRW and at the international level. These interviews happened between February and October 2017. The author would like to express his gratitude to the German Government and the Alexander von Humboldt Foundation, which made this research possible by supporting the researcher with the German Chancellor Fellowship 2016/2017. The author would also like to thank the kind support of its hosting institute for the program, the Independent Institute for Environmental Issues -UfU-, in Berlin.



## 2 Background

The 21st Conference of the Parties to the United National Framework Convention on Climate Change took place in December, 2015, in Paris and achieved an agreement<sup>1</sup> that, for the first time, developed and developing countries agreed in taking action towards the protection of the global climate. The public visibility of the Conference created political momentum, which resulted in fast domestic ratifications processes. The agreement came into force at 4th of November, 2016, 30 days after the minimum number of ratifications was achieved and 3 days before the 22nd Conference of the Parties.

The success of the Paris Agreement depends mainly on all parties assuming and presenting ambitious national contributions in terms of adaptation and mitigation, and that is a big change compared to the former conception of the international climate regime made operational by the Kyoto Protocol. To drop the hard differentiation between developed and developing countries was a central aspect to bring together under the same agreement two of the most relevant CO<sub>2</sub> emitters: China and the USA. Under this new agreement, all countries shall contribute and each country's compromise is to be described in a document called Intended Nationally Determined Contribution, or INDC, and the aggregation of the contributions will, at the end, limit the global average temperature rise in 2 °C, or preferably 1.5 °C.

Defining a global target of limiting the temperature rise in 2 °C was already a challenging goal at the moment of the instrument's signature, back in December 2015. In addition to that, important political developments over the year 2016, such as the United Kingdom European Union membership referendum and the U.S. presidential election, hindered the positive impetus towards the implementation of Agreement. The 22nd Conference of the Parties, together with the first meeting of the parties for the Paris Agreement (CMA1), took place in Marrakech in November 2016 and had as main objective to fight that tendency and to demonstrate internationally that the implementation of the Paris Agreement was in fact happening.

Germany as part of the Paris Agreement was not formally required to present a Climate Protection Plan at the Marrakech Conference but, bearing in mind the importance of the conference and the role of the country as an international leader in environmental policies, it presented the document "Climate Protection Plan 2050" with an inspiring 95% target of CO<sub>2</sub> emissions reductions to happen until 2050. By presenting this document, Germany reinforced its green credentials and helped the conference and the global climate regime by offering an example of good practice.

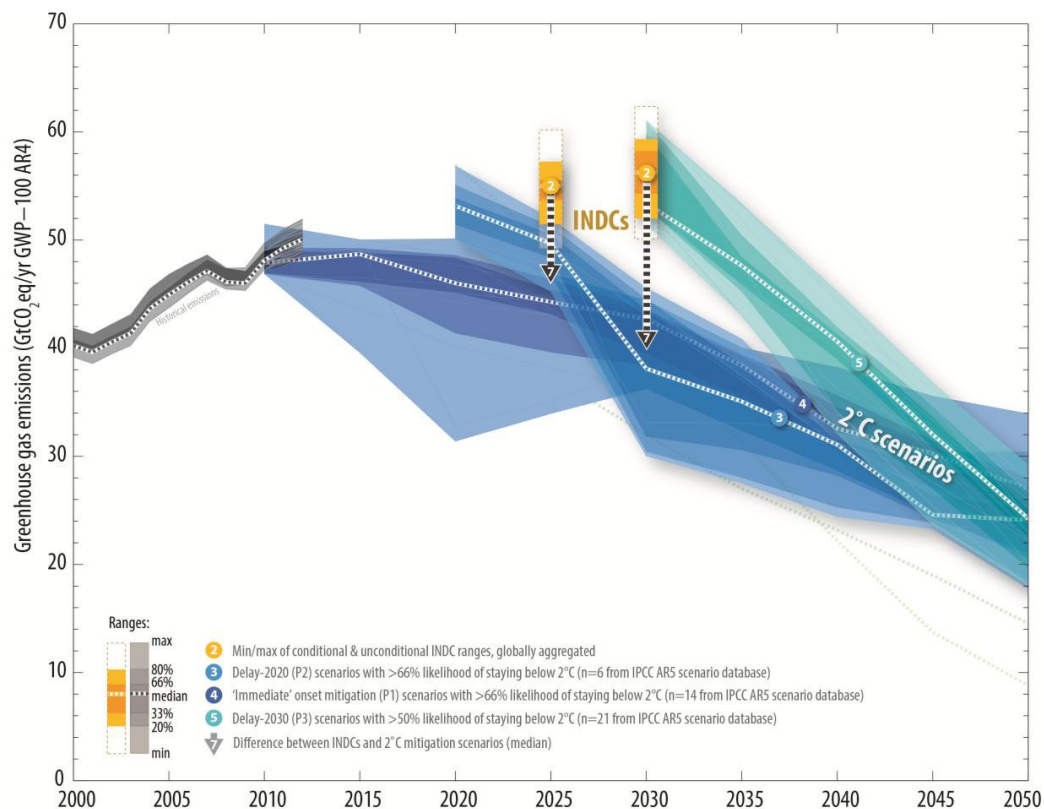
In the opposite direction, on November 8<sup>th</sup> 2016 and right after the beginning of COP22, the presidential election in the USA was decided in favor of the republican candidate Donald J. Trump. The election of a climate change sceptic as president of the USA represented a direct threat to the Paris Agreement because one of its main victories was to bring together China and the USA to agree on the reduction of their emissions. However, since the indication that the USA would withdraw the agreement, there was an international perception that the other

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<sup>1</sup> Paris Agreement [http://unfccc.int/files/essential\\_background/convention/application/pdf/english\\_paris\\_agreement.pdf](http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf), last access: 08.07.2018.

countries would take the lead. This assumption was justified by the understanding that the economic, technological and political forces that put the agreement into place were becoming in fact stronger<sup>2</sup>. This understanding was confirmed in the following months.

**Figure 1: Estimated global emissions following the implementation of the communicated intended nationally determined contributions by 2025 and 2030 and 2 °C scenarios** (Source: Intergovernmental Panel on Climate Change Fifth Assessment Report scenario database and own aggregation (UNFCCC, 2016)).



An interesting movement happened after the announcement of the withdrawal. On the same day of the announcement, 1<sup>st</sup> of June 2017, the political reaction of subnational governments in the USA was instant and remarkable. The governors from California, New York and Washington<sup>3</sup> announced their intention to comply with the Paris Agreement despite the withdrawal from the Federal Government. The three governors also announced the creation of an alliance to convene other states in the USA that are committed to the maintenance of the goals of the agreement. This alliance received the name "U.S Climate Alliance"<sup>4</sup> and at the end of 2017 it counted 15 states, namely: California, Colorado, Connecticut, Delaware, Hawaii, Massachusetts, Minnesota, New York, North Carolina, Oregon, Puerto Rico, Rhode Island, Vermont, Virginia and Washington. It would be interesting to draw parallels between the states part of the U.S Climate

<sup>2</sup> "Paris Isn't Burning" at <https://www.foreignaffairs.com/articles/2017-05-22/paris-isnt-burning>, last access: 08.07.2018.

<sup>3</sup> "New York, California and Washington say they'll stick to Paris deal as Trump backs out" at <https://www.cnbc.com/2017/06/01/ny-ca-and-wa-say-theyre-sticking-to-paris-deal-after-trump-backs-out.html>, last access: 08.07.2018.

<sup>4</sup> <https://www.usclimatealliance.org/>, last access: 08.07.2018.

Alliance and the incentives provided by the Federal government towards renewables through the American Recovery and Reinvestment Act of 2009. This could probably demonstrate enabling aspects of a National policy (and politics) towards climate action in other levels of government.

Besides the role described above in championing climate policy, subnational governments also became more and more expected internationally to function as encouraging actors to increase national ambitions. The pressing need in increasing ambitions for emissions reduction was clear on the path to the COP 22, as described in the 2016 IPCC report "Aggregate effect of the intended nationally determined contributions: an update" (UNFCCC, 2016). The Intended Nationally Determined Contributions (INDCs) were not enough to place the global system in a smooth trajectory towards the main stated objective of the Paris Agreement. In fact, if all declared contributions are achieved by 2030, including the conditional contributions, the path to keep the temperature increase in the 2 °C after 2030 would demand radical decrease of emissions, as demonstrated by figure 1. The differences between the INDCs ranges and the 2 °C scenarios in the image show the emissions reduction gap between the intended international climate action and the level of emissions reduction necessary to achieve the objectives of the Paris Agreement.

Figure 2: Multi-stakeholder engagement: proposed thematic approach (Source: Marrakesh Partnership for Global Climate Action<sup>5</sup>).

	Themes						
	Natural systems			Sustainable infrastructure			
	Land-use	Oceans and coastal zones	Water	Human settlements	Transport	Energy	Industry
Actors	<b>Policy makers</b> National Governments Subnational authorities Regulators						
	<b>Finance and investment</b> National and international public finance institutions Investors Asset owners Investment and fund managers Financial markets Corporations International finance organisations and initiatives						
	<b>Technology and innovation and capacity-building</b> Technology developers National and international organisations Technology initiatives and partnerships Research institutions						
	<b>Activity implementers</b> Public and private project and infrastructure developers Business Local and municipal service providers Farmers and natural resource management associations						
	<b>Civil society</b> Communities, citizens and consumers Non-governmental organisations Trade unions and labour organizations Indigenous peoples						

In order to close the emissions gap between the intended national contributions and the emissions level that make the achievement of the Paris Agreement objectives possible, the COP 22 presented as one of the outcomes the Marrakesh Partnership for Global Climate Action focusing on 2020. This Partnership proposed that achieving the goals of the Paris Agreement would require "an inclu-

<sup>5</sup> Available at: [https://unfccc.int/sites/default/files/marrakech\\_partnership\\_for\\_global\\_climate\\_action.pdf](https://unfccc.int/sites/default/files/marrakech_partnership_for_global_climate_action.pdf), last access: 30.06.2018.

sive, 'all-hands-on-deck' approach". This approach has the objective of accelerating climate action by "*Convening of Party and non-Party stakeholders ... to enhance collaboration and catalyse the scaling up of efforts to collectively identify and address barriers to enhanced implementation*". The Partnership also recognizes that delivering the increase in ambition would require the active collaboration of all stakeholders, as listed in figure 2. Having that in mind, Party and non-Party actors made their preparations to the COP23 in Bonn. Figure 2 presents a non-exhaustive list of stakeholders divided in groups: policy makers, finance and investment, technology and innovation and capacity building, Activity implementers and civil society. Those groups are presented as having influence over themes that are presented in the horizontal dimension. Those themes are: land-use, oceans and coastal zones, water, human settlements, transport, energy and industry.

The COP 23 took place in Bonn, Germany, in November 2017 and the conference had a strong focus on the presentation of concrete actions and how governments were implementing the determined contributions. The central role of practical examples for the conference is based in two facts: the first is the importance of the exchange of best practices, and the second is the process of feeding the negotiations for the elaboration of recommendations for modalities, procedures and guidelines as determined by the Paris Agreement in its Article 13.13.

*"The Conference of the Parties serving as the meeting of the Parties to this Agreement shall, at its first session, building on experience from the arrangements related to transparency under the Convention, and elaborating on the provisions in this Article, adopt common modalities, procedures and guidelines, as appropriate, for the transparency of action and support."*  
(UNFCCC, 2015)

In sum, COP 23 was centered on climate action and transparency and the subnational and local levels of government were at the spotlight. This was materialized by the realization of the Climate Summit of Local and Regional Leaders that issued the Bonn-Fiji Commitment of Local and Regional Leaders to Deliver the Paris Agreement at All Levels (also known as Talanoa Dialogue)<sup>6</sup>. By issuing such document, subnational governments demonstrated their commitment and intention to implement the Paris Agreement in their Jurisdictions. This message convened by the subnational governments reinforced the overall message of the conference which was that the Paris Agreement for many reasons is unstoppable and irreversible. This document also increased the pressure for the adoption by the countries that are party to the convention for an implementation guideline by 2018.

<sup>6</sup> Available at: <http://www.cities-and-regions.org/cop23/wp-content/uploads/2017/11/bonn-fiji-commitment-of-local-and-regional-leaders.pdf>, last access: 30.06.2018.

### 3 German Climate Protection Plan 2050

Domestically for Germany, unveiling the Climate Protection Plan 2050 meant only the deepening of a long process of transition into a low carbon economy with the objective of having a carbon-neutral country. This transition process did not start with the Climate Protection Plan 2050 itself, but it is a continuation of structural changes that the country is going through since the closing of anthracite mines in the 1960's to more recent initiatives to promote a transition to renewable energy translated into national climate protection initiatives and state, regional and local climate action planning instruments. This multiplicity of instruments, organizations, actors and policies created overtime overlapping competencies and a network of actors and institutional interdependencies in different levels with different territorial scopes and different thematic approaches to the issue.

The presented plan is divided into areas of action: industry, buildings, transport, agriculture, land use and energy; setting general objectives and lines of action. While the objective of greenhouse gas neutrality presents a vision for the country, a shorter horizon was also established when the plan sets milestones and targets focusing on 2030. It also presents an evaluation of climate scenarios and analyses of the transformation required in those areas. The presented emissions reductions for 2030 mean that in less than twelve years, the country's total greenhouse gas emissions have to be reduced by 55 percent compared to 1990's levels, as presented in the following table 1 retrieved from the Climate Action Plan 2050. Table 1 also presents how those areas of action will be impacted in different ways. The energy sector is required to present the biggest absolute reduction in emissions, and the "Buildings" area of action being responsible for the biggest relative reduction in the emissions.

**Table 1: Emissions from areas of action set out in definition of the target** (Source: BMUB, 2016).

Area of action	1990 (in million tonnes of CO <sub>2</sub> equivalent)	2014 (in million tonnes of CO <sub>2</sub> equivalent)	2030 (in million tonnes of CO <sub>2</sub> equivalent)	2030 (reduction in % compared to 1990)
Energy sector	466	358	175 – 183	62 – 61 %
Buildings	209	119	70 – 72	67 – 66 %
Transport	163	160	95 – 98	42 – 40 %
Industry	283	181	140 – 143	51 – 49 %
Agriculture	88	72	58 – 61	34 – 31 %
Subtotal	1209	890	538 – 557	56 – 54 %
Other	39	12	5	87%
<b>Total</b>	<b>1248</b>	<b>902</b>	<b>543 – 562</b>	<b>56 – 55 %</b>

Although the direction is clear and it was aggregated by the Federal Environment Minister at the national plan, the implementation of those objectives is still a matter of controversy. By analyzing table 1, it is clear that the energy sector is the one which is planned to have the most substantial reduction in absolute

terms. That would mean a profound change in the sector and also a profound change in the economic structure of that sector. Bringing that transformation to the local and regional scales may cause drastic economic changes in terms of the type of workforce required by the sector and in terms of regional organization of the sector. Moreover, it may mean a rescaling of the energy sector with the national government being required to intervene in the energy infrastructure.

As a way of balancing the transformation, the German Federal Government plans to implement a commission of "Growth, Structural Change and Regional Development". The Commission will be allocated at the Federal Ministry of Economics and Energy, and will involve other governmental ministries, federal states, municipalities, unions, representatives of affected sectors and other regional actors. The organization of this Commission is still open, as well as its functioning process, but it is clear that it should work as a mechanism of reducing the negative impacts of the necessary transformations to the local economy and businesses and make the transition politically viable. Another measure would be the establishment of a fund to create realistic prospects for regions affected by the decline in coal-fired power<sup>7</sup>, but all those stayed subjected to the formation of the federal government after the election in 2017.

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<sup>7</sup> Available at: <http://www.dw.com/en/german-government-reaches-agreement-on-climate-action-plan/a36356919>, last access: 08.07.2018.

## 4 Subnational Governments and the implementation of climate protection policies: the case of North-Rhine Westphalia

By the reasons exposed in the background section of this document, subnational and local governments are progressively gaining more importance on the implementation of objectives concerning sustainable development and climate change. But the question that the level autonomy of subnational governments poses on the governmental system as whole is: How to govern a federal system with so many autonomous levels towards a transition ambitious as the one proposed by the Climate Action Plan 2050?

The State of North-Rhine Westphalia (NRW) is responsible for over one third of Germany's greenhouse gas emissions and also one third of the country's electricity production. It is also the most populous federal state, counting for 22% of the total population and GDP. Therefore, it can be interpreted that the economic production of the state is more intensive in GHG emissions than the German average. Globally, Germany is responsible for 3% of the GHG emissions, and NRW for one third of it, or 1% of the global emissions.

The majority NRW's emissions come from the electricity sector that originates from the essentially fossil-based electricity generation matrix of the State. As a demonstration of this preponderance, 85% of the electricity generated in 2013 came from fossil fuel and from those, impressive 77% were generated from lignite and black coal (MKULNV; IWR, 2016).

Aware of its responsibilities towards climate protection and bearing in mind the clear need for a deeper structural change in its economy, NRW was the first subnational government in Germany to legally commit to targets for greenhouse gas emission reductions. This happened with the issuing of the Climate Protection Law (Klimaschutzgesetz-NRW) in 2013, which sets the obligation to reduce emissions in 25% by 2020 and 80% by 2050, in comparison to 1990's levels. Besides the emissions reduction, the law also encourages the implementation of climate change adaptation measures.

The process to elaborate the Climate Protection Plan of NRW started after the publication of the Law in 2013 and included a wide public participation process. It took two years to develop the plan and over 400 stakeholders were involved. The participation on the elaboration of the plan notably helped to create possibilities of collaboration. It also helped in the effort to spread qualified information and possibilities of action to different actors (MKULNV, 2015).

Although the state of NRW has adopted advanced pieces of legislation and planning instruments concerning climate change policies, the municipalities are formally not obliged to follow the climate protection plan presented at the State and at the Federal level. The Climate Protection Plan of NRW, as a piece of legislation, is a broad framework to encompass many kinds of policies, instead of a set of clear determinations binding different actors under its jurisdiction. In other words, there are no mandatory actions to the municipalities, companies or civil society.

The preferred approach to commit local governments into climate action in the case is the one of promotion of initiatives, instead of legally binding obligations. It is an argument that considers the superiority of the climate actions compared to business-as-usual, and this rational realization gradually should lead to climate action. The state of NRW promotes this view either with state funding, co-participating with federal funds or application of EU funds. It does so by promoting thematic campaigns to the interested public and providing information on possibilities of implementing new technologies or more efficient systems that might make sense. The local actors have to demonstrate interest and can apply to get this funding that either fully covers for improvements or at least makes the investment more attractive by covering part of the costs.

Another aspect that led to this indirect approach is that many municipalities are financially dependent of the state level. The creation of an obligation for the local level of government without an equivalent source of revenue, or a proper compensation, would lead to deeper indebtedness of the municipalities. It would also ban the possibility of application of promotion funds, since those cannot be applied to the fulfillment of legal obligations by definition.

The federal states in Germany have great autonomy in some areas, but the local level of government should also be considered, since the constitution guarantees some autonomy to the municipalities. Municipalities (Gemeinden) in Germany are territorial authorities of public law. The existence of a municipal level of government and the autonomy of the municipalities are guaranteed by the Constitution (Grundgesetz-GG) in its Article 28, §2nd. This autonomy is basically guaranteed in terms of the right to self-government in accordance to the laws (subsidiary autonomy), and it can be exercised in all local affairs under the responsibility of the municipality. Other aspects of the self-government are the guaranteed fiscal autonomy that gives municipalities the right to establish taxation and the obligation to have representatives elected in direct, free, equal and secret elections (Article 28, §1st, GG). In practice, the self-government is exercised in terms of: territorial authority (Gebietshoheit), financial authority (Finanzhoheit), planning authority (Planungshoheit), statutory authority (Satzungshoheit) organizational and cooperation authority (Organisations- und Kooperationshoheit), personnel authority (Personalhoheit) and authority over cultural aspects (Kulturhoheit).

Disperse authority and an inherent polycentrism are visible characteristics of the German federal system. Those become even more evident when the policy being implemented necessarily involves different topics across the traditional division of themes between agents in the government. This aspect will be further explored in the next section.



## 5 Obstacles to the good governance of climate protection

Structural Change, Energy Transition or achieving carbon neutrality by 2050 at the national level have to overcome the similar types of difficulties to be implemented. All three mean deep economic, social and cultural transformations that challenge long established conceptions. All three have extensive impacts that extend to German international relations and suffer pressures from it as well.

Domestically, one of the main challenges is creating trust among public and private actors and the society in general. The mistrust is not unjustified, since this kind of change may create substantially concentrated impacts in certain municipalities, in terms of tax revenue, in certain industries, in terms of technological change and investment focus change, and in certain populations, in terms of job availability and types of skills demanded. Another challenge to implement climate actions is how to establish clear responsibility to the different jurisdictional levels given the multidisciplinary and multiscale characteristics of this policy problem. A large number of different types of policy instruments are needed for that. This difficulty may translate itself into a lack of accountability and ultimately poses important challenges to planning and implementation, in the author's opinion.

On the local level, governments face a big number of challenges and they are subject to all kinds of short-term pressures, from the demand for better services to demand for more jobs. That is why building capacity at the local level is understood as an important factor for the implementation of climate protection actions. Between 2011 and 2015 the municipalities in NRW mainly employed open personnel capacity in their climate protection activities, as a source in the EnergieAgentur.NRW stated to the author. Open personal capacities is a percentage of a municipality's personnel that is not allocated to a specific purpose in the budget, planned that way to be used in unpredicted events. Clearly municipalities have different needs, but constraints in personnel to perform the numerous tasks under the responsibility of municipalities are often argued as an important limitation to the provision of local services. Between 2015 and 2017, much of the local workforce available for new initiatives at the municipalities was allocated to deal with the migration influxes, and the open personnel capacity has been employed on addressing this issue, as a source in the Ministry of Environment of NRW confirmed.

## 6 Planning authority and overlapping of responsibilities

The autonomy to elaborate spatial and urban plans is a central aspect of the local administration functions. Municipalities in Germany have the authority over territorial planning at the local level, but it does not happen completely independently, given the German Federal structure of subsidiary autonomy of municipalities. Therefore, the municipalities have to conform their plans, for example, to the Urban Construction and to the Spatial-planning law, those at the Federal level, to State Building codes and State Spatial-planning laws. Other regulations at the Federal and at the state levels that directly affect the territorial planning should also be considered, such as the Highways Act (FernstrG) or the Act on Measures to Accelerate the Expansion of the Electricity Grid (NABEG).

This instrument also gives the possibility of translating regulations originated in other levels of government into spatial planning at the local level. This interplay created a complex planning structure that present different overlapping planning instruments concerning different topics and happening at different levels of government. Table 2 presents the planning levels in North Rhine-Westphalia and how the responsibility is divided among the levels of government and across different themes.

**Table 2: Legal Basis for different planning levels in North Rhine-Westphalia.**

(Source: WBGU, 2016 adapted by Garcia 2017).

Legal Norms	Norm setter	Scope of validity	Responsible for planning
Spatial Planning Act (ROG), i. a. also laws such as the Federal Highways Act (FernstrG) and the Energy Industry Act (EnWG)/Act on Measures to Accelerate the Expansion of the Electricity Grid (NABEG, for line planning and VHV lines)	Federal government	Federal territory	Federal government
Preparatory land-use plans, land-use plans pursuant to the Federal Building Code (BauGB), emissions-control law, water legislation, waste regulations, soil-conservation law, mining law, nature-conservation law, etc.	Federal government	City/municipality	Local government
State planning laws: NRW's State Development Plan and Programme (LPIG NRW)	State government	State territory	State government

Legal Norms	Norm setter	Scope of validity	Responsible for planning
State Climate Protection Plan (Klimaschutzgesetz NRW)	State government	State territory	State government with the comprehensive participation of social groups as well as of the local municipal associations - § 6 (1)
Climate Protection Concept (Klimaschutzgesetz NRW)	State government	Municipality and associations of municipalities	Municipalities and municipal associations are encouraged to elaborate a Klimaschutzkonzepte § 5
Regional Plans (LEP) (Landesplanungsgesetz LPIG NRW)	State government	Region	Municipal associations with this competence. Regionalverband Ruhr (RVR) e.g

At the state level, as presented in table 2, NRW has four Planning instruments for land use and climate: the State Development Plan (LEP; regulated by the LPIG NRW), the State Climate Protection Plan (regulated in Klimaschutzgesetz NRW), the Climate Protection Concept (regulated by Klimaschutzgesetz NRW) and the Regional Plans (regulated by Landesplanungsgesetz NRW). This construction is relevant for climate protection because there are interactions between the climate protection plan of NRW and the land use planning process (Section 6 subsection 5 and section 2 of the Climate Protection Law of NRW). This section in the Climate Protection Law establishes a necessary connection between the instruments of land planning and climate protection. This connection becomes really evident and strategic in some areas, for example, the implementation of wind power plants and how the local impact of renewable is managed (vide MKULNV; MBWSV, 2015).

The four instruments have the State government as norm setter but they differ in terms of responsibility for planning and territorial scope of validity. The State Development Plan has the state territory as scope and the state government as responsible for planning. More precisely this competence was located in the State Chancellery until the change of the government at the end of 2017, and previously at the State Ministry of Environment (MKULNV).

The LEP, regulated by the LPIG NRW, has the state territory as scope and originally the state government as responsible for planning. More precisely, this responsibility is located at the state chancellery but this is not fixed. The competence used to be part of the environmental ministry, before it was shifted to the state chancellery. Land use planning in one land use plan for NRW and consists of binding instructions for the other land use planning instruments at lower levels of government.

The State Development Plan is connected to the state climate policy since the implementation of the state Climate Protection Act (Klimaschutzgesetz NRW) in 2013. In the Act, it is recognized that land use planning is an important instrument in achieving the climate goals, by altering the original content (Section 2) of

the LPIG. This is especially valid for themes such the implementation of renewable energy and adaptation to climate change. Concerning the implementation of this concept, the state Environmental ministry has a unit dealing with the process of elaborating and reviewing the LEP, but since the competence for the planning is not located in the ministry itself, this unit can only push for the insertion of commands. This should create the possibility that municipalities implement climate relevant actions in their territory.

The Climate Protection Plan NRW has the state territory as scope and the state government as responsible for planning, which was formulated with the participation of social groups, local municipal associations' representatives and business representatives, in accordance to the section 6 subsection 1 of the Climate Protection Law of NRW of 2013. Inside the state government, the responsibility for this plan was located inside the Ministry of Environment but was transferred to the Ministry of Economy since the change of government at the end of 2017. The document is structured in strategies and measures. The strategies have a focus on 2050 and following the strategies, measures were defined. The implementation of the measures is planned having a 5 years horizon and after that time, both strategies and measures are to be revised. There is also the possibility of the creation or adaptation of strategies and measures to new developments.

At this point, it is possible to find a connection to the German national plan and the state plan. Both aim at a reduction of at least 80%, but that is the lower limit of a range presented at the national level. The national plan presented a reduction of 80-95% by 2050, and NRW adapted to it by assuming, at least 80%. This shows some guidance offered by the national level and the state level adopting it even knowing that most of German emissions in 2050 will still come from NRW.

The process of elaborating the Climate Protection Plan of NRW was a lengthy one. It included a broad participation process and the plan took approximately two years in total to be completed. The process employed professional mediation in its conception phase and in its networking phase. The first phase called "Conception Phase" was divided in ten working groups, six grouped around climate protection and four around climate adaptation. After the compilation of the proposals for fields of action, strategies and measures, it was realized a climate conference and a second phase started with broader participation. In this phase, called "Differentiation and Networking", many workshops and congresses took place including citizens, businesses, local communities and regions. At the end, according to an officer interviewed for this paper (Anonymous), a culture of dialogue emerged, with energy companies and local communities sitting together to discuss the issues related to the protection of the climate. The NRW process was the first time in climate policy that big lignite based energy companies and the nature conservation groups together with local community and unions sat at one table for a six day session thinking and talking what would be measures that could be taken (ibid).

It can be identified as positive aspects of the process of elaborating the climate protection plan: the use of professional moderation, relative openness of the government to other actors and the long period of time that enabled actors to participate. One interesting point of the process was the availability of an impact study of scenarios before the plan was approved by the state parliament. This,

according an officer at the Ministry of Environment of NRW (MKULNV), was a decisive factor of the success and of the plan and its acceptance by stakeholders with different focuses, such as nature conservation NGO's and energy industry.

The Climate Protection Concept, a provision of the Klimaschutzgesetz NRW section 5, has the State government as norm setter, the municipalities and associations of municipalities as scope and responsible for the planning process. The Climate Protection Law of NRW encourages municipalities and associations of municipalities to elaborate and set up climate protection concepts. This encouragement is made emphatic by the creation of funds to compensate the municipalities for their expenditure, once the local governments may need additional capacity to deal with this recommendation. Although the Climate Protection Law recommends this, it does not bind other actors to its goals, besides the public administration at the state level.

The Regional Plans, similarly to the LEP, are also established by the Landesplanungsgesetz NRW, and therefore have the state government as the norm setter. The scope of validity of this type of plan is regional and has associations of municipalities that have this competence as responsible for the planning process. This competence delegation occurs by law and the state government is the one capable of recognizing this competence to a regional organization. There is no general case for this, since this competence is not evenly distributed at one level of government. This level of spatial planning interacts strongly with the LEP, which is not a detailed spatial plan, but it presents principles, limitations and guidelines to the regional planning. In that sense, regional plans present maps with how the land use should be in the future and the more descriptive commands present in the LEP shapes how lower levels of planners will include climate protection.

The heterogeneity of regions in its territorial distribution, in their historical formation and in their capacities demands a more detailed analysis and this paper takes the example of the Regionalverband Ruhr (RVR). This choice is based on the historical importance of the region for the German industrialization process and its experiences in structural change and transition into a more service oriented region with an economy less connected to carbon emissions.

## 7 Demand for new Jurisdictions

In a more abstract formulation, and although we defend that local governments are central to the achievement of climate protection goals, municipalities often have jurisdictions that are smaller than the breadth of the impact of its own policies. Take climate protection projects, for example, climate mitigation or adaptation policies implemented locally by one municipality will almost certainly create benefits to the municipalities around, thinking about adaptation measures, and to the climate system as a whole, thinking about mitigation measures.

This realization may lead to inaction, if there is a negative perception of free-riders been benefited by positive spillovers. Other aspect that should also be considered is efficiency of the provision, implying that some policies to be more efficient, meaning also cost-effectiveness, have to be scaled up so they are able to profit from gains of scale. Oates (2005) interprets this problem by proposing the "decentralization theorem". The theorem presents that the level of decentralization of a policy provision depends on two factors: 1) the heterogeneity of preferences, which pushes toward decentralization; and 2) interjurisdictional spillovers and scale gains, which pushes towards centralization of provision. A response to this dilemma would be the creation of new jurisdictions that should be more coherent with the impact of a policy, or problem, and on the other hand, that should have the adequate scale to add effectiveness to the provision.

The economic superiority of the argument presented by Oates (2005) to defend the need for new flexible jurisdictions depends on many factors to hold, like trust among the actors and clarity of what is the public interest. But the public policy process can often develop suboptimal outcomes, when analyzed through purely rational lens. Arjan Schackel in the conclusion of his 2010 article "Explaining Regional and Local Government" proposes a policy-specific hypothesis that: "the probability for a policy to be decentralized is dependent upon the intensity of its externalities and scale effects or that social-cultural policies have a higher probability to be decentralized than other policies as it may be expected that ethnic minorities will prioritize having autonomy over these policies." (Schackel, 2010) The same author introduces another element, later in 2014, that would be designated as "self-rule". This would be the expression of this prioritization of having autonomy over policies.

Marks and Hooghe (2001) formulated the demand for new jurisdictions in terms of a normatively superior option compared to purely centralized or decentralized governmental systems.

*"A common element across these literatures is that the dispersion of governance across multiple jurisdictions is both more efficient than and normatively superior to central state monopoly. Most important is the claim that governance must operate at multiple scales in order to capture variations in the territorial reach of policy externalities. Because externalities arising from the provision of public goods vary immensely—from planet-wide in the case of global warming to local in the case of most city services—so should the scale of governance. To internalize externalities, governance must be multi-level"*  
(Marks and Hooghe, 2001 p. 4).

Although subnational and local governments are central to the implementation of climate protection actions and to the raising of the emissions reductions ambitions, as defended here, municipalities often have a jurisdiction that is smaller than the breadth of the externalities of its own policies. This is true in the analyzed case and this formulation supports the need of intermediary levels of government and the establishment of jurisdictions that are more oriented to the task it is dedicated to than to its geographical area.

## 8 Regionalverband Ruhr (RVR)

The Metropole Ruhr has little more than 5 million inhabitants and an area of 4,436 square kilometers, fact that makes the Ruhr area the largest agglomeration in Germany and the fifth-largest in whole Europe (Prosser et al., 2009). The urbanization structure of the Ruhr area can be classified as polycentric, meaning without a clear dominant center, or city. It is formed by 53 municipalities and four districts of different sizes with substantive level of transportation interconnectedness. Although densely populated, the area has the characteristic of non-contiguous urbanization, with relevant presence of rural areas and other land uses not associated with urban in between the centers. Following German's tradition of political independence of the local government, all municipalities have elected mayors and the authorities mentioned before.

Besides its demographic relevance, the area can be placed in the center of many historical events involving Germany's industrial history due to its relevant industrial production. Adopting an even larger scale, the region's steel and coal based industry is central for the European Union's formation with the early integrational approach materialized by the Treaty of Paris in 1951, establishing the European Coal and Steel Community (ECSC).

Despite its economic dynamism of the 1950 and how Germany was relying on it to restructure its industrial production after the second world war, by mid-1960s the region was already facing pressures from foreign steel producers, coal import prices and a global reconfiguration of the industry that used to be the base of the region's economic activity. Already in 1968 the government of NRW announced a policy package addressing structural change in response to expressive loss of jobs caused by the closure of coal mines (Galgóczi, 2014 p. 221). Some policies, such as the creation of universities, were taken at the state level. Nevertheless, what is regarded as pivotal to the regional development of the Ruhr area from the 1970s until the 1990s was the aggressive application of structural funds made available by the European Community, and later by the European Union (WBGU apud. Lackmann, 2016 p. 261). Table 3 presents an attempt to divide the structural change in the Ruhr area into periods, going from 1945-1957, a period of fast economic growth, until a post 2010 period, with focus on green economy and low-carbon development.

**Table 3: Main stages of structural change in the Ruhr.** (Source: Galgóczi, 2014 adapted by Garcia 2017).

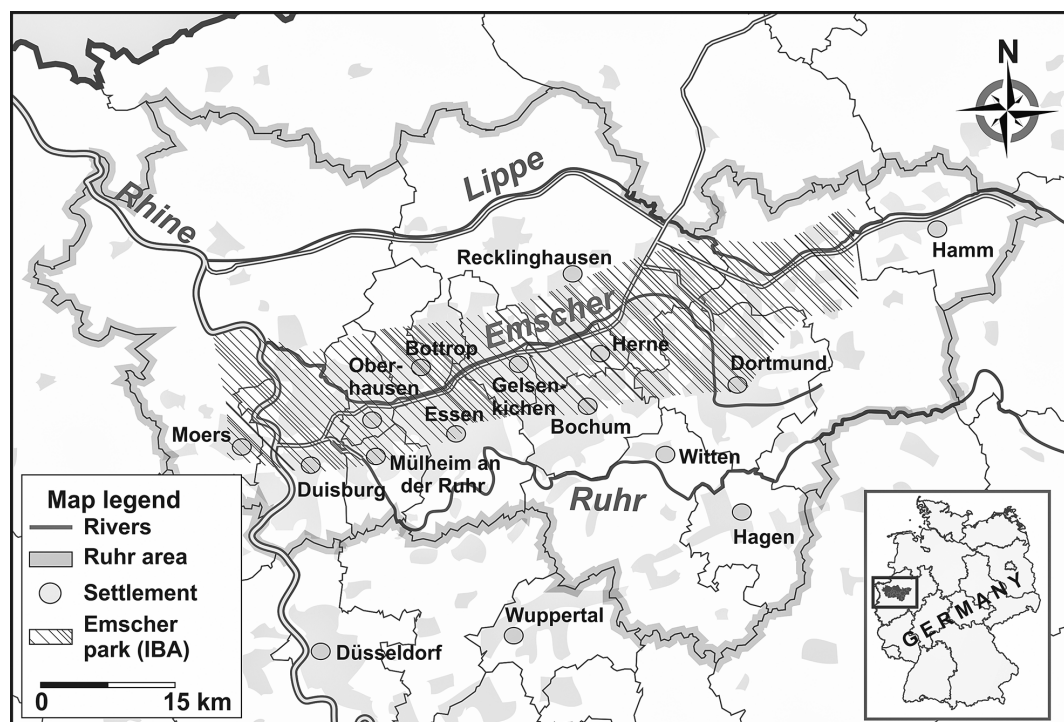
Period	Phase	Characteristics
1945–1957	Rapid growth	Temporary demand pull due to post-war reconstruction and the effects of the Cold War
1957–1990s	Restructuring and transition with lock-in	Crisis in coal mining and closure of pits: international competition and location disadvantages due to changed technology Absorption of workers into other sectors (1960s) Steel crisis in 1974 with overall decline of the region Still locked into steel- and coal-based industries until the mid-1980s



Period	Phase	Characteristics
since 1990s	Diversification, reindustrialization	New frontiers in knowledge-based economy, renewable energy, eco-industry Industrial heritage
From 2010 on	Climate change Policy	Transition to low carbon economy. Stronger focus on renewables after Fukushima, Carbon emissions reduction plans, Nuclear energy phase-out, Coal phase-out.

A wide set of policies was put in place to foster regional development and structural change, mainly bearing in mind the impact on jobs that the closing of mines and steel factories. Interestingly many cultural and regional identity aspects were also subject to governmental action given the strong regional working culture of self-determination and to those policies culminated in 2010 with the choice of the city of Essen and the Ruhr region as the European Capital of Culture.

Figure 3: Map of the Regionalverband Ruhr (Source: Čopić et al., 2014)



The decade of 2010 brought new challenges to the region. One example is the announcement by the Federal Government's Energy Concept in 2010, that establishes Germany's energy policy until 2050, determined the closure of nuclear power plants and gave a clear sign that the process of decarbonizing the energy generation was under way and would mean significant changes for governmental actors, companies and society.

The Regionalverband Ruhr is formed by 53 municipalities and 4 districts (Kreise), which support financially the workings of the institution. The regional planning competence was attributed to the region by state law in 2009. This task

delegation was also followed by a capacity transfer from the state to the regional organization, in which the personnel working with spatial planning is funded the state government. Other functions such as climate protection or regional marketing are funded by the members, as confirmed in interview with an officer working for the RVR (Anonymous).

Interesting enough, the RVR has real authority over the municipalities and districts that are members. It is a limited authority but with profound implications for climate mitigation and adaptation initiatives. The RVR is responsible for managing what is called "green belts" which originally had the objective of preventing the towns to grow together and facilitate the implementation of relevant transportation infrastructure. These have an orientation North-South and date back to a period before the Second World War. Fulfilling this authority, the RVR has to authorize interventions in those areas, sometimes against the interest of individual municipalities. The RVR uses its land-use planning capacities to regulate the access of municipalities to construct in those areas, which relieved the Parliament of the political burden of denying new developments, as stated by an interviewed officer (Anonymous), for example. The author raised a question during the interview process to an officer at Metropole Ruhr: Can the RVR dedicate these areas to climate protection? And the answer provided was that this destination has to represent the will of the constituents of the region, which are the 53 municipalities plus 4 districts part of the Ruhr Parliament. This statement confirms an important capacity to implement and to coordinate climate action at the regional level, if there is political will at the local level.

The officers interviewed for this paper were included in the initiative called "Klimametropole Ruhr 2022". This initiative is a ten year project, started in 2012 by the Ruhr parliament. The regional parliament mandated the authority to a body of professionals so they could deal with the topics of climate protection, climate adaption with focus also on how to communicate it. There is an underlying intention of making the actions and achievements that the region already has visible and promoting climate protection at the regional level. This communication effort also includes other actors and interests groups that are involved in implementing climate protection actions such as individuals, schools, municipalities, companies or civil society's organizations.

This initiative is defined as an umbrella for climate action and is taking place inside the RVR. The main stated objectives are:

- The municipalities of the Ruhr Metropolis, together with the RVR, are actively shaping the Change to a climate-friendly city;
- Numerous civil society initiatives and projects are developing a participatory culture and enabling social participation;
- Climate protection, energy efficiency, renewable energies are important Economic factors;
- An intelligent coexistence of ecology and economy is aimed, without competitive disadvantages against other regions in NRW and focusing on employment potential in the Ruhr Metropolis and;

- Climate change requires cultural change and also offers opportunities for social change<sup>8</sup>.

Following this initiative, one conceptual climate protection plan for the region was elaborated<sup>9</sup> in 2016 mainly focusing on renewable energy and how to supply the energy the region demands. The original idea was that this plan should be followed by a more detailed one, including measurements and incentives to implement solar roofs and other technologies. Unfortunately this initiative could not continue because of availability of resources. The region could not fund this by itself and funds available at the state level, including EU funds, were not made available for the region by the state government. As put by one officer: "*We have a lot of ideas ... but those are only ideas.*"

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<sup>8</sup> Available at: [http://www.ruhr2022.de/downloads/presse/klimawochen/Hintergrundinfo\\_klimametropole\\_RUHR.pdf](http://www.ruhr2022.de/downloads/presse/klimawochen/Hintergrundinfo_klimametropole_RUHR.pdf), last access: 01.07.2018.

<sup>9</sup> Available at: <http://www.metropolenuhr.de/regionalverband-ruhr/umwelt-freiraum/klima/klimaschutz/regionaler-klimaschutz.html>, last access: 01.07.2018.

## 9 Closing Remarks

The implementation of climate policies according to the NDCs presented in the context of the Paris Agreement presents coordination challenges that affect its implementation across different levels of government. This was made clear by the need of a partnership like the Marrakech Partnership for Global Climate.

Attentive to the coordination problem that multiple autonomous actors bring and also considering the fundamental differences that regional organizations face, this paper defends that regional organizations formed by municipalities, such as the RVR should be more intensively included in the implementation of climate protection policies because:

- regional organizations can offer a balanced solution between decentralization and centralization, although that depends on the level of institutionalization and the capacities of the regional organization in case;
- some already experienced the impacts of structural change and in the application of resources from different levels of government in policies related to job-creation and regional development;
- some can present a balanced option between polycentrism and efficient implementation of national objectives, specifically in the case of the implementation of climate protection objectives by reducing the number of interlocutions in a top-down perspective, and by aggregating local preferences in a bottom-up perspective;
- they can function as forums of direct public participation given their geographical distribution and work as messengers of local preferences to higher levels of government;
- they can function as forums to balance economic and environmental objectives locally by creating trust from repeated successful interactions.

The state of North Rhine-Westphalia was an interesting case to explore the multilevel governance aspects of climate policies and its use of funds from the federal level and also participates in co-funding federal initiatives at the local level. The state demonstrated innovative capacities in terms of climate policy but a national framework that influences and supports subnational governments in their transition to a low carbon economy and the creation of jobs appeared fundamental to steer the policy is needed. One evident aspect of this influence and support was the inclusion of a Climate Package for Municipalities in the NRW's Initial Program for Climate Protection (KlimaschutzStartProgramm) of 2011, that consisted of consultation mechanism, capacity building initiatives and supporting programs.

Creating spaces for interaction tend to reduce the isolation of actors and to create trust, which the RVR does. But the interaction has to be a quality one and oriented to greater objectives, such as the National Climate protection Plan. The quality and alignment of this interaction is very much related to the capacity of the regional organization and maybe an initiative analogous to the National Climate Initiative should be considered addressing districts, regions, climate action and regional development needs.

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Dr. Michael Walter	Leader of the Project Management Team/ KlimaExpo.NRW	02.02.2017	In Person
Patrik Abel	Climate Networker/ Energieagentur.NRW	24.03.2017	Teleconference
Juliette Baralon	Project Officer/ The Climate Group	24.03.2017	Teleconference
Rainer van Loon	Project Manager/ Energieagentur.NRW	28.04.2017	In Person
Martin Krings	Head of Unit – Climate Protection and Energy Strategy/ Ministry for Environment, Agriculture, Conservation and Consumer Protection of the State of North Rhine-Westphalia	15.05.2017	In Person
Dr. Wolfgang Beckröge	Head of Unit – Geo-information and Spatial Planning/ Regional Association Ruhr (klimametropole RUHR 2022)	19.10.2017	In Person
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