

TPM

Territorial Performance Monitoring Annexes

Regional Report
North Rhine-Westphalia

Project partner 5

Targeted Analysis 2013/02/13

Final Report | Version 29/June/2012



This report presents the draft final results of a Targeted Analysis conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

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List of abbreviations

BBSR	–	Federal Institute for Research on Building, Urban Affairs and Spatial Development
BMVBS	–	Ministry for Transport, Building and urban development
B-Plan	–	binding land-use plan
BRD	–	Federal Republic of Germany
DESTATIS	–	Federal Statistical Office of Germany
EUROSTAT	–	Statistics Office of the European Union
ERDF	–	European Regional Development Fund
ESDP	–	European Spatial Development Perspective
EU	–	European Union
FNP	–	preparatory land-use plan
GDP	–	gross domestic product
LAU	–	Local administrative unit
LANUV	–	State Agency for Nature, the Environment and Consumer Protection
LEP	–	state development plan
LEPro	–	state development program
MAIS	–	Ministry of Labour, Integration and Social Affairs
MKRO	–	Conference of Ministers for Spatial Planning
MUNLV	–	Ministry of Environmental Affairs, Nature Conservation, Agriculture and Consumer Protection of the Federal State of North Rhine-Westphalia
MWEBWV	–	Ministry of Economic Affairs, Energy, Construction, Housing and Transport of the Federal State of North Rhine-Westphalia
MWME	–	Ministry of Economic Affairs, Mittelstand and Energy of the Federal State of North Rhine-Westphalia
NRW	–	North Rhine-Westphalia
NRO	–	Non-government Organisations
NUTS	–	Nomenclature des unités territoriales statistiques
PPP	–	Public-Private-Partnership
RAA	–	Regional Office for the Support of Children and Young People from Immigrant Families
ROG	–	Federal Spatial Planning Act
UVP	–	environmental impact assessment
UVPG	–	Environmental Impact Assessment Act
ZIM	–	Future Initiative for the Coal and Steel Regions
ZIN	–	Future Initiative for the Regions of North Rhine-Westphalia

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1. Description of the stakeholder and its position in national structure

The Federal State of North Rhine-Westphalia (NRW) is situated in Northwest Germany and is with 17,845,154 inhabitants on an area of approximately 34,000 km², thus 524 inhabitants per km², the most highly and most densely populated state in the Federal Republic of Germany (BRD). The state's area covers a maximum distance of 291 km from north to south, and 266 km from east to west and borders on the German states Lower Saxony, Hessen and Rhineland Palatinate as well as the countries Belgium and the Netherlands.

According to the European Union's *Nomenclature des unités territoriales statistiques* (NUTS), NRW is assigned to the NUTS1 level and comprises a total of five administrative districts/ NUTS2 regions (Arnsberg, Detmold, Düsseldorf, Cologne und Münster), 54 NUTS3 areas and 396 municipalities (Local administrative unit - LAU2) (cf. Federal and Regional Statistics Offices 2010). However, in terms of spatial planning NRW is divided into six spatial planning entities since 2009. These regional planning authorities are the districts of Arnsberg, Detmold, Düsseldorf, Köln and Münster as well as the Ruhr regional association (RVR) (see Figure 1).

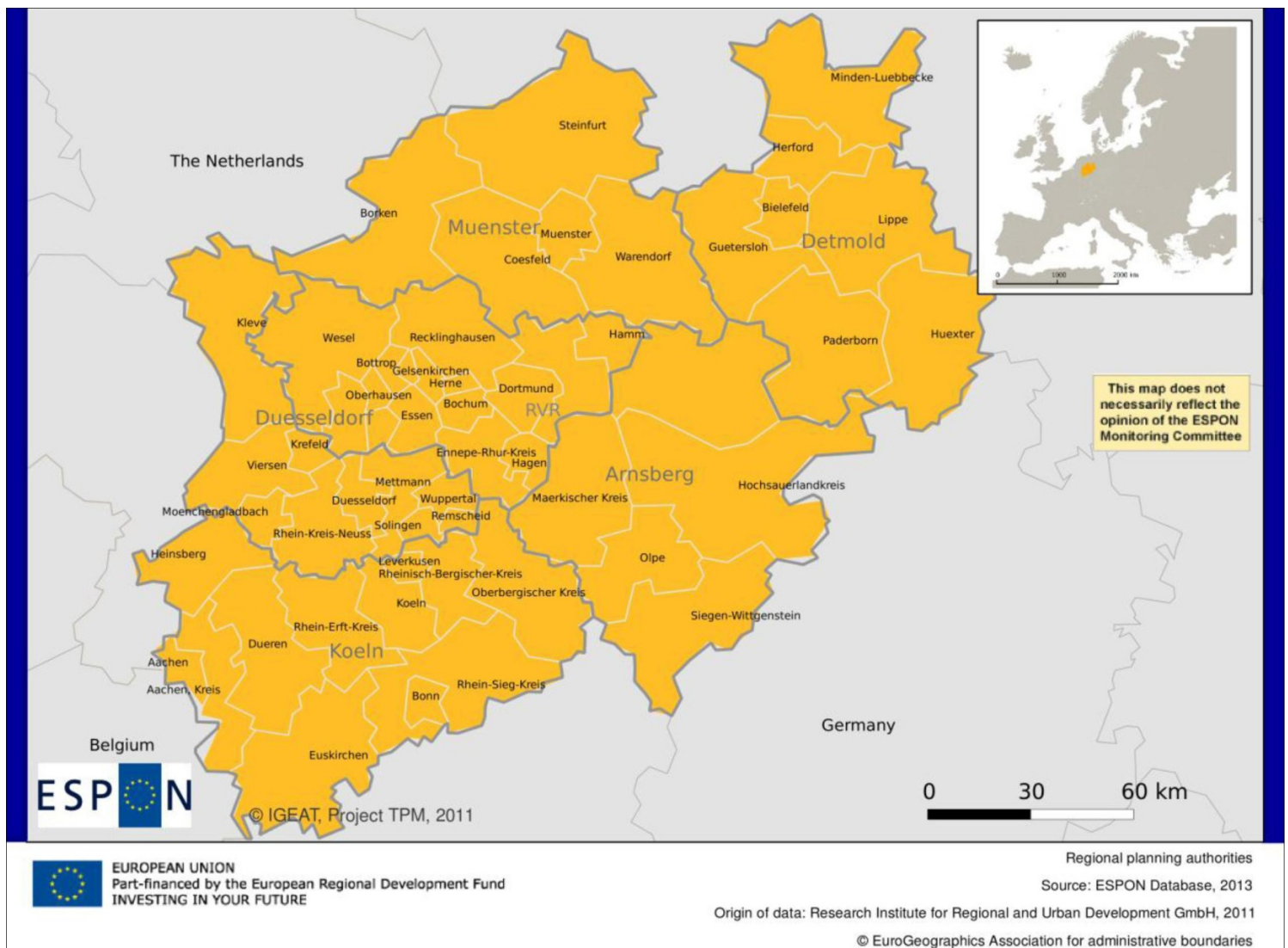


Figure 1: Planning competencies in North Rhine-Westphalia

General economic characteristics

North Rhine-Westphalia is with its gross domestic product (GDP) of 543 billion Euros in 2010 the economically strongest state in Germany. It also has the highest export volume in Germany (172 billion Euros/2010) and is at the same time one of the biggest regional markets in the BRD – the import volume amounted in 2010 more than 176 billion Euros (cf. Statistisches Bundesamt Deutschland 2011). Additionally, almost one quarter of foreign companies operating in Germany is located in NRW. This is not only due to its central location in Europe – 140 millions of people are living within a distance of 500 kilometres from Düsseldorf, which corresponds to more than 40 percent of consumers of the European Union – but also to the good infrastructure and the highly qualified workforce (cf. MWEBWV 2011). There is no other European region with a higher density of research institutions than NRW: these include for example 67 universities, 14 Fraunhofer institutes as well as 12 Max-Planck institutes which are all together one of the biggest employers of the state NRW (cf. MWEBWV 2011).

One of the mainstays of the economy in NRW is the amount of large enterprises. Half of the 50 German enterprises with the highest sales, e.g. Bayer, Bertelsmann or Thyssen-Krupp, have their headquarters in North Rhine-Westphalia. At the same time the state's economy is characterised by medium-sized enterprises. Despite the structural transformation of the North Rhine-Westphalian economy, which started in the early 1960s, the chemical industry, metal production and processing as well as engineering are still key branches in NRW. Nevertheless, the service sector generates approximately 70% of the GDP in NRW and more than six million people are working in this economic sector (cf. MWEBWV 2011).

1.1. The German Planning System

Similar to the political and administrative federal system in Germany, which is based on a division of competence and power on different levels, spatial planning is organized hierarchically too. Each of the sixteen federal states has its own constitution, an elected parliament and its own state government. The states have the right and the power to decide on almost all issues concerning their own territory (cf. Scholl, Elgendy & Nollert 2007: 17). In the following the general principles of the spatial planning in Germany are briefly outlined before the different administrative levels and their competences will be explained.

1.2.1 General principles

The main function of spatial planning in Germany is the development, structuring and securing of its complete geographical outlines and its sub-regions through "comprehensive, supra-local and superordinate spatial structure plans, through spatial planning cooperation and arrangement of spatially significant planning and measurements (§1 I ROG). The leading principle of spatial planning in Germany is the **principle of sustainable spatial development** which was embedded in the course of the amendment of the Federal Spatial Planning Act (ROG) in the year 1998 (cf. Langhagen-Rohrbach 2010: 29). This leading guideline should be achieved by weighing economic, social and ecological issues and requirements of special entities and by bringing them in line. Sustainable spatial development shall consequently cause homogeneous living conditions in the different sub-regions (§ 1 II ROG).

The federal system in Germany is based on the **subsidiary concept**. It states that every decision should be made on the lowest possible political level (cf. Scholl, Elgendy & Nollert 2007: 17). Similar to this concept is the **local planning autonomy** which is embedded in section 28 of the constitution (GG) and states the right of municipal self-government. The municipalities must be guaranteed the right to regulate all local affairs on their own responsibility and competence (cf. Langhagen-Rohrbach 2010: 32). Nevertheless they are bound to the goals and principles of higher administrative levels of spatial planning and are obligated to arrange their plans with their neighbor municipalities (cf. Scholl, Elgendy & Nollert 2007: 18). The dependency to decisions on higher administrative planning levels refers to another important principle in the German spatial planning system, the **mutual feedback principle** (§ 1 III ROG). It states that within the development and structuring of the sub-regions requirements of higher levels have to be taken into account. At the same time the interests of the sub-regions have to be considered by the higher planning authorities (cf. Scholl, Elgendy & Nollert 2007: 20; Langhagen-Rohrbach 2010: 30). Following this principle, the federal spatial planning, by means of the ROG, represents a framework for spatial planning legislations for the federal states. These legislations will be concretized by the lower planning levels. At the same time the municipalities can formulate their requirements that the higher planning levels should adequately consider.

Due to the function of spatial planning as comprehensive and superordinate planning as well as structuring of spatial entities, spatial planning is responsible for the consolidation and coordination of the sectoral planning as well as for the conflation of different space requirements (Durner, Greiving & Reitzig 2011: 383; Langhagen-Rohrbach 2010: 41). This coordination role comprises the realisation of the welfare state (article 20 GG), which commits the state to counteract unequal spatial developments, as well as the coordination of sectoral space-oriented planning (cf. Goppel 1999: 103). This cross-sectional task of spatial planning in Germany is experiencing tension between the **department principle** on the one hand and the **principle of collective responsibility** on the other. The department principle which is embedded in article 65 2 GG, states that every minister is responsible for his own business area and has consequently the right to make decisions for his department, the lower administrative bodies as well as sectoral planning on his own. Because of the partly intensive emphasis of the department principle an overweight of sectoral planning towards spatial planning has risen (cf. Durner, Greiving & Reitzig 2011: 383). The principle of collective responsibilities on the other hand states that important cross-sectoral plans have to be decided collectively so that through this the department principle is partly suppressed.

1.2.2 Federal spatial planning

The highest and most abstract type of spatial planning in Germany is the planning on the federal level (see Figure 2). The federal spatial planning possesses framework legislations and is according to the ROG concerned with preparing the spatial guidelines for the whole federation (cf. Scholl, Elgendy & Nollert 2007: 22). The spatial planning authorities on the federal level are limited to formulating requirements, goals and principles for spatial order. One exception is § 17 ROG. It regulates the responsibilities in the coast area. The states have the planning authority for the German territorial waters, whereas in the exclusive economic zone only the federal level is responsible for spatial planning (cf. Fürst 2010: 49).¹ But most of the direct planning authorities are located on the lower administrative levels.

Besides the Ministry for Transport, Building and Urban Development (BMVBS) also the Conference of Ministers for Spatial Planning (MKRO) deals with spatial planning.

¹ | According to the United Nations Convention on the Law of the Sea (1982) the influence of the Member States in the world's oceans is divided into: (1) the Internal waters (between middle tide high water and middle tide low water), (2) the German territorial waters (until 12 nautical miles) and (3) the exclusive economic zone, which can extend to 200 nautical miles (cf. Fürst 2010: 49).

According to § 26 I ROG basic questions of spatial planning as well as doubts have to be decided by the federal and the state level together. Therefore the MKRO consists of the federal minister for spatial planning and the state ministers responsible for spatial planning. They jointly develop guiding principles for the development of the entire area. With the adoption of the decisions made by the MKRO the members commit themselves to promote their implementation but these decisions have no binding effect (cf. Langhagen-Rohrbach 2010: 33).

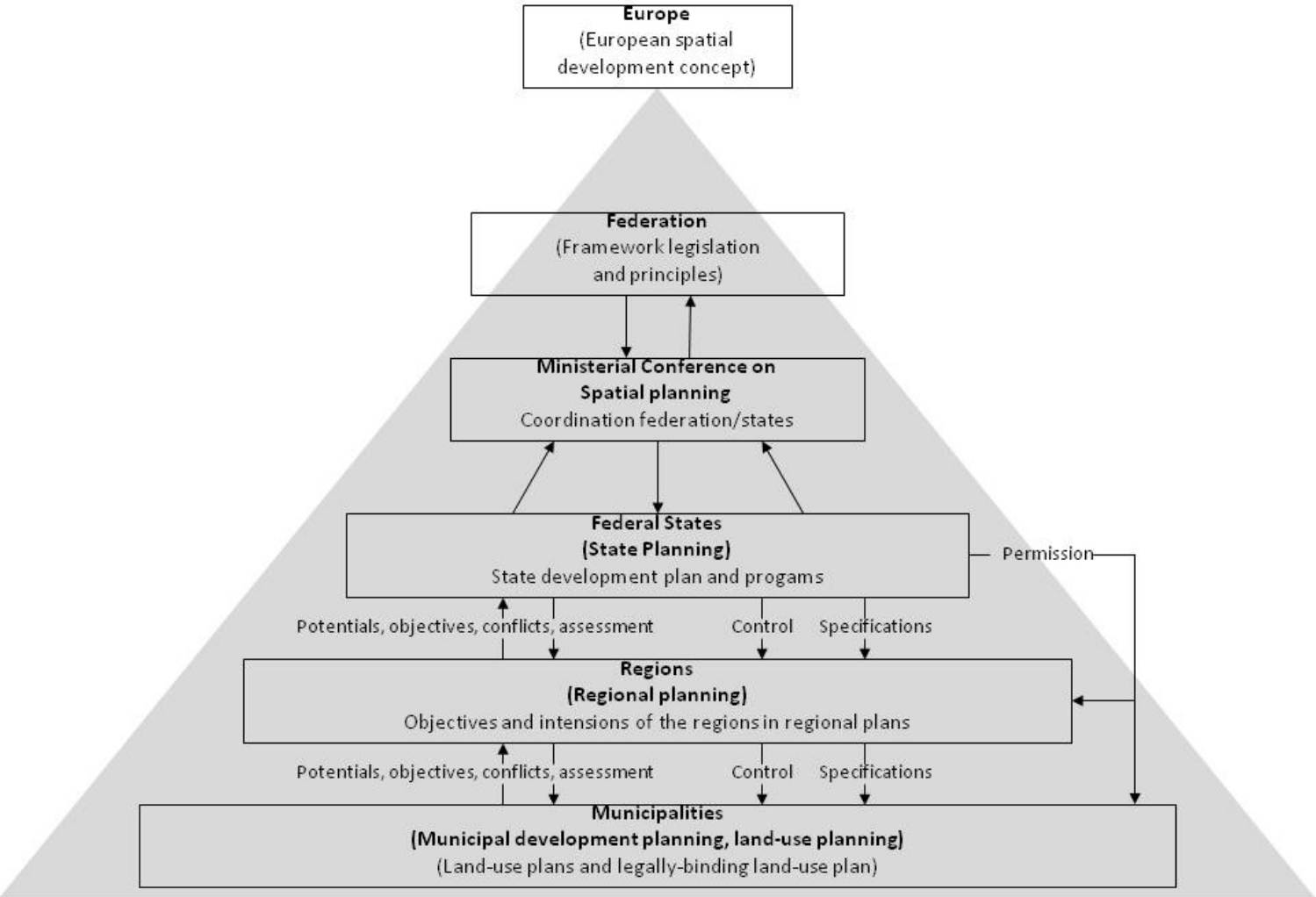


Figure 2: Planning system in Germany

(illustration after Scholl, Elgendy & Nollert 2007 : 19)

1.2.3 State spatial planning

The coordination function also exists on the level of state and regional spatial planning. The commitment of spatial planning to treat all spatial claims equally can vary because of its institutional assignment. The assignment of spatial planning to different ministries has spread out after 1989 with association to the State Chancellery (Hessen, Rhineland-Palatinate and Schleswig-Holstein), the Interior Ministry (Baden-Wuerttemberg and Lower Saxony) and the Ministry of the Environment (Bavaria and North Rhine-Westphalia). Meanwhile an association to the Economy Ministry (e.g. Baden-Wuerttemberg), the Labour Ministry (Mecklenburg-Western Pomerania) or to the Ministry of Agriculture (Lower Saxony) can be seen (cf. Durner, Greiving & Reitzig 2011: 383).

The main task of state spatial planning is the development of strategies for the spatial development of the federal state. The states are obliged to implement a comprehensive and superordinate plan, the spatial structure plan. Together with the state spatial planning act the states use this plan to concretize the framework of the federal spatial planning. Since the federal states differ in size and traditions of administrations, it does not surprise that they also have different terms for the spatial structure plan. Term variations are for example "state development" and "state spatial planning" as well as "program" or "plan" which are respectively used synonymously (cf. Heinrichs 1999: 219f). In North Rhine-Westphalia (NRW) a 'state development plan' (LEP) and a 'state development program' (LEPro) coexist and will be combined and adopted as a law in the new LEP2025 (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 23). The spatial structure plan should illustrate the federal principles and goals as well as to set up detailed guidelines for the lower levels (cf. Scholl, Elgendy & Nollert 2007: 24). It has a long-term nature and covers normally a time period of ten to fifteen years. Therefore it isn't oriented towards normal political time schedules (cf. Langhagen-Rohrbach 2010: 41).

1.2.4 Regional spatial planning

The regional spatial planning is responsible for the cross-sectoral and supra-local planning on the regional level. According to the mutual feedback principle regional spatial planning concretizes the guidelines of the state and hence completes the framework for the autonomous municipalities (cf. Scholl, Elgendy & Nollert 2007: 20). It is also concerned with fulfilling the needs and requirements of the different municipalities in the region. Together with the state spatial planning its task is to assess whether the individual spatial activities are fulfilling the goals and criteria of spatial development (cf. Scholl, Elgendy & Nollert 2007: 26). Just as the state level the regional spatial planning is also obliged to set up a comprehensive and superordinate plan, the regional spatial structure plan. Similar to the time horizon of the LEP the regional spatial structure plan has a long-term nature, too.

In their political and institutional shaping the regional spatial structure plans differ from each other since they are regulated by the different state spatial planning acts. Whereas the three city states (Berlin, Bremen, Hamburg) have waived this planning level completely, the competences vary in the non-city states between counties, district administrations and the planning associations (cf. Scholl, Elgendy & Nollert 2007: 26; Langhagen-Rohrbach 2010: 44).

1.2.5 Municipal spatial planning

The municipal level has a large part of spatial planning competences as well as a great scope within their planning (cf. Scholl, Elgendy & Nollert 2007: 18). Therefore the concrete implementation of spatial planning concentrates on this administrative level. Despite their right of municipal self-government, in line with the mutual feedback principle the municipalities are obliged to consider and to be geared to supra-local planning (cf. Langhagen-Rohrbach 2010: 69). Thereby their main task is to prepare and control the use of land for development and other purposes on the municipal territory. Defined by the Federal Building Code (BauGB) each municipality is responsible for

preparing land-use plans. The urban land-use planning on the municipal level is based on a two-tier system: the preparatory land-use plan (FNP) and the legally-binding land-use plan (B-Plan). The former defines the type of land use for the whole area of the municipality. This plan is only binding for public authorities. The B-Plan defines the detailed category of use and degree of building coverage for individual land parcels or parts of the municipality. In contrast to the state and regional spatial structure plan as well as the FNP, the B-Plan is also binding for the public (cf. Scholl, Elgendy & Nollerst 2007: 28; Langhagen-Rohrbach 2010: 69ff). What is common to all of them according to § 10 I ROG is the obliged participation of the public during the implementation process (cf. Langhagen-Rohrbach 2010: 43).

2. Analysis of the Situation: Awareness of the global challenges, future threats and opportunities in NRW

2.1. Demographic change

2.1.1 Spatial impact of demographic change in North Rhine-Westphalia

In North Rhine-Westphalia, the total population figure is expected to fall from almost 18 million to 17.5 million people by the year 2025 (cf. Cicholas & Ströker 2009: 3f). By 2050, the number of inhabitants will decrease further to 15.9 million people, which means that a population decline of 11.5% is to be assumed between 2008 and 2050 (MGFFI 2009: 8). The recent ESPON project DEMIFER² classifies Europe into seven types of regions³. It is based on four indicators: (1) Share of population aged 20-39 in 2005; (2) Share of population aged 65 and over in 2005; (3) natural population increase per 1000 inhabitants in 2001-2005 as well as (4) net migration per 1000 inhabitants in 2001-2005. All North Rhine-Westphalian districts are classed as being within the group "Euro Standard". This means, that NRW is close to the overall average, but its age structure is slightly older than the average. Regions classed in this group have a positive net migration, whereas the natural population balance is stagnating (cf. Bauer & Fassmann 2010: 53ff).

The population structure and age pyramid are changing in NRW on account of the falling birth rate, rising life expectancy, as well as the growing proportion of people with a history of immigration. While the population structure and age pyramid were characterised in the past by a high proportion of young people and a distinctly lower level of older people, this ratio has shifted considerably over the last few decades. The proportion of people over 60 years of age increased from 20.8% to 25% between 1990 and 2008, with a figure of 32.4% expected in 2025 and as high as 38.4% for 2050 (cf. MGFFI 2009:11). The proportion of younger population groups will therefore decrease accordingly. While the percentage of those under 20 years old declined from 20.8% to 20.4% between 1990 and 2008, this figure will fall to 17.1% by 2025 and to 15.5% by 2050. The proportion of those between 20 and 40 years of age is expected to be 21% in 2050 (1990: 31.5%), with the 40 – 60 age group amounting to 25.1% (1990: 26.8%) (cf. MGFFI 2009: 11). Interestingly, the median age is relatively young in comparison to other German regions. In general, the picture resulting from benchmarking indicators of demography can be described as average performance. In relation to other European countries, the population tends to a higher share of elderly people, a relatively old median age but also high life expectancy.

At the regional⁴ level, there is evidence of distinct differences in this context in the model calculation results for the counties and the cities not attached to a county (see Figure 3). Although the projection for the entire federal state assumes a continuous decline in the population, population growth is predicted for a total of six independent cities and six counties. The strongest relative growth rates up to 2025 are quoted in this regard for the independent cities along the Rhine, i.e. Bonn (+9.7%), Düsseldorf (+9.4%) and Cologne

2 | DEMIFER - Demographic and Migratory Flows Affecting European Regions and Cities

(see http://www.espon.eu/main/Menu_Projects/Menu_AppliedResearch/demifer.html)

3 | (1) Euro Standard, (2) Challenge of Labour Force, (3) Family Potentials, (4) Challenge of Ageing, (5) Challenge of Decline, (6) Young Potentials and (7) Overseas (for further information see:

http://www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/DEMIFER/FinalReport/DEMIFER_Deliverable_D3_final.pdf)

4 | It has to be stated, that the expression 'region' is used in the TPM project as a synonym for the five partner regions (GDA, Catalonia, Flanders, Navarra and NRW). Unfortunately, from a legislative perspective this is inappropriate in NRW, since the administrative level of the case study is at State level. In this report, the term 'region' is only used as a synonym for the districts (NUTS2).

(+9.3%) (cf. MGFFI 2009: 8), with the east and southeast sub-regions of NRW as well as the areas in the eastern Ruhr area affected by shrinkage processes (EI14: 1f) [e.g. Hagen (-12.1%), Remscheid (-12.0%), Höxter county (-11.6%) and the Märkischer Kreis county (-11.4%) (cf. MGFFI 2009: 8)].

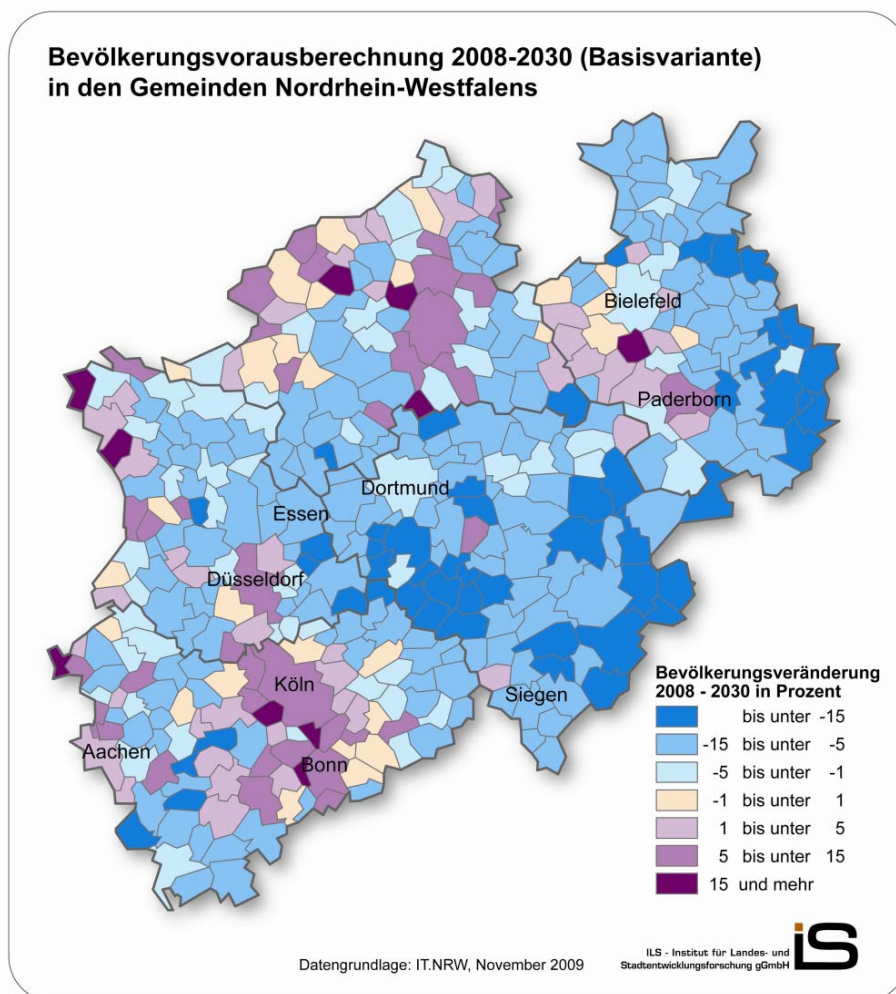


Figure 3: Population projection 2008-2030 (basic version) for the municipalities in NRW

The ageing of the North Rhine-Westphalian population is also evident in the change of the labour force number, which is likely to fall. Considerable regional differences are also to be expected in this regard, with growth to be anticipated only in Düsseldorf, Cologne and Bonn⁵. However, in addition to the number of persons gainfully employed in NRW, the changes will also affect the age structure of this group. The 40 – 45 year-old age group, which accounted for the largest proportion of the labour force with 16.3% in 2008, will relinquish this status to the 50 – 55 year-old age group in 2050 (cf. Cicholas & Ströker 2009: 12).

The changes within the population structure of NRW have an influence on the number of households in NRW: in parts of NRW these will increase and their structure will alter. These developments also appear to differ very much regionally. A growth in household numbers can only be expected in Düsseldorf, Cologne, Bonn, Aachen, Münster and Leverkusen, with this applying to a total of 15 counties in NRW. The largest growth rates are quoted for the counties Borken, Kleve and Rhine-Erft (cf. Cicholas & Ströker 2009:

⁵ | Depending on the projection variation, this is also true for Aachen, Leverkusen, Münster, Rhine-Erft District, as well as the districts of Borken, Gütersloh and Paderborn (cf. Cicholas & Ströker 2009: 12).

8). An increase in households with three or more persons can only be recognised for the three independent cities Cologne, Düsseldorf and Bonn, whereas the majority of the counties and independent cities in NRW is particularly affected by a rise in the number of one and two-person households (cf. Cicholas & Ströker 2009: 8).

The noticeable increase in one and two-person households in some places is leading to an upturn in the number of households in some locations despite the decline in the number of inhabitants and, thus, also to an increase of settlement area (cf. Mielke & Münter 2010: 58). Around 15 hectares of natural areas per day are being turned into settlement and transport areas (MUNLV 2009a: 214). While there is evidence of a distinct decrease in agricultural areas, a considerable increase can be found in building and open spaces. Forest, recreation, transport and water areas have also increased over the years. At this juncture, a challenge specific to NRW becomes apparent. Meant by this in particular, in addition to the size of the region, is its very heterogeneous structure, which, as explained, is also expressed in the sphere of the demographic development of some sub-regions of NRW. Despite the negative overall tendency, a number of growth regions can also be recognised, for example, besides clearly shrinking regions and urban districts (cf. EI02⁶: 3f). Shrinking and still growing municipalities can sometimes be found in direct spatial vicinity of each other, with this juxtaposition also observed within individual cities (cf. Danielzyk & Meyer 2010: 5). Accordingly, the demographic development and its spatial impact in NRW have to be examined in an extremely differentiated manner.

2.1.2 Manner of focusing on demographic change

Demographic development plays an important role in political discussions and official documents of state spatial planning and state government. The decisive elements of demographic change in NRW, such as ageing, heterogeneous structure as well as population shrinkage and their regional differences represent a central element in state spatial planning work and are also to be taken up in the new LEP (cf. EI02: 2). Although demographic change is addressed in a number of official documents, sometimes explicitly sometimes implicit the issue is only dealt with intensively in the specially designated documents in this regard (Demographic Change in NRW 2009; Impact of Demographic Change in NRW 2009). Also linked to the challenge of demographic change in terms of content is the topic of area and open space protection. This issue is also an important part of all the official state government and state spatial planning documents as well as political discussions and is taken up in a cross-sectoral way.

2.1.3 Threats and risks

In European comparison the benchmarking indicators of demography used in the Interim Report (young age dependency ratio 2009, old age dependency ratio 2009 (see Figure 4) median age 2008 as well as population growth 1999-2009) can in general be described as average performance. The population tends to a higher share of elderly people as well as a relatively old median age. Only in comparison to other German states, the latter one is relatively young. As a consequence, demographic change has given rise to substantial shrinking tendencies and huge vacancy rates in some sub-regions and municipalities of NRW. The declining population development involves dangers relating to the provision of basic services for the population as well as for the local supply and housing function (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 49). Adaptation of the social and technical structure of municipalities is required in many cases on account of the change in the population structure. The additional use of land despite declining population figures is leading to excessive debts in many municipalities by virtue of the consequential costs often being underestimated (cf. Mielke & Münter 2010: 64).

⁶ | The interviews conducted with people working in state or regional spatial planning as well as the Ministry of Economic Affairs, Energy, Construction, Housing and Transport of the Federal State of North Rhine-Westphalia (MWEBWV) were anonymised and coded.

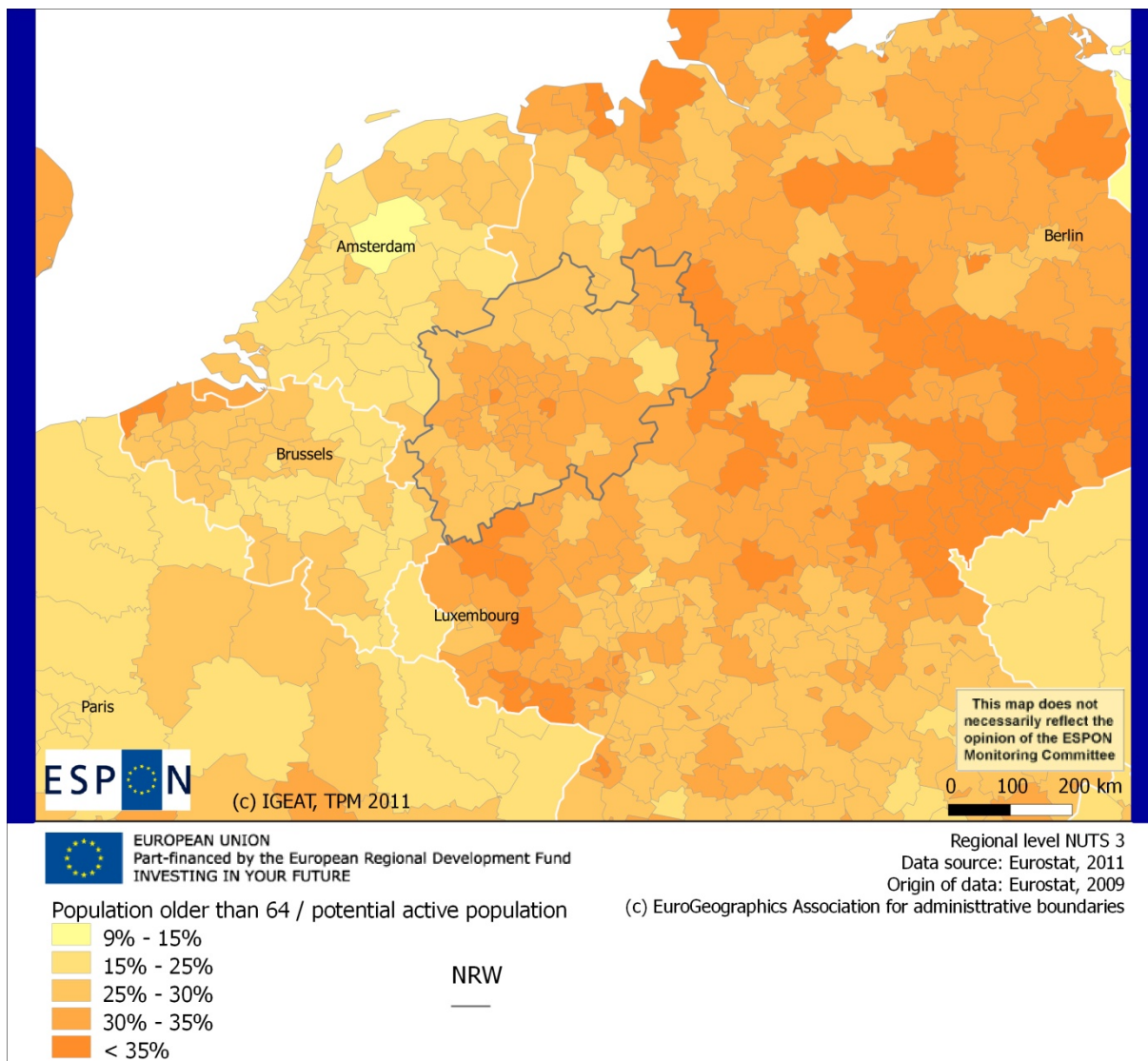


Figure 4: Old age dependency ratio, 2009

In view of the rising numbers of older people, the demands on social infrastructure facilities are also changing, with needs-based housing and care forms as an example of this. Hospital planning also has to be adjusted to demographic change in order to continue to guarantee the comprehensive provision of health care institutions even in shrinking areas. There is an urgent need to act in the two latter areas on account of the severe changes occurring. In addition to the adaptation of the infrastructure, demographic change also entails necessary changes in the area of education, in relation to the supply and demand of jobs, as well as on questions of material and social security for the elderly, which have to be resolved as a matter of urgency. A further danger exists in the high level of land consumption in NRW. Sealing the soil surfaces leads to the loss of their natural functions as, for example, habitats for flora and fauna or for the genesis of ground water. In addition, biotope structures are often cut up by housing and industrial estates, with the habitats of plant and animals becoming separated. However, land use can also have negative consequences for people, with the loss, for example, of retention areas for flood protection as well as recreational areas (cf. MUNLV 2009a: 217).

2.1.4 Opportunities

In the area of demographic change, the high proportion of people with a migratory background is perceived as being a particularly good opportunity for the economic development of NRW. It is lamented in a number of official documents, however, that the potential of large sections of the population with a background of migration is not being taken advantage of on account of their lack of integration. Attempts are accordingly being made through numerous measures, such as the RAA (Regional Office for the Support of Children and Young People from Immigrant Families) to exploit this potential by way of targeted support (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 59). However, demographic change can also open up new opportunities in the area of urban development, e.g. through shrinkage gaps caused by demolition being used to create urban open spaces. This can lead to the creation of cold air corridors, which represent new urban qualities for the population in high-density districts, in particular (cf. EI05: 9). The rivalry for residents engaged in by a number of municipalities on account of the declining population figures can only be countered via regional cooperation because this problem cannot be solved in individual municipalities alone (cf. EI10: 6). One possibility could be the merging of municipalities on account of these *“not being able to survive in the long term because of demographic change [...]”* (cf. EI09: 6).

2.2 Globalisation

2.2.1 Spatial impact of globalisation in North Rhine-Westphalia

The impact of globalisation is made especially clear in North Rhine-Westphalia by the strongly export-oriented economy of the federal state of NRW. In addition to contributing over 20% towards the overall gross domestic product (GDP) in Germany, it is also ranked first in the export sector and is therefore distinctly characterised by international networking (cf. MWEBWV 2010: 26; NRWSPD & Bündnis 90/Die Grünen 2010: 23). As in all other regions inside and outside of Europe, NRW is also competing for international enterprises and well-trained personnel in the context of its international networking. Spatial consequences can also be deduced from this, e.g. the global competition for investments gives rise to the possible risk of jobs and know-how being lost (cf. EI02: 5). On the other hand, demographic changes, such as the change in the number and structure of the workforce, sometimes involve serious consequences with regard to securing skilled personnel (cf. MWEBWV 2010: 35).

Correlations and interdependences also exist with other global challenges such as climate change and energy supply. This clearly restricts the scope for action in the areas of policy and planning for dealing with the spatial impact of globalisation. Objectives and measures in the sphere of energy supply and climate change must accordingly be compatible with those for the overall economic development of the state *“to enable us to organise energy supply and measures against climate change in such a way that we also remain industrially competitive”* (EI02: 5). In addition to the linkage with the topics of climate change and energy supply, the increasing economic interdependence in NRW is also examined from the transport policy perspective. On account of the importance of NRW as a transit region, the intensive external relations and the traffic levels in the conurbations, high demands are made on transport infrastructure and organisation.

2.2.2 Manner of focusing on globalisation

Globalisation is examined, in particular, from the economic perspective in NRW and mainly finds its way into official documents and political discussions via the issue of competitiveness. Different sub-areas of globalisation, e.g. greater international networking, the associated competitiveness required, rising traffic volumes etc., play a

significant part in virtually all the documents examined and in political discussions. Differences in the perception of the challenge of globalisation can, however, be discerned at the various administrative levels.

“But when I look at the renowned regional development concepts that they⁷ had to elaborate, I find that the term “globalisation” meant nothing to most of them. They were stewing in their own juice and did not see this threat from outside at all at the time. This is changing slowly. Most of them have developed more of an international perspective now and know what is going on in other countries and how this can influence their region in normal terms” (EI08: 2).

This does not mean, however, that the two administrative levels, federal state and district administration, carry out discussions separately from each other. The Ministry of Economic Affairs, for example, has made increasing endeavours to convince the regions to focus more on the issue of globalisation.

“Our success in the regions varies in this regard. I would say that some regions have grasped this very quickly, while other regions are perhaps still lagging behind even today. [...] In my opinion, this does not have so much to do with the organisation and structure but, rather, primarily with the people and the heads there. That’s why I have mentioned it; it is typically those regions [which began to focus more on the issue of globalisation; authors note] where the higher education institutions are located” (EI08: 4).

Conclusions with regard to the effects of increasing international networking on the competitive situations between cities and municipalities have not yet been drawn in older documents. This is only taken up as a topic in explicit terms more recently. This is where the term ‘soft location factors’ and the reference to investment location competition between cities and regions for enterprises and well-trained personnel are first mentioned. The issue of the environmental technology market is taken up, in particular, in publications by the Ministry of Economic Affairs, Mittelstand and Energy of the Federal State of North Rhine-Westphalia (MWME) from 2010 in the context of globalisation. There is also, in terms of content, close interaction with the challenge of climate change in this area. This topic is also being looked at by the current government in NRW and has been incorporated into official documents of various departments and planning authorities under the heading of an ‘environmental economic strategy’ (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 37f).

2.2.3 Threats and risks

Risks arising from globalisation are rarely referred to specifically in official documents. Only one development representing a danger for the economy of North Rhine-Westphalia and its ability to assert itself in the context of globalisation is mentioned in all the documents – i.e. the shortage of skilled personnel. The changes in the number and structure of the labour force in NRW thus has serious consequences for the securing of skilled personnel, which already represents an obstacle to further economic development in a number of regions in the state, especially for small and medium-sized enterprises as well as craft and trade firms (cf. Landesregierung NRW 2010: 11). The demographic development already discussed will exacerbate this problem further. The causes of this can be seen in the migration of well-trained young people as well as the unused potential of large sections of the population with a migratory background on account of a lack of

⁷ | This goes back to the beginnings of regionalised structural policy, which has quite a long tradition in NRW. This was also supposed to involve non-state players, such as chambers of commerce, associations and trade unions, in structural policy measures and thus generate new forms of cooperation (cf. Voelzkow 1994: 347). This approach was realised for the first time in 1987 under the title ‘Future Initiative for the Coal and Steel Regions’ (ZIM) and was extended to the entire area of NRW under the name ‘Future Initiative for the Regions of North Rhine-Westphalia’ (ZIN) (cf. Danielzyk; Wood 2004: 198).

integration (cf. MWEBWV 2010: 35). Furthermore, the share of population aged 15-64 with tertiary education (17.2%) is, in comparison to other European regions, not very high.⁸ The relatively low shares of employment in the sectors of information/communication (3.5%) as well as professional, scientific and technical activities (5%) could also be a potential risk for the future economic development of NRW (Schindler & Lennert 2011e: 10f).

The globalisation vulnerability index, produced by the study "Regions 2020" of the European Commission in January 2009 forecasts problems for the further development of NRW. The index is a combination of five key indicators: (1) productivity growth 2020, (2) employment rate 2020, (3) unemployment rate 2020, (4) high educational attainment 2020 as well as (5) low educational attainment 2020. It has a fix range of 0-100 being 0 the best score and 100 the worst and is presented in the form of a relative comparison among EU regions (cf. Mastrostefano et al. 2009: 18). The five districts in NRW are positioned at the middle with Cologne having the best position with a score of 53. The different scores are divided in four classifications. Except the district of Arnsberg, all districts in NRW are part of the group 'leading in 2005, lagging in 2020'. Nonetheless, it has to be stated, that their positions are not extreme; the points are positioned close to the EU average. Only Arnsberg is classified in the group 'lagging in 2005 and 2020, but similar to the other four districts, it is positioned near the EU average (cf. Mastrostefano et al. 2009: 16ff).

In addition to the shortage of skilled labour, the further development of the processing and manufacturing industry is also viewed with concern. Despite the present boom, it is feared that this could be subjected to increasing pressure on account of globalisation. After the Ruhr region and the Bergisch City Triangle, a number of individual regions whose industry is still prospering, such as the Sauerland, are also affected due to the combination with demographic developments – i.e. the huge population shrinkage in some areas (cf. EI04: 4). Risks also arise regarding the traffic situation in NRW, resulting from increasing economic integration. In view of the growth forecasts for goods traffic, the state NRW is under the threat of *"suffocating in a permanent traffic jam"* (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 52). The need to take action would therefore likewise appear to be urgent in this area, something that is also clearly emphasised by the state planning authority (cf. EI03: 22).

2.2.4 Opportunities

The frequent emphasis on opportunities is also noticeable in the area of globalisation. The understanding of the 1990s, when globalisation was predominantly felt to be a threat, has now been eliminated. Globalisation represents an opportunity for NRW insofar as a great deal of companies that have so far mainly produced for the domestic market are now taking on an international perspective, which could also create jobs in the region (cf. EI08: 3). On account of its favourable location regarding transport, NRW has also been able to benefit from globalisation as well as cooperation with other important global players. For this reason, existing close relations, e.g. with the USA, Japan and China, are to be developed further. Transnational cooperation is therefore to be expanded further and obstacles removed (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 83). In terms of European benchmarking (see ESPON TPM Interim Report Quantitative Benchmarking) of the challenge globalisation, NRW accomplishes an overall good performance with minor fields that seek improvement (see chapter 2.2.3 Threats and risks).

Besides the high accessibility of the region, the high tourism occupancy rate, the low number of early school leavers (11.8%)⁹ as well as the low unemployment rate (7.8%)¹⁰

⁸ | In comparison the shares of the partner region in TPM: Catalonia – 25.8%; Greater Dublin Area – 32.9%; Flanders – 28.1% and Navarra – 36% (cf. Schindler & Lennert 2011a-d).

⁹ | In comparison the shares of the partner region in TPM: Catalonia – 28.6%; Greater Dublin Area – 14.4%; Flanders – 12.8% and Navarra – 16.8% (cf. Schindler & Lennert 2011a-d).

¹⁰ | In comparison the shares of the partner region in TPM: Catalonia – 16.2%; Greater Dublin Area – 11.3%; Flanders – 4.9% and Navarra – 1% (cf. Schindler & Lennert 2011a-d).

(see Figure 5) represent indicators which score well in the European context (cf. Schindler & Lennert 2011e: 11). Especially the high relative number of patents filed shows the competitiveness of NRW on the global market since patents are an indicator for the capacity of the region's economy to translate research into economic production. Within the DG REGIO study "Regional Challenges in the Perspective of 2020 - Regional disparities and future challenges" the North Rhine-Westphalian districts are classified in a medium position concerning their degree of sensitivity to globalisation. The study focuses on the comparative advantage of regions to participate and benefit from increased trade integration. It is based on six different indicators: (1) medium high-tech manufacturing, (2) business and other services, (3) people 15 years old and over with completed tertiary education attainment level (2007), (4) growth in GDP per capita (average 1995-2006); (5) total employment growth rate (average 1995-2007), (6) employment in the tourist sector as share of total employment. The regions are classified in three categories. Except the district of Cologne, all districts in NRW are assigned to the category "intermediate regions showing positive traits but not standing out as the previous group". Only Cologne is part of the following classification "areas with relatively low sensitivity to globalisation which can be considered highly beneficiary of globalisation" (cf. Cripps et al. 2009: 23ff).

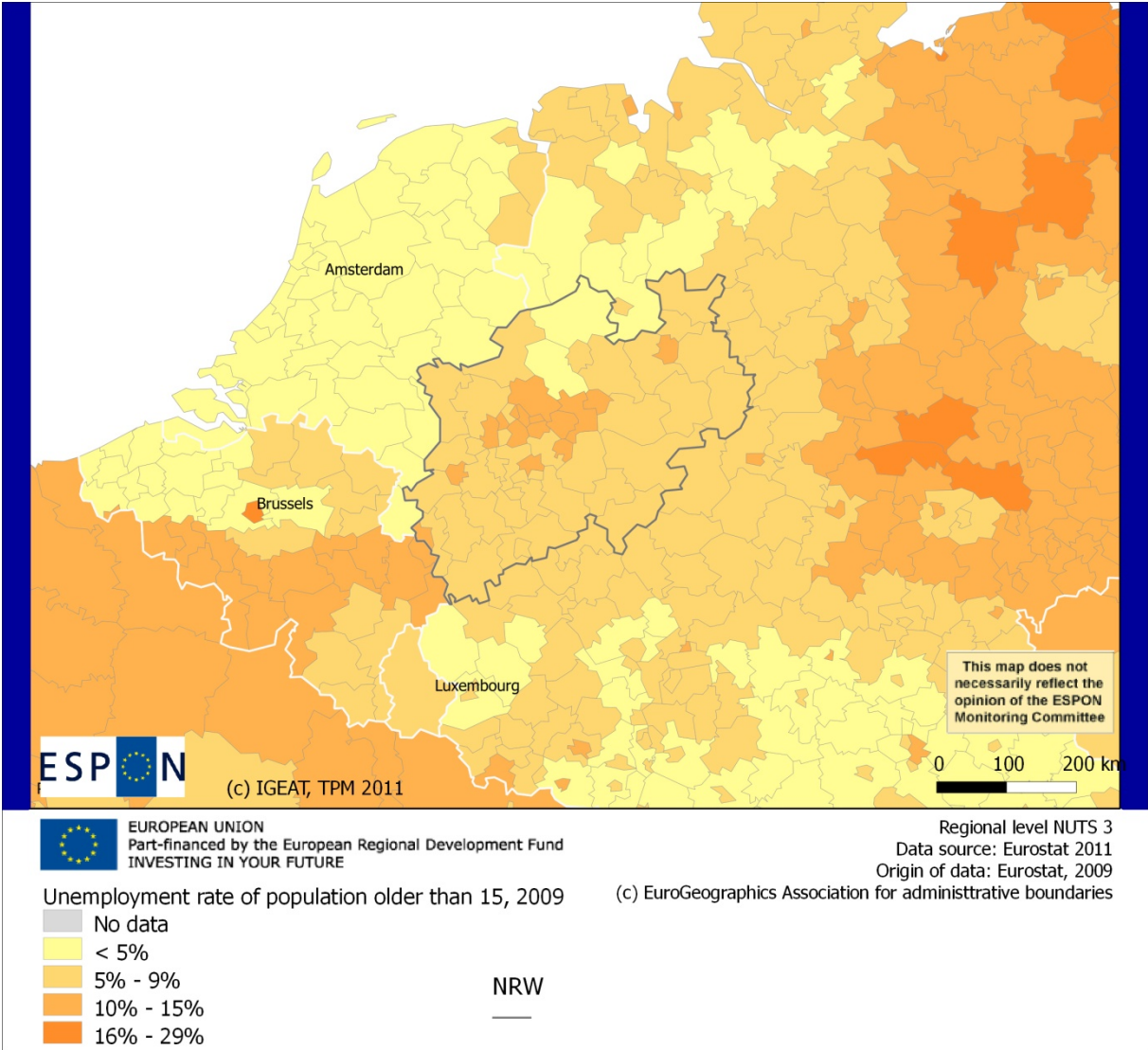


Figure 5: Unemployment rate, 2009

2.3 Climate change

2.3.1 Spatial impact of climate change in North Rhine-Westphalia

With emissions totalling 317 million tons of CO₂ equivalents (2005), corresponding to approximately one third of the entire emissions for Germany (cf. MUNLV 2009a: 110), North Rhine-Westphalia is highly involved in causing climate change. Spatial effects are already noticeable, including the change in temperature extremes. This will manifest itself in rising temperatures, a longer-term decline in the number of days of ice and frost, an increase in the number of summery and hot days, more extreme weather events with precipitation, as well as the increased frequency of hurricanes (cf. MUNLV 2009a: 122f). However, the climatic changes in NRW display regional difference in some respects.



Figure 6: Natural spatial units of NRW

According to the climate projections presented in the report entitled 'Adaptation to climate change – a strategy for North Rhine-Westphalia' (Ministry of Environmental Affairs, Nature Conservation, Agriculture and Consumer Protection of the Federal State of North Rhine-Westphalia - MUNLV), a tendency toward somewhat more extensive warming of the Weser Hills, Westphalia Bay, as well as the Sauerland and Siegerland regions can be expected, while the warming phenomenon in the Lower Rhine area will not be as pronounced (cf. MUNLV 2009b: 40). Given that the East-West gradient of the temperature development is very slight, however, this is by no means a foregone conclusion. Nonetheless, it does confirm the trend already predicted for NRW by global models. The same applies to opinions given in relation to precipitation amounts in the

future, which are even more uncertain. They predict a greater increase in precipitation for the Weser Hills than in the Lower Rhine, Westphalia Bay and Westphalia Lowland areas (cf. MUNLV 2009b: 41). Increased frequency of hurricanes is to be expected in the winter months, especially in parts of the Weser Hills, the Lower Rhine and Westphalia Lowland.

Climate change also affects the most varied areas of life, nature and the economy in NRW. The climate changes can, for example, have an impact of biological diversity, the composition of biotic communities, as well as the biotopes of species (cf. MUNLV 2009a: 32). Less diversity of species is to be anticipated for NRW in the future. However, the impact of climate change will also be felt in the management of water resources, especially in relation to flood protection, sewage disposal and drinking water supplies (cf. MUNLV 2009a: 125). Climatic changes also influences the forestry sector in NRW, as was made clear in 2007, for example, by Hurricane Kyrill, which resulted in extreme damage, with at least 15 million of solid cubic metre timber destroyed (cf. MUNLV 2009b: 64). Winter sports tourism is also particularly susceptible to climate change in NRW on account of the number of days of snowfall decreasing considerably over the next few decades (cf. MUNLV 2009a: 31).

2.3.2 Manner of focusing on climate change

Climate change plays an important role in the official state planning and state government documents as well as in policy discussions and is becoming a central component of the new LEP in addition to demographic change (cf. E102: 2). The climatic changes and their spatial consequences for NRW, such as the impact on the urban climate as well as on water, agricultural and forestry management, are discussed in detailed documents of the Ministry of Environment which are dealing explicitly with the issue of climate change, such as the 'NRW environmental report' and the report entitled 'Adaptation to climate change – a strategy for North Rhine-Westphalia'. However, the subject of climate change has also found its way into interdisciplinary state administration and state spatial planning documents. What all the documents have in common is, in particular, that they the content of the topic into two sections:

"One the one hand, it is a case of adapting to the consequences of climate change which we cannot influence in any way. On the other hand, there is the question of what an industrial region like North Rhine-Westphalia can do to help put a stop to climate change" (E102: 4).

In addition to measures aimed at helping to protect the climate and substantially reducing the region's greenhouse gas emission, the climate policy of North Rhine-Westphalia also involves coming up with strategies to adapt to the consequences of climate change that can no longer be averted for the individual regions of NRW and various sectors (cf. E102: 4; MUNLV 2009a: 109). In this regard, the climate policy of North Rhine-Westphalia follows the international discussion on synergies and interactions between the 'adaptation' and 'mitigation' strategies.

2.3.3 Threats and risks

NRW's performance in terms of climate change lies mostly below the European averages. Especially the high percentage of sealed soil (9.3%)¹¹ (see Figure 7: Soil sealing, 2007), low share of NATURA 2000 areas (8.4%)¹², high concentration of particulate matter at surface level as well as comparably many days exceeding the

¹¹ | In comparison the shares of the partner region in TPM: Catalonia – 2.8%; Greater Dublin Area – 1.5%; Flanders – 10% and Navarra – 10.9% (cf. Schindler & Lennert 2011a-d).

¹² | In comparison the shares of the partner region in TPM: Catalonia – 28.8%; Greater Dublin Area – 8.7%; Flanders – 12.5% and Navarra – 24% (cf. Schindler & Lennert 2011a-d).

standard ozone concentration (13.3days)¹³ are additional representatives of NRW’s bad score in tackling climate change (cf. Schindler & Lennert 2011: 8f; 19). Threats and risks of climate change for the spatial development of NRW have already been discussed in detail in section 2.3.1, which is why only a short list of the individual areas affected is given at this point. Dangers associated with climate change exist, for example, in some parts of NRW mainly on account of the increased frequency of hurricanes, which can considerably increase the risk of uprooted trees in the areas affected (cf. MUNLV 2009a: 31).

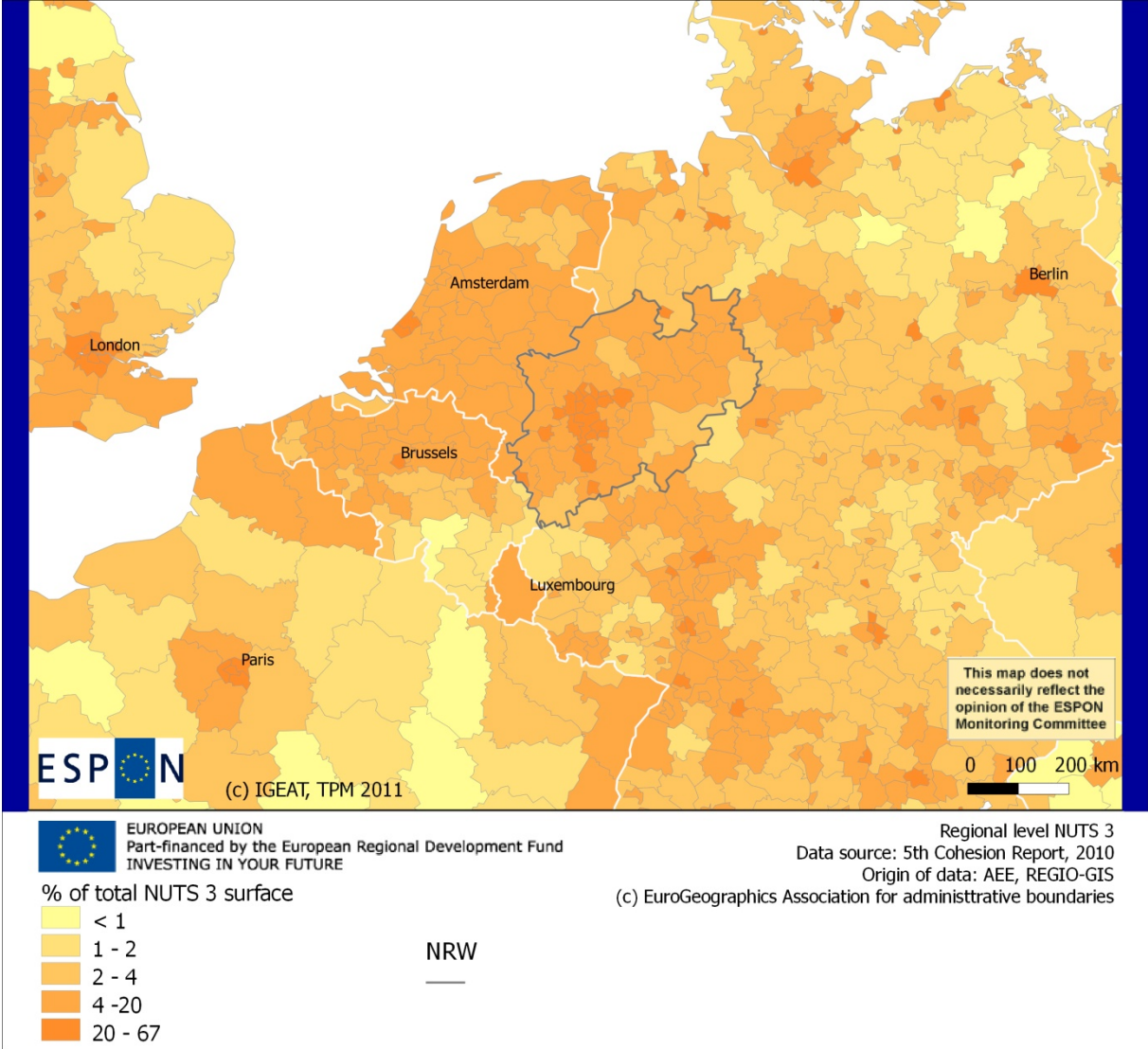


Figure 7: Soil sealing, 2007

Furthermore, climate change has a serious impact on biological diversity, the composition of symbiotic communities and the propagation areas of species. Effects on people result mainly from susceptibility to heat. Especially affected by this will be people living in densely populated areas and cities of the Ruhr region by virtue of the lack of compensating effects, such as green spaces (cf. MUNLV 2009a: 32). From the economic perspective, climate change holds dangers for, among other things, the areas of water management and winter sports tourism (cf. MUNLV 2009a: 31f). The effects on agriculture can be seen as being more positive to a great extent (cf. section 5.3.2),

¹³ | In comparison the shares of the partner region in TPM: Catalonia – 13.5 days; Greater Dublin Area – 4.72 days; Flanders – 10.5 days and Navarra – 0.25 days (cf. Schindler & Lennert 2011a-d).

though this will vary considerably within the state. Regional differences can arise on account of the varying soil characteristics and properties. Regions where soils have low water storage capacities can thus be affected more by the climatic changes (cf. MUNLV 2009a: 31). Although the consequences of climate change in NRW can be classified as moderate, on account of the high population density, expensive infrastructure and a pronounced agricultural and forestry sector, there is, however, a risk of major economic damage as well as harm and danger to people and the environment even in the case of minor climate changes (cf. MUNLV 2009a: 127). Early adaptation to the consequences of climate change in NRW is therefore indispensable.

2.3.4 Opportunities

Compared to other regions of Europe and the world, the consequences of climate change in NRW can be classified as moderate. In the agricultural sector, both negative and positive effects can be anticipated, depending on the soil properties in the individual regions of NRW as well as the sufficient availability of water. Although soil changes that can be detected currently cannot definitely be attributed to climatic factors, there are some indications that do suggest this in part. A lower number of days of frost and ice, for example, indicates a higher degree of susceptibility for soils to compact, which can lead to increased surface runoff with the greater likelihood of severe rainfall (cf. MUNLV 2009a: 226). On the other hand, the warmer temperatures and resulting lengthening of the vegetation period combined with continued sufficient availability of water in the future will lead more to higher yields, with the result that the agricultural sector in North Rhine-Westphalia will tend to profit more from the anticipated climate changes (cf. MUNLV 2009a: 31).

The challenge of climate protection is not only seen as a liability; it is also perceived as an opportunity on account of it also contributing towards the emergence of new markets. NRW is attempting to take advantage of this challenge to establish itself as a world-class participant on the environmental technology market (cf. MWME 2010: 26; 56). The cross-departmental environmental economic strategy and the support of innovations in the areas referred to should make this possible.

2.4 Energy supply

2.4.1 Energy supply in North Rhine-Westphalia

The highest emissions of the total amount to 317 million tons of CO₂ equivalents (cf. section 2.3.1) result in main parts from the use of fossil fuels in the energy sector, especially in relation to public electricity and heat supply. Other sources of emissions include the production of energy in refinery plants, in production facilities for solid fuels such as coking plants and coalmines, industrial firing processes (iron and steel production), traffic, domestic households, small-scale consumers as well as agriculture (agricultural soils and fermentation in the digestive system of farm animals) (cf. MUNLV 2009a: 110). Almost 90% of energy production in NRW originates from fossil energy sources, which is one of the highest proportions in the whole of Germany (cf. MWEBWV 2010: 50). The remaining 10% come from renewable energies, with wind and bio-energy together accounting for 88% of that figure, followed by photovoltaic and hydro-power (cf. MWEBWV 2010: 50).

The final report published by the German 'Ethics Committee on a safe and secure energy supply' at the end of May 2011 recommends the abandonment of nuclear energy by 2020, though without jeopardising the competitiveness of industry or the business location (cf. Ethics Committee – Safe and secure energy supply 2011: 4). In June and July 2011, Bundestag and Bundesrat passed the law concerning the nuclear phase-out by 2022, which was signed by the Federal President in August 2011 (cf. Die

Bundesregierung 2011a). Although the two NRW nuclear power stations in Würgassen and Hamm-Uentrop were shut down more than ten years ago, the imminent abandonment of nuclear energy in Germany does also influence the energy policy in North Rhine-Westphalia. It is, for example, also intended to push ahead with the expansion of renewable energies in NRW (cf. MWEBWV 2010: 51), which also has an impact on the support for coalmining, among other things. Originally, the German Parliament wanted to examine in 2012 whether coalmining, in consideration of economic efficiency and securing energy supply, is to be further supported beyond 2018 (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 32). But this was a contradiction to EU-standards. The European Commission approved the financial aids only on condition of the closing of the mines in 2018. As a result, there will be no more subsidies for the coal mining industry after 2018 (cf. Die Bundesregierung 2018b). A current example of the spatial impact of the energy supply aimed at is the Datteln power station, which is criticised by environmental groups and citizens' action initiatives. On account of the development plan for the power station having been declared inoperative, its completion is still uncertain at present.

2.4.2 Manner of focusing on energy supply

Like demographic change and climate change, energy supply also plays an important part in political discussions and official documents at the level of state government and state spatial planning:

"In NRW, we have to organise energy supply in an industrial and energy region with a chemical industry and steel industry, etc. The CO² emissions of North Rhine-Westphalia are greater than those of Portugal, Greece and the Netherlands combined. That means it is a huge issue here" (EI02: 4).

While the older documents emphasise more the importance of domestic mineral resources for supplying energy raw materials, with only references being made to renewable energies, the focus has clearly shifted towards the latter in the newer documents. Special emphasis is placed, for example, on the essential significance of technological developments in the area of energy production and efficiency for compatibility between economic growth and climate protection. The two challenges of energy supply and climate change are closely linked to each other in terms of content in the documents and discussions at the level of state spatial planning and state government. In the context of the environmental economic strategy (cf. section 2.2.2), the supply of energy for NRW is also linked to the challenge of globalisation by virtue of it playing a major role within the international networking of North Rhine-Westphalia and the associated competition for business locations. Questions of (future) energy supply are therefore also focused on in documents of the Ministry of Economic Affairs (Economic report 2011; Economy in North Rhine-Westphalia 2010).

2.4.3 Threats and risks

Even though the present boom in the area of renewable energies has a lot of positive aspects not only for climate development, it does nevertheless entail a number of risks. It is feared partly, for example, that, in view of the topicality (also because of the events in Fukushima) and intensity with which the current debate surrounding renewable energies is being conducted, the focus is solely on the expansion of regenerative energies, while an integrated strategy taking equal account of all the challenges is being pushed into the background.

"Sustainability [means in this case] [...] conducting a debate which, in the final analysis, also takes account of all the aspects that we have to consider. We cannot suddenly engage in regional spatial planning now which pushes away all the other points of view [...]" (EI06: 14).

There are warnings that questions of acceptance in the population should not be pushed to one side or forgotten (cf. EI01: 15). In addition to potential analyses called for to achieve the greatest possible capacity utilisation of renewable energy sources in the region, restriction analyses, which take account of the potential in the area as well as possible obstacles, should not be forgotten. Only with their help the existing limiting factors can be analysed without lost sight of the population’s opinion and of other stakeholders (cf. EI06: 14). In order to clarify questions of acceptance, a new discussion of guiding principles could prove to be helpful (see chapter 4.1.1 Establishing objectives and guiding principles).

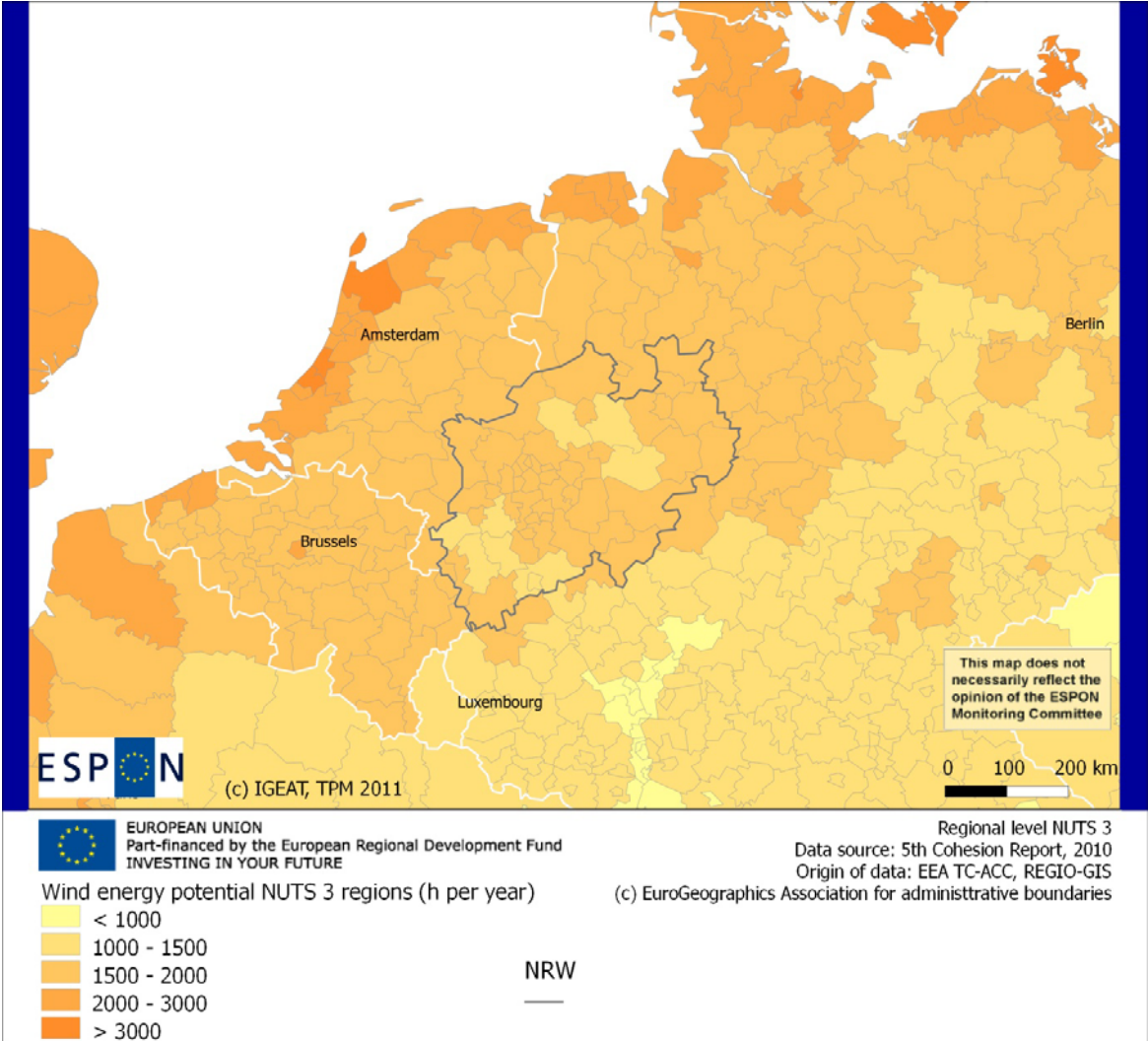


Figure 7: Wind energy potential 2000-2005

2.4.4 Opportunities

In the area of energy supply, opportunities exist, in particular, in the promotion and expansion of renewable energies. The global need for technological solutions for the more environment friendly dealing with energy is viewed as a particular possibility on account of it having created a market for ‘green technologies’ in which the industry of North Rhine-Westphalia is well positioned. Seen in industrial terms, wind energy and low-temperature solar thermal energy in NRW have the highest national importance respectively (cf. MWME 2010: 30). At European level, NRW can compete with other

regions for which relatively high potential for wind energy has been calculated (cf. Schindler & Lennert 2011e: 9) (see Figure 7).

Following the feared problems of acceptance, which are discussed in the previous section, it should be communicated to the municipalities in a better manner that there definitely are possibilities to participate in the success of such new technologies and that renewable energies could thus very much represent an opportunity for the respective municipality and serve as a new source of revenue (cf. EI06: 14; EI11: 17). Through the increased use of formal planning instruments by state and regional spatial planning (e.g. designation of areas for wind energy), the expansion of renewable energies could be advanced and taken advantage of as an opportunity *“to give more weight again to spatial planning”* (EI11: 12).

2.5 Use of forecasts

In the area of demographic development, particular use is made of population projections, which mostly cover a time frame up to the year 2050. Housing estate and traffic infrastructure scenarios are also used with reference to the spatial impact of demographic changes. These are designed to evaluate the effects of land use and traffic infrastructure measures aimed at the spatial concentration of uses in the higher status centres at the expense of suburban and rural areas in the region under review.

Projections and forecasts are, in part, indispensable in order to be able to respond appropriately to future developments as well as the spatial effects of the four global challenges referred to at the beginning (cf. EI05: 17). Results of the population projections and studies on demographic change are incorporated into further planning and change the associated measures accordingly. *“Of course I cannot concentrate on growth targets in the LEP if I find in relation to demographic change that the population is decreasing in certain places”* (EI05: 17). This also applies to forecasts in the area of climate change. The results of the climate projections as well as the predictions of the spatial impact of future climatic changes are, for example, taken into account and incorporated into the plans of the Ministry of the Environment and at the levels of state government and state spatial planning. The extensive use of climate predictions and projections also becomes particularly clear with the example of the second pillar of the North Rhine-Westphalia climate policy, i.e. adaptation to the consequences of climate change. In other topic areas, such as globalisation, mainly methodical problems make the use of forecasts difficult: *“Who can really predict such complex processes?”* (EI08: 8). All in all, however, financial and temporal aspects also have to be taken into consideration within the context of the utilisation of predictions.

“The results are put on the table when they can no longer be used. This means, therefore, that we are living from hand to mouth in relation to a large part of our decisions, leaving out the really central and important issues. This is not specifically a problem of this regional government, it is a general phenomenon throughout Germany” (EI08: 8).

3. Methodological report

3.1 Fields of policy interest of the stakeholder

During the initial stages of the project, a mind map focusing on the four global challenges globalisation, demography, climate change as well as energy supply was elaborated and presented within the ESPON TPM Inception Report (see **Erreur ! Source du renvoi introuvable.**). It analyses the different ways by which each challenge affects regions and presents indicators. In order to avoid redundancy, cross-linkages between different branches are not shown. The mind map also served as a basis for identifying indicators that could be used in a regional monitoring system. Furthermore, a qualitative research was carried out in all regions in order to concentrate on the main policy interests of each stakeholder and to identify regional key issues and challenges. Main regional issues as well as the regional impact of the four global challenges were analysed, indications about potential future threats and opportunities were given.

Mind map revision

In collaboration with the stakeholder in NRW, the state chancellery, the mind map was intensively checked for its completeness and usefulness of each indicator. On the whole, the mind map illustrates a wide range of topics affected by the four global challenges as well as the spatial consequences in North Rhine-Westphalia in a very comprehensive manner. Nevertheless, there are a few supplements made by the stakeholder to adapt the mind map on the specific situation in NRW. In the field of **climate change** a lot of characteristics of climate change on the regional level are listed, like the 'increase of temperature' or the 'change in precipitation matters'. According to the explanations in chapter

2.3.1 Spatial impact of climate change in North Rhine-Westphalia, the listed characteristics should be supplemented by the point 'impact on different branches of economy', for example agriculture, forestry or tourism. Not all economic branches are affected by climate change in the same intensity, but it could hold dangers especially for the areas of water management and winter sports tourism.

In the field of **energy supply** only two alterations were made. A currently much discussed topic within spatial planning in NRW is the provision of land for wind energy plants. Therefore, it should be added within the mind map. Another suggestion refers to the topic 'energy-intensive production'. It could be interesting to differentiate between different branches. In the field of **globalisation** within the branch 'competition on global sales markets' it should be mentioned that unit labour costs are much more relevant in NRW than the salary, whereas in the last field **demography** nothing was added or changed by the stakeholder.

The core competency of the stakeholder in NRW refers to spatial planning topics. As a consequence, not all of the topics listed in the mind map are part of the stakeholders' competencies, so their relevance varies significantly. A lot of topics of the mind map referring to climate change and energy supply do not fall within the stakeholders' competencies, except the ones that have spatial implications. The majority of the branches under demography, on the other hand, do fall within the stakeholders' remit; especially the ones that deal with spatial development (see **Erreur ! Source du renvoi introuvable.**). This also applies to the branches 'increased mobility and traffic' as well as 'urban sprawl', 'pressure on land use in specific areas' and 'metropolitanisation' referring to the challenge globalisation (see **Erreur ! Source du renvoi introuvable.**).

Based on the different branches within the mind map, a list of indicators was prepared which extent is constraint by data availability. For each indicator was discussed, if it is relevant for NRW, on which administrative level data is needed and how the indicator should be measured. The stakeholders' interest in the global challenges depends on the seriousness of the challenge within the region, on the competencies of the stakeholder in

dealing with the challenge, but also on the policy interest of the stakeholder. Although some indicators do not fall into the stakeholders' competencies, they can be of a high policy interest; especially when they can influence spatial development. As a consequence, due to their spatial relevance some indicators under climate change and energy supply were selected as being key indicators as well (e.g. soil sealing or wind energy potential). The following table lists the indicators chosen by the North Rhine-Westphalian stakeholder as being crucial for a monitoring tool.

Challenge	Indicator	Definition¹⁴
Demographic change	Young age dependency ratio, 2009	positive
	Old age dependency ratio	negative
	Median age, 2008	positive
	Population growth, 1999-2009	neutral
Globalisation	Expenditure on R&D, 2007	positive
	Relative number of patents	positive
	Employment per economic sector, 2008 <ul style="list-style-type: none"> • Manufacturing • Information, communication • Professional, scientific, technical activities 	positive
	Daily population accessible by car, 2004	positive
	Migration into NUTS 3 regions	positive
	unemployment rate, 2009	negative
Climate Change	Soil sealing, 2006	negative
	Concentration of particulate matter on surface level, 2009	negative
Energy supply	Wind energy potential, 2005	positive
	Employment in energy intensive industries, 2005	negative

Table 1 List of indicators for North Rhine-Westphalian monitoring system

¹⁴ | Positive means 'the higher the value, the better for the region'; negative means 'the higher the value, the worse for the region'.

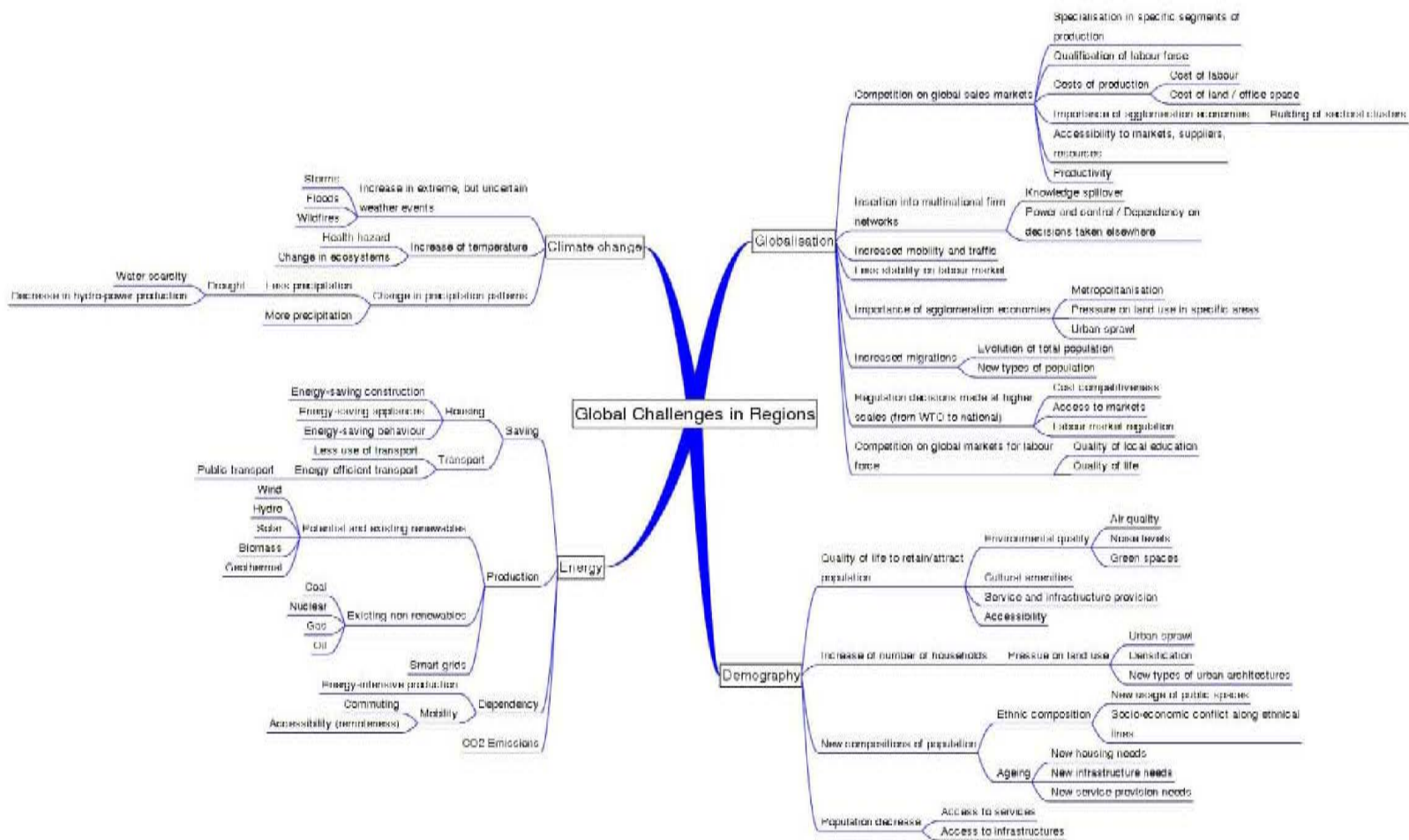


Figure 8: ESPON TPM Mind Map

3.2 Assessment of the regional indicator systems completeness

3.2.1 Existing indicator system

There are several monitoring instruments in North Rhine-Westphalia, which cover various topics concerning the four global challenges. A lot of monitoring systems concentrate on natural topics, especially on the impact of climate change, but they also monitor other aspects e.g. the quality of water or agricultural issues. Other monitoring systems focus on spatial planning. Their spatial scope, however, varies a lot: Some systems cover the entire federal state of NRW (NUTS 1). Others instead relate predominantly to the level of the districts (NUTS 2), to the level of the regional planning authorities, to the counties or even to single municipalities. Due to the federal system in Germany and the associated decentralisation of decisions, monitoring systems that deal with spatial planning are normally found on lower levels. Numerous indicators are part of the monitoring systems in NRW, within both natural scientific monitoring systems and monitoring systems focused on spatial planning issues. In the following, some monitoring systems are briefly presented (this list is not intended to be exhaustive):

Residential Market Monitoring

The residential market monitoring in NRW exists since 1992. Its objective is to provide an information base of the housing market for decision makers in politics, administration and housing industry. The continuous monitoring contains two elements: (1) within this survey of housing associations information about stock, rent levels, vacancy, rent arrears as well as condition are requested once a year; (2) the 'Wohnungsbarometer' doesn't record 'hard' data, but moods and subjective assessments of housing market experts about actual and future developments in the housing market in NRW via questionnaires. The indicators used in the residential market monitoring are normally part of the official statistics. In the case of the absence of (current) data, the NRW.Bank¹⁵ conducts its own inquiry (cf. NRW.Bank 2012).

Regional Residential Market Monitoring

In cooperation with the NRW.Bank, regional as well as municipal residential market monitoring systems have been established besides the state-wide system. Since there were no information about the character and the consequences of the interrelations between the residential markets in different municipalities, a regional residential market monitoring was initiated in the eastern Ruhr area. The objective of this monitoring system is to examine regional interrelations on residential markets as well as to create incentives for cooperation between different municipalities. The cities use this monitoring tool to analyse and compare their residential markets. It is based on quantitative analysis and is very similar to the system on the state level. This monitoring system is also conducted by the NRW.Bank (cf. NRW.Bank 2012).

Residential area monitoring

By virtue of an amendment to the NRW state spatial planning act dated 16 March 2010 the regional planning authorities in NRW are under the statutory obligation to carry out so-called residential area monitoring systems. In the light of the objective of sustainable residential and transport area development, which is established in spatial planning in

¹⁵ | The Ministry of Construction in NRW engaged the 'Wohnungsbauförderungsanstalt' in 1992 to implement a state-wide residential market monitoring. In 2010, the Wohnungsbauförderungsanstalt was integrated into the NRW.Bank, which supports the state of NRW in structural- and economic tasks. Since then, the NRW.Bank is obliged to continue the Residential Market Monitoring on state, regional and municipal level (cf. NRW.Bank 2012).

Germany, the residential area monitoring serves primarily to record and observe municipal land use development. By providing an overview of the actual development of residential areas, it facilitates the purposeful organisation of municipal and regional planning, thus serving as a basis for political decisions with regard to identifying and availing of unused areas or re-using existing or brownfield sites (cf. Welter 2010: 4). Except for the administrative district of Münster, where residential area monitoring is still being worked on, all the regional planning authorities have such an instrument at their disposal. The residential area monitoring is updated by the different regional planning authorities in divergent cycles. What is problematic, however, is that a collective comparison of building land development and area needs in the individual regions is not possible on account of different recording criteria and the diverging allowance of the reserves imposed in the context of determining requirements. An NRW-wide, standardised system is therefore being discussed at present.

Monitoring of Skilled Personnel

As a response to global competition on the labour market as well as demographic development the state government of NRW launched the *Special Program Qualification and Innovation for Securing Skilled Personnel*. Whereas the management of the program is conducted on state level, the regions have to develop action plans to illustrate and reveal their current situation as well as concrete steps for improvement. These action plans are based on a monitoring system with coherent indicators (Monitoring of Skilled Personnel) (cf. MAIS 2011). Its main aim is to identify areas where the shortage of skilled personnel impedes innovation capacity and growth of small and medium sized companies. The indicators of the monitoring are divided into four different categories: employment (employment share of different age groups, in different branches, without education and of highly qualified people), labour participation (employment rate of women, migrants, older people, part-time jobs and unemployment rate), demography (population development, population forecast, share of different age groups, share of migrants) and education (early school leavers, forecast of school leavers, share of vacant job training positions). During the lifetime of the program (until 2015) the monitoring tools have to be updated regularly (cf. MAIS 2011).

Biodiversity monitoring

On the basis of the Rio Convention, the biodiversity monitoring of the State Agency for Nature, Environment and Consumer Protection (LANUV)¹⁶ observes and documents systematically and permanently changes of biodiversity in NRW, especially in the light of environmental change. It consists of different parts: (1) Ecological area sample; (2) Habitat monitoring; (3) Evaluation of contractual nature conservation and agro-environmental measures and (4) Environmental monitoring in the forest (cf. LANUV 2012a).

Climate Impact Monitoring in a cross-sectored environmental monitoring

The Ministry of Climate Protection, Environment, Agriculture, Nature and Consumer Protection in NRW established an indicator-based climate impact monitoring system in NRW. In addition to direct changes of precipitation and temperature, the impact of climate change on nature and environment is analyzed. The objective of the monitoring system is to identify the effects of climate change at an early stage. Thus, future impacts of climate change can be pre-estimated to react in time and in an appropriate way (cf. LANUV 2012b). Thereby, damages shall be avoided or reduced and chances can be seized. Following the European Environmental Agency (EEA) indicators were selected which cover the following topics:

- atmosphere and climate (temperature, precipitation, snow etc.)

16 | The LANUV is a public authority on state level, which is subordinated to the MUNLV.

- water (groundwater, water temperature, surface waters runoff characteristics etc.)
- biodiversity (spread of common and rare plant species; length of the vegetation period; change of climate sensitive biotope types etc.)
- land (soil temperature, organic carbon etc.)
- agriculture (beginning of the apple blossom; sowing of corn and winter wheat etc.)
- forestry (risk of forest fires; phenology of beeches etc.)

Water Quality Monitoring

The water quality monitoring in NRW is carried out according to the European Water Framework Directive and identifies and assesses the ecological and chemical status as well as hydro morphological parameters. Within this monitoring system, surface water as well as ground-water is examined. The first examinations took part in the year 2008, the second monitoring cycle is between 2009 and 2011. In the future, the water quality monitoring should be carried out every three years.

Monitoring of commercially and industrially used areas in the Metropolitan Region Ruhr (ruhr-AGIS)

The ruhrAGIS provides information about commercially and industrially used areas in the Metropolitan Region Ruhr. It includes information about address, scope, economic sector and the de facto land use of the different areas as well as information about type, scope, availability and quality of still available areas in the region. In combination with other digital spatial information (e.g. aerial views, maps, and municipal planning data) qualified statements about structure, density, location and distribution of branches and firms in all of the 53 municipalities of the Metropolitan Region Ruhr are available. The monitoring system is independent from spatial and municipal borders and responsibilities. Therefore, it guarantees a standardized database as well as the actuality of data. Responsible for the ruhrAGIS is the business development of the 'metropole ruhr'. It is an association of eleven independent cities and four counties of the Ruhr region (cf. Wirtschaftsförderung MetropoleRuhr 2011).

Dynaklim

Within this project a monitoring instrument for the continuous assessment of the impact of climate change in the Emscher-Lippe-Region (within the Ruhr region) shall be implemented. Moreover, the objective is to monitor and evaluate the regional adaption capacity to climate change and its impact on the water balance as well as the efficiency of technical and non-technical adaption measures via significant indicators. The main aim of the project is to support the region on its way to a proactive and sustainable agglomeration with an improved adaption and innovation capacity. Thereby, a coordinated and cross-sectoral regional adaption strategy will be elaborated. Regional networking and knowledge management shall strengthen knowledge exchange within the region in order to setup a sustainable regional network which carries on and implements the adaption strategy. Dynaklim includes (1) interdisciplinary projects about the impact of climate change on the regional water balance, (2) pilot projects to test flexible adaption measures as well as (3) the preparation of implementation-oriented solutions of all technical, economic, political and social aspects in the area 'regional adaption'. Reconciliation with the Climate Impact Monitoring NRW shall be done (cf. Musinszki & Wienert). On this basis, regional adaption processes can be coordinated. Dynaklim is one of seven projects within the program 'Climate change in future oriented regions (KLIMZUG)' financed by the national Ministry of Education and Research (BMBF) between 2009 and 2014.

Monitoring within the evaluation of the program 'Soziale Stadt' in NRW¹⁷

The monitoring tool is part of the evaluation of the program 'Soziale Stadt' in NRW which combines the funding instruments of the state, federal state and the EU to create integrated solutions for physical and socio-structural problems in deprived urban areas (cf. Soziale Stadt NRW). The evaluation concept was developed jointly by the involved partners (cities, City Network 'Soziale Stadt', partners from research and practice etc.). The objective is to achieve deeper insights and knowledge about program results as well as cause-effect relationships in deprived urban areas. At the same time the gained information about possible improvements of the project management shall be used to stimulate learning processes in the city districts. Therefore, standardized indicators are collected once a year in participating cities. They shall describe the socio-demographic and socio-economic situation in these areas and shall enable a comparison with the whole city, parts of the city as well as the entire program area. The indicators are divided into seven different areas: demography (e.g. young and old age dependency ratio), non-Germans (e.g. share of non-Germans, share of Turkish people), mobility (e.g. volume of migration, period of residence) poverty (e.g. proportion of social assistance, unemployment rate), housing (e.g. living area, share of subsidized housing), care (e.g. children care offers) and others (e.g. transition rate of secondary school, share of overweight children) (cf. Kersting et al. 2008: 17).

Humus Monitoring Agricultural Crop Land

The Humus Monitoring Agricultural Crop Land of NRW shall analyze the consequences of climate change on the concentration of humus of agricultural crop land during the next 15 years. The concentration of humus is measured every year since 2009 in 45 areas of three sub-regions in NRW (cf. MKULNV NRW).

Energy Agency.NRW

The EnergyAgency.NRW¹⁸ was founded in 2007 as the joint umbrella organisation for the "NRW Energy Agency" and the "NRW State Initiative on Future Energies" with their previously separate operations. It collects data about electricity consumption, regenerative energy, energy prices. The analysis is based on quantitative statistical data (cf. EnergieAgentur.NRW 2012).

Requirements for the usability of monitoring instruments

Problems sometimes occur with the access and compilation of monitoring results from the regional level by state spatial planning. Cited as being problematic in this regard are the different criteria and standards on which the collection of data is based and which consequently sometimes prevents the comparability of such data or makes it considerably more difficult (see residential area monitoring). The state spatial planning department is aware of the need to standardise the data of the residential area monitoring and is making endeavours in this respect. Monitoring the consistency of the data also plays a major part in relation to the reliability of the data where certain facts or situations are linked to specific conditions. If it would be predetermined, for example, that new planning is permitted if the municipality's land use were to be reduced to five hectares per day, *"the temptation for the municipalities to present that this goal has been reached would be absolutely huge"* (E102: 23).

17 | The program 'Soziale Stadt' is a "programme of the German federal and state governments and is part of the promotion of urban development (Städtebauförderung). The program focuses on urban quarters, which are strongly affected by structural transformations and socioeconomic change processes. The main aim is to mobilise existing forces and resources to initiate positive change processes. Since 1994, 80 urban districts have been promoted in NRW. Throughout Germany, the program 'Soziale Stadt' has been applied in more than 500 urban quarters (cf. Städtenetz Soziale Stadt NRW & MWEBWV).

18 | The EnergyAgency.NRW operates on behalf of the state government of NRW and serves as a strategic platform with wide-ranging competence in the energy sector: from the all-through funding of research, technical development, demonstration and market launch to energy consultancy and continuous vocational training (cf. EnergieAgentur.NRW 2012).

In addition to the problem of standardised statistical details and recording criteria, the question of which developments are to be recorded at all is of particularly great importance. These have not yet been compiled in a systematic manner; nor has it been determined what data is needed at all. It would be meaningful to collect management-relevant data, though it must also be clear in this regard which developments spatial planning would really like to control and monitor (cf. E106: 31). This has so far not been discussed by the state and regional planning bodies.

“And, furthermore, the question arises with regard to what benefit we derive from this at all? We end up, perhaps, as those that benefit least of all. With regard to the monitoring of residential areas, it is clear to me that, if space is to be saved, this is needed to enable it to be controlled. With regard to other aspects, for me it would depend on what parameters are to be corrected and adjusted in this way. There is also the question first of what parameters are to be followed up in other areas in this manner. As long as this is not clear, I cannot see what kind of monitoring is to be carried out in precise terms” (cf. E106: 31).

The main areas addressed in this context contain residential housing, energy and the extraction of raw materials (cf. E111: 27). Although use above and beyond this is assessed as desirable, it would appear to be outside what staffing capacities would permit. The expense and workload required to operate and update a monitoring system, for example, can become a problem. The main workload associated with residential area monitoring will fall squarely on the shoulders of the municipalities which, like other administrative levels, are suffering from substantial personnel constraints.

“This has something to do with acceptance; it also has to do with the fact that the municipalities do not have the staff. Conversely, this means that the more we push and the more we want to refine monitoring, the more difficult it will be to keep the municipalities interested.” (cf. E109: 28).

Added to this is the fact that, apart from the regional spatial planning data, for example, the use of data from other departments of the district administration is often difficult. Linking with the data records of other departments would be of particular interest in this regard in order to observe how different developments influence each other, thus making it possible to manage them better in overall terms (cf. E101: 33; E109: 28). The question concerning the content priorities of a monitoring instrument depends, however, on the new regional planning parameters in the new LEP since the former should be linked to the latter (cf. E111: 29; E103: 29).

3.2.2 New needs of information

The list of monitoring systems in NRW demonstrates the absence of monitoring instruments in the field of globalisation. Even though a few monitoring systems related to the global challenge demography exist (e.g. residential area monitoring), there is also still need for new information, e.g. in the area of residential housing. A lot of topics of the field demography, especially the ones dealing with spatial development (see **Erreur ! Source du renvoi introuvable.**), fall within the stakeholders' remit and are therefore of a high policy interest. Especially demographic changes and its effects are a current topic, which will, as already illustrated in previous chapters, be of greater significance in the next years. For this reason, the challenge demography, especially the topic demographic change, was chosen in conjunction with the stakeholder as main focus for further investigation.

In a first step the already existing indicators in North Rhine-Westphalian monitoring systems as well as the list of indicators elaborated for the interim report were analysed to define new needs of information in the field of demographic change. As a result, four new indicators were chosen to create additional quantitative data:

- (1) change in number of households, 2000-2010/2011

- (2) projection of number of households until 2030
- (3) average household size
- (4) year in which population development changes from growth to decline

In addition to these new quantitative indicators, the need of more information about the impact of demographic changes on the regional level (districts) was identified. In conjunction with the stakeholder, the most suitable method for generating a deeper knowledge in this topic was discussed. The creation of additional quantitative data was not expected to be the adequate research method in this case. As a consequence, in addition to the quantitative analysis with the four new indicators mentioned above, a qualitative analysis was chosen for further investigation.

3.3 Additional indicators/information

3.3.1 Analyzing quantitative data

Within the project, the quantitative benchmarking of the five regions is composed of a set of key indicators reflecting the impact of the four global challenges on the regions. Two different regional benchmarking tools were used in order to examine the region's performance: the ESPON HyperAtlas and the ESPON TPM regional benchmarking tool (for further information please see the ESPON TPM Interim Report), which has been developed for this project. In addition to the ESPON HyperAtlas, which only allows indicators consisting of two different datasets, a nominator and a denominator, the ESPON TPM benchmarking tool allows to calculate benchmarking values for indicators, which cannot be split into two single datasets due to their nature or data unavailability. The quantitative benchmarking values were derived from setting each region's performance for one indicator in relation to the overall European / national / regional performance. Whereas the benchmarking values generated by the HyperAtlas vary around a reference value of 100 and were classified as benchmarking value = > 110 = good, 90-110 = average, < 90 = bad, the TPM benchmarking tool compares the regional deviation to the standard deviation of the reference value. Values thus vary around 0, with e.g. -0,5 indicating a negative deviation (less than the reference value) of half of the standard deviation and 2 indicating a positive deviation of twice the standard deviation. The traffic lights have been chosen to represent the performance in a graphical way (see Table 1). Additionally, arrows of the same three colours indicate the change in time for some indicators.

Demography

<i>Indicator</i>	<i>value</i>	<i>EU</i>	<i>National</i>	<i>Neighbourhood</i>	<i>Typology</i>
Young age dependency ratio, 2009	22% 93		105	92	94
Old age dependency ratio	31% 120		99	109	110
Life expectancy, 2004	78.6 0.86		- 0.01	- 0.02	- 0.02
Median age, 2008	41.4 - 0.92		0.13	- 0.72	- 0.72
Population growth, 1999-2009	0% 96		100	98	99

Table 1: Comparative analysis – demography indicators for North Rhine-Westphalia

3.3.2 Harvesting expert opinion

The additional qualitative analysis was conducted to analyse the impact of demographic changes on the regional level. Since there is more information about the demographic effects on the municipal than on the regional level, the latter one was chosen. The tight time frame made Delphi rounds or focus groups impossible as they are very time consuming. Therefore, a questionnaire combining ranking exercises as well as open questions was chosen for the qualitative analysis in cooperation with the stakeholder. Initially, the questionnaire was planned as an online survey, which would have been the best opportunity for a high number of replies since it facilitates the direct transfer of the answers into a statistical database. Due to the fact that this questionnaire was designed for a limited number of persons working in the regional planning authorities, the great effort to design and implement an online survey was not justified. Therefore, the questionnaire was created as PDF form with Adobe Acrobat. With the added submit button at the end of the document, the PDF form data was transferred by e-mail.

Due to their expert knowledge in the field of regional development, the questionnaire was aimed at the staff working in the six regional planning authorities in NRW (see Figure 1). The main aim was to create a deeper knowledge about the impact of demographic changes. Thereby, it was concentrated not only on the main spatial effects of demographic change, but also on the awareness of the topic as well as on strategies of the regional planning authorities for dealing with the consequences of demographic change. The questionnaire includes four main sections (a copy of the questionnaire is included in the annex). The first part asks for the awareness as well as the significance of the topic 'demographic change' within regional spatial planning policies. The second part focuses on the consequences of demographic changes on the regional level. It analyses negative as well as positive effects on different areas, like public transport, settlement

development or technical infrastructure. The third part of the questionnaire concentrates on the way of dealing with demographic changes and its effects on the regional level. It asks for different strategies of the regional spatial planning authorities as well as for the possibilities and importance of the involvement of citizens or social organisations. Within the last part of the questionnaire, possibilities and limits of the influence on demographic changes are discussed.

Results

Unfortunately, the response rate was not satisfactory. There were only eight respondents from six regional planning authorities who filled in the questionnaire. The small number of cases must be taken into account while analyzing, interpreting and assessing the data. This applies to both types of questions (closed and open questions), which should be interpreted carefully.

As appears from the completed questionnaires, all of the regional planning authorities are aware of demographic changes within their planning region. Within the first section, the respondents were asked to assess the importance of the topic 'demographic change'. In most of the cases, the topic 'demographic change' is of high to very high importance for regional spatial planning. Additionally, all of the respondents state that demographic changes and their impacts are sufficiently addressed by the regional planning authorities. The respondents assess the influence of demographic change and its sub-processes (ageing, population decline and growth as well as internationalization) on the future spatial development as being very large. This influence, however, varies between the different sub-processes. Whereas especially the effects of population decline, but also of ageing are appraised as high to very high in all regional planning areas, the impact of population growth and internationalization is assessed very differently. Whereas the influence of population growth on the spatial development in Detmold is assessed as very low, in the district of Düsseldorf it is assessed as high.

In the following, the spatial effects of the demographic sub-processes on the regional level will be elaborated. In a first step, the respondents were asked to identify three key challenges in their planning area which result from the sub-processes. The majority indicate problems with the (financial consequences resulting from the) adaptation and protection of social and technical infrastructure to the declining and ageing population. Other mentioned challenges refer to the settlement area development and its future needs as well as the shortage of skilled workers. Besides the difficulties concerning the maintenance of civil services and the need for age-appropriate infrastructure, growing financing problems of social and cultural institutions are one of the most mentioned consequences of demographic changes on the regional level. Also important is the deterioration of public transport offers. According to the survey, demographic changes seem to promote competition between municipalities or counties. As related to the housing market, a higher demand in one municipality could probably lead to vacancy in another. Spatial disparities on the regional level seem to increase. Highly growing counties are in direct vicinity to shrinking counties. Furthermore, the effect of 'decreasing land use' (see question 2.4 in the questionnaire) is mainly evaluated as little or not important. The declining population seems not lead to decreasing land use. One explanation is given: land use has decoupled from the population development. Moreover, demographic changes do not result in lesser road transport.

Demographic changes do not only influence the regional spatial development, but, as a consequence, have also an influence on different fields of action of the district administrations. Almost all of the listed working areas are influenced by demographic changes, e.g. health care, education or public transport. But whereas the areas

'settlement development', 'technical infrastructure', 'local supply' as well as 'geriatric care' are highly affected by demographic changes, the declared effects on the areas 'public administration' and 'road construction' are quite low. Although the already presented consequences of demographic changes on the regional level in NRW seem to be predominantly negative, it must be stated that the majority of the respondents also identifies chances regarding demographic change. The most important aspect is related to the reduction of land use. It is stated that the sensibility for this topic has grown recently and that obvious demographic changes provide the opportunity to a process of rethinking, i.e. to influence political decisions about new building areas.

In order to face and deal with the consequences of demographic changes, the activity of various actors is necessary. Within the survey, the respondents were asked if the officials of the different administrative levels (state, districts, counties and municipalities) as well as of the authorities responsible for spatial planning in NRW (state, regional and municipal spatial planning as well as spatially relevant sectoral planning) play an active part in dealing with demographic change. The results are very ambiguous. The districts as well as the regional spatial planning authorities are predominantly attributed with an active to very active role in dealing with demographic changes. In all the other cases, especially on the lowest administrative level (municipalities as well as municipal spatial planning), there is no measurable tendency. The ambiguous results are due to the small sample size, which makes it impossible to analyse if the assessment of the level of activity differs between the consulted regional spatial planning authorities.

The majority of the respondents emphasizes the importance of coordination and moderation tasks of regional spatial planning. The respondents' comments about the future role of regional spatial planning seem to approve the latter one. This stresses the intermediate position of regional spatial planning between state and municipalities. Furthermore, it is stated that against the backdrop of demographic changes the consultant role of regional spatial planning is becoming increasingly important. Dealing with shrinking population is a difficult task for spatial planning as well as politics. Growth strategies still receive much more political legitimisation than shrinking strategies. As a consequence, the municipal level needs more guidance to justify and assert shrinking policies. In general, the need for an increasing cooperation between municipalities and their surroundings as well as between counties and cities not attached to a county to deal with demographic change is stated very often. As a consequence, the necessity of regional concepts, e.g. to find a consensus about dealing with land, is emphasized by the majority of the respondents.

Considering the extensive effects of demographic change on the regional level the question arises whether the regional planning authorities have strategies to face and react to these consequences. The majority of the participating planning authorities have strategies for dealing with demographic changes or strategies are already at the planning stage; two regional planning authorities (Arnsberg and Münster) do not have such a strategy. There is a variety of different strategies. They range from instruments for spatial monitoring, e.g. land monitoring or spatial analysis to communication methods like networks and working groups. Additionally, there are analyses of the requirement of new residential or commercial areas, which include population projections. Thereby, the importance of the active involvement of other actors, e.g. citizens, companies etc. in the development of strategies and concepts for dealing with demographic changes is predominantly assessed as very high. At the same time, there is no consensus about the question whether the current level of involvement is sufficient or not. The answers concerning the integration of citizens into the development of strategies are as

ambiguous as the answers concerning non-governmental organisations (NGO), companies or associations. The non-sufficient involvement of other actors is justified in one case with the fact that active involvement of citizens and others takes place predominantly on the administrative level where most of the decisions are made – on the municipal level.

Besides the analysis of the consequences and the strategies of regional spatial planning, the survey focuses on the opportunities of the regional spatial planning authorities to deal with demographic changes. These are mainly assessed as satisfactory, but not as good. It is stated, that especially personnel resources as well as formal and informal instruments have a great influence on the opportunities of the regional planning authorities. Further mentioned aspects, which are crucial for regional spatial planning, are a sufficient data basis as well as the existence of monitoring systems. Staff shortages could be one reason why the opportunities of regional spatial planning are evaluated as not that good. In times of population decline, measures like settlement area monitoring instruments, the calculation of subsequent costs for infrastructure or presentations in municipalities have become more important. At the same time, these activities, like any form of consulting, are very time-consuming and require personnel capacities which are not available in many cases.

Moreover, the majority of the respondents argue that the opportunities of regional spatial planning are constrained due to its legal assignment. As framework planning, regional spatial planning is not the appropriate administrative level on which concrete problems of population decline or ageing can be solved. Most of the options to deal with demographic changes can be found on lower administrative levels, in particular on the level of the municipalities and counties. Besides these aspects, it is stated that coping with negative effects of demographic changes requires clear and legal positions (law and objectives of spatial planning). Furthermore, it is criticized that competing topics can be a constraint as well, since at the moment climate protection is the top priority. Finally, it is stated that divergent strategies of municipalities can also be a constraint for dealing with demographic change. This leads to another, already mentioned aspect, the need for more cooperation. Besides the mentioned limits of influence on demographic changes, existing opportunities are stated as well. A number of respondents indicate that the right instruments are already available (e.g. goals and principles of spatial planning, state spatial planning contracts, principle of internal development of cities) – they only have to be applied consequently.

Referring to the usefulness of the existing instruments, a small majority states that the regional planning authorities do not exhaust all its options to react to the effects of demographic changes. This is predominantly justified with staff shortages. On the one hand, the need for an extension of monitoring systems especially in the field of land use development is pointed out. On the other hand, it is stated that permanent spatial monitoring is not possible due to other tasks with more priority. Besides the dominant statements about staff shortage, it is mentioned that in the scientific community a lot of possibilities to deal with demographic changes are discussed, which have not been adapted to the instruments of regional planning, e.g. reflection about subsequent costs for infrastructure as an obligatory task.

3.4 Adaption to local systems

The chosen indicators for the quantitative monitoring serve as a good addition to already existing monitoring systems and indicators in NRW. Whereas regional monitoring systems normally focus on NRW or Germany, the TPM benchmarking tool as well as the ESPON HyperAtlas provide European-wide data. Therefore, these tools enable European-wide benchmarking, which is useful for the NRW stakeholder. The current usefulness of the TPM benchmarking opportunities, however, may be restricted by personnel resources. Similar to the initial compilation of indicators and data, their update and maintenance will be very time-consuming. After the end of this project, the update of data will be the stakeholder's task and it is doubted that state spatial planning will have enough resources to keep the tools up to date.

Staff of all the six regional planning authorities in NRW participated in the survey about the regional effects of demographic change. The response rate amounts to eight completed questionnaires. Even though all of the regional planning authorities are represented, due to the small response rate the assessment of the survey was problematic. The poor sample size impedes the application of even simple statistical methods, for example frequencies tables. Moreover, in many cases it was impossible to identify tendencies as all of the different answer options were marked. In contrast, the open questions were much more informative. There are some interesting comments on specific topics, but unfortunately many respondents did not complete these questions in the questionnaire. The question arises why there the response rate is so low. One reason could be the way of making contact to the respondents: An e-mail was sent to several people working in the regional spatial planning authorities asking them to fill in the questionnaire and to forward it to colleagues. The problem could be that no one felt really responsible for it, so that it could be helpful to identify and contact regional experts directly asking them if they are willing to take part regularly in this survey. This would not only guarantee a constant group of respondents over the years, but it would also enhance the sample size as well as increase the chance that the respondents take more time to answer the questionnaire and fill in all questions. Thus, it would be possible (and useful) to reduce the amount of closed questions and increase the number of open ones. The evaluation of the questionnaire would be more time-consuming as a consequence, but the results could be more informative.

4. Resilience of the planning system

The ability of becoming aware of the four global challenges and their spatial consequences and being able to respond to them in an appropriate manner depends to a great extent on the strategic capacity of the planning system. The question arises, for example, of how flexible the planning system can respond to short-term trends, how the objectives set are coordinated at and between the different administrative levels and to what extent civil society is given the opportunity to participate in the planning process. These aspects are discussed in greater detail in the following.

4.1 Strategic capacity of the planning system

4.1.1 Establishing objectives and guiding principles

The state spatial planning of North Rhine-Westphalia draws up requirements, principles and goals for the development of the state. Despite their normative significance, they are *“still requiring more detailed spatial (target) specification, e.g. in regional planning”* (David 1999: 85). While the establishment of guiding principles in state spatial planning work, and therefore within the state development plan, plays a major part, this is not so much the norm in terms of departmental policy. The setting of targets in this regard also ensues solely within the framework of the joint tasks of the Federal Government and the individual federal states as well as under EU programmes (cf. EI04: 6). In turn, the coalition agreement between the two parties in power and the government policy statement by the Minister-President include numerous target agreements and declarations of intent for the present parliamentary term, the specific implementation of which in terms of planning is, however, also dependent on the guiding principles set out in the new state development plan (LEP)¹⁹. However, the four global challenges, as clearly shown by official documents and political discussions, have now already been extensively taken up and are being dealt with.

A general discussion of guiding principles, called for both at the federal state and regional level and, in particular, linked to discussions in the area of renewable energies, also appears to be necessary in the context of drawing up the new state development plan. Especially in the case of wind power, it concerns the question, among other things, of the extent to which the expansion of renewable energies, particularly in rural areas, leads to harmful interference and whether this is acceptable to the people there (cf. EI01: 16). A discussion of guiding principles could be meaningful in this case from the planning perspective in order to elaborate clear rules, in this context in the area of renewable energies (cf. EI06: 23).

4.1.2 Flexibility and inflexibility of the planning system

The extent to which the planning system is in a position to respond to and tackle the challenges is also related to the planning instruments that exist. The long time intervals up to the establishment of a new LEP lead to less flexibility in dealing with current issues. They raise the question of whether policy legislation periods are possibly too short for instruments such as the LEP (cf. EI04: 8), given that the frequent short-term changes in policy objectives can only be incorporated within the framework of a currently valid LEP to a limited extent. At the same time, the independence of political legislative periods and the long-term nature of the planning horizon certainly represent a strong point in the

¹⁹ | The current state development plan (LEP) in NRW was published in 1995. A new one is in preparation.

context of the LEP on account of it being possible to establish planning certainty with the help of a superordinate and non-partisan master-plan.

The relative 'inflexibility' of spatial planning at the federal state level can, however, be partly compensated for or qualified in NRW with the help of the following planning levels.

"At the regional planning level, we have, of course, regional planning modification, which makes it possible to respond to current developments comparatively quickly" (EI05: 13).

A more flexible response to current issues and challenges therefore is more likely and possible at the regional level in NRW. This is also provided for in the planning system insofar as the degree of abstraction of the LEP is very high. This means that it provides regional planning with sufficient scope, allowing new possibilities and responsibilities to emerge at the regional level.

However, the modifying of spatial structure plans is also very complex and time-consuming at regional level. On account of their formal character and their inflexible structure, the significance of informal planning instruments is growing increasingly (cf. EI04: 8, EI08: 6). State spatial planning also judges these to be a good addition to the formal instruments. They are used, for example, to discuss critical aspects in significant spatial projects with those affected in advance of the formal planning and to look for solutions. This enhances the acceptance of the plans and consequently supports the formal planning method (cf. EI05: 15). Within the discussion surrounding the importance of informal planning instruments, the clear emphasis of the supportive and complementary function for the formal instrument is noticeable, with formal planning still regarded as essential for binding arrangements by virtue of this representing a fundamental prerequisite for planning and, therefore, also investment certainty (cf. EI02: 15; EI05: 15). However, harmonisation between formal and informal instruments is still needed at some junctures in this regard (cf. EI03: 10).

Interestingly, calls are being heard more and more for greater use of formal planning instruments parallel to the spreading of informal planning approaches, mainly at the regional level. The possibility of drawing up quota arrangements for regenerative energies or the identification of priority areas for wind energy is cited in relation to energy supply in this regard (cf. EI11: 13). It is also understood in this area that state spatial planning does not avail itself of the possibilities of increased planning control on account of legal reservations and risks, leaving this to the regional level instead. This means that the legal reservations also have to be solved at the ensuing level (cf. EI11: 14).

4.2 Horizontal coordination and integration of policy content

Despite its responsibility for superordinate planning, state spatial planning has only a limited control effect vis-à-vis sectoral planning. *"We do not have such a coordinating function as, perhaps, a region with integrated planning which executes a package of specialist plans"* (EI03: 1). On the contrary, the cross-sectoral task of spatial planning in Germany is experiencing tension between the department principle on the one hand and the principle of collective responsibility on the other (cf. section 1.2.1) (cf. Durner; Greiving & Reitzig 2011: 383). In addition, the possibility of superordinate planning varies, partly also on account of the changing affiliation of state spatial planning over the course of time. After 1985, this was assigned in NRW as being the responsibility of, among others, the Ministry of the Environment and Economic Affairs, whereas it is now part of the state chancellery again in the current legislative period. This decision is likely also linked to the requirement of cross-sectoral mediation: *"This is not the continuation of departmental policy via other means; rather it is also quite clearly intended to meet the requirement of an overall balancing out through being linked in organisational terms [...]"* (EI02: 13). The different interests of the individual ministries are partly harmonised in the context of the government policy statement.

"In the final analysis, it is however the case that they can all be found in the framework of the government policy statement made by the Minister-President, which is coordinated and agreed between the departments. And the coalition agreement is not only implemented by us [state spatial planning; author's note] or the Minister of the Environment but, rather by all departments. This means that we have our work programme, elaborated and implemented by all the departments within their own areas of responsibility" (EI05: 12).

The state spatial planning is responsible for the new LEP and attempts to balance out the different interests with its interdisciplinary draft. Extensive forms of participation for the public bodies affected exist with regard to the drawing up of the plan (cf. Durner; Greiving & Reitzig 2011: 420). The aim of the state spatial planning is to produce a preliminary draft from the outset which is as interdisciplinary, supra-local and non-partisan as possible in order to thus reach a consensus as broad as possible. Only in this way does the prerequisite exist to *"create a plan that will also survive parliamentary terms"* (EI02: 18f) and thus to establish planning certainty.

The coordination of content between the different departments is quite different according to the policy area. There is particularly intense coordination of content at present in the area of environmental and climate protection and the economy, i.e. between the Ministry of the Environment and the Ministry of Economic Affairs (cf. EI04: 12). This becomes especially clear with the example of the environmental economic strategy (cf. section 2.2.2), which is pursued intensively by both departments as well as the state government. Potential for conflict exists more in the area of the distribution of money as *"nobody argues about the fundamental issues any more"* (EI08: 7). The picture is different in the sphere of demographic change as well as in the area of internationalisation. Diverse departments or sections of the most varied ministries deal with matters of internationalisation, though without consulting each other on this. Greater coordination would therefore be desirable (cf. EI04: 12).

Coordination between politics and planning

Political demands on the part of the state government have to be taken up and implemented by the departments as well as state spatial planning. This also applies to the current coalition agreement in force between the two parties in power (cf. EI05: 12). The statement cited above (cf. section 4.2) that all institutions come together under the government policy statement given by the Minister-President on account of the coordination between the departments should, however, not hide the fact that there may well be a certain form of competition between politics and planning. This also becomes clear at the regional level: *"I can have the best ideas as a planner in our district, [...] but if this is cut out [...], that was it"* (EI09: 3). A good example of the dominance of politics compared to spatial planning is a city in NRW which is presently in the process of selling a former container depot which is now no longer in operation but could be an important terminal in the area from a spatial planning perspective. The local authority favours the designation of a commercial area, which is why the importance as a transport hub is being pushed into the background. This example shows clearly that politically motivated action can have a major influence on local decisions that have a spatial impact and can.

4.3 Vertical coordination and integration of policy content

4.3.1 Coordination between state and regional planning

The previously mentioned mutual feedback principle within regional development plays a major role in the context of vertical coordination and cooperation of policy content and instruments. Nonetheless, the vertical coordination of policy content is not entirely unproblematic. As soon as the state spatial planning parameters become more specific and, for example, the development of residential areas needs to be limited, this is fended off on frequent occasions by the lower planning levels (cf. EI02: 11). It must also be kept in mind that the different political majority relationships between the state, regional and municipal levels in NRW can, in the case of one-sided consideration of the interests of the party/parties governing at the state level, give rise to the situation where planning decisions are already boycotted at the regional level (cf. EI02: 19). By and large, however, the interaction between the superordinate plans of the state spatial planning authority and the detailed specification of regional planning by the state spatial planning is judged as being very good *“to organise the balancing of and strategy for regional concepts”* (EI02: 11).

The vertical coordination between the regional and the municipal level seems to be determined in the future by the regional planning authorities being required to strengthen their moderating role between the individual municipalities. Regional processes should consequently be initiated by the regional planning authority but subsequently only supported in a more or less passive manner (cf. EI07: 5; EI10: 7).

“I feel it is important to deal with how these [traditional regional planning instruments; author’s note] can be supported. Via moderation, measure-related projects, regional development concepts, etc., which have to form the basis for these decisions. I believe the municipalities are quite capable in this regard” (EI07: 5).

4.3.2 Integration of European objectives and guiding principles

European policy content, objectives and guiding principles like the Europe 2020 strategy, the European Spatial Development Perspective (ESDP), the territorial agenda, etc. are considered directly at the federal state level, but they are also passed via federal authorities such as the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) (cf. EI02: 27). They have only a minor influence on planning objectives in this regard (cf. EI05: 26). This is related to the fact that the European Union (EU) does not have any original competence for spatial planning policy by virtue of this being a matter for the Member States. The documents display an informal and, therefore, non-binding nature in this respect, with the initial aim of enhancing awareness in relation to European spatial development trends. Direct control aspirations cannot be concluded from this and they are, instead, more of a paradigmatic nature. Documents like the ESDP are therefore kept correspondingly abstract and general so as not to restrict or commit any of the Member States (cf. EI05: 28).

European documents and strategies are thus paid attention to, though *“less from the point of view of ‘what do we have to learn from them?’”* (EI04: 11) An attempt is made, rather, to deduce specific effects to the funding period and analyse to what extent one’s own objectives and interests can be subsumed under them (cf. EI04: 11). While European spatial development policy is thus not taken into consideration to any great extent, incentive-oriented approaches like the European Regional Development Fund (ERDF) or the INTERREG programme do influence national policy to a far more significant extent. European policy content does, however, exhibit a particularly strong influence

through EU Directives, such as the European Water Framework Directive or the EU Waste Framework Directive. These are also cited in documents (see coalition agreement) more frequently.

“These things [European guiding principles and documents; author’s note] have a huge impact in de facto terms because we are partly forced, on the one hand, to gear our statutory provisions towards this. [...] And, on the other hand, because without observance we will not get the money, either from the ESF or the ERDF” (cf. EI08: 9).

New findings tend not to be drawn from the European documents in most cases, however. As Germany is, for example, often involved in the planning and further development of the new programme period within the framework of the support possibilities under the ERDF, the content is sometimes already known to the state governments before the documents are published (cf. EI08: 10).

4.4 Cooperation and participation possibilities for civil society

The involvement of the civil population in the drawing-up of state development, regional, preparatory land-use and binding land-use plans is a statutory requirement in the German planning system. This is mostly carried out in a two-stage procedure, with the draft plans made accessible for scrutiny by the public for a period of four weeks. During that time, the public has the possibility to express misgivings and suggestions, which are then decided on subsequently.

In addition to the formal participation possibilities provided by law, informal participation procedures are currently being considered and discussed in NRW. Participation possibilities for the civil population are *“something that is pronounced here to a relatively high degree above and beyond all the changes in government in NRW over the past number of years”* (EI04: 13). An early example of this is provided by the Ruhr area conferences (Ruhrgebietskonferenz), which at that time represented a new instrument for regionalised structural policy. Representatives from the fields of politics, science, associations, also including church representatives, had the opportunity to discuss problems affecting the Ruhr area and appropriate solution approaches at those conferences. This was designed to guarantee an institutionalised consideration of the different interests in advance (cf. Schlieper 1980: 476).

Aside from the exchange of views with lobby groups, the main emphasis in the present discussion is on improved dialogue structures with the citizens. Probably also because frustration sometimes seems to prevail regarding the often very ritualised exchanges with the lobby groups.

“These are processes where you can already say now what the other person will say in five minutes. It has been ticked off basically and you don’t need anything like that anymore. The citizen can be involved more in order to bypass these ritualised things, which never lead to a sensible result. We would then also benefit from this directly, and so would the citizens, I think” (EI08: 6).

However, considerable disillusionment has set in, not only at the municipal level, with forms of cooperation like public-private partnerships (PPP) where these are initiated within the framework of a privatisation process (cf. EI08: 11). The gains in efficiency frequently propagated beforehand have not materialised in most cases. On the contrary, often it is *“the municipalities [...] that are hoodwinked”* (EI04: 13) and public interest in PPPs has tended partly more to wane.

5. Effectiveness of policy content

The current spatial structure plan for North Rhine-Westphalia (LEP NRW) was published in 1995, though amendments haven't been made since. As the topics dealt with in the LEP are strongly associated with the 'new' challenges in 1995, such as German reunification and the fall of the Iron Curtain, amending is inevitable and has also been at the planning stage for some time. As specific content is not yet publicly known for this reason, the following remarks are still based on the current LEP as well as the statements concerning strategic objectives contained in the coalition agreement between the two parties in power. This coalition agreement sets out five priorities that the current government intends to concentrate on in its work: (1) Making the education system fairer and more efficient; (2) Boosting the economy and, at the same time, ensuring climate and environmental protection; (3) Asserting the principle of "good work": permanent jobs, good working conditions, fair pay and effective co-determination; (4) Capacity to act on the part of the municipalities and (5) Strengthening the social cohesion of society (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 1f).

In all the official documents, more or less specific objectives are focused on, the content of which can partly be assigned to several challenges. A clear assignment is not possible at all in some cases, especially in the areas of globalisation, climate change and energy supply, on account of the transitions of the plans and objectives being in flux between the different specialist departments and several ministries sometimes contributing to one cross-sectoral strategy.

5.1 Demographic change

5.1.1 Objectives

In relation to the challenge of demographic change, a number of goals and intentions are put forward and explained in the documents examined, though they are worded in quite vague terms. The coalition agreement, for example, refers to the *"use and shaping of opportunities and potential of demographic development in the cities and rural areas"* (NRWSPD & Bündnis 90/Die Grünen 2010: 49). In connection with the falling number of young people and the lack of skilled labour, it is pointed out that NRW is dependent on fully exhausting all types of educational potential and developing this in an optimum manner. A more active integration policy is therefore indispensable in this regard (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 59). In this way, professional and social advancement is to be made possible for all children and young people regardless of their origin, native language and religious affiliation (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 60). In addition, the state government intends to stand up for spending 10% of GDP on education and research in Germany by 2015 (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 5).

The area protection objective has already been set out and pursued under the old and the current LEP and will also be one of the central topics of the new LEP (cf. EI02: 2; EI05: 2). Specific objectives on the issue of land consumption can be found in the coalition agreement. Support is to be given, for example, to the national sustainability strategy, the aim of which is to lower land consumption nationally to 30 hectares per day by the year 2020. In this sense, NRW undertakes to at least reduce land consumption to five hectares per day, with the aim of achieving net-zero land consumption over the longer term (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 40).

5.1.2 Implementation of the goals set

To achieve these goals, measures are being formulated, the degree of definition of which differs very considerably in parts. Taking account of the shrinking processes occurring as a result of the demographic change, local supply and housing functions are to be strengthened in NRW (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 49), legal and political participation possibilities improved within the framework of a more active integration policy and priorities set in the area of school and education policy (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 59). To counter the emerging shortage of skilled personnel, an overall cross-departmental concept is to be drawn up, among other things, to professionally integrate young people with special needs and provide them with support until they complete their vocational training (cf. Landesregierung NRW 2010: 11). The growing proportion of older people going hand in hand with the demographic development is also being examined, with the result that adequate housing and care forms are to be supported in North Rhine-Westphalia (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 67). Just like many other objectives set out in the documents in relation to the impact of demographic change, the examples listed remain at the level of general intentions, with the consensus likely to be uncontroversial on account of their high degree of abstraction. In other cases, some of the measures are, however, becoming very specific, as shown by the planned 'anonymised application pilot project'²⁰ (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 59). Also mentioned in the sphere of integration policy are the expansion and further development of the Regional Office for the Support of Children and Young People from Immigrant Families (RAA), which is to be made available in every independent city and in every county of NRW in the future (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 59f).

Measures are also itemised for the objective of area and open space protection. At first this goal is implemented by an economically and needs-based handling of settlement areas in the regional spatial structure plans. This is the only formal and legally binding measure to reduce land consumption. According to this only if the settlement areas existing in the regional spatial structure plans are not sufficient for the foreseeable development of the population and the economy, it is allowed to make use of open space. But this should be reduced to a minimum (cf. Staatskanzlei des Landes NRW 2011). Furthermore, there are a number of initiatives that have emerged in cooperation with the Ministry of the Environment to reduce land consumption in NRW. These include, for example, the "Area Alliance" ("Allianz für die Fläche") initiative introduced in NRW in 2006 by the Ministry of the Environment. With this initiative, the state of NRW is attempting *"to meet the objectives pursued by the Federal Government with regard to the use of land for residential housing and transport purposes to an economically and ecologically justifiable extent. The problem of land consumption needs to be tackled with the help of a joint, interdisciplinary approach by political, social, economic and private forces"* (cf. Welter 2010: 1). Further measures include, for example, the recycling of brownfield sites as well as internal compaction to contribute towards area protection at the municipal level (cf. MUNLV 2009a: 216). Area and open space protection in urbanised areas is also associated with the issue of climate change. The coalition agreement sets out the 'Green City' programme in this respect, the aim of which is to promote the emergence and protection of more green belts, natural bodies of water, urban trees, gardens and parks in cities (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 39). This will probably also be a subject of the new LEP (cf. EI02: 10). A so-called land certification system is also being discussed for space-saving municipalities. Incentives are to be given in this way within the framework of the municipal revenue equalisation procedure to

²⁰ | The background to this project is provided by scientific studies which have shown that, in addition to women with children and older applicants, those applicants with Turkish names are particularly discriminated when looking for employment. So the name and age are to be blackened out in applications so that only the qualification decides whether the applicant is invited for an interview. The North Rhine-Westphalian state government intends to implement the pilot project in a state authority (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 59).

encourage municipalities to save space (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 40).

5.2 Globalisation

5.2.1 Objectives

The 'environmental economic strategy' is focused on in the coalition agreement as well as the NRW 2009 Environmental Report by the Ministry of the Environment and Nature Conservation, Agriculture and Consumer Protection of the Federal State of North Rhine-Westphalia. The aim is to combine ecological responsibility and economic reason in this manner, with the objective of making NRW the "*forerunner of the ecological-industrial revolution*" (NRWSPD & Bündnis 90/Die Grünen 2010: 37). As global trends like population growth, food and water shortages and climate change will force a new form of cooperation between economy and ecology in the future, according to the MWME, environmental technologies are becoming an attractive market (cf. Bloching, Spontheuer, Böhm 2010: 21), including the areas of power engineering, mobility/electro-mobility, water management, recycling management, nutrition and health (cf. Bloching, Spontheuer, Böhm 2010: 28ff). The opportunities presenting themselves on these markets are to be exploited in this way, maintaining and expanding the position held so far by NRW in the competition between the high-technology states. Specific targets are being set in the field of electro-mobility. The plan is for at least 250,000 vehicles to be on the roads with an electric drive train in NRW by 2020 (cf. MWEBWV 2011: 22). In addition to establishing the economy of North Rhine-Westphalia within the environmental technology market, responsible climate policy and the associated consistent expansion of regenerative energies form a particular part of the environmental economic strategy and are intended to contribute towards NRW becoming the most important energy innovation location in Europe (cf. Thoben 2010: 13).

Transport policy also plays an important role in the context of economic development on account of the significance of NRW as a transit region. Buses and railways in NRW are to be systematically adapted for a relevant rise in passenger numbers, with the efficiency of the rail network generally enhanced in this regard and local and long-distance transport strengthened in an effective way with targeted investments. Minimum equipment and fittings in the amount of € 240 million are to be secured for local public transport financing, for example (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 51). A further objective is, for instance, to move goods consignments to rail transport in view of the growth forecasts for goods traffic.

5.2.2 Implementation of the objectives set

Cluster strategy

A number of indirect and direct measures are formulated in the documents examined as part of the environmental economic strategy. For example, NRW supports existing potential in the area of environmental technologies and in the context of economic and ecological sustainability by concentrating on lead markets in which the North Rhine-Westphalian industry has particular strengths or which promote environmentally acceptable trading (cf. MWEBWV 2011: 18). In order to provide companies from NRW with the optimum assistance in securing and conquering future markets, attempts are being made to provide the necessary infrastructure, develop targeted support mechanisms as well as establishing platforms for networking and cooperation within the

framework of clusters. Cooperation and technology transfer between companies, research institutes and the public sector is supported with the help of cluster management in this way. Cluster management offers information and advice on corporate financing in this regard as well as support via European, national and regional programmes for individual sectors as well as industry-wide (cf. MWEBWV 2011: 25). An 'environmentaltechnology.NRW' cluster exists, for instance, the aims of which are to broaden innovative capabilities in NRW as well as to strengthen the market position of environmental engineering and technology from NRW (cf. Bloching, Spontheuer, Böhm 2010: 56). Other facilities and projects in the area of sustainable development include the ECOPROFIT project, the resource efficiency programme, the electro-mobility master plan as well as the NRW Efficiency Agency.

Infrastructure expansion

In order to establish NRW as a world-class industry and energy location for cutting-edge and future technologies, the availability and further development of excellent infrastructure as a location factor also needs to be improved (cf. Bloching, Spontheuer, Böhm 2010: 26). What is meant in this regard are, among other things, transport routes, energy supply, as well as information and communication technologies. Assistance is given in this regard by the company NRW.International GmbH, for example, with the costs shared one third each by the chambers of industry and commerce, chambers of crafts and the NRW.Bank. This enterprise promotes foreign trade by assisting and advising small and medium-sized enterprises, in particular, in the development of new markets abroad (cf. MWEBWV 2011: 62). NRW.Invest GmbH is a 100% state institution responsible for marketing North Rhine-Westphalia as a business investment location, concentrating on attracting new investors and companies. It is assisted by several offices in other countries in this endeavour (cf. MWEBWV 2011: 62).

The competitiveness and international networking of NRW is also linked to the federal state's transport infrastructure. In order to resolve the renovation backlog and bottlenecks in the rail network, a concept for the future is to be developed for the rail transport sector (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 50). The plan is to move goods transport to the railways so as to ease the burden on the highways and local residents. An increase in toll rates for trucks is being discussed in this context, for example (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 52). To protect residents living close to the highways and goods transport corridors against noise and air pollution, the use of innovative noise protection technology has been announced for a number of routes, with the state government intending to take the initiative with regard to contractual commitment as well as funding. The funding in the budget provided for state roads is also to be gradually reallocated in clear favour of road maintenance from 2011 on account of the inadequate maintenance and repair measures undertaken so far (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 51ff).

Securing skilled personnel

As the shortage of skilled personnel has already become an obstacle to further economic development for a number of regions in NRW, with the problem being further exacerbated by demographic development, measures are also planned in this area. A special programme for securing skilled personnel in small and medium-sized enterprises is being considered as a joint initiative of the entire state government, for example, employing existing instruments from individual departments combined with new measures. The aim here is, among other things, to assist companies in securing skilled personnel or run programmes for improving the compatibility of family and working life, the integration of migrants or guiding the transition from school to the workplace or from school to higher education (cf. MWEBWV 2010: 34f). Municipalities, regions, companies and trade associations are to be involved in implementing the measures, with the Ministry of Labour, Integration and Social Affairs (MAIS) in overall charge of drawing up the programme.

5.3 Climate change

5.3.1 Objectives

In addition to focusing on climate change within the environmental economic strategy, further objectives are being set for the future climate policy of the state of NRW which can be divided into the two pillars of 'protection' and 'adaptation'. The close link in content between the issues of climate change and energy supply becomes clear in this regard, given that the latter will play a decisive role in the protection of the climate in the context of the consistent expansion of renewable energies sought in addition to the parallel endeavours to enhance efficiency and modernise existing power plants (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 32f). The CO₂ emissions of North Rhine-Westphalia are to be reduced by at least 25% of 1990 levels by 2020 to support the attaining of national climate protection targets (-40% by 2020 and -80% by 2050) (cf. MKULNV NRW 2011). A state-wide biotope connection system is to be installed on at least 15% of the land area of the state to counter the progressive extinction of species, which is also partly associated with climate changes in NRW (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 28).

5.3.2 Implementation of the objectives set

A number of measures is being formulated in the area of climate policy and the expansion of regenerative energies which build, in part, on the first policy paper entitled 'Climate change in NRW – adopting an adaptation strategy' from 2007. An extensive package of actions and measures is to be initiated for the protection of the climate, with the aim of meeting the German climate protection targets by 2020. A central element of the future climate policy for the state of NRW is the climate protection law, under which mandatory climate protection targets are to be specified for NRW. The state government of NRW is driving forth the first German climate protection law. After the hearing of the associations at the end of June 2011 the climate protection law has been approved by the cabinet and in October 2011 by the state government (cf. MKULNV NRW 2011a; MKULNV NRW 2012) but it is still in parliamentary procedure (cf. MKULNV NRW 2012). One part of the climate protection law is the climate protection plan which will be developed by the state government with participation of social groups and adopted by the state parliament. Its installation is planned in 2012 and shall be updated every five years to better react on future climate developments (cf. MKULNV NRW 2011a). The climate protection plan shall set out the specific measures needed to protect the climate in addition to establishing interim targets (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 28). It will contain the climate protection goals of NRW and the necessary measures to achieve them. The climate protection goals as well as the implementation of the climate protection plan measures are based on a scientific monitoring instrument. Its results will be the foundation for future updates of the climate protection plan.

Furthermore, the climate protection law contains the implementation of a climate protection council consisting of five outstanding personalities of different sectors of society. This council shall ensure the fulfilment of the climate protection objectives as well as give advice to the state government on the development and advancement of the climate protection plan (cf. MKULNV NRW 2011a). The climate protection will also have effects on the spatial planning in NRW. The climate protection objectives shall be concretised through goals and principles of spatial planning in the LEP as well as on all planning levels in NRW. As a consequence the climate protection objectives are binding for regional planning as well as urban land-use planning (cf. MKULNV NRW 2011b: 5).

The effects of climate change are to be confronted by way of a consistent, cross-departmental climate impact strategy in which, for example, participation and environmental information rights are strengthened, an environmental information law is

initiated and the Environmental Impact Assessment Act²¹ (UVPG) and landscape conservation law are amended (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 36). Active environmental reporting will also be promoted. The second pillar of the North-Rhine-Westphalian climate policy – adaptation to the consequences of climate change – also comprises, among other things, small-scale climate projections, the drawing-up of adaptation measures, as well as the determination of sector-specific vulnerabilities in the regions (cf. MUNLV 2009b: 16ff).

5.4 Energy supply

5.4.1 Objectives

The aim is to make North Rhine-Westphalia one of the pioneering regions for the use of renewable energies and sustainable energy supply, with the share of wind energy, currently amounting to 3% of the electricity supply, being increased to at least 15% by 2020 (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 29). In order to assist the expansion of wind energy from the planning perspective, the regional planning authorities are also called on to specify priority areas for the use of wind energy in the regional spatial structure plans. These priority areas are to cover a total of 2% of the state's land area. In addition, national expansion of cogeneration is to be supported by way of a state quota in NRW. By 2020, it is hoped that 25% of electricity in NRW will be produced via cogeneration (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 29f). Reduction of electricity consumption is being sought in order to assist the measures referred to. The aim is for electricity consumption to be reduced nationally by 11% by the year 2020, with NRW striving for a 20% cut over the same period (cf. MWEBWV 2010: 51).

5.4.2 Implementation of the objectives set

The objectives set out in the area of energy supply, which concentrate mostly on the expansion of regenerative energies and saving potentials in the consumption of electricity, are to be accompanied by a number of packages of measures which, however, vary in their degree of detail, including a specific proposal, for example, to replace electrical night storage heaters in connection with the targeted lowering of electricity consumption (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 30). In contrast, the need to support research and excellence institutes in the area of renewable energies is emphasised, for instance, though without any more specific details being given. All in all, the expansion of renewable energies through, among others, Energie-Agentur.NRW, whose areas of competence cover research support, technical development, demonstration and introduction of products onto the market, as well as energy consultancy and further vocational training, is to be promoted in a consistent manner (cf. Bloching, Spontheuer, Böhm 2010: 38f). Restrictive provisions concerning height limitations and fixed distances are to be deleted in the wind energy segment, for instance. In order to achieve one of the climate protection goals of NRW to increase the share of wind energy, a wind energy decree was published in 2011. Its main tasks are to render assistance for case-by-case reviews and to clarify the possibilities of spatial planning on different administrative levels to enable the expansion of wind energy use. One example could be to specify priority areas for the use of wind energy in regional

²¹ | Under § 2 II of UVPG, an environmental impact assessment (UVP) must “be conducted for the erection and operation of a technical installation or the construction of other plant as well as for the implementation of measures that encroach on nature or the landscape” (Langhagen-Rohrbach 2010: 62). Depending on the size of the installation, it shall be examined in a prior screening procedure whether an environmental impact assessment is needed. In the context of the environmental impact assessment, it shall be examined what impact the planned measure has on the environment.

spatial structure plans or to privilege wind energy plants on the outskirts. The wind energy decree is mandatory for all subordinated authorities. For the municipalities it functions as recommendation and advice due to the local planning autonomy (cf. MKULNV NRW 2011c). Furthermore, the state government intends to commit to improving the support and framework conditions for the expansion of cogeneration, e.g. by removing existing investment obstacles, etc. The drafting of a concept for an energy efficiency fund in cooperation with the municipalities is planned in order to facilitate investments in energy saving and energy efficiency projects in the industrial and commercial sectors of NRW. Low-income households are also to be given the possibility to purchase energy-saving appliances with new financing models (cf. NRWSPD & Bündnis 90/Die Grünen 2010: 30f).

5.5 Coherence of the content of objectives and measures

The objectives and measures for dealing with the four challenges can be described as very coherent. This is due, on the one hand, to the often very high degree of abstraction of the measures referred to, so the coherence of the objectives of various ministries is not surprising.²² On the other hand, however, this results from the cross-departmental handling of the challenges, with ecological lead markets to be developed within the cross-departmental environmental economic strategy, for example. Economic interests and ecology and, thus, the challenges of globalisation, climate change and energy supply are consequently linked very closely and the interests of different departments are harmonized in this way. The state government and different departments, such as the Ministries of the Environment and Economic Affairs, are involved in the development of this strategy, which means that it has a cross-sectoral nature. This also becomes clear through the placing of the issues in the coalition agreement, which are summarised therein in the form of 'Section IV - Economy, Climate Protection, Energy'. Meeting the German climate protection targets is thus very closely related to a close correlation with expanding the use of regenerative, climate-friendly energy sources, already made clear by the energy and climate protection strategy published in April 2008 (MUNLV 2009a: 111). The ongoing adaptation of the objectives set becomes particularly clear in the area of energy supply by comparing the old LEP with newer documents. Specific time targets to guarantee implementation of the associated measures are not set to any extensive degree. This is, as made clear by the following comments, also deliberately avoided in some cases:

"Only the formulated intentions are included in it [referring to the coalition agreement; author's note.], nor does it say that we will do this in 2015 and we plan to do that in 2016. The entire political process is so complicated and complex that there is no way of doing this. It would mean promising things that cannot be delivered because they are dependent on so many other factors" (E108: 5).

Although very precise time targets are stipulated in relation to climate policy, in particular, the degree of detailed specification of the individual measures is rather low in this regard. Financial budgets for the implementation of the targets referred to are not indicated in any of the cases.

Adaptation of the objectives is mostly carried out by way of extensive scientific studies as well as statistical data. In the area of demographic change, for example, numerous statistics and studies provide an insight into past and present population development and structure, while extensive projections give a view of future development. Details of demographic change and its differing degrees in the individual regions of NRW are known on the basis of the data material available, with reports in this regard also supported in

²² | This particularly applies to the challenge of demographic change.

the documentation by extensive data material. This includes the official statistics with population data from the past and present, projections by the statistical division of the state office for information and technology NRW (IT.NRW) as well as statistics from the Federal Statistical Office of Germany (DESTATIS) and the EU Statistics Office (EUROSTAT). The thematic focus of the documents is exclusively on the federal state of North Rhine-Westphalia in this regard, i.e. demographic development in neighbouring regions is not addressed. Furthermore, regional dynamics are only rarely observed in a European context. In the area of climate change, adaptation of the objectives to regional conditions ensues mainly by way of extensive scientific studies, projections and models. Regular updating of the objectives is easily possible, especially with the help of the monitoring systems extensively available on the subject of climate change. The numerous scientific studies are normally carried out in cooperation with university departments and scientific institutes. They produce a broad database on the topic of climate change, elucidate the intensive debate on the issue in NRW and also guarantee the coherence of the content with the objectives formulated.

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Appendix

1. Questionnaire

The impact of demographic changes on the regional level in North Rhine-Westphalia

The ESPON project 'Territorial Performance Monitoring' (TPM) examines the spatial impact of the global challenges globalisation, demographic change, climate change as well as energy supply on the regional level. The aim of the project is to develop a monitoring tool that indicates how regions perform in relation to macro-challenges and that enables comparison between similar types of regions. The ESPON project is a joint project involving six scientific institutes (Institut de Gestion de l'Environnement et d'Aménagement du Territoire/Université Libre de Bruxelles/Belgium, Institut d'Estudis Territorial/Spain, Navarra de Suelo Residencial, Spain, National Institute for Regional and Spatial Analysis/University Maynooth/Ireland, Architectuur, Stedenbouw en Ruimtelijke Ordening/KU Leuven/Belgium and Research Institute for Regional and Urban Development gGmbH/Germany) as well as five regional stakeholders. Within the project, five European regions will be investigated: Catalonia, the Dublin metropolitan area, Flanders, Navarra and North Rhine-Westphalia.

This questionnaire focuses on the impact of demographic changes on the regional level. We would like to capture information about how actors from the regional planning authorities assess demographic changes and their consequences as well as which strategies they use to react to these consequences. Furthermore we would like to know how regional actors evaluate their possibilities to deal with these challenges. We are interested in your personal view.

We would like to ask you to support this survey. It exclusively pursues scientific purposes. It will take about 15 minutes to fill in the questionnaire.

This survey is anonymous. The questionnaire does not contain any references that could be traced back to individual persons.

We kindly ask you to fill in and return the questionnaire as soon as possible, at the latest by 21th December 2011.

Questions

For any content or technical related questions, please contact:

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Data privacy statement

The ILS – Research Institute for Regional and Urban Development gGmbH is a spatial research institute. It has the legal status of a non-profit corporation with limited liability whose sole shareholder is the state Nordrhein-Westfalen. The ILS´s work strictly follows the data-protection regulations (for further information please see: <http://www.ils-forschung.de>).

The data will be analyzed anonymously. The ILS does not use any address data. There will be no connection between the respondents and the data. The completed questionnaires will be stored in the ILS. The questionnaires as well as the data will be destroyed or deleted at the end of the retention period and will not be passed on to third parties.

The participation in this survey is voluntary.

(1) Awareness of demographic changes

In the first section we would like to capture information about the awareness of demographic changes within the regional planning authorities:

1.1 Please assess the significance of the topic demographic change within regional planning policies in your planning area.

very high significance					very low significance
1	2	3	4	5	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.2 In your opinion, are demographic changes and their impact sufficiently addressed by the regional planning authority in your planning area?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

If not, why not?

(2) Impact of demographic changes

The following part deals with the effects of demographic changes on the regional level:

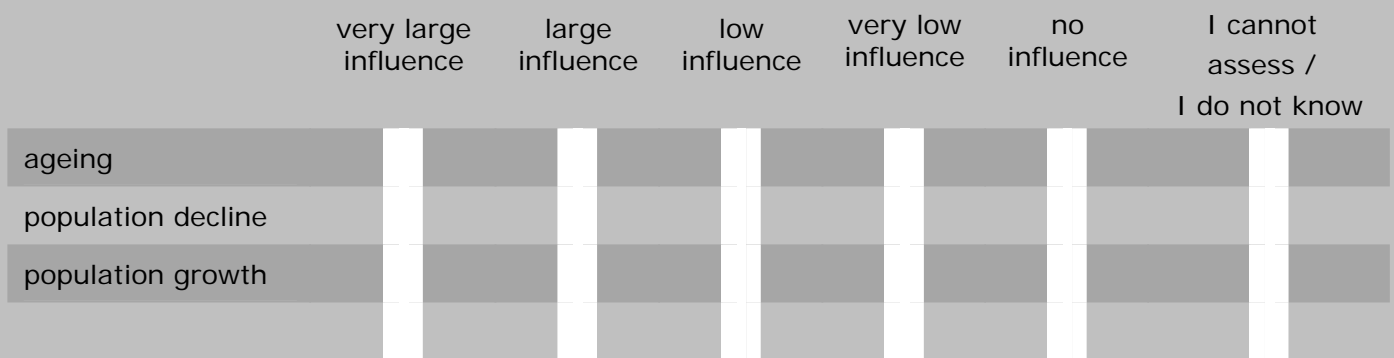
2.1 Think about the sub processes of demographic changes (ageing, population decline and internationalisation): Please identify three key challenges in your planning area, which result from the sub processes (greatest challenge at first).

(1)

(2)

(3)

2.2 What is the influence of the demographic sub processes listed below on the future spatial development in your planning area? Please state your opinion.



2.3 In your opinion, what effects will demographic changes have on the areas listed below in your planning area? Please state your opinion and give more examples.

This area is ... by demographic changes.

	strongly affected	affected	less affected	not affected	I cannot assess / I do not know
settlement development					
technical infrastructure					
public administration					
road construction					
public transport					
local supply					
health care					
geriatric care					
labour market					
education					
culture					
immigration and integration					
sports and leisure					
other:					

2.4 The table below lists potential consequences of demographic changes. Please note how important these developments are in your planning area and give more examples, if possible.

	very great importance	great importance	partly	little importance	very little importance	I cannot assess / I do not know
falling tax revenues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
growing problems regarding capacity and resilience of civil services and infrastructure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
growing problems regarding social and cultural institutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
decreasing land use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
deterioration of public transport	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
increasing relief of the road transport	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
increasing number of households	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
increasing demand of age-based infrastructure in the area of health and care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
decreasing quality of medical treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
increasing socio-spatial polarisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.5 Apart from the above mentioned effects: What effects do you expect as a consequence of demographic changes in your planning area?

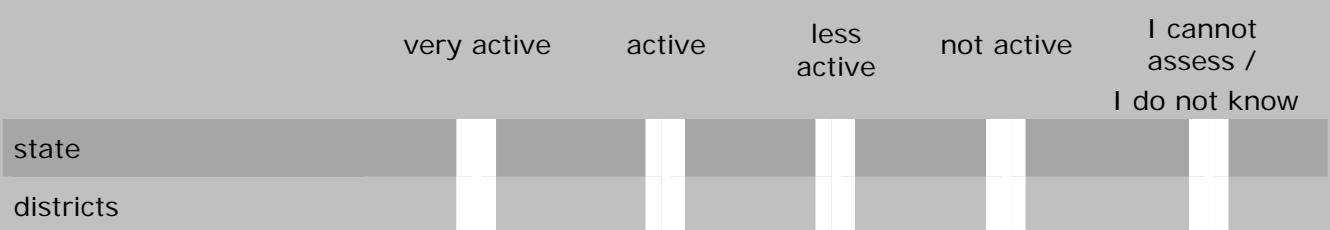
2.6 Do you think there are chances (positive impact like decreasing land use) due to demographic changes in your planning area?

Yes

No

If yes, please give an example.

The following part focuses on how regional planning authorities deal with the impact of demographic changes:



counties

municipalities

3.1 In your opinion, do the following actors play an active part in dealing with the effects of demographic changes?

very active

active

less active

not active

I cannot assess /

I do not know

state spatial planning

regional planning

local planning

sectoral planning

3.2 The regional planning authority acts more as a (in dealing with demographic changes):

(1) initiator

(2) coordinator

(3) moderator

(4) participant

(5) observer

(6) other

3.3 In your opinion, should the role of regional planning in dealing with demographic changes alter? If possible, please give reasons for your answer.

3.4 Does the regional planning authority have strategies to react to demographic changes in your planning area? Please give examples.

- (1) A strategy already exists.
- (2) A strategy is already in the planning stage.
- (3) A strategy does not exist at the moment.

3.5 How important is the active involvement of other actors like citizens, companies etc. in the development of strategies and concepts for dealing with demographic changes?

very high importance					very low importance
1	2	3	4	5	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.6 Do you think that the current level of involvement of citizens, social organizations, companies etc. in the development of strategies and concepts for dealing with demographic changes is sufficient?

	sufficient	not sufficient	I cannot assess / I do not know
citizens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
non-government organisations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
associations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If not, why not?

(4) Capacities and limits of the influence on demographic changes

The last part of the questionnaire deals with the opportunities of the regional planning authority to deal with demographic changes:

4.1 How do you assess the opportunities of the regional planning authority to deal with demographic changes?

very good					very bad
1	2	3	4	5	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Please substantiate your choice:

4.2 What influence do the aspects listed below have on the opportunities of the regional planning authority to deal with demographic changes? Please give more examples, if possible.

	high influence	influence	low influence	no influence	I cannot assess / I do not know
financial resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
personnel resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
formal instruments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
informal instruments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.3 Please state the reasons for potential restrictions of the regional planning authority to deal with demographic changes.

4.4 Do you think that the regional planning authority exhausts all its options to react to the effects of demographic changes?

Yes

No

If not, why not?

**You have now reached the end of the questionnaire.
Please push the button 'send'. The questionnaire will be forwarded
automatically.**

Send

**If this does not work:
Please save the questionnaire and send it as an attachment to the
following e-mail address:**

isabel.ramos-lobato@ils-forschung.de

Thank you very much for your participation.

www.espon.eu

The ESPON 2013 Programme is part-financed by the European Regional Development Fund, the EU Member States and the Partner States Iceland, Liechtenstein, Norway and Switzerland. It shall support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory.